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EnMASS LAUNCHES 8 TO 700-USER FLEXIBLE COBOL MACHINE

EnMass Computer Corporation in Acton, Massachusettes, has spent the past year tearing System V apart and rebuilding it as a commercial transaction processor optimised to run Cobol on a multiprocessor machine.

They have made Unix love everything it hated before: a single, tightly controlled, centralised file system, an ISAM file structure, automatic backout and recovery, logs of every move made, audit trails...anything an IBM mainframe can do.

The EnMass Computer System is built of loosely-coupled Motorola 68000 family processors, each running their own copy of the modified System V, handling either the files and transaction processing, or disk and terminal i/o, housekeeping and controlling the Z80s that drive the terminals.

EnMass claim that a twin-68000, 8-user system can grow gracefully by plugging in boards, adding cabinets, disks and terminals, to a massive 28-68000, 700-user system, keeping a constant response time without having expensive mips lying idle and unused.

The company has integrated a standard Cobol ISAM file system to the Unix heirerarchical file system in the directory: all the Unix facilities are still there and standard C programs will still run - but they can now be run against a transaction file , with the system maintaining data integrity for each transaction.

If a failure occurs during an update, the system backs out, flags the failure, recovers and continues.

The reliabilty has its price: the monitoring and logging of each transaction, together with creating and managing the audit trails takes three times the power and disk capacity as the simple transaction.

As commercial work involves a lot of on-screen character editing, the EnMass System uses Z80s to drive the screens rather than waste the 32-bit power of the 68000s.

The 68000s that look after the terminals automatically program the Z80s, under the direction of the Cobol compiler, to perform simple Cobol commands such as ACCEPT or DISPLAY.

To improve the performance of the Cobol compiler (modified to support the multiple processors), EnMass have developed a relational database on top of the ISAM file structure.

EnMass swear that the unlikely-sounding beast has worked well out on beta test, and they will supply an eight-user entry system with two 68000s, two Z80s, 84 megabyte disk,tape streamer and Unix (?) for less than $50,000.

The price for a 700-user system is negotiable. Development has taken two years and $11 million by a team from Data General. An ex-DEC manager heads manufacturing and the sales force comes mainly from Prime.

PICK SYSTEMS SUES VMARK OVER ITS UNIVERSE PICK-UNDER-UNIX

After terminating negotiations begun in November, Pick Systems Corp has made good its threat to take proceedings against VMark Computer Inc, the Natick, Massachusetts company planning to offer its Universe Pick-under-Unix on AT&T 3B, Pyramid and Convergent machines. Pick is suing VMark, alleging unfair competition and copyright and trade secret infringement, and seeking $5m in punitive damages, and $50,000 damages for each copy which infringes its rights. The roots of the suit go back to 1980, when, Pick alleges, a tape of the source code of the Pick operating system was illegally copied, and the material was later used to create the Upix version of Pick-under-Unix from Alfa Computer Enterprises, a business subsequently absorbed by VMark. Pick says that it may seek an injunction against VMark.

MOTOROLA,MOSTEK SETTLE LAWSUIT OUT OF COURT

Motorola has settled its aggressive law suit against Mostek and its former parent United Technologies out of court on undisclosed terms leaving Mostek free to continue to offer second-sourced 68000 parts. Motorola cancelled Mostek Corp's second source agreement, during December, on the 68000 family and was suing what was left of the company after sale of most of the assets to Thomson-CSF of France alleging patent infringement and fraud. Mostek's parent, at the time, United Technologies was also included in the suit, which seeks $20m actual and unspecified punitive damages. The patent charge related to Mostek handing on Motorola's designs for the 68000 to the US government in an effort to get MilSpec approval for the Mostek version of the part, and also to information passed to Thomson - although the French company is also a 68000 second-source. The dispute had been simmering since 1982, and was to have been settled by royalty payments on the patents before United Technologies sold most of Mostek. The liabilities were excluded from the assets sold to Thomson and left with the shell of Mostek - and Motorola's suit alleged that that action was fraudulent. Mostek also failed to return the information passed to it under the second-source agreement, and the suit, filed in Dallas, seeks a permanent injunction on Mostek not to make any use of Motorola information, and demanded that its assets, including the $71m paid by Thomson, be placed in trust pending outcome of the suit. Separately Samsung Semiconductor of Seoul, South Korea is suing Mostek for return of $4m paid in May as a first instalment for design of a 256K memory chip Samsung was to have made for IBM. Design was completed in July and a final agreement was set for signing - but Mostek, says Samsung, failed to show. The suit alleges that in August Mostek said it was for sale and refused to refund the $4m.

HIGH LEVEL HARDWARE ADDS WEITEK ACCELERATOR TO ORION

High Level Hardware Ltd of Oxford has added the superfast Weitek 64-bit floating point accelerator to its Orion superminicomputer, boosting its performance by a factor of more than 20.

The two-chip Weitek 64-bit floating point co-processor chip set was launched here last March by the US firm and High Level Hardware has reworked the microcode so that it forms an integral part of the Orion 32-bit bit-slice cpu when installed.

The accelerator uses the WTL 1164 multiplier and the 1165 arithmetic logic unit, each containing about 400,000 transistors.

The unit can be configured into an existing system by loading new floating point microcode - the instruction codes do not need to be changed and existing programs need not be recompiled. Four of the £4649 accelerators have already been sold, and one installed. The accelerator is compatible with the IEEE754 Standard for binary floating point arithmetic. The accelerator itself costs £4649 without an educational discount. About 75 Orion machines have been sold over the last two years, with a typical configuration costing about £28,000 including 2Mb CPU, 168Mb disk, cartridge tape, floating point unit and Berkeley 4.2 Unix.

High Level Hardware say they will be sticking with 4.2 for the next 18 months as it is popular both internally and with the customers but System V may have added attractions by then.

UNIT-C HAS GREEN HILLS C COMPILER

Systems integrator Unit-C in Worthing are now offering the Green Hills C compiler for the 32-bit Motorola 68020 and the Microvax II. Written in Pascal and compatible with the Portable C Compiler - standard on most Unix machines, it completes the range of high performance C compilers for the 68000 family developed by Green Hills Software in Glendale, outside Los Angeles.

Unit-C has had the 68000 set of compilers since April of last year and has sold ten of them but the 68020 has only been available recently and potential customers are only at the interest stage. The 68020 compiler operates with a range of hosts including VAX/VMS, VAX/UNIX, Sun and Apollo. Unit-C claim that the C compilers have benchmarked out better than most others and that they have complete IEEE floating point support, one pass design with integrated preprocessor. Green Hills Software is a small five man operation that has been in action for about 18 months. All five came from Natsemi and were apparently working on compilers for the NS32000 family before deciding to make money for themselves. Green Hills brought out two other compilers Pascal and Fortran 77 both again written in Pascal.

The 68020 version of the C compiler available from Unit-C is available with an assembler costing for an Apollo/Sun 68020 configuration £1550 for the compiler and £1150 for the assembler - a Microvax cofiguration costs £2300 and £1920 respectively.

DIGITAL COMPUTER LTD OF JAPAN SETS UP SOFTWARE DEVELOPMENT CENTRE IN IRELAND

Ireland's Industrial Development Authority scored a singular coup in persuading those four UK companies to set up software development centres in Dublin - but it is on the brink of an even bigger coup which could represent the start of a Japanese colony on the banks of the Liffey. Digital Computer Ltd of Tokyo has signed a formal letter of intent with the IDA to establish a communications software development centre in Dublin. Legal agreement is due to be cleared within the next two weeks and operations are due to begin around May of next year. Investment in fixed assets stands at £Ir1m, including a grant from the IDA. This is the second Japanese company to set up operations in Ireland this year, the other being Management Information Services International. MISI will be developing application software for Japanese companies in Europe, similar to its US operation where customers include Honda and Sumitomo Bank. Japan has not traditionally invested in Europe, but the IDA sees this trend changing with Japanese companies waking up to the fact that if they don't make it in software, they won't make it in hardware. Japan has never succeeded in developing an internationally acceptable operating system, but this said, 80% of its application software is home-made. Digital Computer is looking for a way into the European market, initially through OEM contracts with European manufacturers. It already has a sales unit established in San Mateo, California, and has just concluded an exclusive OEM deal with US minisupercomputer maker Convex to sell its machines in Japan. Digital Computer will take the Convex CPU and basic system and customise it for the Japanese market. For example, the Convex machines run under Unix System V operating system but Digital Computer will be offering it under Berkeley Unix 4.2. Digital Computer's new communications software centre in Dublin plans to develop software to link peripherals and processors on its own 68000-based CAD workstations which run Unix Berkeley 4.2 and superminis - primarily DEC VAX computers. A GKS graphics controller is planned and the company is also developing a new terminal specifically for image processing. Design will be carried out in Japan and basic software will then be transferred to Ireland for European customisation. This will be aimed at vertical markets in the CAD field - in particular the architecture, engineering and factory automation markets. After its first two years of operation, the company will introduce a systems integration facility. The first employees are set to be on site by March 1986 and a total of 73 people will be employed over a period of four years. The first 15 are due to be trained at a new development centre in Tokyo over the next one to two years. Digital Computer Ltd is a large OEM supplier of DEC equipment in Japan and had sales up 3% this fiscal year to about $51.5m. The company is owned by the major commercial banks in Japan and is involved in design and manufacture.

COPYRIGHT CASE TESTS SPIRIT OF LAW IN SOFTWARE COPYRIGHT

Unix software house Systems Union is suing Simdell over its accounting software in a case that tests untried ground on software copyright. Systems Union, best known for its Unix-based acccounting systems, could set an important legal precedent which protects ideas as well as code. Simdell is being charged with having copied concepts, not the actual code of Systems Union's SunAccount applications.

The twist in the tale is that Simdell is primarily a Pick software house, to whom SunAccount's Cobol code would be useless, because its applications would have to be written or generated in Pick's Data Basic. The recently amended copyright laws have left little doubt over copied code, but the Systems Union case against Simdell will dispute a less defined area of ideas and concepts.

Here's Systems Union's side of the story.

According to Systems Union director John Patterson, there are some specific and unusual accounting ideas embodied in SunAccount which have been adopted by Simdell.

The main feature is the combination of the usual ledgers into one combined Sales Purchase and Nominal ledger. The strength of this design, says Patterson, is that it is much easier to make a meaningful analysis of the data.

Systems Union wants Simdell to stop offering its alleged version of the combined ledger, even though it might be argued that the Simdell Libra package, sold into the Pick market, could not be a direct competitor. "We're not in the Pick market at present " said Patterson, "but we might be in the future. In effect, it makes no difference to potential users who are not worried about the same market aspects as resellers - they just see common features in two accounting packages. The integrated ledger is a concept we're anxious to spread, so we don't want inferior products making a hash of it."

Systems Union has been at some pains to track the progress of the Libra package since Simdell purchased a demonstration version of the accounting package in summer 1983. Since then marketing director Herman Bruce has had the Libra packge assessed, and now Systems Union is confident enough to proceed to court with legal advice that there is a strong case for the concepts of the software, if not the actual code, to be in breach of copyright. "It's not cosmetic things like menus or screens, though some are similar" said Patterson. "It's much more to do with concepts, analysis and structure- some of the terminology and the field names are called by the same names as in our software."

A similar case, Whelan v. Jaslow is reaching the appeal court in the US. The Federal court judge has already ruled in favour of Whelan, on the grounds that the audio-visual display of a dental laboratories package could be treated separately from the actual written code.

This takes the argument away from source and object code, to the "look and feel" of the software. Digital Research backed down on the same issue in its row with Apple over the use of icons in Gem.

The case could set a significant precedent in the UK, in outlawing rewrite versions of products which are presently legal.

Systems Union is going for £50,000 to £100,000 damages, but its main aim of the case is to get Simdell to drop selling Libra.

Simdell is still digesting the contents of the writ, which according to MD Peter Westwood was delivered at "a ludicrous time, just before Christmas". Journalists knew about the writ before Simdell did, as it was delivered to the NCC in error (an interesting mistake) and arrived late as a result. Westwood is also baffled by the claim in the writ that source code copyright is being violated by Libra Accounts, which is not the main point being argued, and may only cloud the issue since the code is in two different languages, Data Basic and Cobol. Simdell is is considering a counterclaim that it is being libelled. It could be anything up to a year before the case reaches court as Systems Union is still inspecting source code at present.

The SunAccount systems has over 750 user sites worldwide, about 60% of which are in the UK. It is an adjustable parameterised package written in Cobol which sells for around £3,500 on such machines as the NCR Tower, Olivetti 3B2, Zilog System 8000, Altos, and Fortune.

STANDARDS COMMITTEE SPREADS THE WORD

The Unix internationaliation committee has met for the first time and is looking for willing workhorses to spread the workload. The committee is working on Unix standards, this time for the users as well as the suppliers. The /user/group/ UK technical sub-committee, to give it its full name, is affiliated to /usr/group/, but keeps close links with the European Unix User Group.

iSPC HYPERCUBE TO GET CONCURRENT LISP

If 1985 was the year of the scientific minisupercomputer, then 1986 promises to be the year when artificial intelligence starts moving out of the cloisters and into the mainstream - and Intel Corp wants its challenging iPSC Hypercube parallel processor unveiled in February to be right up there. It has signed Gold Hill Computer Inc of Cambridge, Massachusetts to do a concurrent version of Common Lisp, and claims that the result will be the first implementation designed for parallel processing. Intel sees the language as turning the iPSC into a large-scale concurrent symbolic processing system. The iSPC has from 32 to 128 80286 CPUs, each with 512Kb and 80287 maths processor, under the control of an Intel 286/310 microcomputer running under Xenix.

MARTIN MARIETTA TAKES 22% OF ADA SHOP

Martin Marietta Corp has bought half a million shares in Verdix Corp, raising its stake in the McLean, Virginia Ada software specialist to 22% from the 16% it took in March. Martin Marietta has also taken a 10-year warrant for an additional 1m Verdix shares which, if exercised, would take it to around 34%. GEC Software markets the company's front end evaluation kit and the Verdix Ada Development System in the UK. The Development System is written in C to run under Berkeley Unix 4.2 and consists of compiler, runtime facilities, program library utilities and a symbolic debugger. The Verdix Ada compiler has been chosen as the prime Ada vehicle on two of the leading players among the new generation of parallel high-power scientific Unix processors, the Convex C1 and the Flexible Computers Flex/32.

After a long and difficult confinement, Zilog's much-heralded 32-bit brat was dragged kicking and screaming into the cold, cruel world in the closing days of 1985.
With its six-stage pipeline, large separate on-chip caches for data and instructions, its on-chip memory management and its underlying mainframe architecture, the Z80000 on paper should have garnered a wealth of design wins over the rival 68020 and NS32032 parts.
But the Z80000 is so late that even the company's computer subsidiary, Zilog Systems, couldn't wait any longer for it, and turned to AT&T for the WE32100 - at least as a 32-bit stop gap.
And the Exxon subsidiary has conceded the 32-bit Workstation and cpu market to Motorola (who got there first) and Intel (whose 80386 part is upward compatible from all those IBM PCs and lookalikes), **but only for the next two years.**
By that time (according to a market analysis that not everyone might agree with) most of the Intel software will have been rewritten to run under Unix.

Dominate the market
And it will execute so much faster on the Z80000 that the Zilog chip will dominate the market....
Until then it will be aimed at signal processing and graphics applications that can take advantage of the on-chip six-stage pipeline and 256 byte cache.
Zilog has started to take orders for a 10 MHz, NMOS version of the Z80000, saying that low-volume production parts would be available this quarter with volume set for the third quarter from its Nampa, Idaho fabrication plant.
Before the end of the month the company plans to announce a CMOS version for delivery in 1987. This will be offered with both a 10 MHz and 20 MHz clock - the latter claimed to need only a 10 MHz bus because of the efficiency of the memory management, the high hit rate of the instruction cache, and the six stage pipeline.
The initial version of the part is clocked at a conservative 10MHz, although Zilog reckons that the chip is so powerful that throughput should match rival parts clocked at 12MHz to

ZILOG SAMPLES SUPER-SEXY 32-BIT Z80000 AT LAST,
PLANS CMOS PART IN '87;
16-BIT Z800 SET FOR APRIL
14MHz. It is fabricated in 2 micron NMOS, integrating 130,000 transistors in an 84-pin grid assembly costing $365 in single quantities, and is being second-sourced by NEC.
The 256 bytes of on-chip cache are divided into control registers, program counter, instruction buffers, and 16 general-purpose 32-bit registers which can be addressed in different ways to handle different data types efficiently: the first four can used as two 64-bit registers, four 32-bit registers, eight 16-bit registers, or multiple 8-bit registers in any combination.
The next four are slightly less flexible, restricted to 64-, 32-. or 16-bit registers, while the last eight can only be addressed as the full 32-bit words.
It has full 32-bit address and data lines for an address range of 4 gigabytes. The cache can be used for pre-fetching just data or for both operands and data. The six stsages of the synchronous pipeline are instruction fetch, instruction decode, address calculation, operand fetch, execution, and operand store.
There is also an on-chip translation lookaside buffer holding the information needed to translate the 16 most recently used pages ... a very high hit rate is claimed for the least-frequently-used-page algorithm employed, which coupled with a fast two-cycle cache read, keeps the pipeline full and busy.
All this allows the 10 MHz part to race along at a striking 1.5 mips, so what the 20 MHz CMOS version will be capable of....?

IBM 370 influence
The flexible, register-orientated architecture which allows the cache to be treated as multiple stacks, the register-register operations, the multiple data types and addressing modes supported and the instruction set all show the influence of IBM's 360/370 architecture.
The on-chip memory management unit, at its simplest, supports

linear 32-bit addressing for a straight 4 gigabytes of main memory, but compact and segmented memory management are also supported.
The Z80000 instruction set is a supersetof the Z8000 set, and all the 16-bit software will run. Compact addressing uses 16 bits for programs with less than 64 Kb address space,and makes efficient use of the base registers. The 32-bit segmented addressing allows the programmer to use bit 31 of the address to chose either a segmented address with a 15-bit segment number and 16-bit offset, or 7-bit segment number and 24-bit offset, particularly useful for object-orientated programming in languages such as Ada which need large address spaces.
The on-chip memory management divides the local address space into 1 Kb pagesand the physical address space into 1 Kb frames. The Z80000 can be built into tightly or loosly-coupled multiprocessor configurations, and supports co-processors such as the Z8070 mathematic co-processor, and can use the Z8016 direct memory access transfer controller.

What of the Z800?
Next week Zilog hope to announce that samples of the CMOS Z800 will be available in April, with shipping in quantity planned for the second half of the year.
The Z800 offers a compatible 16-bit future for the hundreds of thousands of users of 8-bit micros based on the Z80 - but how many more have given up waiting in the three year's since the specs were first announced?
The first to appear will be the highly integrated versions of the part: the 64-pin 8208 and 8216 - 16-bit internal and 8-and 16-bit external bus versions respectively. They use the Z80 instruction set and have 256 bytes of on-chip cache to speed up operation'ala Z80000. They are rated at 10 MHz initially against 8 MHz for the fastest Z80, the Z80H. They only suport 16-bit direct addressing, but the on-chip memory management unit uses the four high-order bits as an offset to map into a 24-bit, 16 megabyte address space.
They are highly integrated enough to enable system builders to build a computer by adding only main memory and a clock: on-chip support circuitry includes four Direct Memory Access controllers, three counter-timers, one timer, a Universal Asynchronous Receiver-Transmitter, interrrupt controller and 10-bit memory refresh.

UPGRADES PLANNED FOR
ICL DENMARK'S EDUCATIONAL COMET

Some of ICL's continental subsidiaries are
very independent-minded, and ICL Denmark has
its very own National Semiconductor 32016-
based Unix machine for the lively Danish
educational market. It claims to have sold
between 130 and 140 in less than a year, and
with that initial success behind it, the
machine is being introduced into Norway and
Sweden. A series of upgrades are also plan-
ned including a leap upmarket to NatSemi's
new second generation 32-bit 32332 micropro-
cessor. The machine, the Comet 32, is of-
fered 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 decided whether
to go to Berkeley 4.2 or to Unix System V.

DIGITAL RESEARCH TAKES
ITS OWN ROUTE TO 286

Digital Research is launching its own hopeful
alternative to Unix, in the aftermath of its
failed joint 286 development project with
Intel.
The Concurrent DOS 286 is due to be shipped
in the New Year, following its August 85
announcement. There is already a contract
in the pipeline with one unnamed European
hardware manufacturer.
The CDOS 286 gives real-time multitasking and
can address the full 16MB. It runs DR's GEM
graphics environment and real time operations
concurrently with DOS, although there is some
30% degradation with packages like Lotus 123
and Wordstar which address the 8088 hardware
directly. According to Paul Bailey, head of
Digital Research's UK arm in Newbury, the OS
is likely to carve out a niche for itself in
areas where Unix cannot compete, particularly
where there is a need for multi-user, multi-
tasking upgrades from DOS.
"At the moment there's a lot of concern that
there is a fragmented entry level to these
systems, and no clear path forward, though
IBM says there will be a multi-tasking multi-
user DOS" he said.
He hopes to nip in with CDOS 286 while
Microsoft is still working out its options
with MSDOS 4.0 and MSDOS 5.
The CDOS 286 set out to be "something that
looks like a Unix", although it turned out
to be not-so-easy to conduct concurrent
multi-tasking operations with graphics and
the ability to respond to prioritised
real-time events. Undiscouraged, Bailey
predicts an improvement in performance when
the Intel 386 chip becomes freely available.
"A lot of people are hanging back until the
crucial Unix issues of standards, stability
and availability are resolved" he said. He
claims that in the meantime, manufacturers
will be anxious to implement and "grow"
applications via CDOS 286, without getting
locked out of any future developments.
The company is seeking to escape its old CP/M
image and is making an admittedly painful
transition out of its traditional OEM
stamping ground into a new identity.

Bailey says that the balance of incomce will
tip to 50%/50% shared betwen operating
systems and graphics in the next year. At
xxpresent the GEM graphics software accounts
for only 30%, with a dwindling 20% coming
from language compilers. The 8-bit version of
CP/M still generates useful revenue (about
(15% to 20%), and has received a new boost as
the OS chosen for Amstrad's sell-out £400
word processor. The deal will certainly win
more acolytes to CP/M, though rumour has it
that the terms won by Alan Sugar of Amstrad
are unlikely to allow anyone to retire on the
proceeds.

MASSCOMP'S WORKHORSE SYSTEM 500
OUTSELLING TOP-OF-LINE MC 5000

Masscomp has been busy over the last month
signing contracts and agreements, not for its
latest offering - the MC 5000 series (UX No
56) - but the MC 500 range. The Westford,
Massachusetts, 32-bit scientific and
engineering systems manufacturer has notched
up over $10 million worth of orders,
including $3 million from Graftek Inc, a
Burroughs subsidiary, for MC-500.
Graftek, based in Boulder, Colorado, will use
the MC-500s to run its CAD/CAM software as
part of the Comet CAD/CAM design system.
Graftek is a supplier of CAD/CAM technology
for the mechanical design, numerical control
and plastic injection moulding industries.
Although the deal was negotiated in the US it
has lead to close ties between their UK
subsidiaries.
Graftek UK, based in Uxbridge, is using the
machine for staff training and evaluation
while Masscomp UK Ltd of Reading plans to
become involved with sales and training
support.
Masscomp hopes to gain by association with
the household name and it gains an entry to
new markets via Graftek. Also the order may
be increased to $18 million. Masscomp has
also signed a renewable, one year agreement
valued at about $2.5m with Gerber Systems
Technology to supply standalone workstations
from the MC-500 range.
Gerber will add software and input/output
peripheral devices to offer the workstation
as part of its Sabre-5000 series - aimed at
CAD/CAM applications.
The Federal Technology Corporation in the US
is in the process of buying about $4m worth
of MC-500 systems. The Federal Technology
Corporation based in Alexandria, Virginia
will use the MC-500 in conjunction with its
own tapes, disks, networking and software to
make up an end product to be used by the
Planning Research Corporation in automating
the patent office. The MC-500 will act as
the US Patent and Trade Office's general
purpose computer to manage the exchange of
patent information between large mainframe
computers and individual workstations. The
initial $4 million contract is for 17 MC-500
systems, but satisfactory performance will
lead to orders for a further 200 systems.
This Unix specialist, Masscomp, has gathered
about $50 million in three rounds of venture
capital and private funding and is
represented in the US, Canada and Europe.

Root has been stung into saying more about its recently acquired 60% share of Unisoft by the suggestion that Unisoft was ailing at the time (UX No 56). Root's marketing director Robin Schlee says that cash flow and order book were both healthy, and in consequence the price Root paid was far from nominal. The combined turnover for both companies is expected to be in the region of $10 million this year. According to sources close to Unisoft, the deal did not pump Root money directly into Unisoft, and members of the management team still own shares. Robert R Ackerman has become president, with the new directors from Root being David Saunderson, Robin Schlee and Mike Kinton. Root's slice appears to have been acquired from outside shareholders, although it is possible that management may have had to surrender a few shares to make Root's controlling interest possible.

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Altos Computer Systems is celebrating an OEM contract worth $15m over four years from French private telecommunications equipment Jeurmont Schneider SA: the Jistral subsidiary will market the 80286-based Altos 1086 and 2086 Xenix systems under the Jispac name.

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Ben Wang's Rexon Inc, which now has its European base in Versailles, France, has a contract worth $4m over three years to supply RX55, 105, 205 and 405 machines under Xenix System V and its own Recap operating systems, for marketing by Compion BV of Vianen, Holland, which represents a consortium of four systems houses in the Benelux countries; the move means that Marathon BV loses its exclusive Netherlands distributorship, but will continue to handle the Rexon machines.

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AT&T will get between $11.5m and $14.5m from Olivetti for 3B computers for resale in Europe for some $29m during the year just ending, and Olivetti should get about $290m for personal computers delivered to AT&T for marketing in the US.

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NCR's new 80286-based PC8 IBM AT-compatible personal computer, which can support up to 16 users under Xenix, has arrived in the UK at last: a 512Kb RAM model with 1.2Mb floppy drive and 20Mb Winchester costs £4,199.

Minigrams

Burroughs has duly announced the Convergent Technologies 80286-based version of the N-Gen as the B28: offering it to support up to 11 workstations against five on the 80186-based B25; the new machine comes in two models, with the basic machine costing $5,730 and a model called the B28 MCP, presumably including the planned micro-to-mainframe link to Burroughs' A-series mainframes; the B28, set for US deliveries in February, fits between the B25 and the XE520, which is Hamlet without the prince – that is to say the Convergent Megaframe with the 68010 Unix processors stripped out to leave just the 80186s running CTOS and the disks.

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Torch Computers of Cambridge has learned a thing or two in its short and tubulent life: the most memorable aspect of its early machines was the fact that so little attention had been paid to styling that they looked like laboratory prototypes; visitors to next week's Which Computer? Show will find that the company has put all that behind it, and that the new Triple X 68010 Unix machine, getting its first public airing at the show, looks as smooth and elegant as its predecessors looked dowdy.

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Nordcomp AB of Sweden, suppliers of Dec equipment are intending to expand its product line from just Dec hardware to software in 1986 and has been appointed as an official distributor of Nuxi, The Instruction Set's release of Unix System V for the Dec Vax range: it is available for all Vax processors, from the Microvax II to the 8600, and supports all Dec and Dec emulating peripherals.

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Not too surprising that Encore Computer Corp decided to shut down its Resolution workstation division: according to the Boston Globe, it hadn't sold one of its initial product, the Model 550.

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Vector Graphic Inc of Westlake Village, California has looked doomed for so long that it comes almost as a surprise that the pioneer microcomputer manufacturer has finally filed for Chapter XI bankruptcy protection, showing liabilities of $4.3m, $2.3m secured, and assets of only $1.9m.

Now that the basic work in designing the European Manufacturers' Unix standard has been completed, the X/Open Group, currently comprising ICL, Siemens, Bull, Philips, Nixdorf, Olivetti and Ericsson is prepared to entertain applications to join by other manufacturers, and says that another three or four members may be added early this year; the European exclusivity is being abandoned, and Sperry, at the head of the queue of companies knocking to get in, may be the next to join: the group now view themselves as an industrial body regardless of origin acting as a counterweight to AT&T.

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Eagle Computer Inc, the struggling Garden Grove, California micromaker which has abandoned the IBM Personalike market for what it hopes will be the sunnier uplands of multienvironment Pick+Unix+MS-DOS machines, has had to dismiss 23 of its 83 employees: reasons given for the cuts are that it has so little cash that development of the new Concorde machine has not gone as fast as it would have liked, and that manufacture of the new machine is to be transferred to Korean Electronics and Communications Co in Seoul, South Korea. The new Concorde machine features NS32000 and 80286 microprocessors with both VME and IBM Personal Computer buses.

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Microsoft has dashed all hopes of a Xenix for Apples's Macintosh with a firm denial that it is developing anything of the sort – "I don't know where the rumour started, but it certainly isn't happening here" said Adrian King, former Xenix luminary at Logica now working for Microsoft at Bellevue: people at Apple and other interested companies got quite excited at the prospect of a child with Unix brains and Mac beauty, but no-one seems to know who started the rumour: sadly, it seems to be a proposal doomed as was Mrs Campbell's to George Bernard Shaw – a consummation devoutly to be wished but too risky to do more than contemplate.
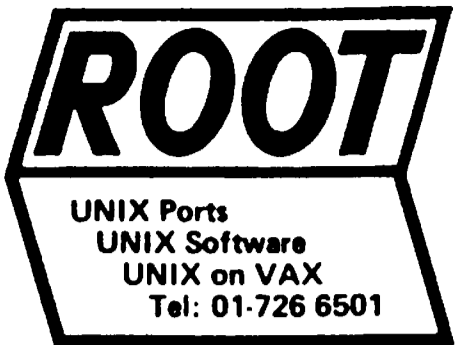
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THE INSTRUCTION SET TO MARKET SUN'S NFS IN EUROPE; CO-DEVELOPING SYSTEM V NFS

North London systems and training house The Instruction Set has been chosen by Sun Microsystems to market and support its Network File System in Europe. And Inset is part of the development team that is implementing NFS for System V.

NFS provides transparent access to files and directories across a local network, linking machines from different manufacturers, eventually running different operating systems.

NFS was developed on Sun's operating system, derived from Berkeley 4.2, but has been placed in the public domain to encourage its adoption by other manufacturers and operating systems. Sun is developing a System V product and is believed to be working on versions for PC-DOS and Vax/VMS.

Ten leading US manufacturers have already adopted NFS and several in Europe intend to. Unlike existing distributed file systems which are homogeneous (supporting transparent file access only across a network of a single vendors hardware and software), NFS is heterogeneous as it supports different machines and different operating systems.

TOLERANT OFFERS GRACEFUL GROWTH IN TRANSACTION PROCESSING WITH FAULT-TOLERANT ETERNITY SYSTEM

The latest entrant in the "graceful growth" transaction processing stakes is Tolerant Systems Inc in San Jose with its fault-tolerant Eternity System.

The architecture is built up from loosly-coupled supermincomputers, each running a modified version of Unix called the Transaction Executive (TX) split over multiple NatSemi 32016 processors.

For the past year Tolerant have been selling the superminis in a standalone non-fault-tolerant configuration to help the cash flow and keep the wolf from the door while they perfected the continuous processing features. Now the lastest release of TX has turned the standalone superminis into System Building Blocks for the Eternity System, each with its own copy of the operating system, copies of applicastions programs, main memory and peripheral and communications subsystems, all linked by a high-speed, dual-channel bus.

The transaction processing system automatically keeps at least two copies of each user file and application on different disks. When a file is being updated an image of the change is recorded in a transaction log before the file is altered. As the database is never altered until the transaction is completed, the system can backout and restart automatically if there is a crash or the transaction is aborted.

The file system has been hardened and access speeded up for large files: the block size has been increased and the top pointers locate 8 megabytes on a disk instead of the standard 10 kbytes.

The Unix kernel has been extended and split into three parts, each running on separate processors: the Real-time Processing Unit runs TX and handles the file management, mirror-image backup, logging and checks; the User Processing Unit handles applications, queries and database management (using the C-ISAM package from Relational Database Systems Inc) and up to 12 Communications Interface Processors to handle the i/o, communications, terminals and printers.

TX is based on Berkeley 4.2, but will run System V applications. It appears to the user as one monolithic system, although copies of it are distributed across several machines. Up to 15 SBBs can be linked, to support from 120 to over 2000 users, with each CIP connected to two SBBs The system includes table-driven applications generators to produce code in C, Cobol or (shortly) Ada. Prices start at $190,000.

DENMARK's RC COMPUTER WOOS ICL's UK GOVERNMENT USERS

Denmark's flagship computer company RC Computer is now venturing outside its home territory, looking to the US and initially the UK and Germany in Europe to extend its market share.

ITT will be selling some of RC Computer's products in the US within the next couple of months. RC Computer's Partner 80186-based microcomputer, when linked to the company's RcMicronet local area network, acts either as a main workstation supporting up to three slaves or as four concurrent consoles running on one processor - with 1.2Mb floppy, 42Mb disk or 45Mb tape streamer.

The majority of the 50% micro market share RC Computer holds in Denmark is in the government sector and it intends to hit the same market in the UK.

Given that ICL has an 84% share of that market here, RC Computer has added a 003 emulator to its network. (The 003 communications facility allows one of the consoles to access ICL mainframes with the physical communication lines being controlled by the RC Partner.)

The company is hoping to sell the system to what it perceives as 70 prospective government clients with a multi-user SSADM - for Structural System Analysis and Design Methodology.

The Partner system, costing £30,000 for the main workstation, four slave terminals and a printer, runs Concurrent CP/M and links up via the local area network to its top-end Unix product, the RC39.

CANAAN's VM WORKSTATION TO RUN UNIX
AS WELL NEXT YEAR

A software development workstation which will shortly offer the best of both worlds in the shape of IBM's VM/CMS and AT&T's Unix, is making its UK debut at the Which Computer? Show at the National Exhibition Centre this week. It comes from Canaan Computer Corp of Trumbull, Connecticut and was the subject of a major OEM contract from General Dynamics back in September. It is now available in the UK courtesy of Data Bench Ltd. The Marlow, Buckinghamshire company is the sole UK distributor for the product, called the DCS 5800, which has a 32-bit TTL bit-slice CPU with a 68000-based terminal controller, and is rated at 0.5 MIPS. It is being marketed as a "departmental" machine, a distributed alternative to the IBM 4300. It currently has an RS232 interface to IBM Personals and in future will also support Ethernet and DEC VT100-compatible terminals. Unix is due to be available next year, allowing for concurrent use of Unix and VM/CMS. Canaan's own Multigate communications software, Multigate-PC and Multigate-VM allow IBM Personal users to talk to the VM machine and switch between PC-DOS and VM/CMS. Both products are included in the surprisingly low price of $80,000 for the eight-user version of the DCS 5800. Special marketing arrangements with several leading IBM software houses are give users 3% to 10% discounts on the normal mainframe price of various products including Info, Focus, Adabas and Ramis, which is available on the Series 5000 for $4,200. With VM licences set to reach 50,000 in the US by 1987, the future looks bright for the Canaan product, though whether this can justify sales forecasts of 600,000 worldwide remains to be seen. In the US, 100 of the machines are already installed with a further $500,000 of orders in hand. In the UK, British Telecom and the Bank of Scotland are said to be taking a keen interest in it.

VM SOFTWARE SETS UP SHOP
IN THE UK

Having sucessfully gone public in the US last year, VM Software Inc has decided to sever its connection with its former British agent, Systems & Telecoms Ltd and will in future be selling direct in the UK. The US software house specialises in support software for users of the VM operating system on IBM mainframes. Its major offering is a data management product called VMCenter, and it has around 100 users in the UK. It will continue to provide support to these customers, for the first month or so, from the Systems & Telecoms office in Reading and has recruited several of the sales force from Systems & Telecoms. Systems & Telecoms has been handling VM Software products in the UK for the last four years and will in future be concentrating on its own products in the Unix and VM line. VMCenter, available as a single product or in seven individual components will be undergoing enhancements in the next few months.

SUN BEATS APOLLO
TO $65m SCHLUMBERGER VOLUME PACT

Sun Microsystems has beaten Apollo Computer Inc to a volume purchase agreement from Schlumberger Ltd with the 68020-based Sun 3 workstation. The three and a half year contract, valued at some $65m, also includes servers and diskless node processors, and will total about 5,000 units of equipment. There is no firm word on which of Schlumberger's subsidiaries will use the stations, but 15% of the value will be for in-house use by the oil services company, all divisions of Schlumberger will be able to buy the stations. They are likely in particular to be used as the basis of future CAD/CAM stations by the company's Applicon subsidiary, by the Membrain automatic test equipment acquisition in the UK, and by the Enertec semiconductor test equipment unit. Separately, Sun has scored another coup over its chastened Chelmsford, Massachusetts rival by luring services vice-president Robert Lux away to fill the new post of vice-president, customer support in Mountain View, California.

WORDPLEX TO LAUNCH CHEAP WORD PROCESSOR

Faced with the challenge of ultra low-cost word processors like the £400 Amstrad PCW8256, Wordplex Plc plans to come up with a sub-£2,000 offering next year. The company's managing director, Richard Kemp has high hopes for the product but is realistic enough to admit that it will have a short lifespan, perhaps 18 months to two years. Kemp is certain that he will be able to stop the flow of the machine from its still-to-be-revealed European supplier almost immediately if it turns out to be a flop. The truth is that Wordplex cannot afford to tie too much into the word processor as it is only just starting to overcome major cash flow problems. These were caused in part by American companies demanding payment up-front as soon as they heard that Wordplex was moving its assembly to the UK. The company was also hurt by the strength of the dollar until mid-year. The main overseas subsidiaries are all going well; the losses in America have been stopped and Australia, which accounts for 16% of Wordplex's sales, has picked up again after a sluggish period. Kemp is hoping the full launch of the word processor in February will help restore City confidence in Wordplex, which he feels has unfairly been missing. The recent deal with DEC to connect Wordplex's 8000 to DEC's All-In-One software on the VAX was more a publicity stunt than a commercial proposition as resulting sales are likely to be measured in tens rather than hundreds. Wordplex is also looking to bring out a Unix machine in March but Kemp does not appear to be giving this a high priority. He insists that there is no particular demand from the existing user base for such a product. Instead, he intends to emphasise the company's software customisation ability the consequence of chairman Harry Mallinson's revelation that the company is not making money out of hardware.

ICL LAUNCHES CLAN, SYSTEM 25 PLUS AT WHICH COMPUTER? SHOW

After having touted the machine all over Europe, ICL has finally launched the Clan Unix machine here in its home territory, and with it the enhanced version of the System 25, called the 25 Plus Series 400. Both arrived at the Which Computer? Show yesterday. The System 25 Plus comes in four models, with an entry-level 410 crashing the £10,000 barrier with 20Mb of disk, while the 480 has 120Mb disk expandable to 480Mb within the cabinet. ICL is making the System 25 a key delivery vehicle for industry-standard operating systems, not running on the core 32-bit bit-slice CPU, but with one or more co-processors, which can also be retrofitted to existing machines in the field. Up to five Intel 8086 co-processors can be installed, each supporting up to 10 VDUs and running a maximum of four tasks each under Concurrent DOS. A similar co-processor for Unix is on the way. Why is ICL taking the co-processor approach? "To make new technology available in the retail and manufacturing sectors," says ICL, "and to confound critics who say that the System 25 is not a modern machine". Unix on 2900 will also provide an upgrade path for some System 25 users. The ICL Clan is the first system from ICL that uses the Uniplus+ Unix System V and according to ICL is aimed at small to medium sized businesses for administrative purposes. The ICL representative on the stand at Birmingham agreed that there is some truth in the criticism that the machine is slow – but adding extra memory speeds things up no end. There are three models of the Clan on offer, the 35, 45 and 55. The 35 is an entry level system which uses the 68000 processor with 1Mb of memory, 40Mb fixed disk and 20Mb cartridge tape. Model 45 simply switches to a 68010 processor, while the 55 uses the 68010 with 2Mb memory, 112Mb fixed disk and an 80Mb cartridge tape. Each model is upgradeable in 512Kb or 1Mb increments, and the machine is claimed to support up to 16 users. An entry-level 35 with two screens and Uniplus+ is £14,500. Clan will be offered only through the ICL Trader Point network. The company says there are about 40 software packages available; the only ones on show at ICL's stand were Tetraplan from Tetra Business systems and Spires from Benasson & Chalmers.

FERRANTI SETS 68020 UNIMAX FOR HANOVER

Ferranti Computer Systems having launched its 68010 Argus Unimax at Compec in November is now planning to launch an upgraded 68020 version at the Hanover Fair in March. Ferranti promised in December last year to make the 68010 machine generally available, and has met that deadline. Ferranti says that the machine is proving popular although no accurate sales figures are available the machine has apparently been sold into the mail order house and educational sectors. The Uniplus+ Unimax is currently using Rootmap software but Ferranti will also reveal in-house developed software for the Unimax at the Hanover Fair.

COMPUTER AUTOMATION FOUNDER GOES AFTER DEC VAX WITH NEW FIRM

Computer Automation Inc founder David Methvin, who stayed with his creation for 17 years before resigning last year, is setting out to do it all over again with a new minicomputer company, Davin Computer Corp. Basis of the new business is an 18-month development effort to create a 32-bit minicomputer to compete with the top-end models of the DEC VAX and Data General MV – but offering substantially better price-performance. The development was abandoned by Computer Automation last year, but there is no danger of any lawsuits from Methvin's old company – **Computer Systems News** notes that he has bought all rights to the development. The new machine will be aimed at the same industrial OEM market that was Computer Automation's favoured stamping ground for most of its life, and the company, presently with just five full time employees plus some consultants, is currently operating out of Irvine, California. But Methvin lives in Boulder, Colorado, likes it much better there and reckons that it will be easier to entice good people there than to the purlieus of Disneyland in Southern California. Davin will therefore decamp to Boulder at the first opportunity. The box is about a year away from production, but potential customers may be able to kick the tyres on preproduction models this year. Fund-raising is under way.

CAP GEMINI LAUNCHES MULTITRIEVE TEXT RETRIEVAL SYSTEM DERIVED FROM STATUS

Following the buyout of STC's 49.5% of IAL Gemini, the UK subsidiary of the French company is now trading under the Cap Gemini Sogeti name and has formally launched its first product under the new régime. A text retrieval system called Multitrieve, it is based on the Status scientific text retrieval system from the UK Atomic Research Centre at Harwell. Unlike Status however it can be used on both structured text, such as lists, and unstructured text such as newspaper articles or management reports. It is also designed for the first-time computer user, with an interface which can be either menu-driven or support high-level languages. It allows for text of variable length and for the use of imprecise retrieval criteria as opposed to the traditional keyword-based database management systems. The complete Status system can be accessed from inside Multitrieve, and CGS will continue to sell Status as a stand-alone system under licence from Harwell. CGS sees a large potential for this application in the commercial world as well as in its traditional markets of the emergency services. Early customers include Strathclyde fire service, Sussex police and the Central Electricity Generating Board as well as commercial property agents Property Intelligence. Its managing director Michael Nicholson uses Mutitrieve as the basis of his Focus database on commercial properties. He had considered several other text retrieval systems including DEC's All-in-one Assassin system, but the combination of structured and unstructured text retrieval as well as the competitive price – Mutitrieve starts at £3,000 – made him settle on the CGS system.

POPULAR NEWCASTLE CONNECTION

The Newcastle Connection from MARI Advanced Micro Electronics has or will be taken on-board by two of the more better known names in the Unix business - Sun Microsystems and Whitechapel Computer Works. The Newcastle Connection, developed at the Computing Laboratory of Newcastle University, is a transparent layer of software that allows users to communicate with other Unix systems over local and wide area networks. The Newcastle Connection is widely used throughout the academic environment having about fifty licence holders and about forty commercial licence holders worldwide. Sun Microsystems of Ascot in the UK has announced that the data communications package is available for users of the Sun Microsystems workstations. This does not according to Sun interfere in any way with Sun's own developments in the communications area - such as the Network File System (NFS) - because Sun are apparently committed to joining forces with other communications and systems manufacturers to offer integrated heterogeneous equipment into a uniform distributed computing environment but also to encouraging other vendors to install NFS. Whitechapel of East London has commissioned the Newcastle-upon-Tyne, MARI, to supply the Newcastle Connection software for the Whitechapel MG-1.
The MG-1 also now supports the 3L Pascal compiler from Lattice Logic of Edinburgh. The 3L compiler is one of the few to have been approved by the British Standards Institution. It already runs on a number of micros and workstations including the Sun, Apollo, MicroVAX and Acorn, allowing programmers to port software between machines. Whitechapel chose the 3L compiler after Lattice Logic implemented a number of CAD/CAM applications on the MG-1. Lattice Logic is also developing a 3L C compiler, which has nothing to do with the Lattice C compiler from Lattice Inc, Illinois.

NEC LOSES ROUND IN INTEL's LAWSUIT

NEC Electronics has lost the first round in its copyright dispute with Intel over the microcode in the V20 and V30 microprocessors as Intel seeks to delay the next stage in the dispute. US District Judge William Ingram refused to grant NEC a summary judgement that Intel's copyright on the microcode for the 8086 and 8088 microprocessors is invalid and in the public domain because it sent out millions of the chips without copyright notices on them. If Judge Ingram had agreed with NEC's claim, NEC would also automatically win a second lawsuit concerning the same copyright infringement issue scheduled to come to court at the end of April. Ingram denied NEC's claim saying that the number of units distributed without copyright notice was not the issue. Intel claimed only 1.3m microprocessor units had no copyright notice while NEC claimed that 4m units had no copyright notice.

£500,000 ORDER FOR BROOK STREET COMPUTERS

Brook Street Computers, a relative newcomer to the Unix scene, thinks it may have landed one of the biggest end-user orders yet in the UK, worth £500,000.
Brook Street is installing a system of 200 terminals for Furness Houlder Insurance Ltd, a Lloyds international insurance broker. The system is going into seven of the company's 15 regional branches initially, with a further six sites planned. Ultimately the company's entire operations will rely on the online Xenix-based system.
Everyone in the Furness Houlder offices will need a terminal because the system will deal with all the day-to-day policy records and renewals. Brook Street is supplying multi-user Xenix systems (Molecular Computers Series 16s "badged" under the name Poppy) with an average of six screens per machine for the smaller branches and up to 10 screens plus printers in the larger offices.
The micros will be automatically polled daily by a Motorola 6600 (Molecular Megaframe) at Furness Houlder's Stourbridge computer centre. This machine will deal with all Furness Houlder's accounting - estimated at 600k entries annually. Eventually all the distributed Poppies will be permanently online to the central machine.
Brook Street has built up its end-user base to more than 40 since the company was established nine months ago, mostly on the strength of its distribution and production control software.

CDC's ETA LANDS $20m PACT FOR ETA 10 SUPERCOMPUTER

ETA Systems Inc, the St Paul, Minnesota company set up by Control Data to take over development of its next-generation scientific supercomputer, has a contract for the machine from the Consortium for Scientific Computing in Princeton, New Jersey. The ETA 10-8, set for delivery in the spring of 1987, will have eight CPUs, 256 megawords of 64-bit word memory and peak performance of 10 Gflops. The Consortium was formed in October 1984 to establish an advanced supercomputing institute, the John von Neumann Center, at Princeton, with support from 13 universities and institutions including Massachusetts Institute of Technology, and Harvard and Brown Universities, and five-year grants from the US National Science Foundation and the State of New Jersey. The John von Neumann Center will make do with a CDC Cyber 205 until the ETA 10-8 is ready.

DEC ADDS LOW-COST COLOUR GRAPHICS VAXSTATION II

In what is being hailed as another body blow to the suddenly faltering Apollo Computer Inc, DEC yesterday unveiled the VAXstation II/GPX, a colour graphics workstation incorporating the MicroVAX II processor and selling for a very competitive $35,000 to $60,000. The workstation is offered with either VMS or DEC's Ultrix version of Berkeley 4.2 Unix.

WHITECHAPEL COMPUTER WORKS SEES THE NEW YEAR IN COLOUR

One of the happiest legacies of Ken Livingstone's leadership of the Greater London Council, and one which looks set fair to outlive that body by many a long year is the Greater London Enterprise Board-funded Whitechapel Computer Works, manufacturing Unix workstations in an area which once used to ring to the sound of the hammer in the iron foundry. Currently the hottest property from the company for the New Year is its new colour monitor for its National Semiconductor NS32016-based workstations, which will be going out to beta test sites shortly, and, Whitechapel hopes, will be generally available by the spring. The colour monitor uses a 16" screen with a refresh rate of 58Hz, non-interlaced to reduce flicker to a minimum. Resolution is 768 by 512 pixels, and up to 256 colours can be displayed simultaneously from a palette of 256,000. The system runs Whitechapel's proprietary Oriel windowing system, and has been designed to support a colour laser printer, though the model to be offered has not yet been chosen. Whitechapel says that its aim is to offer a solution considerably cheaper than the colour systems on offer from competitors such as Sun Microsystems. For much later on, the company is also working on a product similar to the Interleaf integrated text and illustration system with automatic typesetting, although commercial availability is a long way off.

MOTOROLA DROPPING DIRECT SALES?

Motorola Information Systems has decided to concentrate its efforts on its VAR Freeway programme, moving away from direct sales. This means that a number of people have lost their jobs in the sales, marketing and pre-sales areas among the casualties are Brian Mills - UK Business Manager. The losses are thought to be less than thirty.

BENCHMARK LAUNCHES THE 32-BIT UNIX BOX

BenchMark Technologies Ltd has now launched its benchMark 32 Unix machine after showing it off at Compec '85 (UX No 52). The Kingston-upon-Thames, Surrey, company sell to OEMs and say that the machine has succesfully completed beta tests with a number of them: the next few weeks should produce a number of OEM announcements concerning the 32 bit single board Unix engine. The price range is from £3,000 to £6,000 for OEM quantities and for a £3500 configuration you get a 32032 main processor with 2Mb of RAM, an 80186 I/O processor with 1Mb RAM, two serial ports, a 1Mb per sec netwaork port and a hard disk controller.

ALTOS SELLS WYSE SHARES

Altos Computer Systems plans to liquidate its entire 27% holding in VDU manufacturer Wyse Technology of San Jose, California, and will use the proceeds to make investments in software companies. The investment has proved a lucrative one for Altos, at the current Wyse price it will end up with $36.9m.

AMDAHL HINTS AT ASPEN OPERATING SYSTEM LAUNCH THIS YEAR

Having set out to develop a slim-line transaction processing operating system to sit alongside the galumphing MVS in 1981, Amdahl Corp has ever since cast doubt on whether it would ever actually launch the thing as a product. But now the company is cautiously dropping hints that Aspen may be announced sometime this year. And the signs are auspicious: **InformationWeek** has been talking to people close to the known beta test sites - Electronic Data Systems in Dallas, Texas and Research Libraries Group Inc in Stanford, California, and has come up with some positive answers, with some employees at Research Libraries preferring Aspen to MVS, and EDS is installing it in numerous locations. It presently runs as a guest under VM/SP, but uses VM only for a small amount of machine-dependent code. And, being designed from the ground up, the terminal monitor is fully integrated and much faster than the add-on alternatives for MVS. Electronic mail, context-sensitive on-line help and security features are also integrated - and the whole thing takes up only 1m lines of code against 12m for the endlessly-patched MVS. Some path lengths are said to be an order of magnitude shorter than in MVS, which contributes greatly to its enhanced speed. It also creates single-level storage where main memory and disk are logically treated as a single virtual address space as in IBM's much more modern System 38 - which many see as the only feasible long-term architecture for the company's top-end systems. The reasons why Amdahl has not already launched Aspen are seen as limited resources for supporting another operating system - it is currently putting a deal of effort behind its UTS implementation of Unix; the need to test it to the point where it is absolutely certain it is solid; and the need to work out a marketing strategy which will not give any customers the impression that it is moving away from full IBM compatibility. Because Amdahl stresses that Aspen is a more efficient adjunct to MVS, and not an alternative. But IBM too has recognised that the rate of growth of transaction processing applications is such that MVS, CICS and TSO will simply not be good enough much longer and is working on an on-line transaction processing operating system which is likely to be derived from Transaction Processing Facility 2 from the Airline Control Program.

BREXEL BUYS RIGHTS TO MILLSTREAM'S ACCOUNTING PACKAGE

Nexel has added the Millstream Business Software suit to its catalog, part of its move from being a services firm to a supplier of hardware, software and services. Thame-based Nexel came across the package, developed by FBA Holdings in Godalming, when it was looking for an accounting package to use in-house. It specialises in Fortune kit and has been looking for a financial package to extend its range of business software.

UNIGRAM/X

M i n i g r a m s

Apollo Computer Inc is about three months behind schedule with its VAC-Cess-1 software which will enable its workstations to connect to **DEC** VAX minis: the company says that the software proved to be more complicated to develop than expected, so the mid-December shipment date slips to March.

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But **Apollo** knows all there is to know about developing powerful workstations: a 68020 colour station with 40Mb disk costing under $20,000 is expected to appear later this month.

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As well as Robert Lux, on his way to **Sun Microsystems, Apollo Computer** has lost senior vice-president and chief financial officer David Lubrano, who has resigned to pursue a career in venture capital.

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Lexidata Corp of Billerica, Massachusetts has a joint marketing agreement with **Masscomp** covering the new top-end Series 5000 68020-based Unix workstations with Lexidata's Lex 90 graphics displays: the necessary drivers have been written and each company will recommend the products made by the other.

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NCR Corp will be bundling the Alis office automation software with its 68020-based Tower 32 Unix supermicro under an agreement with its developer, **Applix Inc** of Westboro, Massachusetts due to be announced in the spring: terms of the licence pact have not yet been given.

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DEC has inked in Wednesday January 29 for launch of its forthcoming Nautilus top-end VAX supermini: the machine is rated at around 9 MIPS, putting it into the same class as a fully-configured **Gould** 32/9780 and will cost around $650,000; also due shortly from DEC is a VAXmate personal computer, a Scorpio multi-processor configuration of the MicroVAX II, and a VAX 8350 below the 8650 CPU.

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As well as **Carl Lamm Systems** in Sweden **Whitechapel Computer Works** has signed **TorrKopi** to sell the MG-1 box in Norway.

Imperial Software Technology has signed with Jean Ichbiah's **Alsys Ltd** to integrate the Alsys Ada compiler with its Istar integrated project support environment to create a full Ada Programming Support Environment: Istar, designed as a language-independent support environment is due to be commercially launched this spring.

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

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Omicron Management Software Ltd of West London, a micro based business software house has decided to go with the times by adding a Unix System V version of its previously MS-DOS based PowerSystems range of accounting and financial management software packages: the packages are currently only avilable running under Unix on the Olivetti AT&T range and Fortune.

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Norbain Data Ltd has signed an exclusive agreement with **Corvus Systems** expected to be worth £1.8m for the distribution of the Corvus Onyx range of multi-user business micros in the UK.

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Armstrong Micro Electronics of Darlston in the West Midlands boasts that it has the cheapest Unix system on the market: the Armstrong V costs £6,565 and for that you get 26Mb Winchester, 1Mb dynamic RAM, eight I/O ports, Uniplex II, C compiler, software development tools and of course Unix V.2.

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Facts Software of Bedford chose the **Which Computer?** show to show off its Xenix version of Multifacts — an accounting suite consisting of ten modules and comes as either a single user system or multi-user: no prices are available yet.

## COMPUTER SCIENCES GETS AT&T PACT FOR UNIX OFFICE SUITE

No details yet, but AT&T Information Systems has enlisted the aid of the giant Computer Sciences Corp software and services company in El Segundo, California to add to the base of applications software available under Unix. CSC will adapt existing programs, develop new ones and do market research for AT&T.

ZILOG SUPER8 MICROCONTROLLER IS OPTIMISED FOR FORTH

With so much coverage it must appear that a hot-line has suddenly been established to Zilog — but it's simply that after a long slumber, the company is now ready with a slew of new products. Hot on the heels of the Z80000 and the Z800 comes a fierce little second-generation 8-bit microcontroller. Modestly called the Super8, it has an 8-bit internal architecture, 325 byte-wide internal registers, up to 16Kb of on-chip program memory, hardware support for the fast execution of Forth and a clock rate of either 12 or 20MHz. It is fabricated in advanced Z-4 NMOS, with a 2 micron gate geometry that, combined with the register architecture, is claimed to give performance levels to match or exceed 16-bit processors. It has five 8-bit parallel ports for input-output, two of which can also be used as a multiplexed address+data bus or connected to a Z-bus. It implements the Forth virtual machine and threaded-code architecture with a 16-bit instruction pointer, a dual stack and three special instructions.

TEXAS INSTRUMENTS ABANDONS CMOS NS32000 EFFORT

In yet another setback for the ambitious National Semiconductor NS 32000 microprocessor family, Texas Instruments has abandoned efforts to develop CMOS versions of the line and has cut its involvement back to a strict fulfillment of its second-source agreement with Nat-Semi. The two companies had planned co-operative design of peripheral parts and development systems.
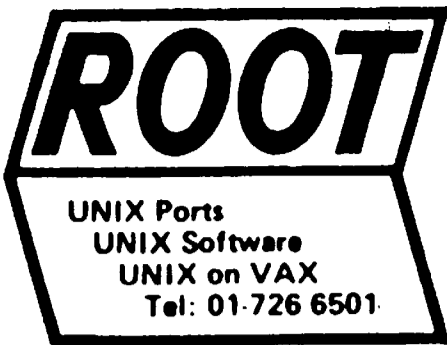
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IBM OFFERS RT PERSONAL COMPUTER AT $11,700; ENHANCES SYSTEM 36; KILLS 9000

Representing IBM's effort to rewrite the rule-book in the CAD/CAM and CAE market, the company yesterday announced its 32-bit microprocessor Reduced Instruction Set Computer as the RT Personal Computer, offering it as an $11,700 to $19,510 system which supports up to eight users and obviates the need for a mainframe in many of its CAD/CAM applications. The company also announced the expected enhancements for System 36, but there was no sign of the Personal Computer Convertible Liquid Crystal Display lap-top portable machine. The IBM last month stopped making the slow-selling Motorola 68000-based 9000 family of OEM machines, which run either under Xenix or under a proprietary IBM operating system but will still sell it while stocks last.

RT Personal Computer runs IBM-enhanced version of Unix

The RT – for RISC Technology – Personal Computer represents a complete capitulation to and an effort to establish an IBM standard for, Unix. The Advanced Interactive Executive, AIX 1, version of Unix combines System V.1, some features of V.2, some of the BSD 4.2 extensions, and features of Interactive Systems Corp's iX3. It comes with four user interfaces – C Shell, Bourne Shell, a PC-DOS interface for use with the optional 80286 co-processor, and IBM's main contribution, Usability Services. This is a fill-in-the-blanks windowing user interface for people who know nothing about Unix, which allows data to be transferred between AIX and PC-DOS files. AIX costs $3,400 with a separate Virtual Resource Manager, which costs $1,000 on its own, and comes with C and assembler. Other languages on offer are Basic interpreter and compiler at $1,000, Pascal at $1,000 and Fortran 77 at $650. The AT-compatible board is $995, and the AT Co-processor Services program is $550. Also offered are Interactive Systems' IN-ed V editor, Ascii terminal emulation to link to IBM mainframes running IX/370 Unix and to Personals under PC/IX, and the INmail/INnet file transfer program for exchanging messages between Unix machines. The database is SQL/RT, $1,000, which requires the $500 SQL/DES program. The RT Personal Computer, which has a 32-bit RISC CPU and remarkable separate memory management unit for up to a Terabyte of virtual memory. The CPU is a 50,000 transistor NMOS chip, the memory management unit has 60,000 transistors. The design is based on the register-oriented 801 RISC, which has 118 instructions, most of which execute in a single 170nS machine cycle and provides for pipelining of complex instructions; data and instruction fetches are also pipelined. The virtual memory management unit has a dual-stage mapping facility which creates an effective 40-bit address. The unit looks for data first in the translation lookaside buffers and if it is not there, in an inverted page table, the size of which is proportional to real rather than virtual memory. There is a 3278/79 emulation adaptor option and floating point accelerator option, for which there is a dedicated slot. The desk-top 6151 Model 10 comes with 1Mb to 3Mb main memory, 40Mb Winchester and 1.2Mb floppy and six slots for $11,700, available March. The floor-standing 6150-20, 25 and A25 support up to eight users and have eight slots. The 6150/20 comes with 1Mb to 3Mb memory, 40Mb to 180Mb disk and starts at $14,945, available March. The 25 and A25 each havce 2Mb to 4Mb and 70Mb to 210Mb on disk, and one or two 1.2Mb floppies, and the A25 is designed only for use with the 5080 graphics processor, which has also been enhanced with two new models. The 6150 Model 25 starts at $17,940, the A25 $19,510, both available in the US in September.

Streaming tape, dot band printer on offer

The 6157 is a quarter inch streaming cartridge tape drive which stores 40Mb + in 15 minutes – on System 36 and 55Mb on the RT Personal costs $1,795, and is available in February. The 4234 is an innovative dot band printer which comes with three different guage dot bands and runs at 410 lpm in draft quality, 300 lpm in data processing quality and 120 lpm in near letter quality. It is suported by Systems 36 and 38, 4321, 4331 and 4361, and 3270 terminals; available April, it costs $8,800. The 4224 is a dot matrix printer designed for merging text and graphics, and comes in mono and colour versions. The nine-wire mono version runs at 200 chps, 100chps or 50chps according to quality and costs $4,200; the other three models have an 18 wire head for double the speeds, and consist of a mono version with 32Kb buffer at $6,000, and mono and colour versions with 480Kb buffers at $6,500 and $6,700. It is supported by the same processors as the 4234. The $1,285 6180 is an eight-pen colour plotter for Personals.

Sun Microsystems makes first move in cheap workstations

IBM, DEC, Apollo and Sun Microsystems are all getting ready to fight it out in an increasingly busy area: cheap workstations. Sun Microsystems is one of the first to announce its rock-bottom configurations. For £7,400 you can now get a desktop workstation, the Motorola 608020-based Sun -3/50M, and for £12,950 a standalone package including disk and tape, the Sun 3-/52M. Two more projects are rumoured to be near completion at Sun's Mountain View headquarters, and an announcement is expected soon of a "grey scales" version of the Sun. Another rumour, more difficult to pin down, reports that it will soon be possible to run MS-DOS windows on a Sun workstation. Sun describes its new class of Unix-system workstations as the lowest price available today, claiming that for half the price, it is delivering 50-60% better performance and twice the main memory of comparable products from Apollo and DEC. The 3/52 is particularly cleverly packaged, as it includes most of the things a user would look for from a Unix limousine, including Sun's own enhancements to its 4.2-derived operating system.

UNIX is a trade of AT&T Bell Laboratories

GOULD ADDS NEW POWERNODES, "SECURE" UNIX IMPLEMENTATION

Gould, which reckons that it is in distant second place to DEC in terms of market share in the supermini field, hopes to close the gap a little with the two new models it has introduced to its PowerNode 6000 and 9000 Unix families. The Fort Lauderdale, Florida based Computer Systems Division of Gould has also added a new version of its Unix operating system, UTX/32, which combines the features of AT&T's System V and Berkeley 4.2. The latest addition to the PowerNode 6000 family is the PN6040 which, like the rest of the family, uses a bit-slice Schottky TTL discreet processor in the 32/67 range. The PN6040 comes in two models the Model 1 claims to offer 1.7 times the performance of a Vax-11/785 and higher performance than the equivalent offerings from Perkin-Elmer and Pyramid with 4Mb of memory, expandable to 16Mb and disk storage which starts at 160Mb. It will support up to 32 users and costs $39,000. The Model 2 starts at 4Mb and 340Mb disk storage with one screen for about $48,000 and extends to a dual processor machine supporting up to 32 users with up to 8Mb memory and two 680Mb of disk storage and Ethernet for around $150,000. An optional Internal Processing Unit (IPU), a duplicate of the CPU, can be added to the Model 2. Gould claim that by adding the IPU and floating point accelerators the Model 2 will help workstation efficiency by offloading workstation tasks that require a large amount of computing time. Gould say that the 6040 can act as a computer server, file server, compiler server or communications server for Gould machines. The latest addition to the 9000 series is the PN9050-SP, based on the new top-end 32/97 CPU, and fits between the company's 9050 single processor machine and its 9080 dual processor machine. SP standing for Scientific Processor. The PN9050-SP can be configured with one or two processors with either 8Mb or 16Mb of memory. It includes 32Kb cache memory with an option for an additional 32Kb cache per processor, multiplier accelerator, diagnostic processor, dual 5.25" floppy with controller and an RS232 distribution panel. Using Emitter Coupled Logic, the 9050-SP supports up to 128 users and offers up to three times the power of the 6000 series. The single processor version of the 9050 costs around $275,000 and the dual processor is about $400,000. Both the PN6040 and PN9050-SP are available now worldwide.

Gould also boast that they are the first to develop a 'secure' Unix operating system. This is based on Gould's existing UTX/32 now named UTX/32S release 1.0. This is apparently the first in a line of planned 'secure' versions intended for users that need a system that allows a number of users to share resources without compromising the integrity and security of their data. This implementation is fully compatible with both System V and Berkeley 4.2, and Gould is working closely with AT&T and Sun Microsystems to ensure that standards are met. UTX/32S conforms to the C2 level of the US Department of Defense's Directive 145 and aims to reach level A by the 1990s. The levels have been determined by the US National Computer Security Centre who are responsible for evaluating the security of systems being submitted for Federal Government work. The UTX/32S is supposedly more secure as a result of new login features. The concept of the super user has been changed so that any alterations including program alterations within the users own file space will be tracked and recorded as well as more potentially dangerous occupations such as accessing and reading restricted directories - this is however supposedly impossible as the regular user is restricted to his own environment and not even allowed to see files belonging to owners of a higher priority. New application software on offer under Unix from Gould include the improved version of Q-Office from Quadratron, the 20/20 spreadsheet and the Unify and Ingres relational database managers. ACE Cobol from Austec supporting sequential, relative and indexed-sequential data access methods is also available in both interpretive and optimized modes. The interpretive mode produces ACE Cobol object code and and includes a run-time system. The optimized mode produces C object code and is then executed through UTX/32 for faster execution. A set of graphics software tools are available called the DI-3000 from Precision Visuals. An improved Fortran and AT&T compatible System V Basic are also on offer.

Gould is now supporting Sun Microsystems' entire range of engineering workstations which can be integrated into Gould's PowerNode series using Sun's Network File System.

Gould Imaging & Graphics division also chose January 14 to introduce a remote sensing system - the Model 4000. The Model 4000 uses the PN6040 with UTX/32; Gould's IP8000 image processing system, which Gould claim is recognised as providing the most advanced image processing capabilities in today's market; and a remote sensing software package from Erdas of Atlanta, Georgia. The Model 4000 costs $110,000.

Gould will be demonstrating the new machines, peripherals and software at the Uniforum in Anaheim, California early next month.

CRAY RESEARCH "TO OFFER UNIX ON X-MP"

Cray Research will offer a version of Unix for its multi-processor X-MP scientific supercomputer. According to Cray this Unix version based on AT&T's System V.2 will be avialble on the X-MP mid 1986. The changes made to AT&T's version were to allow for a larger memory and multiplexor architecture; it uses word rather than byte addressable memory and also word input/output. The actual announcement of this is expected next month, and will complement the Unix version on the new top-end Cray 2 - again based on AT&T's System V.2 - where it is the only operating system. The announcement, likely to coincide with the Uniforum conference and exhibition in Anaheim, California next month, will confirm Unix as the favoured operating system scientific supercomputers, encouraging Fujitsu, already a Unix fan, to offera version on its VP line.

UNIX AT WHICH COMPUTER?

The remarkable thing about the Which? computer show this year was that Unix was there in force, and for the first time no-one was shouting about it. Unix was very much the hidden factor in two areas, applications and networking, but the days have gone when large signs proclaiming its presence were hung on stands. Typical of the role played by Unix was the presence on Zilog's stand of several machines, including an Apple Macintosh, and Qume graphics workstation, connected via Ethernet to a System 8000. The point of the set-up was to demonstrate how office automation develops in a haphazard manner, and therefore needs a flexible solution. After four years supplying the System 8000 as a Unix machine in its own right, Zilog's David Bethel is now excited about the potential of the machine used as a file server to support a network. It's a far more practical route for Unix, according to Bethel, who admits his own attitude has changed. Molecular Computer was also showing its 16/300 file server running the Novell advanced networking system. This allows users to start with 2 PCs and expand up to 48, with 500 MB of disk. Over 300 PCs can be networked, linked by servers under the Advanced NetWare. On the applications side, there were companies such as Tetra, launching its Tetralink integrated applications, Bivius, Canbury, Kerridge and Multisoft, who were doing brisk business with rising interest in multi-user applications. But you had to look hard to see the word Unix, or even Xenix, lurking behind more aggressive messages about what the software can do for you. Which is just how it ought to be. Hardware manufacturers were still anxious to be seen as players on the Unix scene. Apart from Torch's show-stealing Triple X, Rair, Bleasdale and other British names were banging the Unix drum, and even French manufacturer of the Goupil mini, SMT, admitted that Unix figured in its future plans. On the cards for March 1986 is a multi-user micro supporting Xenix based on the 80286.

TORCH PILES 'EM HIGH WITH PYRAMID

Torch is pursuing the personal workstation market prised open by its new Triple X with an agreement with Pyramid Technology.
Under the agreement Torch workstations will be hung on Pyramid's superminis, providing cheap true-Unix local power with the Pyramid weighing in as file server and compute facility. The goodwill agreement is along the same lines as those Pyramid already has with Whitechapel, Sun Microsystems, and Tadpole. Collaborative marketing makes sense for both companies, for while Torch's Triple X is competitively priced for a Unix workstation at £3995 for the single-user configuration, the serious user might find it limiting when it comes to storing large amounts of drawings and information.
Torch's new Triple X Unix-based system, announced last October, went on sale at the Which Computer Show, where it was certainly one of the more picturesque exhibits. Whoever started the rumour about a Macintosh-like interface for Unix had probably seen the Triple X.
It runs Unix System V, overlaid with Torch's own man-machine interface, called Opentop. If you imagine colour, windows, icons, and cheerful graphics, (in short, a Macintosh-ish front), you have the idea. Torch gives the credit for the implementation of OpenTop to its 27 year old development director Ray Anderson. The company has been extremely cautious not to violate any ideas that Apple might consider its own, in the light of Digital Research's climbdown over Gem, but points out that students at Cambridge were discussing such interface designs in detail back in the early sixties, before Xerox dreamt of Smalltalk. The interface has been built into the Unix kernel for speed.
Torch sees the major strength of Triple X as its telecoms ability, which would make it an ideal front-end for the increasingly popular use of Unix as a networking system. The system can read PC-DOS discs, supports Ethernet, and X25 (the first Unix micro to be approved for connection to PSS). Torch sees itself as competing with Sun Microsystems and its peers, although not everybody shares its view. Torch MD Ray Winter cites "basic" Sun configurations as being comparable, at a cost of £30,000 with Torch's Triple-X based Primagraphics workstations, priced at £16,200. Torch is beginning to look overseas for new markets, and has taken on Steve Cooper, formerly with Root Computer, as international marketing manager. Overseas interest is already being shown - notably by Steve Jobs, ex Apple, now heavily into the educational market with his new corporation Next Inc.

NCR OFFERS CLUSTER NETS

NCR has announced a networking sys-em to tie together clusters of its Tower family of Unix machines, its Convergent Technologies N-Gen-based Worksaver line, and MS-DOS microcomputers, and enable data to be exchanged between them. The three products are the Worksaver Multicluster Interconnect I and II and the Tower Server. The Tower Server allows Worksaver and MS-DOS users access to Unix applications and uses an Ethernet module as the net-work controller. The company says that for example, the Worksaver Multi-Cluster Interconnect Level II in a 25-station configuration will come out at about $650 per station.

PCS CADMUS TO MAKE UNIX ANNOUNCEMENTS
WITHIN A MONTH

PCS Cadmus Ltd, Unix computer manufacturers and
systems specialists, will be announcing two
new product families in mid February.
Although PCS-Cadmus is loath to give away any
details there will be one expandable system
and one non-expandable both based on the
68000 family of processors and will initially
be 16-bit upgradeable to 32-bit. As a major
advocate of Unix the machines will obviously
be Unix driven - AT&T's System V.2. Although
no more specific details are available from
PCS Cadmus 130 units of one of the product
ranges have already been shipped - so someone
out there knows quite a lot about it. Also
promised is a range of software development
tools, Unix applications software and Unix
networking software.
PCS Cadmus of Newbury, Berkshire is a wholly
owned subsidiary of PCS GmbH based in Germany
and three months ago announced that between
them they had sold 1,000 Unix systems in
Europe. PCS GmbH is also proud of the fact
that it has now got 100% penetration into
German Universities. The UK company has
recently undergone a restructuring apparently
to fall into line with the parent company's
policy of not selling direct and
concentrating on resellers, corporate
accounts and universities/colleges. This is
also attributable to the fact that PCS Cadmus
has not sufficient human resources to cover
direct selling.

CRELLON HAS DISTRIBUTOR
FOR NEW SUPERMAX IPL

Crellon Microsystems, part of the Thorn EMI
group, has already signed a distribution
agreement with CAD Marketing for its Unix
based Supermax IPL printed circuit board
design system after only launching it in the
UK on January 1st. Crellon also made its
first direct sale for the IPL this week. The
Supermax IPL system is an interactive CAD
system for layout of any kind of printed
circuit boards and thin/thickfilm hybrid
circuits. The machine is based on the
Supermax 16/32 bit microprocessor based
multi-CPU computers - any Supermax model can
apparently be used to run IPL workststions.
The Supermax IPL is based on the IPL from
Dansk Data Elektronik, another part of the
group, who had been working on the product
for about seven years. For £40,000 you get a
four slot backplane, one CPU/MMU module based
on a 12.5Mhz MC68000 processor, 3Mb memory,
one standard input/output controller, one
disk input/output controller, one 20 or 65Mb
winchester disk, one 1Mb floppy, one colour
graphic terminal, one tablet with cursor, one
combined reader/punch unit and one display
terminal with separate keyboard. The
Supermax IPL is the same as that used on the
rest of the Supermax range Unix System III
to be upgraded to System V within the next
few months. The printed circuit board layout
software is written in C and allows the user
to interrupt and write his own software when
he needs to do anything out of the ordinary.

SAS REWRITES STATISTICAL SOFTWARE
IN C FOR UNIX - VIA LATTICE

The SAS Institute has staked a claim in the long-
term future of Unix by buying up the rights to the
IBM mainframe versions of the Lattice C compiler
from its US developer, Lattice Inc of Glen Ellyn,
Illinois. SAS, based in Cary, NC, is a front
runner in IBM systems software. It is best known
for its statistical and graphics applications such
as SAS/Graph and SAS/Stat, widely used in giant
corporations. Lattice is one of the best-known
independent C compilers, but the purchase was not
so much one of those sneaky pre-emptive "strategic"
moves as a means to the end of launching PC/SAS.
PC/SAS has been written entirely in Lattice C, and
as a result is "faster than anyone expected"
according to European manager Art Cooke. SAS has
already shipped 350 copies of PC/SAS, and boasts 25
sites in Europe athough the product has officially
only just been launched from SAS's European
headquarters in Heidelberg.
Because so many Statistical Analysis System users
are in large corporations, SAS has devised a novel
and drastically simple way of charging multiple-
copy sites. Anything up to 50 copies of PC/SAS
will cost a one-off price of £2,500 - great news if
you want 50 at £50 but really tough if you happen
to want one or two copies. You can have 200 copies
for £5,000, or 500 at a knock-down £7,500; a policy
which is apparently going down well with giant
corporations and universities.
The company decided four years ago to move away
from its IBM-mainframe-only stance, aiming the
initial development at DEC Vax machines. SAS now
has its software running on Data General's AOS/VS,
and Prime machines, but didn't take long to
conclude that PL/1 was a limitation to future
portability.
Two years ago, surrounded by "noise about Unix"
SAS decided on C as a tool which would best serve
portability inside and outside the Unix market.
"We found that different versions of C were
actually much more similar to one another than
versions of PL/1" said Art Cooke.
"The problem was on the IBM side, where we have
over 6,500 SAS sites. There was no recognised C
compiler for IBM mainframes, so we acquired the
rights to Lattice C for all IBM mainframes - we
needed a compiler if C was to be our strategic
language."
SAS has enhanced the compiler for MVS and VM/CMS,
according to the proposed ANSI C standards, and is
hoping that other companies who catch on to C's
potential in the mainframe market will beat a path
to its door.
Cooke admits that SAS as yet has a only one eye on
the Unix market, describing it as "extremely
fragmented as yet". In-house development is on
Apollo workstations. SAS is trying to establish
which machines might be the front-runners in Unix
by polling users and asking them which
implementation should be done next.
SAS attributes its growth - 80% in Europe last
year, and a modest 20% in the US - partly to the
new markets opened up by portable implementations.
The UK branch is still growing and has just moved
its headquarters from suburban Weybridge to an
unpretentious 65-acre spread in Medmenham,
including fishing rights to 700 yards of Thames.

USENIX AT DENVER — DOMINIC DUNLOP, TECHNICAL DIRECTOR OF SPINX LTD, REPORTS ON A GATHERING OF THE FAITHFUL

Where have all the gurus gone? They've moved to the high ground, and last week's Usenix conference in mile-high Denver proved it. Retreating from the rising flood of cheap machines which don't need their expensive services, the long-haired — and increasingly long-toothed — pioneers of the Unix revolution are moving away from the super-mini towards the mini-super computer; cut-price Cray substitutes from companies like Convex and Alliant. To prove it, 1,100 attendees spent three days learning about high-performance windowing, high-powered hardware... And about Ada.

That Unix has become respectable — despite the dress habits of its practitioners — was shown by the high attendance from US military and government-funded projects. The high ground of the Unix community is becoming increasingly identified with "the new high ground" of Star Wars. Karl Auerbach, working on a peaceful fusion energy project at the Lawrence Livermore National Laboratory, told of the difficulties of implementing the traditionally permissive Unix operating system as a task on a cluster of four Crays ("within five minute's walk — if you've got the clearances") in an environment paranoid about security. He ended up giving each user their own Unix kernel, and much of the file system. Asked "Why Unix", he answered "Five years ago, our users had never heard of Unix. Now they're demanding it."

Cray Research is based in out-of-the-way Chippewa Falls, Wisconsin, on the principle that people really will beat a path to the door of a better mouse-trap builder. But the customers who arrive increasingly want Unix as a native operating system. Tim Hoel related that his major implementation problem — now that the Cray 2's 2 GB of main memory has made the embarrassment of its predecessor's mere 16 MB a thing of the past — was running multi-user Unix efficiently with the machine's surprisingly primitive memory management hardware while not compromising performance on long batch runs. That problem overcome, he was able to tune the system for massive Fortran jobs which, executing at up to 1.6 GFlops, tended to become I/O-bound at Unix' traditionally pedestrian file-transfer rates. Disk stripping (spreading a single file across the same tracks on more than one drive), track-at-a-time transfers, up to 12 MB of file buffers, and a new "raw" access mode upped transfer speeds to 5 MB/sec, a hundred times traditional speeds.

Nastran a structural analysis suite from McNeill-Schwindler can use that sort of performance. It's half a million lines of Fortran, some of it twenty years old and written by programmers who are "no longer with the company" or even no longer of this world. It has broken every complier from IBM's extended Fortran H on down, and Unix compliers were no exception. Despite requesting more of everything in implementations of a language which has traditionally played a poor second fiddle to

C in Unix, Bob Bilyeu praised Unix because it allowed two people to support a package across twenty different machine types, something which would be unthinkable with proprietary operating systems.

One of Cray's three beta test sites for its System V implementation is in Germany. There were only thirteen European delegates at the conference to learn this. Attendance at a birds-of-a-feather meeting on the internationalisation of Unix was similarly poor, perhaps because, as Brian Boyle, session chair from market analysts Novon in San Francisco put it, it was taking a long time for the US to "realise that the rest of the world is the rule, not the exception." Also taking a long time is the appearance of AT&T's much-discussed release 3 of system V. Another BOF session — this one packed — failed to prise a release date from the AT&T people present, who feared retribution from on high if they let too much slip out. As someone put it, "When they say they can't complain, they really mean it." Apparently a government customer near Arlington, Virginia, has an alpha test version of V.3 running on a large number of 3B20's networked using TCP/IP communications, but mere mortals won't see anything so advanced until June a the earliest.

The carefully unnamed National Security Agency is not alone in having a large network and a need for people with the knowledge and experience to control it. Evi Nemeth and Andy Rudoff from the University of Colorado at Boulder (the other UCB) conducted a very practical tutorial on the subject. Evi started with laying the cables: students, beer and pizza work out much cheaper than building services departments.

Security is an important issue, and difficult — though not impossible — to get right when your network includes computers such as the Sun 2, where anybody can become super-user by hitting the reset button and rebooting. One student who cracked the system by way of a subtle bug on a Pyramid machine was quickly recruited to the school staff, where he went on to minimise the need for duplicate copies of files on different machines. He wrote a program to allow remote access to manual pages — a man server. He called it a woman. Making a heterogeneous network present a consistent face to the outside world can be difficult as well. Everybody needed a drink after the exposition of a particularly baffling mailer control file, and those in front rows got one: a demonstration of communications protocols with bottles of wine as buffers and glasses as packets quickly moved from point-to-point into broadcast mode following an out-of-band interrupt from the floor.

On that high note the conference ended, leaving everybody to move higher still, either on the ski slopes or their flights home. Real life may get a look in at next month's Uniforum in Anaheim — despite the proximity of Disneyland.

UNIGRAM/X

MICROSOFT TO GO PUBLIC?

Microsoft Corp is shaping up as one of the hottest computer new issues of 1986, and all the signs are that the company is ready to go, with Wall Street observers saying that investment bankers Goldman Sachs & Co and Baltimore-based Alex Brown & Sons will handle the issue. Neither would say anything to the **Wall Street Journal**, and the fact that a spokesman at the Bellevue, Washington company said that financial and legal departments had told him not to talk reinforces the view that the company is entering the 90-day period of purdah required under the strict Securities & Exchange Commission. In sharp contrast to the free-for-all in London, where managers of a debutant company are wheeled out at every opportunity to inform, discuss, explain, in the US there is a 90-day period prior to the company going public where managers are proscribed from saying anything material at all which is not in the prospectus. In the year to June 1984, Microsoft became the first micro software company to go through the $100m sales barrier, recording sales up 50% to exactly $100m. It was soon joined in the $100 millionaire's club by Lotus Development Corp but forged on in 1985, adding another 40% to hit sales of $140m. Seeing the pain caused to companies like Computer Memories which have had the misfortune to win large IBM contracts, many will look askance at Microsoft's close links with IBM - it insists that in both fiscal 1984 and fiscal 1985, business with IBM accounted for less than 10% of its total. That is likely to rise somewhat following the new contract under which IBM will fund a doubling of Microsoft's development staff but as well as MS-DOS and Xenix, Microsoft is strong in language interpreters and compilers.

BELL LABS RELEASES NATURAL LANGUAGE DATABASE INTERFACE

AT&T's Bell Laboratories research arm has unveiled a natural language interface for database information retrieval applications. The Transportable English Language Interface, TELI, was developed using all the artificial intelligence capabilities of the Symbolics 3600 Lisp machine, but, like Unix, is designed for portability. It comes from the Interactive Systems Research Department of Bell Laboratories.

AT&T PACT WITH PAULINE ALKER's COUNTERPOINT?

Counterpoint Computers Inc, the company formed in San Jose last year by former Convergent Technologies vice-president Pauline Alker is reportedly on the brink of an OEM contract from AT&T Information Systems for its Motorola 68020-based OEM CAD/CAM workstation - and according to **Electronic News**, AT&T will itself do the Unix implementation for the station, using the forthcoming version which adds most of the features of BSD 4.2 to Unix System V. Counterpoint started out using the NS32032 before switching to the 68020; its station is said to be similar to the Sun Microsystems Sun 3 - but cheaper. Counterpoint has financial backing from Kyocera of Tokyo, which may do some manufacturing. Ms Alker said she would have nothing to say for a couple of weeks.

Minigrams

Some snippets of intelligence about the Personal Computer/RT for RISC Technology werebeen gleaned by **Computer Systems News**, which reckoned that the combined Berkeley 4.2 plus System V Unix will be called Advanced IX from **IBM**'s old Unix friend **Interactive Systems Corp** in Santa Monica, California; the consensus is that the machine will also run PC-DOS on an 80288 co-processor - and may also run a version of VM/370 called PC-VM; what is new is a suggestion that there will be two RISC CPU options, one in NMOS, rated at 2.1 million reduced instructions per second - equivalent to about 1.7MIPS, and the other with a CMOS CPU rated at 4.2m reduced instructions per second; the machine or machines are widely expected to accompany the lap-top Convertible next Tuesday, and to have 1Mb to 8Mb of fast interleaved memory, 30Mb or 75Mb Winchester expandable to 230Mb, and either a 1.2Mb floppy or 60Mb tape streamer, the basic station is $15,000 for end-user, $10,000 for OEMs.

AT&T's 1Mbps CSMA/CD twisted pair Starlan local area network has missed its late 1985 introduction and will not be ready until at least April because of software problems: although Starlan's Network Access Unit plug-in board for the AT&T PC6300 and IBM Personals has been available since Starlan's announcement last March, they aren't much use without the software; the problems lie in the forthcoming System V.3 version of Unix, and Unix and MS-DOS applications being jointly developed with other companies, which include Ethernet specialist **3Com Inc**.
    - o -
Nexel Ltd, one of the better pieces of fallout from the Big Bang which brought the life of the National Enterprise Board's unlamented **Nexos** to an end, has bought the rights to Millstream Business Software from **FBA Holdings Plc**: the modular multi-company, multi-currency Millstream financial package was originally developed for minicomputers but now runs on micros under PC-DOS and Unix; Nexel, based in Thame, Oxfordshire, shows its ancestry by the fact that it is still the recommended service company for **Logica VTS** word processors and **Ricoh** printers - the latter throughout Europe; it has since added **Keyword Office Technologies** and **Fortune** kit.
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Torch's Triple X outshone most of the other offerings at Which? to the degree that the BBC's **Micro Live** report on the BBC gave it star billing, describing Unix as a "seventeen year-old operating system which can do anything up to 50 activities at once". Fame at last. Wicat took the chance to announce that Unix had teamed up with another ageing whizz-kid, **Steven Spielberg**, to help look for aliens. Spielberg, anxious to track down the real ET, has sponsored the efforts of one Paul Horowitz, a Harvard astronomer who is on the lookout for alien signals. Horowitz has harnessed the power of a Wicat Systems computer to his giant radio telescope, and Spielberg's grant of $100,000 to project **META** (Megachannel Extra-Terrestrial Assay) has enabled Horowitz to expand the search to 8.4 million radio frequencies, which are faithfully polled, 24 hours a day, by a Wicat System 150
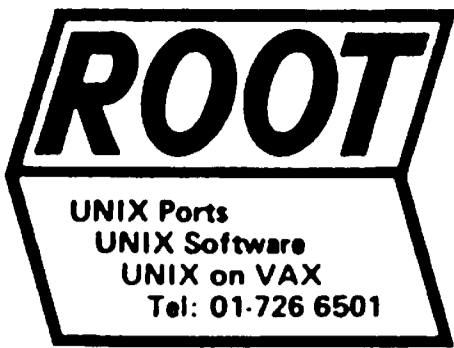
London, Week Ending 31 January 1986   **Number 62**

AMDAHL LAUNCHES UNHOSTED IBM UNIX V AS UTS/580

Amdahl Corp this week announced its second version of Unix System V and its first Unix for 370-type proces-ors which runs native rather than as a guest under VM/SP. Amdahl say that the unhosted version, called the UTS/580, gives about a 20% performance advantage over the version that runs as a guest. The main differences between the first and second versions of Amdahl's Unix System V is that a driver has been added for Ethernet local are network, it is now easier to operate in that terse error messages have been substituted for more readily understandable ones. Amdahl has also introduced a new pricing policy which relates the product cost to the complexity of the system: for an Amdahl 5860 the licence fee would be $6,000 per month, for a 5880 it would cost $10,500 a month. UK prices for the UTS/580 start at £2,760 per month and availability in the UK and US will begin in the second quarter of this year. Am-dahl is again one jump ahead of IBM in the mainframe Unix stakes: like Amdahl's two other UTS versions, IBM's IX/370 implementation of Unix System V runs only under VM/SP. Amdahl say that it has more than 40 Unix sites in Europe running under VM but will not give away worldwide or US figures because it "does not want IBM to know the shape of the market".

SUN TO GO PUBLIC

Sun Microsystems is going public with an initial offering of $4.6m shares at between $16 and $18, and plans to spend the $75m or so net proceeds on research and development and general corporate purposes. The company has cut its timing a bit fine because while net profits in fiscal 1985 were $8.5m, up from just $654,000 in 1983, on sales of $115.3m against $8.7m in 1983, profits for the six months to December were down 16% at $2.7m on sales up 70.5% at $75.9m. Sun will have 26.3m shares out after the issue, which is being handled by Robertson, Coleman & Stephens, and Alex Brown & Sons.

PLEXUS WEIGHS IN WITH 80-USER 68020 P/75 MACHINE

The promised 32-bit 68020 machine from Plexus Computers Inc of San Jose, California has arrived — and by making use of the company's distributed microprocessor architecture is able to support up to 80 users under Unix System V, twice as many as the previous top of the line, while delivering three times the performance. The P/75 is designed to support from 16 to 80 users according to how many Advanced Communications Processors are installed — each of these consists of a Motorola 68000 microcomputer with 512Kb to 2Mb of local memory, with 16 serial ports and a parallel printer port. Up to five can be installed to take users up to 80, and the processors support SNA, bisynchronous and X25 communications. To speed the system up, the communications processors have direct memory access to the RAM on the main 68020 processor, which comes with from 1Mb to 16Mb. And as well as the maximum five communications processors, the machine comes with up to five intelligent disk processors, presumably the same Z8000-based units which the company uses in several of its other machines, and again there are multiple access paths between the users and the disks — and the machine supports from 145Mb to a remarkable 6.5Gb of disk. The disk drives on offer all have 15mS average access time and comprise a 145Mb 8" unit with 1.2Mbps transfer rate, a 413Mb 9" unit with 1.9Mbps transfer rate, and a 588Mb 10.5" drive transferring data at a racey 2.4Mbps. A 6,250 bpi GCR tape drive stores 100Mb. Base price for a 15 slot chassis with 1Mb CPU, 145Mb disk, 50Mb cartridge tape and one communications processor is $36,000.

Plexus later made its European launch of its 80-user 68020-based P/75. Bas-ed in Swindon, Wiltshire, Plexus UK sees the P/75 replacing the existing P/60 line-topper in the medium term, by virtue of better price-performance ratio: it supports up to 80 users under Unix System V and costing £32,168 for 16Mb CPU and 6.5Gb of disk whereas the P/60 is £38,378 for 16Mb CPU and 1.2Gb disk. Plexus opens its second UK sales office in Manchester next month, as well as offices in Germany — south of Frankfurt, and France — at Ivry, near Paris. In West Germany, Thomson-CSF GmbH — the el-ectronic and defence arm of the French firm will also be a distrib-utor, doing its own sales support.

Plexus is a private company and therefore do not give away any of its financial information but it says that going public is within its strategy and intends to do so within two years. It says that any difficulties which occurred at the beginning of last year when people were laid off and money was tight have been resolved with the introduction of experienced and skilled financial and managerial staff.

ROOT SETS UP NEW SPHINX-LIKE ROOT COMPANY

Root Computers last week set up a new company to highlight its new intersest in commercial software for Unix environments, confusingly called Root Business Systems. Root Computer will continue to do porting and software enhancements but Root Business Systems will concentrate on producing software for the commercial field. Root Business Systems will be producing packages and bespoke systems. The first package out of the door will be a Financial Control System - the fruit of a joint venture with Hoskyns. Root Business Systems is converting Hoskyns' latest version of its Modular Application Systems (MAS) for mainframes to run under Unix. Other MAS products for which Root Business Systems is producing Unix versions are: the Manufacturing Control System, Purchasing Control System and Distribution Control System. Prior to this venture the MAS products could only run on mainframes from IBM. The Financial Control System consists of a suite of financial accounting modules - accounts payable, accounts receivable, and general ledger integrated through a Unix transaction database. Root Business Systems plans two sales routes; one by persuading computer manufacturers and systems houses to take the packages on board and sell them through their own distributor networks who will be trained by Root Business Systems, the other way is direct sales intended mainly for the bespke systems part of the operation.

Consultancy Service

Root Business Systems will be running a consultancy service to provide customized systems based on fourth generation language tools. The managing director of Root Business Systems is Eric Robson, formerly an executive director of Hoskyns. The new company's sales and marketing director is Derek Williams from Systemsolve. Another Hoskyns recruit to Root Business Systems is John Phipps, who takes the reponsibility of commercial director. Many of Root Computer's research and development staff have been transferred to the new company and will now concentrate on software development. Root Business Systems is housed in the same building as Root Computers in East London and is a wholly owned subsidiary of that company.

BULL LAUNCHES ITS AT-ALIKE AS THE BM60

On Tuesday Bull SA of France duly launched its IBM Personal AT-alike as the BM60, offering a dual 8MHz/6MHz 80286 CPU with 512Kb to 3.6Mb of memory. The machine runs single-user MS-DOS and also supports eight users under Prologue. Bull has also signed with Microsoft for implementation of Windows and Xenix on the BM60. It has also signed an agreement with AST Research to offer add-ons, the first being the Rampage board which extends IBM Personalike memory above 640Kb. The BM60 offers mouse and digitiser support and will take a Smart Card reader by the end of this year. The company sold 33,000 Micral micros in 1985, four times as many as in 1984.

RC COMPUTER PREPARES TO LAUNCH STRING OF INNOVATIVE PRODUCTS IN UK

In a quiet way, ITT has become a key player in the Danish computer market, for as well as taking effective control of the best bits of Christian Rovsing after that company went bankrupt towards the end of 1984, it also owns 26% of RC Computer and will shortly be launching some RC products in the US (UX No 60). RC Computer, formed in 1946 as Regnecentralen A/S by the Danish Academy of Science, was rescued from bankruptcy in 1979, and went into a corporation management contract with ITT in 1982 giving the US company a 26% share. The majority of the 50% microcomputer market share RC Computer holds in Denmark is in the government sector and it intends to hit the same market in the UK.

Unix machine

Up to now, the UK RC Computer subsidiary here in London has simply supported the company's old products, mainly RC3600 remote batch terminals built around Data General Nova processors, but it now plans to start selling its new product line. Its Partner 80186-based microcomputer extends the old remote batch terminal concept, for when linked to the company's RcMicronet local area network acts either as a main workstation which supports up to three slave workstations or as four concurrent consoles running on one processor - which can be backed with 1.2Mb floppy, 42Mb Winchester or 45Mb streaming tape, and communicate with a mainframe via the ICL CO3 communications protocol developed for the Partner by RC Computer. This facility allows one of the consoles to access ICL mainframes with the physical communication lines being controlled by the RC Partner. The system will be offered with a multi-user SSADM - for Structural System Analysis and Design Methodology - designed by the Central Computing and Telecommunications Agency. The Partner system, costing £30,000 for the main workstation, four slave terminals and a printer, runs Digital Research's Concurrent CP/M and links up via the local area network to its top-end Unix machine, the RC39. Launched in Denmark last summer, the RC39 is due here in the next three to six months. Based on the 80286 with capacity for up to four additional 80186 processors, the system runs Redwood's Uniplex on top of Xenix. It supports 16 users under Xenix and 32 when used as an IBM 3270-compatible remote cluster controller connection supporting a local network of terminals which can be up to a mile distant using RcMicronet. This network runs at only 250Kbps since it uses ordinary twisted pair telephone cable. The RC39 is also offered in combination with a PABX as the Databus 2000 in Denmark. The products will be sold direct through the company's UK subsidiary or on an OEM basis. RcMicronet is a baseband Ethernet-compatible CSMA/CD network running at either 1Mbps or 10Mbps using RG11/U coaxial cable. RC Computer has shipped 15,000 microcomputers in Denmark and, over the past six months, 20 to 30 Unix systems. Now back to rosy health after the troubles of the late 1970s, RC reckons it did around £1m pre-tax on £35m sales in 1985.

NEW GRAPHICS CO-PROCESSOR, WINDOWING ULTIX FEATURE ON DEC VAXSTATION II/GPX

DEC introduced its new, upmarket VAXstation II/GPX in the UK last Friday - only days after the US introduction and will be making it available first with its Ultrix operating system. Ultrix was chosen over VMS because it has introduced a new component to the operating system - X-Windows, a windowing system for Unix developed by DEC in conjunction with the Massachusetts Institute of Technology. There is currently no windowing standard in the Unix marketplace and DEC hopes that in X-Windows, it has come up with a potential industry standard windowing interface. Another reason for the Ultrix choice is that it is due for a new release in the spring but the next VMS release will not arrive until the summer. The current version of Ultrix, Ultrix-32m, is claimed to be compatible with Berkeley 4.2, 4.3 and System V.

Also included in DEC's enhanced Ultrix version is a new optimised VAX Fortran compiler which DEC claims is three times faster than Berkeley Fortran; support for the GKS graphics interface standard; and DECnet. VAX Fortran is compatible with both VMS and Ultrix; DECnet allows Unix users to open windows on a VMS host and examine files on remote nodes, and enables a Unix program to communicate directly with a VMS program on a remote node. DEC says that it will be bringing out local support for the VAXstation II/GPX during the early part of the summer.

DEC is heralding the VAXstation II/GPX for Graphics Performance Extension - as the final component of its complete CAD system.

The MicroVAX II is the centre of this system and DEC says that it has sold about 12,000 units worldwide in the last six months.

New graphics co-processor

The new workstation uses a new VLSI graphics co-processor which was designed and manufactured in DEC's semiconductor manufacturing plant in Hudson, Massachusetts. The co-processor allows a range of display functions; raster copy, vector drawing, tiling and pattern fill, clipping, scaling, zoom and scrolling.

DEC claims that the GPX chip set operates at speeds of up to 560 Mbits per second and apparently allows parallel operation on all planes simultaneously.

The co-processor's direct memory access capability allows parallel processing by the MicroVAX II for application-specific tasks. Although DEC can offer no substantial evidence it claims that the VAXstation II/GPX with its VLSI graphics subsystem delivers graphics performance up to five times that of competitive offerings.

An entry-level colour system for the VAXstation II/GPX costs £31,000 and includes a MicroVAX II with floating point unit, standard cabinet, 71Mb disk drive, 95Mb tape drive, 3Mb of memory, Ethernet adaptor, three-button mouse, keyboard, operating system licence, four-plane graphics co-processor and a 19" colour monitor.

The eight-plane colour system is priced at £36,000 and may be expanded to three 71Mb disk drives.

The extended colour system can again be expanded to three drives and uses the eight-plane graphics co-processor but has 9Mb of memory and costs £45,000.

The monochrome system has the same configuration as the entry level colour system but has a 19" inch monochrome monitor and is cheaper at £29,000. All configurations will be out in April.

Biggest VAX ever with Ultrix soon

Just over a month after the launch of the VAX 8650, DEC has announced the biggest machine yet in the VAX range and quashed rumours about the MicroVAX III with the simultaneous launch of two mid-range machines.

The VAX 8800, twice as powerful as the 8650 but the same size, is rated at 11 MIPS and features a twin processor with a high dgree of fault-tolerance.

If the slave processor crashes, the master can cope and if the master crashes, the slave can be rebooted and become the master. These two processors share 32 MBytes of main memory and uses a new 60 MBytes internal bus for high speed CPU/memory transfers.

Initially there will be two of these VAX BI buses included in the price but a further two can be added, giving the 8800 twice the throughput of the 8650.

An average configuration includes the 8800 CPU, two buses and 32 MBytes of memory and an Ethernet and VAXcluster interface. A maximum of 100 MIPS can be achieved by clustering about nine of these machines.

The mid-range machines, the 8200 and the 8300 are, in effect, replacements for the VAX 11/780, though DEC stress that the 11/780s are not being phased out and were at pains to point out that the idea of the VAX family was to provide continuance, "old VAXes never die, they simply get clustered." Both machines share a common architecture and an upgrade kit to convert an 8200 to an 8300 will be announced soon. The 8800 will sell for a price of £608,000 and shipments start in April.

The 8200, at £70,000 is faster than the 11/780 and cheaper and the £83,000 retails for £112,000; these machines will also be available from April.

The new VAX uses the same VMS system as the current range, though support for Ultrix, DEC's version of Unix wil be announced soon.

END OF MULTICS ERA

With only 54 users worldwide and the need to invest some $35m to $50m a year for the next five years if it is to expand the user base and take it into new markets, Honeywell has reluctantly decided that it will have to wind down the Multics operating system and put it on a care-and-maintenance basis. It will stop offering the DPS 8/70M top-end Multics - Multiplexed Information and Computing System - mainframe after the end of 1988, and will limit the software to two fur-ther new releases, the first of which will be out this year. The small user base does include Ford and General Motors - and a string of colleges and research establishments. Although the operating system, designed for secure time-sharing at Massachusetts Institute of Technology in the 1960s, and inherited by Honeywell when it bought General Electric's computer business in 1970, will fade away, concepts it pioneered, notably the "rings of protection" security concept, will live on in other products, not least in Unix - the name Unix is a pun on Multics.

IBM's RT PERSONAL COMPUTER SETS SAIL ON A RAFT OF SOFTWARE

Along with the RT Personal Computer announced by IBM UK last week, comes a whole slew of software for those working in the CAD/CAM/CAE and Unix market. The PHIGS graphics standard name has been incorporated into IBM's graphics programming interface, IBM Personal graPHIGS. This is compatible with the recently announced Graphic Display Data Manager and allows for 3D graphics, essential to those working in fields like robotics. Along with this comes four more programs in the Profesional Graphics Series which allow programmers to standardize file formats, draw graphics on plotters, develop programs and emulate non-IBM terminals. The Interactive Systems Corp INmail/INet electronic mail system permits file transfer between RT Personals, other IBM Personal Computers and larger computers running IX/370. A version of IBM's SQL/Data System, relational database manager is available for the RT, named the SQL/6150 Data Base. To run this you need the 6150/6151 Data Management Services program. An Emulation program similar to the one available with the current Personal family enables RTs to act as terminals for large applications such as the Professional Office System. Various programming tools are also available, including two which run solely on the top-end Models 20, 25, and A25, the last being the one designed for use only with the 5080 graphics display processor. One bears the rather unwieldy title of Computer-Graphics Augmented Design and Manufacturing, mercifully shortened to Professional CADAM. From CADAM Inc, this is IBM's first CADAM program for stand-alone workstations and it allows production drawings to be seperated into individual details in order to show exploded views. Also for these models is the Computer-Integrated Electrical Design Series which, as the name implies, is for the design of integrated circuits and the like. It is IBM's first circuit design offering and was developed in-house.

Up to eight users

The other application tools run on all models and can be used by up to eight users. There is the mouse-based text processing package WPS from Interleaf Inc, and Applix IA, which allows text-processing to be combined with graphics and spreadsheets. Applix, which comes from Applix Corp, can also be used to send messages through the the Personal network and Applix vice-president John Butler is quoted as saying that his company's software runs faster on the RT than on any other machine currently available. Data for geologists and geographers can be displayed using Uniras, from Uniras Corp, which allows for hidden surface removal and has a database which includes detailed maps of the entire world. Other tools include the statistics packages RS/1 from Bolt Beranek & Newman, and IMSL from IMSL Inc, Samna Corp's spreadsheet package Samna+ and Solomon III, TLB Corp's Accounting Package. UK hardware prices start £9,043 for the desk-top RT Personal Computer 6151/10 with 1Mb main memory, 1.2Mb floppy and 40Mb Winchester – plus a daunting £2,627 for the AIX operating system, and £207 for the keyboard; it is available in May. IBM has not put a price on the three screen opti-ons – the 6153 720 by 512 pixel 12" mono, the 720 by 512 pixel 14" 16-colour screen, and the 6155 15" extended mono graphics display, putting up 1,024 by 768 pixels.

FAULT TOLERANCE: TOLERANT "WINS BULL, JAPANESE BACKING"

Investments by foreign computer companies are no guarantee of success for US start-up computer manufacturers, but there have been fewer failures among foreign-backed companies than among the generality of start-ups, and even where, like Nixdorf-backed Auragen, they do fail, their technology frequently lives on with the former investor. So it is good news that Bull SA of France and perpatetic Digital Computer Ltd of Japan have reportedly taken 5% stakes in Tolerant Systems Inc of San Jose, California. Tolerant is the latest entrant in the "graceful growth" transaction processing stakes with its fault-tolerant Eternity System. The architecture is built up from loosely-coupled supermicros, each built of multiple NS32016 microprocessors and running a modified version of Unix called the Transaction Executive, TX. For the past year Tolerant has been selling the machines in a standalone non-fault-tolerant configuration to help cash flow while it perfected the continuous pro-cessing features. And now, as promised, the lastest release of TX turns the stand-alone machines into System Building Blocks for the Eternity System, each with its own copy of the operating system, applications programs, main memory and peripheral and communications subsystems. All the building blocks are linked by a high-speed, dual-channel bus. The transaction processing system automatically keeps at least two copies of each user file and application on different disks. When a file is being updated an image of the file change is recorded in a transaction log before the file is altered. As the database is never altered until the transaction is completed, the system can backout and restart automatically if there is a crash or the transaction has to be aborted.

Unix Kernel: split and extended

The file system has been hardened and access speeded up for large files: the block size has been in-creased and the top pointers locate 8Mb on a disk instead of the standard 10Kb. The Unix kernel has been extended and split into three parts, each running on separate processors: the Real-time Processing Unit runs TX and handles the file management, mirror-image backup, logging and checks; the User Processing Unit handles applications, queries and data-base management – using the C-ISAM package from Relational Database Systems Inc; and up to 12 Communications Interface Processors to handle the input-output, communications, terminals and printers. TX is based on Berkeley 4.2, but will run System V applications. It appears to the user as one monolithic system, although copies of it are distributed across several machines. Up to 15 System Building Blocks can be linked, to support from 120 to over 2,000 users, with each Communications Processor lined to two Building Blocks. Table-driven applications generat-ors produce C code, Cobol code and Ada code is promised for the not to distant future. Eternity System prices have a kick off point of $190,000.

PRIME OFFERS NEW OFFICE MODELS
IN ITS 32-BIT MINI LINE

Prime Computer yesterday announced worldwide two additions to its 50 series. The new offerings - the 2350 and 2450 - are intended for use in an office environment and will replace the current entry-level 2250 system. The 2350 offers twice the power of the 2250, and the 2450 boasts up to 40% more performance than the 2350. The difference in performance is attributable to new custom gate array technology based on Fujitsu's VLSI circuits. The two CPUs have 16Kb cache memory and a 64-bit data transfer rate. To accelerate instruction processing, the 2450 CPU uses high speed, high density Schottky TTL components, and has load-able control store to enable users to extend the instruction set. Both the 2350 and 2450 CPUs use two-stage pipeline processing techniques optimising system throughput. The new systems also use 2Mb and 4Mb boards introduced by Prime last October for a total of up to 8Mb of MOS memory. The 2350 supports up to 16 local users and the 2450 up to 24. There is also a new 5.25" disk subsystem, the 4711, which offers combinations of 60Mb or 120Mb drives installed internally in the cabinet to give up to 240Mb of usable disk storage.

Primix under Primos

Both the 2350 and 2450 support the full Primos operating system which allows the Primix operating system, Prime's Unix implementation, to run under Primos. Prime rates the 2350 at 0.85 MIPS and the 2450 at 1.3 MIPS. A standard 2350 with 2Mb self-interleaved wide-word Error Code Correction MOS memory; 60Mb Winchester disk; 45Mb cartridge tape subsystem; and eight asynchronous and one synchronous line costs £26,310. The standard 2450 system with the same configuration as the 2350 except with 16 asynchronous lines costs £42,150. A field upgrade from the 2350 to 2450 costs £17,510. The current Prime 50 series range now consists of the 2350, the 2450 and the 2655; and the 9655, the 9750 and the 9955. Both series use the same CPUs, and the first digit indicates whether the system is intended for standard office - 2 - or computer room - 9 - environment, the second signifies its position in the range, all have the common third digit, 5, and the final digit is either a 5 or 0 - a five shows that it is an enhanced version of the original. Prime intends to expand its existing UK distributor network but is looking for quality rather than quantity. Amongst the better known Prime distributors are Wootton Jeffries and Pafec. Prime is also seeking to expand its Solution Circle program, which gives distributors a percentage in a system sale, that was started last April and numbers System Designers as one of the eight participators. Prime is aiming the sys-tems at CAD/CAM, manufacturing, ed-ucational and commercial markets. It has already sold one of the new machines to a UK government depart-ment. The rest of us mere mortals will have to wait until February 10 when the 2350 and 2450 become generally available.

AT&T KILLS NET/1000

In a decision which has major nega-tive implications for the more am-bitious value-added network services still in the planning stage, AT&T Information Systems has abandoned what for seven years was its raison d'etre - the Net/1000 compu-ter service. AT&T invested $1,000m designing and building a computer network which would be all things to all men, handling protocol con-versions so that incompatible mach-ines could communicate, and offering processing and electronic mail services. Its determination to get the thing up and running was the reason that it pressed so hard for an anti-trust settlement with the US Justice Department, agreeing to get out of the local phone business in return for the right to pursue the convergence of computers and telecommunications. What went wrong? Personal computers replaced dumb terminals, and users found it cheaper to operate their own main-frames than use AT&T's, and found that packet networks like Telenet provided all the protocol conversion necessary. The reverse is ser-ious but not critical because AT&T has switched to a computer strategy of getting its 3B machines and the Unix operating system established as major players. The DEC VAX and IBM computers in Net/1000 will be moved to other work, and AT&T will make a write-off in the tens of millions of dollars. AT&T will al-so have to renegotiate its Japanese networking joint venture, which was to have been based on Net/1000.

CORVUS "SET TO DISCONTINUE
ENTIRE ONYX COMPUTER LINE"

Having settled in the hot seat at Corvus Systems Inc just before Christ-mas Oemtek founder and now Corvus president James Siehl is not wasting any time in putting his stamp on the San Jose, California company. He will announce discon-tinuation of the entire Onyx line of micros acquired with Onyx+IMI last year, termination to take place within 45 days of the announcement. The machines run a variety of operating systems, notably Oasis, Xenix, Unix and Concurrent DOS: affected are the Z80-based C5010, the Z8000-based C5012, the 80186-based C6001 and the 68010-based C6810. The decision will mean that little visible is left of Onyx, which closed down its IMI disk drive business about 15 months ago.

Norbain unworried

Two weeks ago we reported Norbain Data Plc's exclusive agreement to market the Onyx line in the UK. The Reading, Berkshire company says it was aware of the Corvus decision when it signed the agreement at the Which Computer? Show, but insists that Corvus will still manufacture the range for foreign marketing, simply abandoning US sales. Norb-ain says that it expects no adverse effect on sales because the Onyx range is a popular line in Europe and the machines offer a complete solution for users with information system type applications. The machines which will be marketed - no sales as yet - are the Onyx 5010, the Onyx 5012 and the Onyx 6001.

UNIGRAM/X

AT&T CONFIRMS INVESTMENT IN COUNTERPOINT

AT&T, Kyocera of Japan, and British & Commonwealth Shipping are together investing about $20m in Counterpoint Computers Inc, the San Jose OEM engineering workstation start-up formed by Convergent Technologies refugee Pauline Alker. AT&T has also confirmed that it will buy Counterpoint's 68020-based computer-aided engineering workstation OEM. Omnicad, where AT&T has a minority stake, has also switched to the new station from one based on AT&T's 3B processor.

Company Results

Cray Research Inc has turned in fourth quarter net profits up 24.7% at $12.0m on turnover up 17.9% at $84.7m; net profit for the year to December 31 was up 66.7% at $75.6m on turnover which rose 66.6% to $380.1m. Net earnings per share, adjusted for a two-for-one split in August, fell 28% to $0.39 in the quarter, 63% to $2.49 in the year.

Gould Inc has reported a fourth quarter net loss of $65.1m after a charge of $74.9m for disposal of assets, up from a loss last time of $45.1m, on turnover up 40.0% at $354.3m; the net loss for the year to December 31 was $175.7m after a $159.2m charge for reorganisation of the American Microsystems chip business, against a profit last time of $17.8m, on turnover which rose 2.1% to $1,420m.

Apollo Computer Inc has reported fourth quarter net profit down 91.2% at $732,000 on turnover off 6.8% at $70.8m.Net for the year to Dec 31 fell 93.6% to $151,600 after a $14m charge for layoffs and writedowns. Net per share fell 92% to $0.02 in the quarter.

Minigrams

NCR's disappointing decision to abandon its effort to build a top-end Unix machine around its NCR 32 chip set does not mean that the company does not still see a need for a Unix machine to come in above the 68020-based Tower 32: the company is now reportedly casting its net very wide in its quest for a suitable processor, considering the **Intel** 80386, the **NatSemi** 32332, the **Fairchild** Clipper chip set, the accelerator chip set from **Weitek** – presumably as an add-on to the existing 68020 CPU, and boards from start-ups **MIPS Computer** and **Edge Computer.**

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The message from **Microsoft** on its plans – still not formally confirmed – to go public this year is that it doesn't **need** the money – it has plenty of cash in reserve, but it would like the added visibility accorded a quoted company, and would also perhaps like to make some acquisitions; analysts look for sales of about $170m this year – to June, up from $140m in 1985 and $100m in 1984; the microcomputer languages and operating software company is thought to be on margins of about 15%, implying profits of $12m last year; as to price, the thinking is that it could go for as much as two times prospective sales, implying a tag of around $340m.

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/usr/group/UK has joined the American /usr/group **Affiliate Group Programme** – a group set up in the Us to try to co-ordinate the activities of all the various user group spread throughout the world, working to avoid duplication, to gain standardisation and speed up the work on networking and applications software.

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Microsoft has acquired San Francisco based **Cytation Inc.**

Access Technology Ltd has announced that the spreadsheet 20/20 is available for Unix based machines – initially for the **AT&T** 3B20, 3B5, 3B2/400, 3B2/300, the PC and **Convergent Technologies** machines

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Interghraph (Great Britain) Ltd is following the rest of the crowd and relocating its UK headquarters in Swindon, Wilts from its present Newbury, Berks location: Intergraph who claim to be number two in the CAD/CAM/CAE market will take possesion in February.

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Also at the **ICL Traderpoint** stand at Which Comuter? show (UX No 60) was **Mentor Systems** plc demonstrating its Max Contractor application software package for the ICL Clan: the package is multi-currency, multi-lingual for the building trade and will run on any hardware that supports System V.

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The Royal Signals and Radar Establishment have developed an Ada compiler for the ICL Perq 2 that will soon be ready for validation. It is implemented on the Flex environment, noted for its ease of use and rapid program development, and aimed at prototyping.

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Unix Europe are offering the Unix System Toolchest to customers in Europe – but without the electronic browsing and shopping available in the US. The Toolchest currently contains programs ranging from windowing for $95 to the Korn Shell for $2,000, with databases, drivers and games inbetween. However, users in Europe will get a printed catalog and receive the software on a floppy disk or tape as there is no list of licencees and currency complications.
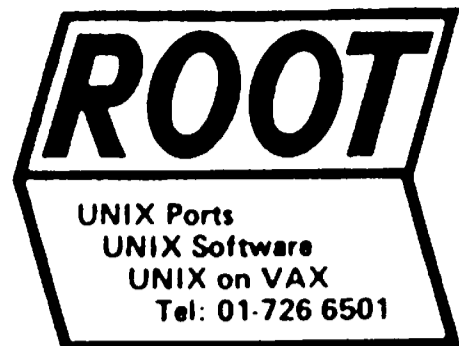
ENCORE SEEKS BUYER FOR FOUNDATION UNIX SOFTWARE COMPANY

Too much money, too many industry superstars and too many conflicting ideas of what the company should be doing have made Encore Computer Corp one of the unhappiest start-ups of recent years, and the latest development in a chapter of unrealised hopes is Encore's decision to offer its Foundation Computer Systems acquisition for sale. Encore bought the Cary, North Carolina company in March 1984, in the hope that its Ally software product would enhance its planned Unix machines. Ally is a software product designed to enable semi-skilled Unix applications programmers to do development by responding to prompts from the system and filling in blanks on the screen. Versions for a variety of hardware including DEC VAX and PDP-11, and IBM 370 and Personal Computer were in the works when Encore bought the company. Now Sperry and Data General are reportedly interested in acquiring Foundation - but they won't get the Foundation founders. Earl Gilmore and three colleagues from Data General who established the company have resigned to form another company, which they are calling Foresight. No word yet on what the new company plans to do.

HIGH LEVEL HARDWARE ADDS WEITEK ACCELERATOR TO ORION

High Level Hardware Ltd of Oxford has, as reported previosly added the superfast Weitek 64-bit floating point accelerator to its Orion superminicomputer, boosting its maximum performance by a factor of more than 20. The two-chip Weitek 64-bit floating point co-processor chip set was launched here last March by the US firm and High Level Hardware has reworked the microcode so that it forms an integral part of the Orion 32-bit bit-slice CPU when installed. The accelerator uses the WTL 1164 multiplier and the 1165 arithmetic logic unit, each containing about 400,000 transistors. The unit can be configured into an existing system by loading new floating point microcode - the instruction codes do not need to be changed and existing programs need not be recompiled. Four of the £4,649 accelerators have already been sold, and one in-stalled. The accelerator meets the IEEE754 standard for binary floating point arithmetic.
About 75 Orion machines have been sold over the last two years, with a typical configuration costing about £28,000 including 2Mb CPU, 168Mb disk, cartridge tape, floating point unit and Berkeley 4.2 Unix. High Level Hardware says it will be sticking with 4.2 for the next 18 months as it is popular both internally and with the customers but System V may have added attractions by then.

PYRAMID TO ENCOURAGE IBM RT DEVELOPMENT ON 90 SERIES

An unusual feature of the Pyramid 90x and 90Mx RISC Unix machines is the facility to create up to five concurrent "universes", with two at present taken up by the BSD 4.2 and System V environments. The other three are currently inactive, al-though Pyramid has helped major customers to develop Whitechapel Computer Works and Zilog Systems Universes. Now however the company sees a big opportunity in the new IBM RT PC and plans to offer customers all the tools necessary to create a universe for IBM's new AIX combination of BSD 4.2 and System V.

SIEMENS "SET TO SIGN FOR SEQUENT's BALANCE 8000"

Despite its close ties with Intel, Siemens is already committed to the National Semiconductor Series 32000 for its high-end Unix micros, and according to **Electronic News**, the Munchener is now negotiating an OEM contract with Sequent Computer Systems of Portland, Oregon for the Balance 8000 machine. The Balance 8000, designed for intensive transaction processing, comes with from two to 12 32016 or 32032 chips, and runs under Sequent's Dynix version of BSD 4.2 Unix, with System V on the way. Siemens's interest bodes well for Sequent, formed by Intel Systems refugees. The Balance 8000 is sold here by Compass Peripheral Systems of Newbury, Berkshire.

AT&T's SYSTEM V.3 "WON'T BE READY BEFORE FOURTH QUARTER

Widespread hopes that AT&T would have something encouraging to say about the forthcoming Unix System V.3 release which will include the remote file system and Streams communications facility at this week's Uniforum in Anaheim are doomed to disappointment. The company has reportedly run into snags on development of the remote file system, and the delay is a severe blow to integrators who were hoping to get to grips with it in April. Confusing the issue a little, Interactive Systems Corp of Santa Monica, doing the V.3 implementation for the 32-bit Intel 80386 says the work is well down the track, and Intel says it expects it to be available for beta testing as early as July 1986.

DEC JOINS X/OPEN

DEC has beaten Sperry to become the first non-European member of the X/Open Unix standards club, four more US firms are tipped to follow.

UNIX is a trade of AT&T Bell Laboratories

Pyramid Technology, the Mountain View, California-based manufacturer of high-performance RISC architecture Unix machines, is moving into networking in a big way with its new WorkCentre family. Building on Pyramid's own implementation of the Sun Microsystems-developed Network File System, the WorkCentre communications and networking system provides transparent file sharing, local storage, remote backup, database management and network security to local networks of workstations and PCs.

As a network server, it also provides access to extra computing power, printers, plotters, storage and local communications.

And at the same time it provides a transparent gateway to the outside world, giving everyone on the local networks access to corporate data centres, remote mainframes, wide-area networks, and public mail and databases.

As NFS will shortly be able to transparently link different machines running different operating systems – Vax/VMS and IBM PC/DOS are rumoured to be imminent – the WorkCentre is billed as a means by which mis/edp managers can regain control of the anarchic use of desktop computers throughout a company, while at the same time providing efficient communications and vastly increasing their power and utility. While serving local NFS-based networks, it can concurrently communicate with remote mainframes using various mainframe protocols. The intensive i/o causes no degradation in cpu performance as the heavy load is handled by the intelligent i/o controllers.

All major IBM protocols to be supported

All the major IBM protocols will be supported – noteably SNA and 3270 – as well as Cray supercomputers via the Hyperchannel. (Cray Research is said to be working to adapt the WorkCentre to use as a front end for the supercomputer, linked by multiple Hyperchannels.) With its intelligent i/o controllers, a 40 Mbyte/sec Xtend Bus, Hyperchannel, Ethernet, X25, RJE, Arpanet, TCP/IP and up to 32 RS232 ports, it can link to almost anything from PC to supercomputer. The WorkCentre has a 32-bit RISC/multiple register cpu with 8 Mbytes of memory, a register windowing capability, intelligent terminal and peripheral control, and up to 600 Mbytes of disk storage.

PYRAMID'S LOW-END WorkCentre ADDS NETWORKING, MAINFRAME GATEWAYS TO RISC PERFORMANCE

A basic system costs £85,000 with a 1600 BPI 1/2 inch PE tape drive, support for up to 32 users, and an architecture software-compatible with the more powerful 90x family. It runs Pyramid's OSx dualport operating system that implements both AT&T's System V and Berkeley 4.2BSD Unix concurrently in different "universes" and allows the user to move from one to the other and take advantage of the different features.

And now that IBM has made RISC technology respectable with its RT Personal Computer running an "IBM standard" Unix – the Advanced Interactive Executive (AIX), a mix of System V.1, 4.2BSD and Interactive Systems Corp's IX3 – Pyramid are providing tools to help users mix 'n match to build their own AIX in one of the three "spare universes" in the machine.

'IBM standard' AIX runs in a 'spare universe'

It can then be used to produce binary software to run on the RT Personal Computer – or execute RT software rather faster than the IBM machine.

Digital Equipment Corporation has joined the growing list of manufacturers who are implementing NFS – the announcement was for its Ultrix version of Unix, but work is believed to be advanced on a Vax/VMS implementation, which would make NFS the first true heterogeneous network (one that transparently links not only different machines but also different operating systems.)

Sun pushes NFS as a networking solution

Since the introduction of NFS in 1984, Sun has been working to encourage its adoption as an industry standard operating system, and plans to extend it to link to all major operating systems and gradually increase its functionality.

Because it allows users to share files across a network as if they were native on their machines, it increases the usefulness of the network, decreases administration and eliminates the need to maintain redundant copies of files.

DEC's Ultrix is already moving towards compatibility with System V and 4.2 BSD, and supports TCP/IP and DECnet.

Meanwhile the Convex Computer Corporation of Richardson, Texas, is working with Sun Microsystems to implement the Network File System on its Convex C-1, one of the first of the "affordable supercomputers" to start shipping over the past two years.

The implementation and planned extentions will tightly-couple the Sun workstations to the Cray-architecture C-1, allowing users to take advantage of both the interactive graphics and services on the Sun workstation and the power of the Convex system.

Sun workstations to be tightly coupled to C-1

Convex will implement the basic NFS system while Sun will specify and implement the high-speed computational server standards, network management services and other facilities to efficiently and transparently connect the two systems.

The two companies will then jointly market the Sun-Convex networks. And to cap off a month that saw a growing momentum behind the movement towards NFS, Alliant Computer Systems Corporation, from Acton, Massachusetts, signed a joint development and marketing agreement with Sun for their parallel processing supercomputers.

As well as the basic NFS implementation, the two companies will collaborate to specify and develop network management software to provide a remote batch execution facility to allow jobs to bne submitted interactively from a Sun workstation to run on an Alliant system.

The Alliant machines combine a number of Motorola 68012-based interactive processors with multiple proprietry 64-bit computational processors, and a Fortran compiler which takes unchanged Vax source code and decides which parts of a program mcan be distributed among the cpus for parallel execution.

Up to eight of the compute processors and 12 interactive processors can be included, all sharing the same address space. A switch implemented in CMOS ate arrays dynamically connects the computational processors (which support both vector procxessing and parallel processing) to the shared memory, giving a shared bandwidth of 376 Mbytes/sec. The 4.2 BSD operating system has been adapted to maintain two queues of tasks – one for each of the processor types – and runs on the 68012s.

BELL LABS HAS EXPERT SYSTEM ON A CHIP

AT&T Bell Laboratories claims to have developed an expert system on a single chip which is capable of performing 80,000 FLIPS or fuzzy logic inferences per second. That speed, it says, is 10,000 times faster than conventional expert systems. The concept is aimed at applications which require real-time response to external events such as missile command and control. The experimental parallel processing chip was actually designed for controlling a robot arm, and consists of an 8,300-transistor chip in 2.5 micron CMOS which includes 16 rules in ROM, a controller, and an inference processor. Bell Labs describes the chip as a potential co-processor for use with existing symbolic processing systems. The use of fuzzy logic means that the chip will accept approximate matches where it cannot find exact counterparts. It says that it is currently using only a quarter of the surface of the chip, so that in the existing technology, it can raise the number of on-board rules to 64, and by moving to 1.25 micron CMOS, it should be able to expand the rule base on the chip to 256.

TADPOLE 68020 GRAPHICS CARD

Cambridge-based Tadpole Technology, yesterday announced a graphics processing board for Unix systems and the IBM Personal family. The Aurora is based on the 32-bit Motorola 68020 running at 16MHz with optional MC68881 floating point co-processor as an optional extra. It is available with Multibus I, Multibus II or VME bus, and an SCSI bus is used as the host interface. Multi-ple Aurora boards can be attached via SCSI to a single host processor. The Aurora firmware includes a Tadpole-developed resident window manager, graphics primitives and multi-window terminal emulation. Aurora will initially be sold only OEM and an evaluation board will cost £4,000, but Tadpole also plans to licence the board to UK, other European, and US manufacturers.

AT&T SETS DEAL WITH SGS

The two companies are not saying anything before next Tuesday, but following AT&T's agreement with Compania Telefonica Nacional de Es-pana to manufacture chips in Spain, the US phone giant has signed an agreement with SGS-Ates Componenti Elettronici SpA of Italy. It is possible that the new agreement in-volves second sourcing of AT&T's 32100 microprocessor used in the 3B machiens marketed by Olivetti. SGS is the official European second source for Zilog, but Zilog has be-come a way-back-in-the-field also-ran in 16- and 32-bit microprocessors, while WE32100 business is on the up-and-up. If SGS were to second source the WE32100 family it is likely that Olivetti would switch from the Z8000 to the AT&T chips for its Linea Uno multipro-cessor computer systems family.

GEC COMPUTERS UNVEILS SUN 3 OFFERING

Previewed at Compec, the Series 42 Workcentre, based on Sun Microsystems' 68020 Sun 3 system, is now available from GEC Com-puters. The VME bus machine comes with X25 and Ethernet communications, 68881 floating point co-processor, 4Mb to 16Mb of memory, Fortran 77, C, Pascal and 68000 assemb-ler, and prices start at £30,000.

HIGH LEVEL TO DO PROLOG X

High Level Hardware of Oxford has £35,000 of Alvey cash to help fund commercial development of Prolog X for its 32-bit Orion microcodeable Unix mini. Devised at Cambridge University, Prolog X is claimed to run 15 times faster than previous versions of the symbolic language.

GRUMMAN HAS TOLERANT ADA FOR ETERNITY

A further fillip for lusty fail-safe Unix parallel processing newcomer Tolerant Systems comes with the news that Grumman Data Systems of Beth-page, New York, has developed an Ada compiler specifically for Tolerant Systems' multi-NS32000 Eternity machine. Grumman says that the new compiler, derived from Telesoft Ada, was specifically developed for fault-tolerant parallel processing, and provides access to a full commercial file system, database, data communications and transaction management software as well as providing "technically sophisticated" tools for software development. Grumman points out that existing Ada compilers generally limit access to existing system services. The new compiler provides full support for both Berkeley 4.2 and System V system calls, and the enhanced debugger features full Ada syntax and semantics including overloaded warning and generics. The Tolerant Systems TX Unix includes separate real-time and time-sharing implementations, which can run concurrently, the real-time being invoked by hardware interrupts, and the time-sharing by interrupts in software. Programs written in the Grumman Ada can run in either environment without any change. The compiler also enables a software engineer to develop an application on a uniprocessor which will then run on a multiprocessor without change. The Eternity mac-hine consists of loosely coupled multiprocessors, each of which is made up of separate NS32000 micro-processors as the basis of the Real-Time Processing Unit; the User Processing Unit; and multiple Commu-nications Interface Processors.

MEMORY TO BUILD MOTOROLA UNIX MODELS...

Memory Computer of Dublin, Eire has an agreement with Motorola Information Systems under which it will do final assembly and test of the Convergent Technologies Mini- and Megaframe based Series 6000 Unix machines for the entire Irish market. The agreement is worth £2m over two years. Memory says talks with Olivetti about marketing the AT&T 3B Unix line are continuing.

...AS MOTOROLA RECASTS LINE, KILLS FOUR PHASE NAME

The name Four Phase Systems never meant much in Europe, but was big in the US when Motorola bought the company four years ago. Now, however, market research shows that the Motorola name rings more bells, so Four Phase goes into the dustbin of history. First act of the new Motorola Computer Systems is to tidy its product line, dropping the Series 2000 name which applied to its own 68000-based Unix machines and adding two former 2000 models, the 2040 and 2090, to the 6000 series, which is based on Convergent Technologies' Megaframe and now has five models, the 6300, 6350, 6600, and the 6200 and 6400 from the 2000 line. All are now packaged as tower systems. The old Four Phase 24-bit line is also consolidated into two models, the 4500 and 5000.

UNIGRAM/X

DIGITAL RESEARCH TAKES THE WRAPS

OFF CONCURRENT DOS 286

Digital Research is now ready to ship its much-delayed Concurrent DOS 286 - held up while Intel struggled to put right the faults on the 80286 chip - and has one contract in the pipeline with one unnamed European hardware manufacturer.

The real-time multi-tasking operating system can address the full 16Mb of the 80286 chip.

It supports Digital Research's GEM graphics environment manager and real time operations concurrently with PC-DOS applications, although there is some 30% degradation with packages like Lotus 1-2-3 and WordStar which address the 8088 hardware of the IBM Personal directly.

According to Paul Bailey, head of Digital Research's UK arm in Newbury, the operating system is likely to carve out a niche for itself in areas where Unix cannot compete, particularly where there is a need for multi-user, multi-tasking upgrades from PC-DOS.

"At the moment there's a lot of concern that there is a fragmented entry level to these systems, and no clear path forward, though IBM says there will be a multi-tasking multi-user PC-DOS" he said.

He hopes to nip in with Concurrent 286 while Microsoft is still working out its options with MS-DOS 4 and MS-DOS 5.

Digital Research set out to make Concurrent 286 "something that looks like a Unix", although it turned out to be not so easy to conduct concurrent multi-tasking operations with graphics and the ability to respond to prioritised real-time events. Undiscouraged, Bailey predicts an improvement in performance when the Intel 80386 chip becomes freely available.

"A lot of people are hanging back until the crucial Unix issues of standards, stability and availability are resolved" he says.

He claims that in the meantime, manufacturers will be anxious to implement and "grow" applications via Concurrent 286, without getting locked out of any future developments.

8-bit CP/M

The company is seeking to escape from its old CP/M image and is making a painful transition out of its traditional OEM stamping ground into a new identity.

Bailey says that the balance of income will tip to 50-50% between operating systems and graphics in the next year.

At present the GEM graphics software accounts for only 30%, with a dwindling 20% coming from language compilers.

The 8-bit version of CP/M still generates a useful 15% to 20% of revenue, and has received a new boost as the operating system chosen for Amstrad's sell-out £400 word processor. The deal will certainly win more acolytes to CP/M, though rumour has it that the terms won by Alan Sugar of Amstrad are unlikely to allow anyone to retire on the proceeds. And just round the corner in the CP/M-80

world is of course the internal 16-bit Z800 microprocessor from Zilog, which has the potential to revitalise a host of applications written for the 8-bit CP/M machines which were the mainstay of the business microcomputer market until they were swept away by the IBM Personal Computer three years ago.

And with cash injections from Northern Telecom and Motorola - and substantial business on the quiet from IBM the company looks a lot happier than it did six months or so ago.

TRAINED ENGINEERS MAKE SYSTIME

UNIT A GOOD BUY FOR DEC

The business which Systime sold to DEC UK last Friday in settlement of the £5m suit for alleged illegal copying of DEC's printed circuit boards is estimated by DEC to be about half of Systime's business.

The sale leaves the rump of Systime, once a £60m-a-year company, with 400 employees and annual sales of £14m.

The D-series customer service business has a base of around 1,700 sites, is worth about £10m a year in revenues, and neither company is prepared to say how much money actually changed hands for it.

It involves service contracts which are not automatically assignable, but DEC is hopeful that Systime's 2,000 to 2,500 customers will eventually transfer their contracts.

DEC say that it has no plans, at the moment, to market the D-series but will take on many of the 240 employees involved in the D-series within Systime to perform similar duties for DEC or to work in some other capacity in the DEC organisation.

DEC is having difficulties getting personnel experienced in its systems, and according to Systime, DEC is more than happy to take on the 240 employees, who are at least DEC literate.

Sale to DEC preferable

Systime says that sale of the business to DEC was preferable to a proposed management buyout, because it both provided a better guarantee of employment, and the ensured satisfaction of customers using the D-series.

Control Data, with 93% of Systime, nevertheless says that it has no opinion on the sale, and that Systime will continue to have complete autonomy in running its business in the most profitable manner. Systime's business will now consist of support and marketing for its S-series micros and the fault-tolerant supermicros from Parallel Computer running a version of Berkeley 4.2 Unix.

Systime has also developed its own Xenix business software package called Utopia and intends to develop it further and market it widely.

Systime is also being forced to sell its expensive head office in Leeds and is in the final stages of negotiations with Heron Group for around £20m.
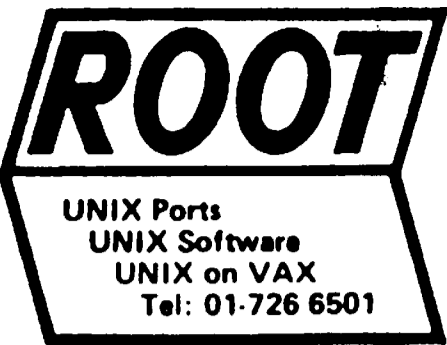
SEQUENT UNVEILS 30 NS32032 PROCESSOR BALANCE 21000

The long-promised 30-processor version of Sequent Computer Systems' Balance transaction processing Unix system has been announced as the Balance 21000, and the Beaverton, Oregon company is claiming a performance of between 2.8 and 21 MIPS, and 0.32 to 2.25 Megaflops running the Parallel Lintack benchmark. The machine, using 32-bit NS32032 microprocessors, comes with a minimum of four processors, supports from 8Mb to 48Mb of main memory, 396Mb to 4.75Gb on disk, 32 to 256 asynchronous lines, and offers two to 2.5 times the performance of the Balance 8000, from which upgrades are available by swapping processor boards. An entry system with 8Mb of memory, four CPUs, 396Mb disk, 1,600 bpi tape unit, Ethernet interface and 32 asynchronous lines with a Dynix Unixalike licence for 32 users costs $145,600. A 20 CPU Balance 21000 with 32Mb memory, 1.2Gb disk, 6,250 bpi tape, Ethernet, 256 asynchronous lines and operating system licence is $502,000. Sequent claims that it has 54 commercial installations of the Balance 8000; it has signed Matsushita Electric Trading Co in Osaka as its sole agent in Japan. It is represented here by Compass Peripheral Systems of Newbury in the UK, and a deal with Siemens is on the cards.

CELERITY COMPUTING ADDS DUAL PROCESSOR BASED ON NCR 32

Celerity Computing, the San Diego, California company formed by designers from the team which developed the NCR 32 microcodeable 32-bit chip set, has come up with two new models in its high-performance Unix family – one of them a dual processor. The NCR 32 is designed to be microcoded with a high-level instruction set, but does have a primitive horizontal microcode 250 instruction set on chip, and Celerity ingeniously uses it naked to create a Reduced Instruction Set Computer. The machine has a 100nS cycle and three-stage pipeline, runs under Berkeley 4.2 Unix, and supports a maximum 24Mb of memory. The two new models from Celerity, joining the original C1200, are the C1230-620 and the dual processor C1260-630. The 1230 adds a 176Kb cache memory, supports up to 64 users and up to 22Gb of disk is claimed to deliver 3.25 MIPS in a single precision Whetstone benchmark. A processor with 4Mb memory, one parallel and two serial ports costs $59,000, or $75,000 with 337Mb Winchester. The 1260 doubles everything up, supporting up to 128 users and 44Gb of disk, and is claimed to deliver 6.15m single-precision Whetstone instructions. A C1260 with 4Mb CPU, 320Kb cache and 337Mb Winchester is $110,000. The company is also cutting the price of the original 1200 by a whopping 32%, $24,000, so that a 4Mb CPU now costs just $50,000. The Sun Network File System is available for the 1200 line at $2,500, and PC Interface from Locus Computing Corp, which supports IBM Personals as intelligent terminals, costs $2,500 for up to 32 users. Celerity has a $12m two-year contract from the US Air Force for 25 systems for pilot training simulators. The processors will be used with the Rediffusion Simulation NovoView image generation system.

CONVEX OFFERS OEM VERSIONS OF C1 MINISUPER

Convex Computer Corp, the minisupercomputer manufacturer formed in Richardson, Texas by Data General alumni, has entered the OEM market with two configurations of its 64-bit C-1 machine, which runs under the company's own implementation of Unix. The 6430 is a naked configuration designed to be used as an embedded system, fits into a 19" rack and costs $240,000. The 6435 is more fully featured with Multibus controllers to enable peripherals to be added, and is $290,000. The machine has a Cray-like architecture with vector and scalar processors and up to 16 Mb meory, and is claimed to do up to 60m operations a second. The basic Convex processor is built in semi-custom CMOS gate arrays.

SPHINX TO SELL TODAY IN UK

The Australian fourth generation language Today, from Sydney firm BBJ is to be marketed in the UK by Sphinx of Maidenhead. The system joins a flood of applications generators and languages on the Unix market, including Software Express's Appgen and Unify's Accel. Sphinx claims that the system allows programmers to develop commercial systems entirely in Today without the use of conventional languages.

ELXSI ADDS 4.2 BSD UNIX ALONGSIDE SYSTEM V ON 6400

Elxsi Corp of San Jose, California, now owned by Trilogy Ltd, has added an implementation of Unix 4.2 BSD to complement its existing version of Unix System V on its System 6400 64-bit minisupercomputer. The 6400 comes with from one to 12 processors, and the two implementations of Unix – or multiple copies of them – run concurrently but autonomously. The new implementation is set for second quarter ships; pricing will be similar to that for System V.

IBM TO APPEAR AT UK UNIX USER SHOW?

IBM's enormous stand at Uniforum, Anaheim, was packed with RT machines, people putting them through their paces, and, according to one observer, IBM people pretending that they'd been in the Unix world forever. This lends some weight to the rumour that IBM is planning a vast presence at this year's Unix User show at the Tara Hotel, June 3 – 5 this year. It seems that people who have not paid their deposits on ground floor stands for the Unix show are being politely elbowed aside by organisers EMAP to make room for IBM. EMAP is cautious – saying IBM's booking is provisional.

CHARIOT GRINDS TO A HALT WHILE HCR SEEKS DEVELOPMENT PARTNER

Human Computer Resources, of Toronto, Canada, has called a halt to development of its Chariot applications suite. Despite promises at its announcement in November that the software would be would be available this August, the suite will be left unfinished while HCR seeks a development partner.

HCR is looking for a collaborator who will be prepared to invest resources and finance to start the Chariot wheel turning again. The company stresses that it is not short of cash, and its backers are still keen that the project is brought to completion, but it has already spent to its planned budget level in developing Chariot.

More serious is the resources crisis. HCR says this second reason is more critical. The company admits that it can't deliver as promised without input from programmers who are not necessarily C wizards, but have strong links with sales, marketing and business administration.

HCR implies that it has better things to do, despite its earlier boast that Chariot would take the lead in the Unix applications market. In short its highly-prized Unix expertise is precisely that - highly prized, highly priced, and only about Unix.

HCR President Mike Tilson argues that the company is technically capable of completing the project, but can't afford to risk its resources on Chariot at a time when there's a heavy demand for HCR's traditional services optimising Unix and undertaking large-scale development for major vendors. He describes the move out of Chariot as "re-focusing on HCR's roots". In the meantime Chariot has lurched to a halt while HCR negotiates with software houses and other interested parties.

HCR is "negotiable" as to the exact arrangement, which might involve a one-off payment, or a sharing of royalties. HCR intends to play a consultancy role if possible and still wants to be associated with the completed Chariot, so the search is on for a suitable partner to share the thrills and spill of such a venture.

So where does one find C programmers who are expert in accounting and business applications? Not in Toronto, it appears, as John Wrobel, who recently set up HCR's European operation in Newbury UK, is also scouting for suitable collaborators. So far Tilson has had promising talks with several parties and has one strong contender in Canada, but names are not yet forthcoming.

Chariot is a suite of accounting packages built around an applications generator; not a brand new concept, but one which HCR promised to fulfil more thoroughly, than anyone else, and at all levels of the marketplace when it announced the package last November.

Previously best known for its language compilers and porting expertise, HCR was over-optimistic in claiming it would take the lead in business software. It proved unexpectedly difficult to get application software out of the door, especially as HCR was trying to produce software which would suit system integrators and end users.

The idea was to launch Chariot with interfaces to relational databases including Unify, Oracle and Mistress.

The basic applications modules were planned to support runtime or development versions. The development tool is an applications generator - no name as yet - which was developed in C and used to generate the base applications. Certain standard modules are supplied in standard, re-usable code, with the idea that this would provide a cheap, affordable business package to the lower (Xenix oriented) end of the market and a custom-built option to the top-end corporate customers.

HCR did its homework thoroughly, and was rewarded by a high level of interest in the idea. Over 10,000 companies responded to its original mailshot, and 1100 of them wanted the product yesterday.

The concept was a winner, but the realisation not so easy. HCR's difficulties give credence to the idea that Unix is still a "techies" system, starved of commercial applications expertise.

In the meantime other contenders are preparing offerings for the same market place which may deprive HCR of its putative "leadership" in Unix applications. Other database-related applications generators such as Today and Appgen are relying on the same embryo market-place. Although their scope may not be so wide as that declared for Chariot, they could still make a dent in the area which HCR once claimed to have to itself.

To salvage its pride, HCR's thickly-veiled announcement of its setback uses the term "restructured operations". Former President of HCR Dennis Kukulsky is retaining responsibility for the transition of development effort to a suitable licensee - including, presumably the task of finding one.

Wrobel is disparaging about the idea that a product can miss its time-window, especially as the market for Unix applications has been slow to mature, but HCR is obviously in a hurry to complete the development and recoup on its investment.

The company has already discussed Chariot with several interested OEMs and manufacturers, including Olivetti, IBM, and NCR, as well as investigating the possiblity of Chariot on the Sun and Apollo workstations.

More morale-boosting for HCR is its readiness for the IBM Unix-based RT machine, for which it already has a Pascal compiler up and running. The enhanced RT Pascal was demonstrated at Uniforum, and HCR is claiming that benchmarks for its the compiler put it well above anything IBM can offer at present, and has already shipped half a dozen with early sales of the RT.

HCR does not encourage speculation that IBM might endorse RT Pascal, despite the fact that ix/Pascal, IBM's Pascal compiler offered by IBM under ix/370, is based on HCR's Pascal compiler.

REDWOOD SIGNS M/A-COM FOR NEW EDITION OF UNIPLEX II PLUS

St Albans-based Redwood International used Uniforum to launch its new version of its Uniplex office automation software. Fixing its sights on the US market as its main pitch, Redwood has turned its back on smaller distributors in favour of a major deal worth $3 million with M/A-COM, now established as Redwood's representative in North, South and Central America. MA-COM is a major systems integrator whose status (around 125 in the Fortune top 500) should help in winning US government contracts for Uniplex.

Bringing its software in line with US government standards was partly the motivation for Redwood's updates in Uniplex II Plus. The main additions are business graphics and calendar management, although the company is putting equal emphasis on the extended spreadsheet and database capabilities so that the individual products can compete in their own right, rather than relying on "integration" as their primary attraction.

Uniplex II Plus now supports an enhanced spreadsheet and database query language. The software is now also compatible with the Informix database and its C-ISAM data management language, already endorsed by AT&T in another Uniforum announcement.

Redwood is claiming to be the only company offering an Informix-associated product which is not just "vapourware", and according to marketing director Tony Heywood, Uniplex II Plus was a crowd-puller at Uniforum because "what amazed people was what was already there". The addition of the Informix link gives the software an extra lever, since it can now be linked with other Informix-based applications aimed at specific "vertical" markets.

M/A-COM, one of the few outsize companies in Unix software distribution, is said to have signed six sub-distributors at Uniforum. Manufacturer Altos has also paid an undisclosed amount to Redwood for worldwide exclusive rights to the software on its own 20826 and 3086 machines.

FRANTIC IBM SIGNALS:WAVING OR DROWNING

There are times when one is suddenly aware of frantic wordless signalling coming out of **IBM** and this is one of them: the company is a more than a little embarrassed at the all-things-to-all-men enthusiasm which has greeted the RT Personal Computer, and the company would like you to understand that the machine is really **only** a CAD/CAM and CAE box, nothing else - and **please** don't run away with the idea that just because it has **Samna Corp**'s all-singing, all-dancing Samna Plus software on it, which includes upmarket word processing, spreadsheet, and a sneaky little program called Wordbase which enables you to find the file in which you carelessly left your wife's birthdate without laboriously opening every file on the disk one by one, and looking through them all, that it should in any way be seen as a general purpose office automation box to rival System 36... with **Unix** on it? You must be joking!

AT&T ENDORSES C-ISAM FOR UNIX

AT&T announced at Uniforum that Version V.3 of Unix would include the C-ISAM fast access software. The software is licenced by its developer Relational Database Systems of California and forms the bedrock of its Informix relational database system. Companies which have already adopted C-ISAM as their standard development tool for applications are busy congratulating themselves, since AT&T's endorsement will help Informix in its efforts to become the preferred database in the Unix market. At present Informix runs second to Unify, the most popular of the Unix database systems in the US. The proposed X-Open standard also identified a C-ISAM-like interface in its specification of a preferred database with SQL (Structured Query Language) interface.

SUNSYSTEMS SELLS TO CHINESE

Systems Union of North London is claiming the first sales of Unix-based applications software to China with its Sunsystems accounting software. The software is to be distributed by the Chinese Computer Technical Service government agency, responsible for promoting computer applications through its 40 branches throughout China. Sunsystems is "training the trainers" in London according to Managing Director John Pemmerton, who estimates sales could reach the £100,000 mark within a year. He's advisedly cautious about the timescales needed to establish trading in China, but is confident that the potential user-base of 30,000 should return the investment Sunsystems will have to make in development and training. The company first got a foothold in China through exhibiting at the Computer China '86 Exhibition. The translation of screen interface and support manuals is being done via the Chinese version of MS-DOS, C-DOS, which handles 2 bytes as if they were one. Initial marketing effort will concentrate on the ledger software although Pemberton thinks that Inventory and Production Control are also likely to feature in Chinese sales.

The development effort is centred on the MS-DOS implementations to begin with, with Unix versions following. The translation problems are not so great with Unix, which doesn't need to make any distinction between Chinese and British data since conversion is at terminal level.

China announced last year that its computer policy would give preference to "standard" products in the Unix area, since it intended to adopt Unix as its preferred standard for software applications, and IBM as its preferred hardware environment.

SPHINX SELLS ITS XENIX TUTOR DOWN UNDER

The online tutor for Xenix from Sphinx of Maidenhead is about to break new ground in the antipodes. Following the Tutor's successful showing at Uniforum Sphinx has reached distribution deals with firms in Australia and New Zealand, and is investigating the possibility of a Japanese version. According to Sphinx founder and managing director Pamela Gray (she has abandoned the better-known name of Geisler in favour of the surname she was born with), the Sphinx stand was mobbed by people playing with the Tutor. The function of the Tutor is to enable first-time Xenix users to do things easily from the beginning. It was written by Sphinx in conjunction with Educational Technology of Cranfield.

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SANTA CRUZ OPERATION MIMICS LOTUS AND DBASE II

The Santa Cruz Operation is planning to cash in on the enormous popularity of PC-DOS products Lotus 123 and dBase II with two new products announced and demonstrated at Uniforum in Anaheim. SCO Professional and SCO Foxbase were described by the Santa Cruz, California company as "workalikes" because they look and act exactly like Lotus and dBase respectively.

According to SCO the Unix-based products can even work from the same data files as their PC-DOS counterparts. The two were demonstrated at Anaheim on PC AT compatible machines running SCO Xenix System V.

SCO Professional was developed in association with VIP Technologies Inc of Goleta, Ca, which has already established the Professional name in the PC-DOS marketplace. It offers integrated spreadsheet, database, and graphics under the same user-interface as used by Lotus - SCO had the two running side by side, indistinguishably, at Uniforum. The applications can read existing 1-2-3 floppies and files, regenerating DOS readable information. SCO claims that Professional goes further than Lotus in providing more query fields, a larger worksheet space (the product's pilot name was Picture), and full preview character-graphics support for any standard terminal, and optimised spreadsheet storage.

The pedigree of SCO FoxBASE is similar; developed jointly by SCO and Fox Software Inc of Perrysburg OH, the product is announced for IBM PC AT compatibles and the PC 6300 Plus. The software is described as "language and data file" compatible.

The prices and delivery dates for the US are given as $795 and 12 weeks for SCO Professional, and $795 and 6 weeks for SCO FoxBASE.

SCO also used Uniforum to announce its intention to develop and distribute the Xenix-NET packaged version of Microsoft Networks for Xenix, as a companion to SCO Xenix System V. SCO and Microsoft have been linked in their development programmes since 1981.

SCO is well aware that their mimic systems may invite protests from the orginators of the pattern products, but SCO's Doug Michels, Vice President of Engineering, does not anticipate trouble. "It's up to the courts... I see it as good for the original companies" was his pronouncement on the matter. US rulings on "visual copyright" have applied only to video games so far, and the nearest test case was ended by Digital Research's out-of-court capitulation over its Gem software which mimicked Apple's Macintosh interface.

Xenix-NET provides networking and distributed file system capabilities under Xenix System V. It also allows transparent file sharing with PCs running MS-DOS in a local area network.

Minigrams

Micro Business Systems' MBS Microtex has a £750,000 contract to supply 22 **Altos** 2086 Xenix microcomputers to **British Telecom National Networks** Transmission and Switching Works Division, as part of the system for managing the main trunk network and trunk exchanges.

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Motorola has married its 32-bit MC68020 microprocessor to an MC68824 Token Bus Controller to create an Advanced MAP Network Interface VMEbus board, the MVME372, which supports 10Mbps: no price yet but July delivery.

Thorn EMI Software Sciences is to distribute the monster multi-microprocessor **Northern Telecom Data Systems** Vienna machine under an agreement worth at least £3m over two years: the system will be the basis of an open communications standard integrated office system running under the Xenix Unixalike.

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A mild source of embarrassment to **IBM** is that name: here in Europe, the feeling is that RT/PC sounds far too much like R2D2, the android from Star Wars, so IBM is busily redoing all the literature so that the thing is called the 6150 or 6151 for the two larger models.

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Despite the Personal Computer tag, in the US, the RT Personal is being manufactured not at Boca Raton but in Austin, Texas, and those who may have hoped that **IBM** would make it for Europe in Greenock, Scotland will be disappointed: we hear that **IBM Italia** will be manufacturing it, probably at the Vimercate site.

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The good news for those who **hate** the **IBM** Personal keyboard with its odd layout and high-pitched clack, and don't think much of the monitor either is that the rather better RT Personal keyboard and the much better RT screens should work just as well with all models of Personal.

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NCR UK tells us that its US parent settled on the processor for the planned top-of-the-line Tower Unix machine quite some time ago and development of the machine is well down the track - but won't say which CPU has been chosen.

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However from **NCR Corp** headquarters in Dayton, Ohio, the company tells us that it **hasn't** made a decision yet and that all the processors we listed - **Fairchild** Clipper, **NatSemi** Series 32000, parts from **Intel** and **Weitek**, and boards from **MIPS** and **Edge**, remain under consideration.

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"That just means 'no comment'", retorts **NCR UK**: "a CPU has been chosen, but we're not saying which".

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Although **IBM** is bringing all the public relations big guns to bear on putting over the message that the RT Personal is **only** for scientific and engineering applications you don't have to go too far inside **IBM** to find people who have no doubt that third parties will put general business programs on the machine and offer it as a direct competitor for Xenix machines from the likes of **Altos** - and bizarrely, the IBM rules say that Authorised Remarketers (hardware resellers) can sell everything **except** CAD/CAM, which seems to be encouraging business applications.
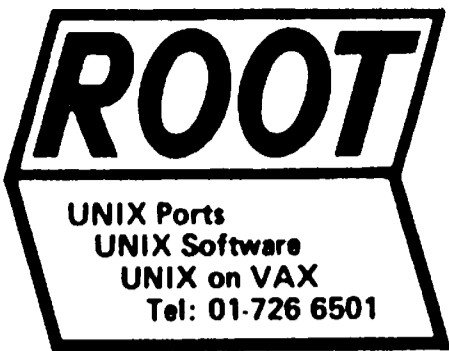
London, Week Ending February 21 1986   **Issue Number 65**

LORAL UNVEILS ITS DATAFLOW COMPUTER

Loral Corp's instrumentation division in San Diego, California
has unveiled its contender for the Dataflow computer market as
the LDF-100. The machine is built of from 10 to 512 National
Semiconductor 32016 microprocessors, and is rated by the company
at from five to 256 MIPS.
The LDF-100 is built up from nodes, each consisting of two 32016
microprocessors, with 128Kb of local memory, and, needless to
say, running under Unix. The minimum configuration consists of
five nodes, 1Mb of global memory, 80Mb Winchester, floating
point co-processor and Unix, costing $67,000.
The machine, available for immediate delivery, is being offered
both to OEM customers and to end-users, and Loral's target
applications are in flight simulation, data acquisition and
modelling.

IEEE P1003 COMMITTEE PLOTS ITS COURSE

The IEEE P1003 committee on standards has decided on its role
following its recent meeting under the chairmanship of Jim
Isaak of Charles River Data Systems.
Isaak reports that the committee will concentrate on the things
that at present frustrate developers trying to run "portable" C
programs in different environments.
He cites differences in "systems interfaces", as the problem
area. Where the i/o capabilities of host machines may differ,
for example, the lack of standard interfaces can make it
difficult to re-create a task in the new environment.
The committee will be tackling such areas as C requests for
services, systems calls, and subroutines.
While many areas overlap with those addressed by other bodies
such as X-Open and the /usr/group standard, the P1003 committee
has already identified some points left uncovered by AT&T's
System V Interface Definition.
It suggests that the limits file, when complied, must include
information on the environment in which the program is running,
including the maximum size of integers supported to account for
different capabilities in 16 and 32-bit machines.
A program may also be sensitive to the particular "standard" of
Unix implemented; for example, it might not find all the
functions it expects, so it must be able detect which standard
is in force, and conform.
Many of the concerns emerging in the P1003 brief are a result of
Charles River Data Systems' involvement in determining a
standard for Unix in real-time use.
The company has a role in the MAP standard agreed between the
motor manufacturers, who having put their own house in order,
think they can teach peace and harmony to the Unix community.
CRDS has worked on Real Time Extensions to Unix at General
Motors, so don't be surprised to see the same issues raising
their heads in P1003.

In this weeks issue:
Page 2; Update on the **Simdell**
and **Systems Union** case –
including a letter from
Simdell's managing director.
Page 3; **Charles River Data
Systems** gets System V: **Hewlett-
Packard** on verge of launching
RISC machine.

SOFTWARE EXPRESS APPOINTS KALAMAZOO FOR EUROPE

The appointment of Kalamazoo in
Birmingham has ended the search of
Houston-based Software Express for
a European distributor of its Unix-
based applications generator
Appgen. Software Express has been
seeking a UK outlet since Appgen
was first shown running on 10
different machines and six stands
at the European Unix User show last
June. Kalamazoo saw and evaluated
the product for its extensive
development of systems for the
motor trade. The company has re-
developed two motor trade systems
on the NCR Tower, starting from
scratch with Appgen to produce
portable C code. Kalamazoo is an
enthusiastic user of applications
generators, having already some
experience in the Pick market,
where Appgen itself started. One
of the Pick-like features it has
retained is the use of a hashing
technique which makes for very fast
data retrieval, and makes it
possible to store variable length
records. The company was
interested in achieving the same
sort of flexibility under Unix,
hence the adoption of Appgen.
Kalamazoo intends to sell
customised applications from the
Software Express range of 75
"vertical market" packages, and
also to sell and support the Appgen
developoment environment for
£6,000, as a product in its own
right.

SYSTEMS UNION REQUEST IMPARTIAL OVERSEER FOR DISPUTED CODE IN SIMDELL CASE

This week the case between the two software houses Simdell of Coventry and North London-based Systems Union (UX No 59) takes a step forward as Systems Union has to satisfy the court that it actually owns the disputed source and intermediate code.

The case centres not on the alleged copying of code, as do most such wrangles, but on the copying of "concepts" -less easy to determine, and almost untried in law. The case is significant because of the recent emergence of "lookalikes" written from scratch, but so similar in execution that the rival product can trade on the reputation and market acceptance of its pattern. This is an issue in the Unix market in particular since some suppliers (Santa Cruz Operation, for example) are basing their products on existing MS-DOS successes such as Lotus 1-2-3 so closely that the lookalikes can take advantage of the same training material, and, consequently, the familiarity of many existing users with the techniques and "look" of a product. The Systems Union case against Simdell is similar - Systems Union's SunAccount packages, written to run under Unix , are alleged to be the basis for Simdell's Libra accounting packages, which run under the entirely dissimilar Pick operating system, in its native Data Basic. Meanwhile, Systems Union has to submit its source and intermediate code to the Master of the High Court and Simdell, in the first stages of proving its greivance. But Systems Union is insisting that this formality should take place in front of an impartial third party, not Simdell itself, as it is says the process of disclosure is more "threatening" in the case of program routines than in the case of a plagiarised novel or song.

In the meantime, Systems Union has had to do some hasty filing of accounts, since eager ferrets among the Companies Register have discovered that the last set of accounts filed was in 1983 - a precarious position to be in, since non-filing can result in being struck off the register. Herman Bruce, Systems Union marketing director, pleaded guilty as charged, but pointed out that 1984 accounts were now safely filed, and 1985's would follow hard upon them.

Letter from Simdell

Managing Director of Simdell, Peter Westwood, has written to us in response to our article (UX No 59) concerning the case. The letter is reproduced here:-

Simdell is set to embark upon what could be a two year legal tussle to clear its name of allegations that Simdell's Libra Accounts infringes Systems Union Copyright in Sun Account.

While the law states that someone is innocent until proven guilty, this accusation has the opposite effect. We are, therefore, forced into a position of denying something of which we should never been accused.

Some relevant facts:-

1. Systems Union have claimed in the press that there are 50 items of similarity, of which 24 appear to be identical. However, only 14 have been identified in the writ.

2. The first alleged similarity states "Four types of accounts are defined: debtor, creditor, profit and loss and balance sheet." One is led to wonder how an accounting system can be designed without such fundamental definitions and just who has copyright in them.

3. The reason why software packages are copied is to save develoment time and cost, also to bring a competitive product quickly to the marketplace. Our Libra Accounts Software took two man years to develop and cost in excess of £50,000.

4. Systems Union have said that Libra Accounts has been developed by 'reverse engineering', where the performance and screen design of programs are reproduced using different source code. Not only is the functionality of Libra Accounts totally different, but input screen designs contain no similarity whatsoever. This is supported by a report from Mr R Baddley, a Computer Consultant, who telephoned us on reading the recent press reports to say that he had evaluated both Sun Account and Libra Accounts and could not see any similarities to connect the two products.

5. Software package developers agree that the development of any software package is based upon the previous experience of its authors, coupled with ideas and concepts gained from researching other comparable products. The existence of similarities, which can be found in most equivalent packages, cannot form the basis of copyright infringement. If this were the case, not only could the Software Industry be plunged into confusion, package development would stagnate.

As a member of the Computing Services Association, my Company supports the work of FAST and the legitimate work against piracy and infringement of copyright. We are just as strongly opposed to wrongful accustions, including those made by Systems Union.

Sytems Union's response

Systems Union responded to the letter when contacted by saying that a number of points seem to be justification of plagiarism. Herman Bruce, director of Systems Union said that out of 14 instances of similarity Simdell had chosen the weakest one - point 2. He continued that for the amount of similarity to have occurred suggested coincidence to an amazing degree. Bruce admits that Simdell has done one or two original things but also said that this is no defence.

Systems Union claim that it is not suggesting that people re-invent the wheel but that it objects to direct plagiarism. Bruce said that "there is a difference between the concept being re-enacted and the detail being re-enacted" - it is Simdell's re-enaction of the detail that is being objected to. Bruce claims that if issues of detail design were reconsidered this would ultimately lead to better design and that fundamental notions should be re-used.

CHARLES RIVER GETS SYSTEM V

Charles River Data Systems, developer of Unix lookalike Unos, has purchased a System V licence from AT&T.

According to Bob Sonnabend of CRDS, the purchase in no way presages a move from "lookalike" to "licenced" status. It is purely to enables CRDS to sell on its Unos systems to third parties who also want to use such Unix-associated tools as yacc or lex in harness with Unos.

Secondly there are applications which use chunks of Unix code, such as the vi editor, which come within Unos' orbit as a Unix licencee, but could not otherwise be legally sold onward.

CRDS has also invested in other accepted Unix satellites, the C-ISAM Cobol from Micro Focus, and the Informix database and SQL retrieval language, including the C-ISAM fast access method recently acknowledged by AT&T as part of the next release in the Standard V definition.

The next release of Unos is due around autumn. CRDS is actively involved in standards-setting and claims that Release 7 of Unos is already 100% compatible with the 1984 /usr/group standard.

The company is also keeping an eye on X-OPEN and active in standard-setting in IEEE P1003 and MAP real-time extensions, so it's not surprising that that Craig Lund, CRDS' manager of systems software, would like to see the standards mature to the point where they work together.

...CRDS BULLISH ABOUT CHINA TRADE

Charles River Data Systems is anticipating $13 million worth of business in 1986 through its re-selling operation with the People's Republic of China initiated over a year ago.

Though it is cautious about releasing figures so far, it claims to be in the top league where US trade with China is concerned. According to Sonnabend this is largely due to its skill in wooing the COCOM committee which regulates the exchange of technology with countries which have not always been best of friends with the US; he claims the company is on the leading edge of approval where the export of 32-bit computers is concerned.

The deal authorises the Tianjin Computer Co. to build the 68010-based Universe machine under licence (UX No 9).

CONVERGENT PICKS UNIFY...

Unify Corp has beaten Oracle Corp to a $500,000 contract at Convergent Technologies to supply the company's standard relational database for its Unix machines. Convergent will also take a version adapted for its own CTOS operating system and use it as the basis of an office automation package which it currently has under development.

...AS ORACLE GETS ICON

Shrugging off the setback at Convergent, Oracle Corp has won a $2m three-year contract to supply up to 10,000 copies of the Oracle relati-onal database to Sanyo-backed Icon Systems of Orem, Utah. It sees the deal as a breakthrough into Japan.

HEWLETT-PACKARD PUSHES DEVELOPMENT OF FUTURE SPECTRUMS

The first fruits of Hewlett-Packard Corp's bet-your-company Spectrum Reduced Intruction Set Computer development should appear within a week or so, but the project is so late that that machine will now be something of a stop-gap to an ECL implementation of the processor destined for the HP3000 market and rated at around 15 MIPS. The first model out will of course be the new top-end model for the HP3000 line, rated at about 4 MIPS and using a TTL CPU. This machine will run either an unbundled en-hanced version of MPE V, or Unix. Replacing the high-end HP9000 scient-ific workstations soon after will be a station code-named Focus III, which will use an NMOS implementation of the processor and will include a 32-bit 68020 pre-processor to improve performance. And further out a CMOS microprocessor implementation of the RISC called Comet is slated.

UNIT-C HAS pSOS FOR 68020

Unit-C of Worthing has announced that its target machine operating system pSOS is now available for the Motorola 68020 microprocessor. The systems integrator company say that the advantages that this system has over its competitors such as pDOS, Vertx, MTOS and OS-9 are that it allows scheduling of real time tasks and it guarantees real time response. Unit-C also claims that it is the fastest operating system of this kind, the most compact and it is possible to predict the length of response time. pROBE is needed to run the system — a target debugger which may be used as the only monitor in the system or with other target monitors. The target management system is provided by pHILE which supports a hierarchial directory structure of mountable volumes with a system interface call interface compatible to Unix. The system is expensive for the first ten boards, £24,000 for pSOS and another £24,000 for pROBE in much larger quantities the cost works out at around £50 a board. pSOS has also been linked to Pascal and C compilers and Unit-C say that it makes full use of the 32-bit processor.

Unit-C is part of the Eurotherm International Group which specialises in temperature and process control. The group totals 48 companies the majority of which are based in Worthing — Eurotherm is about the third largest employer in Worthing. The group's turnover for last year was £80m.

DRINKS MERCHANT OPTS FOR 4GL SOLUTION IN £1/2 MILLION ORDER

Spirit merchant Matthew Clark has ordered a Unix-based system valued at £500,000 in the first phase of its office automation plans. MFT Computers of Birmingham is supplying a networked Convergent Technology Megaframe and two Miniframes supporting 50 terminals and 30 printers.

Matthew Clark is a long-established importer of spirits, including Martell Cognac, which has also made Stones Green Ginger Wine for over 200 years.

UNIGRAM/X

AUSTEC FILE SYSTEM SUPPORTS MULTIPLE OPERATING SYSTEMS

Austec International Ltd is developing and will demonstrate in April of this year a distributed file system not only for the Unix environment but also for other operating systems. The system is based around AceBridge which is currently available as an input/output interface manager. AceBridge is the interface between an application, currently Cobol, and the operating system - be it any of the standard Unix operating systems or proprietary Unix operating systems or any other 16- or 32-bit operating system that has C compiler facilities. AceBridge controls terminals, printers and general system functions. Once implemented on a particular computer system AceBridge creates a user interface standard which, according to Austec, is identical with every other computer system on which AceBridge is implemented. Austec reckons that it takes about four weeks to configure AceBridge for any machine with a standard architecture and operating system - slightly longer for anything out of the ordinary. In April Austec intend to show AceBridge operating not only with local files but also with a distributed data option allowing remote files to be accessed and executed. AceBridge will control all transfer of information, including record locking for each particular machine involved in the network. Austec estimates that AceBridge uses about 80-100Kb of memory for a Unix operating system and between 10 and 15Kb for a proprietary system.

Austec also has AceGen - an applications generator and AceMenu - a security and control system, both of which are available with AceBridge like AceCobol. Many peopole will not have heard of Austec but its Cobol and Bridge have been adopted by several manufacturers as its standard Cobol system - IBM, DEC, AT&T, Olivetti, Zilog, Honeywell, Pyramid and Icon. Austec a Melbourne, Australia based company with offices in San Jose, California and London do not sell direct but licence manufacturers to sell its products and this will remain its policy with the introduction of AceBridge 4.0. The new version will be generally available at the end of third quarter from £150 to £1500.

TELEX PACKAGE JOINS ROOT'S OFFICE SUITE

Root Computers, based in the City of London, has added a telex package to its suite of office software, the Root Office System. ROOTtelex allows users of Unix terminals to create, receive and send telexes through a menu-driven system which was written in-house at Root. The system is British Telecom approved and enables a user to spread telex facilities throughout the office so that users can create telexes for themselves. The telexes can be sent from any terminal via Mail, the Unix Telex System approved by BT. Any preferred editor can be used to create the telex, which can be shared via electronic mail for comment and approval. Re-transmission, in the case of a busy line, is automatic. Telexes received are stored and then relayed to the system manager, with extra management facilities (such as a notification and security) available if required. The full price of £2500 includes the telex unit. The package is integrated with the other Root Office System elements including the Writeword word processor, plus screen editor, word processor, electronic mail, diary and print spooler. Root faces competition for its telex package from Systems and Telecoms, formerly Systell of Reading, which is making a limited special offer on its S-Telex package, which has over 150 users in the Uk, including British Telecom itself. S-Telex includes editor and menu-driven access, and interfaces with Quadratron or Uniplex word processors. It is usually sold for £3,300 but the package is on limited special offer until the end of March for £1995 including training and installation.
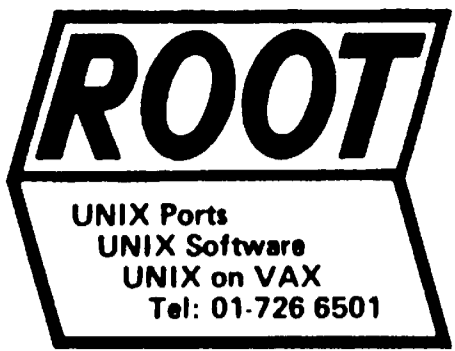
Minigrams

A whole string of Unix announcements from **Data General** make it clear that the minimaker is getting very serious indeed about the **AT&T** operating system: the company has commissioned **Sun Microsystems** of Mountain View, California to implement its Network File System under Data General's DG/UX implementation of System V with 4.2 extensions for the Eclipse MV minis and DS/7000 workstations; it has signed **Relational Technology Inc** of Alameda, California to implement its Ingres relational database under DG/UX; it has also added the WordMARC Composer word processor from **Marc Software International** of Palo Alto, California; the Synchrony file transfer program from **COSI Inc** of Ann Arbor, Michigan; and it has extended its agreement with **Communications Research Group** of Baton Rouge, Louisiana, so that the Blast communications software is now supported under DG/UX as well as under Data General's proprietary AOS, AOS/VS and RDOS operating systems.

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AT&T Information Systems has a new interface between its own and others' MS-DOS personals and its System 75 and System 85 PABXs: the PC-PBX Connection involves a $75 cartridge to plug into AT&T's digital telephones, and two levels of interface: a simple software link costs $100 for MS-DOS, $125 for Unix and $150 with 3270 emulation included, and a more comprehensive version includes a plug-in board and costs $600 for MS-DOS, $700 for Unix; all are set for March avaialability in the US.

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If the company is taking a large press party to Venice on February 21, it must have something pretty interesting to show off, and **Olivetti** has: we hear that the roster will include the M19, the company's first 8088-based machine, which is aimed at the low-end educational market and was first hinted at back in September priced at under $1,500 with 256Kb, it will include a highly integrated processor board with graphics. Olivetti will also be unveiling the M22, which will be a full-screen LCD display machine comparable with the **Data General** One; and the upmarket M28, designed to run Xenix System V, and is expected to be built around the 80286.

FLOATING POINT SYSTEMS FINALLY TOES THE LINE

For years Floating Point Systems has stoutly maintained that Unix was irrelevant in the real world and indeed hardly existed outside the pages of the computer press and obscure university research departments. Last week, however, it had to bow to the inevitable and announced, with fairly good grace, that System V would be available on its FPS 64 series of go-faster back-end scientific processors although what the customers really wanted was, of course, a C compiler. See page 3 for more details.

APOLLO ANSWERS IBM RT PERSONAL WITH 68020 SERIES 3000

Following Sun Microsystem's decision to meet the threat from IBM's new RT personal with a low-cost workstation built around the 32-bit 68020 (UX No 61) Apollo Computer has introduced the first of a series 3000 line of Personal Workstations using a 16MHz 68020 - and for good measure added more members to its existing line. The DN3000 is Apollo's answer to the RT, coming in at £9,500 with 2Mb - and will shortly include a plug-in IBM Personalike co-processor. It also uses the MC68881 floating point co-processor, has four colour planes display memory, can be configured with 2Mb or 4Mb of main memory. It has 1,280 by 1,024 mono 19" screen and runs Apollo's Aegis, Unix System V and 4.2BSD. The IBM PC bus is also available. The DN3000 starts off at £9,500 and goes up to £25,000. The DN570 and 580 use the same processors as the DN3000 but they also can use the Apollo FPX floating point accelerator and Apollo's own three dimensional Graphics Accelerator. These additions to the Domain range will all support Unix System V and Berkeley 4.2 as well as Apollo's own Aegis operating system. The DN570 costs £28,200 and the DN580 can cost between £38,000 and £70,000. All prices include the Unix operating system. Apollo also announced an Open System Toolkit which lets users customize their Domain systems by adding new object types and devices without modifying the operating system - this toolkit is free of charge to Domain users. Included in the US announcement, hours after the UK launch, was the Alliant Computer Systems' FX machine as a high performance computational node in a Domain workstation network. The Alliant machine comes with up to 12 68012 interactive processors coupled to from one to eight 64-bit compute processors, all running under Berkeley Unix 4.2. The FX machine starts at a price of $195,000 in the US. The UK arm of the company will not be actively marketing the machine but customers desperate to have one will not be turned away.

CONVERGENT ENTERS WORKSTATION FRAY WITH MIGHTYFRAME/JWS

Convergent Technologies Inc of San Jose, California has made its first foray into the engineering workstation fray with a version of the 68020-based Mightyframe. Called the Mightyframe/JWS, it adds graphics boards and software from Jupiter Systems of Alameda, California and a floating point co-processor to the basic Mightyframe, creating a machine supporting one or two users under Convergent CTIX version of Unix System V with real-time, database and Berkeley networking extensions, and offering up to 16Mb of main memory and 24Mb of virtual address space per process. It supports two and three dimensional graphics with 24 planes in the single user version, 12 with two users and offers multiple windows and GKS graphics support. A two user system costs $33,000 and the single user version - $25,000 - for OEMs.

NORSK DATA SUPPORTS UNIX WITH NEW SINTRAN RELEASE

Norsk Data has announced a new version of its real-time, networked, time-sharing and batch operating system - Sintran III. Sintran K supports Berkeley Unix 4.2, the port done by Logica back in August 1984. The new system is auto-configuring and it has an increased system capacity which allows direct connection of up to 256 terminals in the ND-500 range and connection of about 64,000 remote Norsk Data users through Nosk Data's ND-Cosmos communications facility. To run Unix on the ND-500 range Sintran K is used as a front-end operating system using a 16-bit Nord 100 as a front-end processor. The Newbury, Berkshire based company, in the UK, is currently working on yet another version of Sintran to make it possible to dynamically partition the ND-500 so that Unix and Sintran will run concurrently on the 32-bit machine. This project is likely to take the best part of this year. The new improved spooling capability can now control 60 output devices, each user can now have up to 4096 files and the company boasts a 20% improvement in disk I/O.

HP TAKES A RISC WITH NEW PRECISION ARCHITECTURE

As Unigram/X went to press, Hewlett Packard announced the first two products using its new RISC - Reduced Instruction Set Computing - technology. HP Precision Architecture has been under development since 1981, and HP is risking all on its sucess: it will form the basis for the next generation of the company's entire product line of scientific and business computers. The HP3000 Series 930 and 950 are rated at 4.5 and 6.7 mips and come with a new database management system, enhanced operating system and support for multiprocessors.

FLEXIBLE DOING WELL WITH FLEX/32

Flexible Computer Corp has added another six sales of its Flex/32 MultiComputers to its existing tally of six. Flexible is pleased with this total for the products first year on the market as each system costs about $225,000.

The Flex/32 MultiComputer architecture consists of a series of computers linked together in one parallel system which can either be more Flex/32s or larger systems integrated through standard networks such as Ethernet or MAP - Manufacturing Automation Protocol.

Each Flex/32 has its own copy of Unix System V and its own standard 32-bit VMEbus interface for input/output, but all memory can be accessed by all computers.

The six systems are mainly going into research establishments although one system will be used at Prime Time Inc in Philadelphia for parametric cost evaluation. The Flex/32 will be involved in crash dynamics research, mechanical engineering research and in the Georgia Institute of Technology it will be used "to research the methods needed to overcome the limitations of today's computer technology" to produce parallel computers for the next generation of supercomputers.

AMERICAN ROBOT STILL HANGING ONTO SYSTEM III

The robotics company which unusually bases its product range on its own implementation of the Unix operating system has grown since we last spoke to it, December 1984 (UX No 8). American Robot Corporation now numbers 250 employees and has distributors in the UK - Rediffusion, Japan - Daikin and now in Switzerland - Sulzer Brothers, the second largest Swiss industrial manufacturers.

The lack of real-time facilities within Unix make it an odd choice for robotics but the company based its Magix operating system on System III and modified the kernel which has high speed interprocess communications and can switch processes in several hundred microseconds. The main reason for choosing Unix was because it was evolving as the standard for 16 and 32-bit machines, the Motorola 68000 series of processors forms the basis of American Robot's Merlin range of products. Magix is still based on System III but Shafi Motiwalla, manager of product planning at the Pittsburgh, Pensylvania company, says that the company is evaluating all the different routes to take with Magix including networking capabilities and is waiting to see what comes out of AT&T in the form of the new System V release.

During 1985 American Robot formed a subsidiary, American Industrial Vision Corp, with BMW. BMW has a 5% stake in American Robot and put $5.6m into the new company to produce a line of vision robots.

In May of 1985 American Robot was chosen by Ford Motor Company to evaluate plans in the electronics world with the aim of developing and specifying plans for a completely automated factory, the contract is worth $20m to the company.

CONCEPT AND ALTOS OFFER PRODUCTION CONTROL SYSTEM

Concept Computer, a Unix software house, and Altos Computers have joined forces to produce a Unix production control system. The hardware comprises Altos' Unix based 2086 and the software is a modular package from Concept.

The modules comprise materials database control, operations database control, inventory management, purchase order control, materials product costing, operations product costing, materials works order control, operations works order control, capacity planning, sales order process materials requirements planning and Concept has recently added another module - materials traceability.

The package was originally written in DEC's Dibol but a year ago Concept went Unix and rewrote the package in Unibol. Concept say that it could have been a straight forward translation job but decided to give the product a cosmetic uplift, making the menu more efficient and packaging bespoke work into the options. Concept claim that response times are proving excellent and add that this is due to the operating system, Xenix, which Concept claim is superior to RSTS/E for the production control system.

The example quoted by Concept is of a customer who recently changed from a DEC machine to the Altos and found that he could now run the material requirement planning module in 21 minutes compared to the five to ten hours it used to take.

Concept say that the Material requirement planning module is the major part of the system and that 50% of its customers rely on it Concept boasts that Alphameric confirm "we could not have grown and gone public without it". The package is currently available on Fortune, Motorola, Sperry and Pixel machines and Concept promise that soon Perkin-Elmer boxes will join the ranks. The complete production control system with the Altos 2086 would cost around £30K for a 12 user configuration.

CPT PULLS ANOTHER ODS OUT OF THE HAT

CPT Corp who claim a certain leadership in the design, manufacture and distribution of information management systems has expanded its Office Dialog System. The ODS 100 has become the entry level system to the range and forces the existing ODS sytstem to a name change - the ODS 200.

The Unix System V based office network system uses the Motorola 68010 32-bit processor and up to eight CPT workstations can be linked. The Minneapolis, Minnesota company offers Informix, its own text search software and management network software for the CPT ODS 100.

The basic price of the CPT ODS 100 with 50Mb of storage, 1Mb RAM, 2 RS-232 ports and 55Mb 1/4" streamer tape is about £20,000. The wholly owned UK subsidiary, CPT UK Ltd, is based in Hounslow near Heathrow airport.

POWERNODES AND SECURE UNIX
COME TO THE UK

Gould UK launched those new Powernode Unix
models last week following the US
announcement four weeks ago (UX No 61),
making it clear that its prime target was DEC
with the VAX and claiming superior price-
performance over DEC's latest VAXen. In this
respect the UK launch was similar to the US
one but this time Gould went further by
saying that Gould was ahead of Sun
Microsystems as it had taken Sun's Network
File System and integrated it into its own
operating system. Gould also said that AT&T
is following Gould in terms of developing the
Unix operating system.

Gould is going ahead with its own development
for secure networking products and hoping
that the standads that emerge over the next
year or so will correspond with its research.
Gould claims that the entry-level PN6040
Model 1 has five times the computational
capacity of the new VAX 8200 and costs
£39,500 for 4Mb memory, CPU and floating
point accelerator, half inch Thorn EMI
streamer tape, 160Mb Winchester, user ports
and its new secure Unix implementation,
UTX/32. The Model 2 version of the 6040 with
8Mb memory, dual 6000 CPUs and 1,400Mb of
disk is £107,600. The new PN9050-SP1 is
aimed at the VAX 8600 performance range and
Gould boasts an improved performance of 25%
for a price of around £253,000. The SP2 is
aimed at the VAX 8800 market and costs about
£368,000.

NASTRAN UP ON FAST MASSCOMP 68020 BOX

For those who 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 ap-
pears on each scientific based Unix machine.
And the latest machine to support the soft-
ware is the new Masscomp MC5500.

The Masscomp machine is widely accepted to be
one of the fastest Motorola 68020-based
supermicros on the market, particularly
suited to scientific tasks under Masscomp's
proprietary real-time implementation of the
Berkeley Unix 4.2. Current applications
include data acquisition and telemetry, 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.

FLOATING POINT SYSTEMS BOWS
TO DEMAND FOR UNIX

Floating Point Systems of Beaverton, Oregon
announced that its FPS 64 series of back-end
scientific processors will support Unix and
C. The manufacturers and marketers of
scientific computers and array processors
based in Bracknell, Berkshire in the UK has
been noted for its lack of interest in Unix,
and is now reacting to customer demand.
Floating Point Systems say that the demand is
not overwhelming for Unix but it is for a C
compiler. The company say that Unix is
becoming an increasingly popular development
environment for computationally intensive
applications within commercial environments
not just the traditional academic Unix world.
According to Floating Point Systems these
applications need 10m-100m floating point
operations per second. The FPS 64 range of
scientific supercomputers boosts the
processing power of a VAX from the 1Mflop
range into the one for these computationally
intensive applications. The FPS 64 series is
currently incompatible with a VAX running
Unix but this announcement means that a
portion of the proprietary FPS operating
system, SJE, will be attached to the front
end computer allowing the VAX Unix user to
invoke SJE and command it to attach to the
FPS computer. SJE on the VAX running Unix
allows passage of data and files to the FPS
64 series - a device driver will be used to
administrate memory buffering and file I/O
between Unix and the front-end part of SJE.
When Unix on the VAX is re-generated the new
driver becomes part of the Unix kernel.

The C compiler has been produced to meet the
needs of FPS customers particularly those
involved in the design and testing of analog
circuitry. Traditionally Fortran has been
the language for this work but according to
FPS more efficient programs have recently
been written in C. FPS is then trying to
cover all the angles to keep up in the
scientific/engineering supercomputing market.
The FPS 64 series will also be expanded in
April with the FPS-364/MAX and the FPS-
264/20. The 364/MAX slots in between FPS's
current 364, announced last August, and
164/MAX models and costs £395,000. It will
be used for structural analysis,
computational chemistry and physics. The
364/MAX can according to FPS reach the speed
of 187 Mflops if eight matrix algebra
accelerators are installed in main memory.
The FPS-264/20 is targeted for industrial,
government and academic applications and
follows the 164/MAX in the product line and
can be field upgraded to match the
performance of the top of the range FPS-264.
The 264/20 is priced at £450,000, configured
with 0.5 Mwords of main memory, 16K of RAM
table memory, 1 disk drive and software. It
has a peak performance of 20 Mflops. FPS has
also announced that a solid state disk will
be available in October. It will be a 128Mb
system expandable to 15.75Gb with a logical
disk controller and a 44Mb/sec transfer rate.
Unix System V will be available on the FPS 64
series in September and the C compiler in
November.

UNIGRAM/X

Issue Number 66

Having recently bought the graphics unit of BP Canada **IBM** mainframe software house **Pansophic Systems** has now acquired **Schonfeld and Associates'** Ingot software product line: Pansophic entered a joint marketing and financial pact with Schonfeld in July last year under which Pansophic invested $1m to expand and market Ingot, with an option to acquire it which is now being exercised; the Ingot package includes statistical and modelling software, financial simulation and graphics capabilities and runs on a wide range of machines, including most Unix-based machines; Pansophic also gets some Schonfeld personnel.

  - o -

AT&T and **Apollo Computer** have agreed to work together to bring Apollo's Domain-IX Unix-alike up to full System V.3 level; Apollo will also market applications software from **Omnicad Corp** of Pittsford, New York: AT&T has a stake in Omnicad.

  - o -

If you need a few second hand development machines you could try **Tetra Business Systems Ltd** - on offer are a CT Miniframe, Fortune Systems, IBM PCs and ATs, Olivetti M24s, Wyse PCs and Sanyo portables: Tetra has recently invested in a couple of Altos 2086 boxes, a CT Mightyframe and an Olivetti 3B2 - Tetra is currently celebrating its best year yet in terms of revenues.

  - o -

Convergent Technologies has reported fourth quarter net profits of $5.1m against a loss last time of $11.9m which included losses from discontinued operations and their disposal of $2.5m, on turnover down 13.5% at $99.8m; net profit for the year to December 31 was $11.5m against a loss last time of $13.8m struck after losses from discontinued operations and their disposal of $14.5m, on turnover which rose 9.2% to $395.2m. Net earnings per share were $0.14 in the quarter, $0.32 in the year.

Minigrams

- The **Systems Union** and **Simdell** case has attracted quite a lot of interest - **Precision Software** has written to tell of a similar situation it found itself in back in 1983: **Professional Software Inc** threatened Precision with action for copyright infringement - it was claimed that Precision's Superscript word processing package copied not the actual code of Professional Software's Wordpro but some of the command sequences and visual representations used: Precision claimed that by publishing a piece of software an author is actually inviting users to adopt its command or language to communicate with the computer and to achieve the desired results - in the event Professional Software dropped the case before it reached the Massachusetts District Court.

  - o -

Olivetti has announced its first Xenix offering for its IBM-compatible PC range but, at the same time, admitted that it was unsure whether Xenix had a future at the low-end of the market: the M28 is the top-of-the-range model and is intended as a file-server for up to five users - based around an Intel 80286 processor - running at 8MHz - and comes with up to 1Mb of RAM, 1.2Mb floppy drives and a 20 Mb Winchester - in the UK, it will sell for around £4,800 and will be available from April.

  - o -

According to **Olivetti**, several UK leading software houses have been experimenting with Xenix V on the M24 SP, Olivetti's current top-end micro, in readiness for the M28's appearance, however, Massimo Samaja, senior vice-president of group marketing and sales, admitted at the M28's Venice launch this week that Olivetti itself was experimenting by putting Xenix on the PC: he is not convinced that there will be sufficient demand in the shorter-term to justify its continuation.

Apple Computer Inc plans to invest $14.5m in a Cray X/MP-24 scientific supercomputer for delivery in the second quarter, and intends to use it to simulate future hardware and software architectures and to accelerate new product development: ironically **Cray Research** founder, Seymour Cray, says that he does most of his design work with pencil and paper, and, until recently, the only computer he used was an Intertec Superbrain - last year he moved up the scale to an IBM Personal Computer.

  - o -

Zilog Corp has its first OEM contract for the new System 8000/32 Unix machine, based on the **AT&T** WE32100 microprocessor - and the customer is the **Lucky-Gold Star Group** of South Korea: Lucky is taking between 500 and 600 under a $12m contract, with exclusive marketing rights in South Korea and non-exclusive rights for other Far East Asian markets; once the first 500 - 600 have been sold, Lucky-Gold Star gets the right to manufacture the machine; it already sells Zilog's Z8000-based models.

  - o -

Sorry, our piece on the Feb 14 (UX No 64) contains one of those 'deliberate mistakes' the **Unix User show** will obviously not be held at the Tara Hotel but at Olympia - the conference will be at the Tara - EMAP is also anxious that people should not panic but are pleased that people are reacting by sending in their deposits.

  - o -

Another late entry to Unigram/X this week is **Apricot Computer Plc**'s launch of its XEN Multi-user System with which it intends to attack the mainframe and mini market: the system consists of a file server - running under MS-DOS 4.0 and Xenix V - known as the XEN mainframe based on an 80286, and XEN-based diskless workstations: the workstation is also 80286-based with 1Mb of RAM built in but with no expandibility running under MS-DOS 3.2 with Microsoft Windows or as a Xenix terminal.
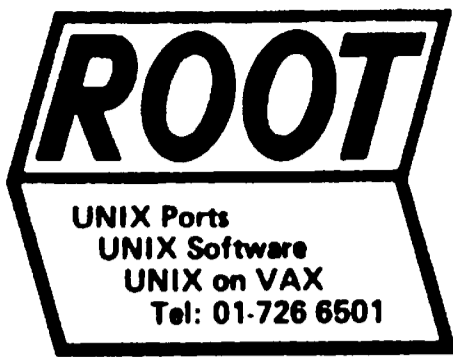
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WHITESMITHS OFFERS C TO RUN UNIX PROGRAMS ON SYSTEM 36

When everybody is bemoaning the fact that Unix seems the poor
relation among operating systems when it comes to commercial
applications, Whitesmiths Ltd should no doubt be drummed out of
the Unix Brownies and cast into outer darkness for this one, but
the Concord, Massachusetts company and its Swedish partner Uni-
soft AB of Stockholm have come up with a C compiler designed to
encourage people to run Unix applications under IBM's SSP System
Support Program on the System 36 small business comput-er.
Version 3.0 of the Whitesmiths C compiler comes with a SSP
system interface library and runs initially on an IBM Personal
under MS-DOS, where they are converted into standard IBM assem-
bler code. The applications are then up-loaded to the System 36
where they are assembled and linked on the 36 using the IBM
assembler and overlay linkage editor. The Whitesmiths 3.0 C
compiler will be available next month at $15,000.

DEC "GEARS UP FOR RISC PRE-PRODUCTION" AT BELLEVUE

Pyramid Technology and Ridge Computers have won a special place
in the hearts of Unix lovers, IBM has its RT Personal Computer
out in the market, Hewlett-Packard has taken the wraps off its
Precision Architecture, and it is thought that DEC is not too
far behind. DEC is looking for 125 more engineers to join the
50 presently em-ployed at its new product development centre in
Bellevue, Washington and that the company is moving to a 72,000
square foot building from the present 15,000 square foot facili-
ty. The paper reckons that the centre, which designed the
MicroVAX I, is set to take over the Titan research programme to
look into RISC and parallel processing architectures, currently
under way at Palo Alto, California, and take the development on
to a point where it can be put into production. The expectation
is for a Reduced Instruction Set computer and workstation in the
15 MIPS to 20 MIPS range.

SPERRY BLOWS OUT CORDATA, DUMPS PORTABLE IBM PERSONALIKE

Sperry Corp has terminated its OEM agreement with Cordata Tec-
hnology Inc, the Thousand Oaks, California company still better
known to its fans as Corona Data Systems, and has decided that
it will no longer offer a portable model in its IBM Personalike
line. Reason is believed to be that the company was finding
that it was having to sell the machine in competition with
others offering the same box at a lower price, and that the
market had become so competitive that it could no longer make
money selling the machine. And Sperry's OEM contract with
Computer Consoles Inc for its Power 6/32 32-bit Unix minicompu-
ter has had a disappointing first year because of delays in
Computer Consoles' implementation of Unix System V. The origi-
nal Perpos Unix on the machine was based on Berkeley 4.2, but
Sperry wanted System V to tie the machine in with the ones it is
buying from NCR and Arete – and the sales force spent a year
playing the box down awaiting System V – it arrived last month.

In this week's issue:
Page 2; **Harris** launches Concept
Page 3; More on last weeks
announcements from **Hewlett-
Packard** and **Apricot**

APOLLO DECIDES AGAINST INVESTMENT IN BELMONT

Despite participating in the
press conference which unveiled
founder William Poduska's plans
for a new super-high-
performance workstation company
and strongly hinting that it
would be an investor (Ux No 54)
Apollo Computer Inc has decided
a-gainst contributing to the
first round of financing of the
new comp-any, provisionally
called Belmont Computer
Associates. It has now
backpedalled too on the
suggestion that it would be the
first customer for the new
company's workstations, saying
it will not make any decision
until the first products are
out the door. It has also
enjoined Poduska from hiring
more than six Apollo employees
during the first three years –
but Poduska has been able to
staff the company up with
people laid off by Apollo, and
now has 20 employees. It has
now com-pleted its first round
of financing and has raised
$8.9m to $9m from the likes of
Hambrecht & Quist, J H Whitney
and Greylock Partners Inc.
Apollo, which was offered
shares at the same price as the
founder inv-estors, has not
ruled out future investment.
Based in Belmont, Mas-
sachusetts, the new company
plans to design and build a
networked workstation in the 20
MIPS range, integrating
graphics with the CPU.

HARRIS UK LAUNCHES CONCEPT III OFFICE SYSTEM

Harris Corp is hoping to boost profits by continuing to gateway an existing base of IBM-compatible terminals and personal computers. It has just introduced its Concept III office automation system to the UK and it estimates that it has a current installed base of five billion Personalikes and four billion 3270 terminals worldwide to attack. Concept III, launched in the US in April 1985, is a 3270-compatible microcomputer-based system with SNA communications and represents the first major fruit of its merger with Lanier in 1983. The company plans to add LU 6.2 emulation with Document Interchange/Document Content Architecture and links to DisOSS this year. The system runs Xenix, MS-DOS and PC-DOS and comprises three workstations and two servers. It comes with the company's Perspective user interface, which it also plans to offer at a later date on 3270 terminals. Harris also launched two IBM-compatible personal computers and an 80186-based server called the 4300 in the US on February 2, which are due for UK delivery in the second quarter of this year. The Harris 2000 is an 8088-based clone from Wyse Technology which works standalone and runs Harris's new Perspective user interface. The PC 2100 is a medialess PC-DOS machine with 640K RAM, which uses the new 4300 server for disk storage. The 4300 is Xenix-based but it runs an application program under Xenix which makes it fully IBM-compatible. It will work as a node on the multi-processor Xenix-running 6000 server, which was launched here as part of the Concept III.

The entry level 1100 workstation within Concept III is 8088-based and medialess and connects to the 4000 server, which in turn houses an 8086 processor. With 256K RAM, it is multi-tasking and offers a range of facilities including document file transfer and retrieval and electronic mail. The 4000 server runs the company's proprietary H-DOS system and links up to six workstations offering 10Mb, 20Mb or 33Mb of storage. The 1200 workstation works either standalone or as a network node, supporting up to 20Mb of disk space. Based on the 8088, the machine supports both Xenix and MS-DOS and PC-DOS and is upgradeable to the 1400 top end workstation. The 1400 machine acts as a dedicated word processor and multi-functional network applications processor. Based on the 80186 processor for Xenix tasks and an 8088 for background jobs, it offers 20Mb storage and 512K RAM. The 6000 server uses an 80186 for Xenix control and up to three additional 8088 background processors. It will link up to 28 workgroups, totalling 168 1200 and 1400 workstations. Concept III is available now in the UK, but volume deliveries will not begin throughout the rest of Europe until the end of the year. A six-user Concept III is £30,000. Harris Corp's Informabtion Systems Division now pours around $800m into the group's current turnover of $2.28b. Profits for 1985 saw a slight downturn at $80.3m on 1984's $80.4m. The company will sell direct in the UK, but will sell through its distributor base elsewhere in Europe.

usr/group/UK GIVES SYSTEM V THUMBS UP

Attendees at the recent usr/group/UK seminar were given the low down on the aims of the X/Open group and Unix Europe. X/Open sees one of its roles as creating a market for System V in Europe whilst Unix Europe is AT&T's legal representative in Europe. Unix Europe's representative tried to convince the audience that AT&T was committed to support for a Unix industry standard but on further questioning conceeded that this would probably only remain so whilst its System V was adopted as the standard. The X/Open group also put its weight behind System V claiming to aim at the creation of a free and open market offering software vendors as wide a market as possible for their products and giving users an increased return on investment in applications software but saying that this can only be achieved by defining a common application environment using System V as the foundation.

ROOT HAS UNIPLUS PORT FOR IMP

Root Computers has completed a port of Uniplus System V release 2 for Integrated Micro Products – IMP – onto the Motorola 68020 based IMP-Mentor. Both Root and IMP are apparently impressed by the speed Uniplus runs on the IMP-Mentor. The Sieve of Erasthenes, a program used to calculate prime numbers, was used in comparing the Mentor with the VAX 11/780 – the VAX did ten loops of the program in two seconds whereas the Mentor completed the ten loops in .7 seconds. The IMP-Mentor also compiled the source program in three and a half seconds which is according to IMP pretty good going. The IMP-Mentor has 32 user ports and uses the Motorola 68000 processor for each port and on for disk I/O. The Durham based IMP has shipped five Mentors with Uniplus, one of which has gone to Root for software development in its new business user division – Root Business Systems (Ux No 62). The price of the IMP-Mentor with Uniplus ranges between £1,000 and £2,000 depending on the number of users required. Uniplus is Unisoft's version of the Unix operating system and Unisoft is now controlled by Root.

SPHINX PILES UP UNIX APPLICATIONS

Following the launch of Informix-4GL at Uniforum in February Sphinx announced this week that it will act as its distributor in the UK. Logica also act as a distributor for Relational Database Systems Inc's Informix but RDS says that it prefers Sphinx as it provides better facilities for supporting the packages. Informix-4GL, another 'fourth generation language' is based around IBM's industry standard Structured Query Language (SQL). To the end-user Informix-4GL looks much like the traditional Informix 3.3 but for applications developers it allows, according to RDS, a customized package to be completed solely using Informix-4GL – there is no need according to the Menlo Park, California-based company to resort to C or Cobol but just to be on the safe side an interface to C exists within Informix-4GL. Sphinx has a special offer for Informix-4GL if you place your order by 31st of March – the IBM PC price is £1,200, the Altos, 3B2 and NCR Tower prices are all £2,100 and the other two would cost you £4000. This addition to the Sphinx-line completes one of three announcements made over the last month (UX No 64). The Sphinx policy is now according to Ben Salama, Sales and Marketing Director, to continue filling in the gaps of Unix applications software and languages. Sphinx reckons that it is still weak in the language department and UX-Basic from UX-Software should soon join the Sphinx team.

HP UNVEILS ITS PRECISION ARCHITECTURE

Hewlett-Packard Co duly announced its HP3000 Series 930, 950 and 70 models yesterday, with a new database management system, Allbase/XL, which runs under the new enhanced MPE XL operating system and under MPE V/E - but only on the RISCs, and combines the company's relational SQL and network Image database managers in a single product for users who cannot justify buying and running two databases. Hewlett-Packard calls its Reduced Instruction Set Computer system Precision Architecture, and points out that as well as implementing RISC theory -- including the usual enormous register capacity which is a feature of most RISCs, it offers a modular high-performance input-output structure, an addressing mechanism permitting 32, 48 or 64-bit addressing for programs of almost inconceivable size, support for multi-processors and co-processors, and more efficient application of VLSI circuit technology because the need for microcode is eliminated. The extensive registers provide the same benefit as cache on a conventional machine, storing freqently used instructions and data and making them accessible up to eight times faster as from memory. The risk inherent in Hewlett-Packard's RISC strategy cannot be overstated: the machines are to be the basis of the company's entire computer line, providing the next generation HP1000 and 9000 machines as well as the HP3000s. If Hewlett-Packard has completed its development task successfully, it will gain very considerable cost benefits from the inherent design of the new machines as well as the economies of scale of manufacturing just one computer line for all sectors of its business; if performance is disappointing, the company has very little to fall back on, so Hewlett-Packard is betting the company on the success of the RISC strategy. The new machines, as expected are the Series 930, not available in the UK until the end of the year, which will cost £177,236 with 16Mb memory, two input-output channels, local network channel, Allbase/XL, System Dictionary and the MPE V/E operating system. Hewlett-Packard rates it at 4.5 MIPS; main memory goes to 24Mb. The 950 is rated at 6.7 MIPS and with 24Mb - expandable to 64Mb, and otherwise configured as the 930, it is likely to cost £230,000 to £270,000 - but will not be available until the second half of 1987. The stop-gap Series 70 is available now - it comes with up to 16Mb memory, 128Kb cache and an 8Mb CPU is £118,157.

APRICOT PURSUES ALTOS
WITH XEN MULTI-USER SYSTEM, XENIX

Apricot Computers Plc, continuing its move upmarket has announced the XEN Multi-user System with which it intends to attack the mainframe and mini markets. The system consists of a file server - running under MS-DOS 4.0 and Xenix V - known as the Xen Mainframe, and XEN-based diskless workstations.

The XEN Mainframe is based on an 80286 processor and comes with 2Mb of RAM, a 720Kb floppy, a 20Mb tape back-up cartridge and an internal modem. It is available in three different versions: the entry-level XEN 20 has a 20Mb hard disk and will retail for £4,999; the fast access, 50Mb 3.5" disk version will sell for £5,999 and the 100Mb version for £7,999. The modem has remote diagnostics which will allow Apricot's service engineers to maintain the system down the line.

The workstation, claimed to be the fastest of its kind in the world, is also 80286-based with 1Mb of RAM built-in but with no expandability. It runs under MS-DOS 3.2 with Microsoft Windows or as a Xenix terminal, costing £999 for the standard high-resolution paper-white monitor model. A medium resolution colour monitor takes the price up to £1,399 and a high resolution version costs a further £300. The system is designed to allow XEN HD and Point 32 users to upgrade to any XEN Mainframe configuration.

Network interconnections available include a gateway to IBM's Token Ring, ICL C03 and IBM 3270 SNA protocols and Xenix-Net which enables a Xenix cluster to run on the network. In total, up to 60 machines, either IBM-compatible or Apricot, can run off one XEN Multi-user system.

Apricot has introduced three new multi-user software packs. The Office Automation Pack at £1,499 includes Microsoft's Word, the Communique communications facility and the Apricot Mail, a network mailing system. The other products are Apricot Accountant at £1,999 and a graphics pack that includes GEM Graph, GEM Draw and GEM Wordchart.

System buyers will have to pay approved service engineers an extra 7.5% on top of the cost of the system for installation and commissioning, one-third of this money will be given to the dealer who sold the system. A value-added reseller network is being set up by Apricot: potential members must add at least 50% to the value of the product and, in return, they will receive annual buying terms and the same 35% margins as accorded to the dealers.

Apricot is budgeting to sell 3,000 XEN Multi-user Systems and 10,000 workstations in the year following availability at the end of April. At that sort of rate, it will account for around a quarter of Apricot's total revenue this year. Apricot is wildly bullish on the machine saying that it has a 12-month lead in price-performance over its rivals. Chief executive Roger Foster sees 20% of sales being with Xenix; 200 Unix-type applications programs are out, having been tried and tested by Logica over a six week period.

UNIX SOFTWARE DISTRIBUTOR MODUS TO RAISE £256,000 BES CASH; OTC QUOTE

Modus Marketing will be launched through a flotation on the informal London Over The Counter market - to sell pacakges to the engineering industry. Up to 1,600,000 ordinary shares, representing about 39% of the issued share capital of the company after the offer, will be offered under the Business Expansion Scheme at 16 pence, allowing individuals to offset their investment against tax at their marginal rate. The offer is being sponsored by Lawnstone Ltd of South West London - a licensed dealer in securities. The flotation will be in early March and the first two pacakages will be a project management system and a surface modelling package. The project management system comes from Automatic Data Processing, based in Michigan, which already has an sales office in the UK and views Modus as an alternate sales force. The surface modelling pacakge was designed and developed in Vancouver by Northwest Digital Research which is currently not represented at all in the UK or Europe. Both packages will, according to Modus, run on any 32-bit machine using Unix System V, or System V compatible, and VMS. The project management system has six modules; critical path analysis, project struture analysis, project cost management, custom applications, management graphics and report writer. The interactive surface modelling package is intended for geological, construction and oil exploration areas - allowing users to model aspects of the physical world - it comes in two forms; the ISm Workststion includes a user-interface based on windows, the ISM Library is a suite of subroutines which is the basis of the Workstation version intended for users with systems incompatible with the full implementation. Modus expects to have about four sales and four support staff by the end of the year - although for the first year, at least, three of Northwest Digital's people will work with Modus in the UK and initially Automatic Data Processing will support its own product.

RIDGE COMPUTERS CUTS LOW-END PRICES IN US WITH 32/530 LAUNCH

Ridge Computers Inc, one of the Unix RISC pioneers, has us a bit confused because it has apparently only now launched its top-end 32/530 in the US - but it was telling the UK world all about the machine as long ago as November. The company has also replaced the 32/310 workstation with a server version offering from 4Mb to 16Mb and capable of supporting up to 20 IBM Personals or Personalikes over Ethernet. The Personals need to be fitted with a 3Com Ethernet board and file transfer is effected using PC/Interface from Locus Computing Corp. The server includes a modular high-performance memory controller, and the box comes with 4Mb to 16Mb of main memory, 300Mb disk and four slots for plug-in port boards for $35,000. Software includes RISC-optimised Fortran compiler, GKS graphics software library, EMACS editor and on the hardware front there are also a Cifer streaming tape drive and a 6,250 bpi stand-alone tape drive. The launch of the 530 - which uses the same basic CPU as the lower models - was accompanied in the US by price cuts on the 330 and the 130. The 130 is cut 15% to $39,700 and the 330 falls 24% to $52,300. The 530, offered here with 12Mb and support for up to 12 users, now takes 16Mb memory and supports up to 16 users. Memory will be extended beyond 16Mb in future. With 12Mb and two 300Mb Winchesters it costs $70,700. Ridge is based in Camberley, Surrey over here. Its machines are built under licence by Bull in France.

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AT&T has now introduced its Japanese Application Environment user interface for Unix System V at $25,000.

The political right-wing weekly **Spectator** has bought Astra a Xenix driven subscription and circulation control package.

INTERGRAPH UK INTRODUCES CAE SOFTWARE

Intergraph (UK) Ltd of Newbury, Berkshire has announced software for the electronic products design market on its recently launched InterPro 32 and Integraph 200 workstations. The products work interactively and range from a computer automated engineering front end schematic capture package for integrated circuit and printed circuit board design; an integrated circuit design package called Tancell; thick-film hybrid circuit design; surface mount capacity within the company's existing printed circuit board software. Intergraph is most enthusiastic about Tancell, which is a standard cell hierarchical physical design package, developed by the company's Santa Clara-based sister company Tangent Systems Corp. It works both under VMS on the Intergraph 200 workstation or under Unix System V on the standalone Interpro 32 workstation. The package comes with a rule-based, object-oriented database as does the CAE package. Checking takes place in the database itself since objects are 'intelligent', rather than in the software, which is time consuming. The effect is that if for example the machine is connected to the wrong input-output device, instead of trying to use it, it will say "wrong device!" One of the package's best features is that it allows the user to pick up cells on screen and move them around based on timing assurance, related to the speed of signals between components. Tancell uses a library of standard cells, which contain their own transistors or blocks containing either custom or standard cells, and they in turn may contain transistors or other cells. The Interpro 32 with Tancell software is around $170,000. Intergraph estimates that it has sold this to around 15 companies. Software combined with an Interpro 32 ranges from £15,000 to £60,000. It also plans to develop silicon compilers with Tangent Systems.
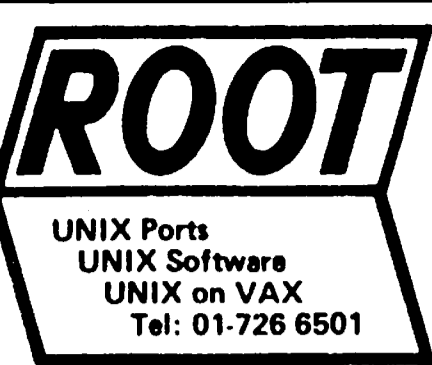
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COUNTERPOINT COMPUTER UNVEILS ITS CHAMELEON "PLATFORM"

Counterpoint Computer Corp, the small San Jose, California start-up that thinks **very** big, has lifted the veil a little on its Advanced System Platform last night. The Platform is described as the "fundamental systems architecture" of the System 19 family, which mix and match multiple Motorola 68020 processors, displays, mass storage and software to provide three basic very high performance configurations. These are: a graphics processing system with high resolution monochrome or colour screen; a multi-user system supporting either ASCII or bit-mapped displays or a combination; and a server, managing a database, storing a series of files, or used for compute-intensive tasks.

Counterpoint was formed by Pauline Alker after she left Convergent Technologies, with the aim of matching in the high-performance scientific workstation market Convergent's success in the OEM office systems market. Her track record persuaded AT&T International, British and Commonwealth Shipping, and Kyocera Corp to stake $20m on the Platform, and their backing has in turn quickened interest in the product.

The System 19 family can have from one to eight 32-bit 68020 processors, from 1Mb to 40Mb of main memory, and 50Mb to 512Mb of hard disk. The architecture is based on dual, proprietary, 12 Mbytes per second System Composition Buses which can be connected to industry-standard buses such as Multibus or VMEbus to allow the easy addition of a wide range of third party hardware. The C 19 operating system is Counterpoint's version of AT&T's System V Unix, now almost mandatory for workstations. It supports a distributed, dual port memory architecture, serving both single and multiprocessor configurations, automatically balancing the load to maximise performance. Berkeley 4.2 Unix extensions have been added for local area networking, together with the Network File System from Sun Microsystems – and units of the three basic System 19 configurations can be linked together via an Ethernet backbone to form more powerful systems. All three versions come with a standard core software package for applications developers which includes the Alis integrated office automation package from Applix Corp, the Oracle relational database management system, and four languages: C, Fortran 77, Pascal, and Common Lisp. The multiprocessor versions start at $17,200 and the uniprocessor from $13,000 and they are available both in Europe and the US immediately – Counterpoint Computer Corp has shipped over 200 systems out to beta test sites since last August.

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SEQUENT TO FOLLOW SIEMENS $50m PACT WITH $35m DEALS

Three-year-old parallel processing Unix systems specialist Sequent Computer Systems announced that its OEM agreement with Siemens AG of Munich, West Germany is a very substantial contract worth $50m. The Portland, Oregon company, which had sales of just $5m in 1985, says that it will announce a comparable contract for $15m later this month, and a further contract worth $20m in April. The company currently employs 120 people and had 1985 sales of just $5m. Siemens will be basing an entire product line of engineering and transaction processing systems around the Sequent Balance machines – the 8000, which comes with from one to 12 323-bit NS32032 processors, and the new Balance 21000, introduced last month, which can have up to 30 of the CPUs.

TADPOLE TECHNOLOGY LOOKS FOR PROFITS IN 1986

Tadpole Technology Plc, quoted on the informal London over-the-counter market, has rather vaguely reported figures for 1985 which suggest that the Unix processor board manufacturer made a loss of £100,000 on sales of £800,000, compared with a £300,000 loss on sales of just £100,000 in 1984. The company is projecting pre-tax profits of £360,000 on sales of £1.8m in 1986. The company has hired John MacRae, formerly Texas Instruments national sales manager to handle US and European marketing, and Gary Howse, formerly Whitechapel Computer Works production manager.

£16,000 UNIX STATION FROM TORCH AND PRIMAGRAPHICS

Two Cambridge companies have teamed up to produce what they consider a big competitor in the graphics workstation market. Torch Computers of Cambridge has joined the spin-off company of PA Technology, Primagraphics Ltd, to bring out the TPW - Torch/Primagraphics workstation. Initially aimed at the UK, education market the TPW uses the recently launched Triple X System V 68010-based micro as a front-end, which incorporates Ethernet, X25 and Torch's Opentop user interface. This is connected via the VME bus to two purpose built bit-slice processors from Primagraphics. The 16-bit one used for transferring data and images between different areas of image and display memory and the second 32-bit processor used for 2D transformations, line drawing, polygon filling and other graphics-type applications. The Primagraphics display used is a 19" colour monitor with a resolution of 1344 by 1056 pixels at a refresh rate of 60Hz - driven from a 4-bit plane display controller and colour look-up table providing 16 colours from a palette of 4096. All for a price of £16,200 - for one monitor. The agreement between the two companies was initiated by Primagraphics which was seeking an entry into the potentially lucrative world of off-the-peg systems having previously been trapped into producing specialised products for the CAD, medical, artificial intelligence, air traffic and other research environments. Primagraphics is also introducing the Topaz graphics system using the Triple X as the front-end processor. It has the same basic configuration as the TPW but differs in the range of graphics hardware options. The screen resolution is still 1344 by 1056 but; single bit plane black and white, multiple bit plane monochrome, full grey scale, 4 or 8 bit plane colour via look-up tables or 24 bit planes are all on offer. The image memory can be extended in 2Mb or 6Mb blocks up to 40Mb. If you are prepared to spend the money you can buy additional firmware from Primagraphics to give all manner of fancy effects: video images at TV resolution; input maps, photographs and drawings with 8 bit grey scale; rotate images; shade solid models; compress image data. The Topaz is aimed at Primagraphics' traditional specialist market and will cost anything from £10,000 - for the minimum system - to £60,000 - including all the options.
The contract between the two companies is for five years and renewable, and according to the two companies takes the form of intelligence exchange but money ia also thought to have changed hands somewhere along the line. The one fault Torch claimed with the TPW is that there is not a lot of applications software for it, but Torch is hoping to reap software benefits from its discount sales to the academic marketplace. Torch is intending the first sales thrust to be in the education sector and is offering up to 30% discounts on the TPW. Torch aims to hit the US with the TPW within six months.

SPECTRIX ATTACK WANG MARKETPLACE

Last week the Ontario, Canada-based Spectrix launched its attack on the Wang marketplace with the Spectrix XL series. The Spectrix XL is yet another machine based on the Motorola 68020 running Unix, this time its Xenix V. The Wang attack is made more realistic by a Spectrix developed emulator which will run Wang's existing 2200 applications software. The company say that the XL was developed in response to customers' demand for a 68020 upgrade. The main feature of the XL is the number of buses; Multibus, iLBX and MX buses can be used simultaneously. The Multibus used has a 16-bit data path but 24-bit addressing is supported and is synchronized by a 10MHz clock on the CPU board. The iLBX connector is used to provide a second asynchronous path between peripherals and system memory and is a 16-bit data/24-bit address sytem bus. The 32-bit data/32-bit address bus is the MX, connecting the processor with memory. The XL also uses the MC68881 floating point unit and the MC68851 memory management unit. The price range is $14,000 to $40,000. A mid-range configuration with 10 ports, 85Mb disk, 50Mb tape with Xenix costs about $24,500. The Control Data Corp spin-off, Spectrix, has been around for three and a half years and for the last year and a half has been selling outside North America. The UK distributor for Spectrix is Kerridge Computer (UX No 55) of Newbury, Berks - one of the largest European resellers of Wang boxes.

UX-BASIC TRANSLATOR AVAILABLE

UX Software, the Toronto developer of UX-Basic - "the Unix Basic" - (UX No 56) has teamed up with Lambda Bio Systems, Basic translator specialists to produce the UX-Basic/Lambda Translator Kit. This kit will, according to UX Software convert programs written in most of the popular Basic dialects to UX-Basic. Lambda Bio Systems of Denver, Colorado has produced translators for Alpha Basic, Business Basic, Microsoft Basic and SMC Basic. Lambda say that it takes about a month to produce a translator for a specific dialect - translators in the pipeline include DEC Basic, Data General Basic, CBasic and Wang Basic.
UX-Basic has also made it to Japan - Micro Software Associates of Tokyo, a software distributor, has signed a distribution and development contract with UX and plan to release a Japanese version of UX-Basic in the third quarter of 1986. UX Software has also signed a licensing agreement with ITT's Belgian affiliate Bell Telephone Manufacturing Company (BTMC). BTMC will act as UX's porting and technical support centre in Eurpoe and also has the right to distribute in Europe. Another piece of putting pen to paper work completed by UX Software last month was signing up AmbraSoft of Denmark as a distributor. AmbraSoft will distribute UX-Basic in Denmark, Sweden, Norway and Holland. Ambra-Soft was set up as a joint venture between Olivetti and Sparekassernes Datacenter - the joint data processing centre for all the Danish savings banks - two years ago to distribute Unix software in Scandinavia.

FUJITSU SET TO ABANDON IBMULATION FOR UNIX

In what will be the most emphatic move yet to establish Unix as the de facto machine-independent operating system standard in the mainframe world, Fujitsu Ltd of Japan is moving away from full IBM compatibility on its mainframe line. The next release of its rewrite of IBM's MVS/XA will add non-IBM-compatible database and networking features, and support for a version of Unix under MVS. Reason for the decision is that the company is deeply embarrassed at the renewed attack from IBM over its compatible rewrite of the MVS/XA operating system. Mainframes represent too large a proportion of Fujitsu's business for the company to abandon the market, and its only viable option is to put all its marketing muscle behind the Amdahl Corp UTS implementation of AT&T's Unix System V. Fujitsu went out of its way to stress support for Unix when it announced its top-end M780 answer to IBM's Sierra machines in November. It owns about 47% of Amdahl Corp but its likely decision to abandon IBM compatibility is not likely to have a serious effect on Amdahl, which builds its machines using Fujitsu technology. Almost all Amdahl customers licence all their software dirrect from IBM, whereas Fujitsu's approach has been to offer IBM-compatible operating software as well as hardware, and clearly believes that the game is not worth the candle if each sale that it makes simply means more software revenue for IBM. The switch at Fujitsu is the reason why its one European OEM customer, Siemens, has announced that it will not be supporting the Fujitsu operating system – which it calls MSP – above its present release and is advising customers to get their operating software from IBM. The company points out that a report in the **International Herald Tribune** that Fujitsu will cease to supply Siemens with IBM-compatible processors is exaggerated in that the present contract does not run out until 1989. Siemens approach has been to offer its top-end customers the choice of either running its BS3000 and MSP versions of Fujitsu's compatible operating systems or buying their software from IBM; Siemens' own, smaller, machines are similar to but by no means fully compatible with those of IBM. Customers have been migrated over to IBM compatibility on the Fujitsu machines once their need for MIPS could no longer be met by the Siemens machines. Competitors and observers point out that since Siemens already buys 3380 disk drives OEM from IBM, IBM might well be prepared to sell Siemens 3090 processors or their successors on the same basis, to meet the needs of Siemens customers who for political reasons must be seen to be "buying German". All told, Siemens has sold some 220 Fujitsu IBMulators in Europe, but the company says that they account for less than 10% of its mainframe business.

SORD TO SHOW OFF 68020 VERSION OF UNIBOX IN HANOVER

Sord Computer Systems (UK) Ltd will be giving a preview of a 68020 version of its Unibox at this weeks Hanover Fair.

The original 68010 Unibox was launched by Sord last Spring and made it to the UK in November (UX No 51) but did not get much of a response, Sord puts this down to Christmas pre-occupation, and so the end of February saw another round of publicity drives. The very first Unibox used an FHC disk controller and even according to the company was a bit on the slow side – its redeeming factor was and still is its price £3,990, including Unix System V, C and Fortran 77. Sord then replaced the disk controller with a SCSI interface and upped the price to £5,440. Apart from the 68010 CPU the current Unibox model includes the 68451 MMU, 1Mb dynamic RAM – expandable to 5Mb, 20Mb hard disk drive, 1.2Mb floppy disk drive. Q-Office and Uniplex II are now also available for the Unibox. The earlier Unibox model is still available and the 68020 version will be available in the UK this autumn, but Sord is hoping to have one here for the Unix User Show in June.

HM SYSTEMS REJECTS UNIX IN MULTI-USER MINSTREL 4 TUBODOS BOX

HM Systems of NW London this week officially launched its top-of-the-range Minstrel 4. The machine is a 16-bit, CPU-per-user running CP/M and MS-DOS programs under TuboDOS 1.42 supporting 16-users. Datapoint's ARCnet LAN is built in to the disk controller so that up to 256 Minstrels can be linked. The company rejects any thought of Unix for this box because it takes up too much room for a 16-bit machine and still has too many faults but conceeded that Unix was potentially a good operating system provided it was sensibly implemented on a larger machine. HM is hoping to steal the 16-bit commercial marketplace from under the 'big boys' feet concentrate on the 32-bit range.

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LIKE UNIX PICK GETS STANDARDISED

The Spectrum Manufacturers' Association, which brings toge- ther 16 companies marketing machines which run under the Pick operating system, has an- nounced the first set of machi- ne-independent standards defi- ning langu-ages and media inte- rchange. The language standard sets a common subset of the Basic language used with Pick, and the media standard defines the logical representation of data for various types of me- dia. The group will show off the fruits of its efforts at the Spectrum show in Las Veg-as this month, and discuss interim standards for retrieval lan- guages and terminal service. Companies whose machines are covered by the standard include Applied Digital Data Systems; CIE Systems Inc; Cosmos Inc; Fuji-tsu Micro Systems of Ame- rica Inc; General Automation Inc; IN Informatique of France; McDonnell-Douglas Computer Sys- tems; Nixdorf Computer Corp; Pertec Computer Corp; Pick Sys- tems Inc; Systems Management Inc; The Ultimate Corp; and Wicat Systems Inc; all offering boxes under Pick.

A big step forward in networ- king in the Pick world has been announced jointly by Laguna Software & Consultancy Inc of Laguna Beach, California and Datacache of San Diego. Called the Laguna Connection and mark- eted by Laguna, it is a local area system for networking bet- ween multiple dissimilar or similar Pick machines. It is designed for any medium from twisted pair cabling to fibre optics, interfaces to RS232 ports, and handles Pick assem- bly code and Basic. Custom versions have been written for each of 16 machines from ADDS, Altos, CIE Systems, Climax, Datamedia, Eagle, Fujitsu, Ge- neral Automation, IBM Personal, XT and AT, Irvine Computer, Pertec Computer Corp, Ultimate, XMark and Wicat Systems. Ver- sions for different machines vary in price from $295 to $1,900.

Sun Microsystems set a price of $16 a share for its initial public offering of 4m shares yesterday: lead underwriters to the issue were Robertson, Coleman & Stephens and Alex Brown & Sons.

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The $50m two-year agreement under which **Siemens** will buy Balance parallel processing machines from **Sequent Computer Systems** of Portland, Oregon, includes rights for the Munchener to manufacture the machines: Siemens will also develop commercial software for the NS32032-based machines.

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Teknowledge Inc of Palo Alto, California has agreed joint marketing of its S.1 knowledge- based development system on the 68020-based HP9000 Model 300 with **Hewlett-Packard**: running it on the 9000 is possible because the development system has been rewritten in C.

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Convergent Technologies is hop- ing to wrap up acquisition of **3Com** by the end of the month.

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Norsk Data, which in January introduced a VLSI 2 micron CMOS gate array reimplementation of its 16-bit bit-slice ND100 mini as the ND110, is now offering the new processor as the integral front-end processor required by its 32-bit ND500 machines, improving overall performance since the new CPU cycles at 100nS against 150nS for its predecessor, as well as taking up to 1Mb memory against 512Kb; existing ND500 users can replace their existing ND100s with the new ND110/CX to benefit from the improved performance – and free up a slot in the chassis, since the new machine includes processor and memory management on one board.

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The first **Cray Research** Cray 2 in France is due to be installed at the Centre de Calcul Vectoriel pour la Recherche, which is an offshoot of the French research ministry.

Among the best-known of the embedded microprocessor operating systems is the VRTX Virtual Real-Time Executive from Hunter & Ready Inc in Palo Alto, California. And as such, VRTX is ready-made for Ada, so much so that the surprise must be that Alsys Inc in Waltham, Mass-achusetts has only now got around to agreeing terms with Hunter & Ready. Alsys has agreed that its parent in St Cloud, France will develop Ada cross-compilers for VRTX which will run on DEC VAXen under VMS and generate code for VRTX on a series of microprocessers. First up will be the Motorola 68000 version, to be followed by the 8086 and 80286. The two will jointly market the cross compilers with VRTX.

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The start of European manufacture of new **IBM** products always lags several months behind US manufacture, so although the new RT Personal is to be made in Italy, the early models shipped in Europe will come from the US – and we hear that demand is so great in the US that there will be very few RTs available to meet early orders in Europe.

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Cray Research and **Convex Computer Corp** are in cross- licence talks covering Cray's front-end software package and Convex's compiler technology.

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NEC Corp has introduced a CMOS version of its 7720 signal pro- cessing graphics chip: it runs at the same 8.2MHz as its pre- decessor but consumes 24mA, 80% less than the NMOS version.

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Anyone looking for a cheap **Motorola** 68010 Unix development system with VME bus should check out the MicroForce-1A from **Force Computers Inc** of Los Gatos, California: the machine comes with 128Kb of no-wait- state local memory, 2Mb of global main memory, 50Mb Winch- ester, one VME slot, two user ports, printer port and communi- cations port, plus Unix System V.1, in a box 16" by 16" by 6".

TEXAS INSTRUMENTS TO PHASE OUT ITS MINIS FOR 68020, UNIX

They won't disappear overnight, but the years of Texas Instruments' 990 minicomputer and its DX10 and DNOS operating systems are clearly numbered with the news that the next model in the Business Systems family - latest incarnation of the venerable mini architecture - will be a multi-68020-based machine running Unix System V. Development and conversion tools from Micro Focus Plc play an indispensable role in the chip-maker's strategy for holding on to its existing base of minicomputer users. While the TMS99000-based Business System supermicros and the minicomputer bigger brothers will continue to be offered for some time, the Business System 1500 with its one to five 32-bit 16.67MHz Motorola 68020 applications processors and separate 68010s handling peripherals - and Unix System V - mark the company's way forward in the systems business. The machine is designed to take full advantage of the ultra-high-speed 37.5Mbytes per second NuBus, developed at Massachusetts Institute of Technology, which is also used in the Texas Explorer artificial intelligence machine. Unix is now the preferred Texas Instruments operating system, and the company is stressing commonality between the new machine and its existing 80286-based BusinessPro, which runs under the Xenix version of Unix. Texas has also implemented its Business Shell for Unix System V, adding on-line help and prompts. The Unix is configured for automatic load balancing, and there is automatic file locking and record locking to prevent corruption. Micro Focus products on offer include Level II Cobol ET, VS Cobol Workbench, and Texas also offers what it calls Cobol System V. The machine additionally supports Pascal, C and 68000 assembler. The new machine will come with from one to five 32-bit 68020s, plus separate 68010 processors to handle peripherals, and has been designed to support up to 128 users. Fully configured, the new machine is rated at near 17 MIPS. Options include floating point processor, and main memory goes from 8Mb to 40Mb. It also comes with up to 64Kb of cache memory, and is believed to be built around the NuBus that was developed at Massachusetts Institute of Technology and enhanced by Western Digital Corp before Texas bought rights to it. Disk options will include 5.25" drives with from 140Mb to 300Mb and 9" drives storing 474Mb to 800Mb. Prices are expected to range from $50,000 to $125,000 - and Radius Plc, which specialises in Texas hardware over here, is eagerly awaiting the new machine. The big problem from Texas Instruments' point of view is that having persuaded all its resellers to convert their applications for Unix, there will be no over-riding reason apart from the NuBus for them to stick with Texas for their Unix hardware. But when the TMS 99000 second-generation 16-bit microprocessor which is the basis of the newest members of the Business Systems family, failed to make any impact on the market, the company had little alternative but to phase out its quirky mini architecture, which unusually creates registers within main memory rather than within the arithmetic-logic complex.

APOLLO OEM PACT TO SPEARHEAD KIENZLE FACTORY THRUST

Mannesmann Kienzle has signed an OEM agreement with Apollo Computer to sell the 3000 series 68020-based CAD/CAM workstation answer to IBM's RT Personal as terminal to its 9100 supermicro series. Kienzle will be selling the Apollo box only in Germany, Austria and Switzerland for the moment, while French and UK market possibilities are investigated. The company is focussing on the computer integrated manufacturing market and hopes to get the proportion of group revenues from the sector up to 30% from 20% at present. It is investing £50m over the next two years in CIM software development. The company's 9100 series, based on Texas Instruments TMS99000 microprocessors and running the N-TOS operating system, is now a multiprocessor engine with the parallel bus extended to take multiple CPUs, each supporting up to 32 workstations. It will now cope with 64 screens on two processors, with disks shared and degraded fault tolerance when mirror disks are used. It also supports guest processors for CP/M, MS-DOS and Unix System V. By 1987 the company plans to support 128 workstations on four processors. Also newly developed and exhibited at the Hanover Fair is the company's 9000 series intelligent colour graphics terminal, which will be available in volume in the second half of the year. Supporting the GKS Graphics Kernel System, the product offers up to four simultaneous windows and in-built controller for electronic mail. It uses a proprietary processor with 2Mb memory, graphics co-processor and offers around 2Gb of disk storage, with prices ranging from £10,000 to £85,000. The company has also brought out a baseband digital local area network called Kidan.

UNIX is a Trade Mark of AT&T Bell Laboratories

NIXDORF CLAIM TARGON/32 TO BE FIRST UNIX RISC: FOUR CPU 8870 LEAD LAUNCHES

Nixdorf Computer takes the Hanover Fair more seriously than any other manufacturer, and every product in the company's line is lovingly pol-ished and honed for maximum lustre - an extra disk drive here, a new processor there, a touch of colour on that screen - in preparation for the show. And while IBM's System 36 is rapidly losing its appeal to us-ers, and many other major manufacturers have well-nigh abandoned their traditional small business computers for multi-user micros, the Nixdorf 8870 goes confidently on. This year it appears in two new models, M25 and M75.

The M25 is a compact version capable of supporting up to 10 users at a pinch, the M75 comes with up to four processors hanging off the bus and is very comfortable with up to 24 users. Each processor comes with up to 1Mb of memory, and Nixdorf will no doubt meet its targ-et of selling 8,000 of the new machines this year - starting in April. The company is on much less solid ground when it claims that its Targon/32 machine, finally launched as a product, is the only fault-tolerant Unix machine in the world: Parallel Computers and Tolerant Systems are two companies likely to have a word or two to say about that claim. The two-processor box of course uses the Motorola 68010 micro and is derived from technology developed by poor Auragen before it went into liquidat-ion. It comes with 4Mb to 32Mb main memory, one to 16 475Mb disk units, one to four 80Mb tape drives, and supports up to 64 users. A single processor version, the Targon/31, comes in two models, and Nixdorf has also launched the Targon/35 version of the Pyramid Technology 98Mx RISC. Elsewhere, the Paderborner is particularly pleased with a new Professional Workstation, a monochrome or colour screen aimed at the banking market which puts up 850 by 600 pixels and is scanned at 70MHz non-int-erlaced to reduce flicker to a minimum. There are also enhancements in the 8810 personal, 8860 networking, and 8840 word processor families.

LEXIDATA UNVEILS PERSONAL GRAPHICS SYSTEM FOR AT, RT

Personal Graphics 90 is a new sub-system for the IBM Personal AT and RT from Lexidata Corp of Billerica, Massachusetts. Built around an In-tel 80286, it puts up 4-bit or 8-bit planes of 16 or 256 colours and is designed to offload the main processor of the host system.

It supports 15" or 19" 1,280 by 1,024 pixel 60Hz non-interlaced displays, and the IBM colour graphics adaptor, and is capable of creating up to 15 concurrent windows. It imp-lements the Personal AT bus and features dual-port memory.

Prices start at $7,995 with 16 colours and no screen, rising to $9,395 with 256 colours. The company is offer-ing monochrome screens at $995 and its 15" colour screens cost $2,095.

SUNSYSTEMS TURNS JAPANESE

Systems Union of North London has signed up Japanese distributor Tekpro of Tokyo to sell its SunSystems accounting packages. The deal covers MS-DOS and Unix implementations and will involve the development of a Japanese versions of the products.

Tekpro already specialises in Unix applications software, and will be producing the Japanese version with the help of Micro Focus' own Japanese Level II Cobol (Kanji) which will enable users to mix Japanese and Western-style text on the screen, and the Japanese MS-DOS known as JDOS.

Two deals have already been signed with unnamed Japanese customers and more are in the pipeline.

Systems Union estimates that the business will be worth at least £160,000 in the first year alone. The company's previous experience in selling overseas in Hong Kong and China makes managing director John Pemberton hopeful that Japanese trade will show a similar pattern of doubling sales in the first three years.

Japan is looking to Unix to pull it out of its software strait-jacket. A standard operating system and plenty of packged options is badly needed, and Pemberton predicts that the reluctance of US software houses to invest in translation will leave the field wide open to UK software houses. Like many UK development organisations who have to keep their eyes on non-UK markets, Systems Union has kept all its text in separate print-heading and screen-format files, so the task of translating "embedded text" is not as daunting as it might be.

The SunSystems software - at present the subject of a UK court dispute with Coventry-based Simdell - consists of three modules which are designed to be adapted to various national regulations. The three main modules are SunAccount combined ledger, SunBusiness order entry, invoicing and stock control, and SunTrend multi-dimensional financial modelling.

The company has further designs on Far East markets, in which it has become something of an expert.

/USR/GROUP/UK RE-ORGANISES

Nominations closed at the beginning of this week for the new board elections for /usr/group/UK. The resignation of Redwood's Peter Osborne means that the group is now seeking a new treasurer as well as re-organising its board of Directors.

The Board has decided that the present system of holding twice-yearly elections needed changing, so the present board of management is to be replaced with a board of 13 Directors, each serving a two-year term. The present 21 members of the Board of Management are seeking re-election under the new rules - Osborne's resignation, attributed to pressure of work and the rapid expansion of Redwood, means that one of the first tasks of the new Board will be finding a new Treasurer.

ICL ADDS COMPUTER CONSOLES POWER6, OFFFICEPOWER TO LINE

ICL yesterday unveiled the second stage of its networked office strategy and added the Computer Consoles Power6 32-bit Unix minicomputer as the Clan/7. With it, the company has relaunched the Computer Consoles Officepower software, formerly marketed by ICL's parent company STC.

In its previous UK incarnation, Officepower won just 12 users but was withdrawn when STC's Network Systems division was transfered to ICL last year for further development. The software runs under Unix V with BSD 4.2 extensions on the Clan/3 - the Datamedia 632 - as well as the Clan/7. Facilities available include X400 electronic mail, ICL's Bulletin viewdata network and word processing. Features are integrated with all menus, for instance, have the same structure so that only one set of learning is required. Several tasks can be carried out concurrently and changes can be made to cope with differing demands. And local applications can be written under UDAC - User Defined Applications - without extensive programming skills. At present, Officepower supports only One-Per-Desks, ICL Personals and IBM Personalikes on the Clan machines but DRS support is planned. Officepower supports between four and 128 users with a typical 10-user, 40Mb machine running on Clan/3 costing £60,000. It will be aimed initially at government departments and existing installations but a major drive targetted at other sites will be launched this year. Roger Hill, ICL marketing director, describes the package as "not the first but certainly the best of its kind".

VMARK PROPOSES MARRIAGE AS PICK PREPARES INJUNCTION

VMark Computer Inc, developer of the Universe Pick-under-Unix, is prepared to discuss a merger with Pick Systems Inc as a means of settling the copyright lawsuit brought by the originator of the Pick operating system. Pick Systems meanwhile has not yet seen any positive effect from its lawsuit against the Natick, Massachusetts company, and is now ready to seek a court injunction barring VMark from marketing Universe. The operating environment has been enthusiastically endorsed by AT&T Information Systems as a means of greatly increasing the number of applications which can be offered on its 3B Unix computers. Universe is at present sold with no licence fee payable to Pick Systems - and Pick is developing its own Pick-under-Unix implementation. Clearly a merger with VMark would save it the trouble - and it is in an invidious position in that it is trying to persuade AT&T to offer the IBM Personal Computer version of Pick on the Olivetti PC6300 and 6300 Plus.

ALLEN MICHELS' DANA PLANS 30 MIPS PERSONAL SUPERCOMPUTER

Convergent Technologies co-founder Allen Michels' start-up company, Dana Group, has now come out of the closet on what it plans to do - and the answer has a familiar ring to it. Dana intends to design and manufacture a single-user Unix workstation in the 20 to 30 MIPS range - an ambi-tion very similar to that of another new company, Apollo founder William Poduska's Belmont Computer Associates. Based in Sunnyvale, California, Dana has just completed its first round of venture funding, raising $11m, and its plan is to build a "personal supercomputer" with first deliveries pencilled in for late next year.

The processor is also likely to appear in compute- and file-server variants. Michels has gathered together a galaxy of talent, led by DEC's former resident guru Dr Gordon Bell, who is helping with design of the machine on a part-time basis - he has also just accepted a post with the US National Science Foundation.

The company will clearly be very strong on the Unix side: it has tapped both compiler specialist Steve Johnson and Unix operating system development specialist Way Ting from Bell Laboratories. Tom Bentley has come on board from Hewlett-Packard to head the product design team, and Steve Jenness from Valid Logic Systems will be in charge of communications and network software. The company currently has 15 employees.

Among participants in the first round of venture funding were Bay Partners, Fairfield Venture Partners, Rothschild Unterberg Towbin Ventures, InterWest Partners, Mayfield Fund, Kleiner Perkins Caufield Byers, and Advanced Technology Ventures.

ES2 £1.5m WHITECHAPEL PACT FOR MG-1 WORKSTATIONS

European Silicon Structures, the pan-European chip foundry venture, has given Whitechapel Computer Works a contract to provide £1.5m of its MG-1 Unix workstations to form the basis of a new low-cost design system for Applications-Specific Integrated Circuits.

With software developed from Lattice Logic's chip design program, it will go for £22,700. A bigger pro-gram from SDA of Santa Clara is av-ailable for MassComp, Sun, Apollo and Hewlett-Packard kit and, bundled, is £80,000 to £110,000.

ES2 managing director Rod Attwooll aims to convince small to medium businesses that custom design is well within their compass using the East Enders' machine though the software will be available separately. Various plans will be offered including rental, lease or contract hire terms on MG-1s. ES2 will do only prototype runs, with production runs farmed out elsewhere.

INTEGRATED SOFTWARE TAKES CONTROL OF MIMER

Graphics software specialist Inte-grated Software Systems Co of San Diego has taken a 60% stake in Mim-er Information Systems AB, the Swe-dish company whose Mimer portable relational database management system is marketed in the UK by Savant Enterprises of Carnforth, Lancashire. The pact gives Integrated Software Systems options on another 31% of the Mimer equity. Mimer, with 40 customers in the UK, competes with Ingres and Oracle.

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RENT-A-CODE FROM MS

C specialist MS Associates of Bourne End, Bucks has introduced a low-cost rental option for its CGEN translation software. CGEN has already been widely used by large software houses such as Pegasus, Compsoft and Multisoft to convert single-user Basic applications into Unix-based multi-user versions running under Unix. But, according to managing director Keith Maskell, the price of CGEN and its associated consultancy and support services has put off a myriad of very small operations. The rental option is a £425 per month compromise which is designed to let CGEN penetrate lower down the market. CGEN is designed to allow small software houses, typically four to ten people, to do one-off translations without massive capital outlay. MS-Associates has also announced that CGEN will be available under PC-DOS for IBM PC users by the end of March. Again, the idea is to broaden CGEN's market - this time to include those cautious souls who don't want to lash out on expensive Unix hardware, but who would like to get out of Basic, and into fashionable, fanciable C. The full source-code version of CGEN will be available to PC-DOS and MS-DOS so that they can translate applications into C. An entry-level version of the PC-DOS product is already available for £950. MS Associates is claiming that benchmark tests (operating under PC-DOS with floating point support) produced significantly faster executables than the PC Basic Version 1.00 compiler - figures available on request). The company is expanding is marketing operations still further by sales in France and Europe.

All things are relative, but a warning from **Pyramid Technology Corp** that its growth rate was likely to moderate to 65% from 80% caused its shares to take a nasty tumble, falling $3 to £10.75 in one day: reasons for the slower growth rate are that deals for the Mountain View, California company's RISC superminis are taking longer to close, and that people held off placing orders pending the launch at the end of last month of the **Hewlett-Packard** Spectrum RISC.

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William Poduska's **Belmont Computer Associates** start-up is still evaluating various gate arrays before deciding what to build its proprietary architecture 20 MIPS workstation around: the machine is planned to come out in about a year with a high-level instruction set and integrated graphics processor, all built of 20 to 30 gate arrays.

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DEC has agreed to joint marketing of computer aided engineering software from the **CAE Systems** division of **Tektronix** running on DEC's Microvax II.

– o –

Sperry Corp will next month soup up the 5000 series in its Unix family with two new 32-bit models based on the 68020 version of the **NCR** Tower: the model 50 will use the 12.5MHz version of the chip and come with 2Mb to 16Mb of main memory, 85Mb to 1.6Gb of disk starting at $35,000, and the model 90 will use the 16.7Mhz 68020, with 2Mb to 16Mb of main memory and 160Mb to 8Gb of disk, starting at $70,000; the two new machines will also be offered as Unix file servers.

Stuart Bagshaw, former **Apple UK** Number two is to be European general manager for parallel processing Unix systems manufacturer **Sequent Computer Systems**: he will be based in London.

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Despite the pessimistic noises coming out of **IBM UK** from the people at the sharp end about the shortage of RT Personals as a result of overwhelming demand in the US, the firm message from higher up is that the UK **will** get its quota next month: at the moment there are just eight of the machines in the country.

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But however IBM tries to downplay the RT because of its embarrassing use of Unix, the 32-bit microprocessor chip inside it is a major component from the company: we hear that the widespread rumours that the chip was also used in the channels of the 3090 Sierra mainframe family are the simple truth – and if it finds a role there, five will get you ten the chip will turn up in other IBM systems too; don't forget that use of RISC technology significantly simplifies emulation.

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Savant Enterprises of Carnforth, Lancashire says that its UK marketing rights to the Mimer relational database will not be affected by the Swedish originator falling under the control of **Integrated Software Systems** because it rights to the product run through to the 1990s: Savant ceded Benelux rights to Mimer back to **Mimer Information Systems AB**

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Norsk Data has added a Programmable Input-Output Controller for its 16- and 32-bit minis: based on a 512Kb 68000, offloading X25, SNA or Ethernet communications.
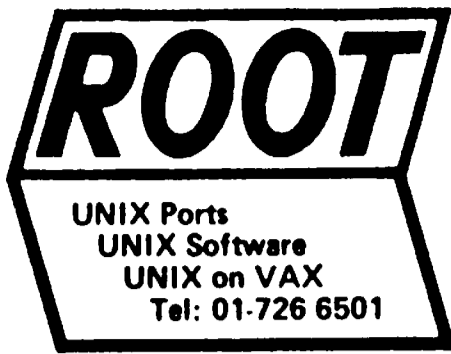
FORTUNE LANDS LIFE ENHANCING OEM CONTRACTS

Despite always being bolstered by having had some cash in the bank, Fortune Systems has been living from hand-to-mouth ever since it went public because it has seldom been able to write enough business with its MC68000 family Unix machines to turn a profit for even one quarter. Now however, the Campbell, California company has picked up a trio of the kinds of contract that could really make a difference to its entire quality of corporate life. They are together worth $25m "over several years", and the most noteworthy comes from the BellSouth Advanced Systems Inc unit of the AT&T orphanage serving the south-eastern states from Georgia down to Florida. BellSouth has chosen the Fortune SX45 as a front-end processor for systems to manage the US 911 number emergency services. Here you dial 999 and British Telecom puts you in touch with police, fire or ambulance; in the US, you dial 911, and the local municipality puts you through to the emergency service you want – if it has gotten around to commissioning the phone company to install a 911 system. The Fortune system will be offered to small local administrations. The second contract, worth $10m over two years, comes from start-up integrator Scorpion Systems Inc, also in Campbell, which is taking the SX45 and a forthcoming 68020-based version, and will sell them under its own name. The third agreement is with Business Machines Development Inc of New York, which will market Fortune systems to members of the National Office Machine Dealers Association. It is the first multi-user micro to be offered to the association – the value is put at $12m over three years.

TRILOGY's ELXSI CUTS PRICES TO ENCOURAGE PARALLEL USE

Elxsi Corp, the San Jose builder of 64-bit parallel processing computers that is now owned by Dr Gene Amdahl's Trilogy, is going in for some dramatic price cuts on higher configurations of its Elxsi 6400 machine in order to get the massage over that the machine only really delivers when run as a parallel processor. The 6400 runs Unix System V, BSD 4.2 Unix or Elxsi's proprietary Embos operating system – or all three concurrently. Elxsi reckons parallel processing would be of benefit in commercial applications like payroll, and does offer a Cobol compiler, but is selling mainly to scientific users. Elxsi has sold some 150 systems to 50 customers, but half of those sales have been of single CPUs. Now the company has slashed the price of the 28 Whetstone MIPS four-processor configuration by over 30% to $695,000 from $1m, and of the twin processor model by 25% to $520,000; prices for the smaller models remain unchanged. The price includes 32Mb – 4Mwords – of main memory in each case, and Elxsi says the reductions give it price-per-MIPS leadership in its chosen market.

FLEXIBLE COMPUTER NOW OFFERS 68020, 32032 OPTIONS

Back in June last year, Flexible Computer Corp, making multi-processor parallel and fault-tolerant Unix machines in Dallas, Texas around the NS32032, was promising to add a "very well-known processor" altern-ative to the NatSemi chip. Now, a little behind schedule, the company has announced that processor, which needless to say turns out to be the MC68020. The company points out that all micro-processor designs involve compromises and that therefore the NatSemi chip is better for some applications, the Motorola for others. The unique feature of the machine is that users can mix and match processor boards of the two types without having to change their software. The machine runs under either Unix System V or the company's own Multicomputing Multitasking operating system which is designed for embedded real-time applications. Also on the way for the machine are a bit-slice scientific processor and a processor designed for Lisp.

TI ADOPTS SUN's NETWORK FILE SYSTEM ON EXPLORER

Texas Instruments has announced that it will be supporting the Sun Microsystems Network File System on the Explorer 32-bit bit-slice artificial intelligence computer. The aim is to enable transparent file sharing between the Explorer and Sun's Unix workstations, providing developers with the benefits of both artificial intelligence tools and a Unix design environment in a single system.

Inside this week's issue:-
Sperry takes **Austec's** Cobol
usr/group/UK loses Hay;
Future Technology bringing in **Banyan** gear; **Natsemi** update; **benchMark** release.

SPERRY TAKES AUSTEC'S COBOL
TO GET INTO DATA GENERAL MARKET

Sperry has chosen Austec's AceCobol to tempt
Data General VARs away from Data General's
own Interactive Cobol. Sperry sees the Data
General-type commercial area as an ideal new
sales market. AceCobol is compatible
with Interactive Cobol so Sperry has signed an
agreement with the Australian systems
software company to sub-licence the Ace
products to its customers in the UK and Eire.
The Ace product line also includes AceBridge,
AceGen, AceSort and AceMenu (UX No 65).
AceCobol is compatible with many existing
Cobols if used with AceBridge which is
an interface between an application, in this
case Cobol, and the operating system.
Although designed with Unix in mind Austec
say that AceBridge can be adapted for any
machine running any operating system - taking
about four weeks for most configurations.
Sperry said that another reason for making
Ace Cobol available on its PC to
mainframe range as well as RM-Cobol and Micro
Focus Level II "is to provide software
compatibility across its whole Unix product
range". Unlike the majority of manufacturers
who already have Austec products Sperry will
be selling the Ace products under their
existing names. These companies include IBM,
DEC and AT&T. No-one is prepared to put a
monetary value on the agreement but Austec
think that "Sperry views the Ace products as
a major contribution to its commercial
offerings" and Austec goes further in saying
that it expects Ace to become a standard
environment for commercial system users and
the agreement with Sperry is a big step
forward in achieving that end.

NORTHERN TELECOM RELEASES RM/COBOL

Northern Telecom bowed to customer demand by
releasing RM/Cobol for the Vienna family of
information processing systems. The Hemel
Hempstead company currently supplies Micro
Focus Level II Cobol. According to Northern
Telecom the demand does not come from the
European market as there is many applications
here for Level II but North American custo-
mers are demanding more applications under
Unix or Xenix. Northern Telecom's existing
customers running its own proprietary Cobol,
ACobol/III, will also according to the compa-
ny find it easier to upgrade to RM/Cobol
because of the similarities of the two lan-
guages. Northern Telecom has two classes of
software; branded and adopted - which are not
branded. Micro Focus Level II has been bran-
ded. RM/Cobol has more attributes and is
more effective for screen handling but in
applications are heavy on computational re-
quirements Micro Focus outperforms, says
Northern Telecom. For the compiler and run
time version of RM/Cobol the price is £1,250
for a Xenix system and £650 for MS-DOS. A
run time version alone costs £375 for Xenix
and £230 for MS-DOS - all exclusive of VAT.
Level II is slightly more expensive. Nor-
thern Telecom will be selling Level II Cobol
unless a customer particularly requires or
needs RM/Cobol.

/USR/GROUP/UK LOSES CHAIRMAN
IN RUN-UP TO RELECTIONS

Chairman of /usr/group/Uk Don Hay has resig-
ned in a surprise move, which leaves the
group leaderless in the run-up to its Board
elections. It is also rumoured that secreta-
ry Jenny Burley may also be resigning, though
no confirmation was available, and no-one has
been at the usr/group office to answer enqui-
ries. Hay's resignation leaves the user
group with no-one at the tiller, since Peter
Osborne, formerly treasurer, also resigned
last week, and there is no obvious successor
for either post. The user group is in the
midst of re-organisation as it is shedding
its former two-tier structure of 21 board
members and representatives in favour of a
Board of 12 Directors, each serving a two-
year term. User groups are no strangers to
schisms caused by commercial jealousies and
loyalties. However sources suggest that this
particular spell of disenchantment is more a
case of too many cooks spoiling the broth
than any particular brew. The balance of
users and commercial interests may be diffi-
cult to maintain in the light of the 15
hopeful candidates: well-known names from
DEC, Unix Europe, Bleasdale, Redwood, Sphinx,
ICL and Datalogic are all on the list.
Ballot papers have been sent out to indivi-
dual members and Corporate Members, but not
to associate members, who are not entitled to
vote. Votes will be counted on April 4th.

CITICORP BIDS $680m FOR QUOTRON
AFTER DEAL WITH AT&T

"A destabilising stake of 7.9% in share price
information services specialist Quotron
Systems is held by FMR Corp and its Fidelity
International Ltd subsidiary", we wrote
yesterday. Yes indeed. The Los Angeles
company went unstable with a vengeance
shortly after we went to press when CitiCorp
weighed in with a bid of $19 a share, valuing
Quotron at $680m. CitiCorp, the former First
National City Bank of New York, has long been
rumoured to be interested in Quotron, and the
company announced last autumn that it was in
talks with a potential partner widely assumed
to be CitiCorp. Those talks finally broke
down in November, slicing more than $3 off
Quotron's share price to $10.50. Anyone who
bought then has clearly made a nice little
killing: Quotron shares were trading at
$16.25 ahead of the CitiCorp bid. Quotron
has 80,000 of its terminals installed wor-
ldwide, and last month agreed with AT&T to
create an Integrated Financial Information
System putting up share data on Quotron Q1000
computers and networked to AT&T Unix PCs.
First customer for that servive was the Shea-
rson Lehman Brothers unit of American Ex-
press, and other major Quotron customers
include Merrill Lynch, Dean Witter Financial
Services and Sears Roebuck & Co, all of which
see themselves to some extent competitors of
CitiCorp. The deal is also subject to regu-
latory approval, and now that the door is
unlocked via the CitiCorp deal, other bidders
may well come out of the closet - and no-one
should be too surprised if they heard that
British Telecom was holding a watching brief.

FUTURE TECHNOLOGY COMMUNICATIONS
BRINGS IN BANYAN GEAR

Future Technology Communications Ltd has revealed the "several exciting bits of news" it promised after its recent buy-out from now-bankrupt Future Technology Holdings. Chief amongst these is an exclusive UK distribution deal, after a six-month non-exclusive trial period, with Banyan Systems Inc of Westboro, Massachusetts for the Banyan Network Server. This is a 68000-based IBM-bus box running Unix System V with Berkeley BSD 4.2 extensions that can support several IBM Personal-compatible local networks, asynchronous and public data networks - the last through X25 - and act as an IBM Systems Network Architecture protocol converter. Each server has four slots into which 42Mb, 70Mb and 120Mb disk drives can be fitted in any combination. To provide extra capacity or to link more local nets, servers can be connected together.
The product is being sold both through seminars - FTC believes dealers are not able to give the support required - and through systems houses and major distributors. MBS, Digitus and Vistec are among those who are being, or have been, offered the network server. These organisations will have to pay only the same price that FTC is paying Banyan for the products. To ensure that this business is profitable to FTC, the Wallington, Surrey-based company will be charging the distributors for support.
The typical cost of a 70Mb Banyan server supporting two local nets and 64 SNA sessions will be around £20,000, with server to server connections costing another £1,500 and DEC VT100 terminal emulation a further £1,000.
So far, servers have been sold to the likes of Thorn EMI, its Ferguson unit, GEC and the Ministry of Defence.
The other new products announced by Future Technology Communications are the Tempus-Link software package from Micro-Tempus in Canada, which links mainframes and IBM Personals; and Strategic Network Environment from Strategic Resource Corp in Boston, Massachusetts. This program enables allows documents to be moved from one architecture to another without the user having to make any changes.
Later in the year, Future Technology Communications will announce other products including Banyan networking software to convert IBM AT-alikes into a Banyan server with up to 10 users.

BP RESEARCH BUYS WORKBENCH

BP Research of Sunbury has espoused Interactive Systems' Workbench (IS/WB) along with Unix on the Vax.
In a deal worth around £25,000 two copies of the Workbench have been installed on BP's Vax 8600 cluster by Calidus Systems of London, at present the the sole UK source for Interactive Systems' tools and applications. BP Research has moved up to Vaxes from its DEC PDP-11/70, which ran under IS/1 (Unix Version 7). The Workbench's similarity to IS/1 provided BP research with a compatible route to running a Unix environment on top of Vax/VMS.

IBM HAS NEW XENIX FOR AT
AND ANOTHER LAUNCH ON APRIL 2

An announcement last week from IBM included new releases of Xenix for the Personal AT. Xenix 2.0, which unlike 1.0 is at System V level, costs $590, and includes closer convergence of PC-DOS and Xenix files, and support for 3Mb memory, up from 1Mb, there is a new release of the Xenix software development system, a new text formatter release for $199 that includes style checker, and operating system extensions costing $495 from Interactive Systems Corp that increase commonality with IBM's other Unix operating system offerings. IBM has inked in April 2 for a major simultaneous five-city US announcement to dealers of a kind not seen since the jamboree that launched the Personal AT, and given that the new 3.2 release of PC-DOS, unveiled last week, supports transfer of data between 5.25" and 3.5" disk drives, the betting among observers is that the announcement will include Personal Computer models with 3.5" floppy drives, likely including the heavily hyped lap-top model. A replacement for the XT and upgrades for the AT are also on the cards. As well as the new XCopy command for transferring data between dissimilar disk media, the $95 PC-DOS 3.2 supports copying from more than one directory, support for the Token Ring network, and separate software is offered for transferring data between the Token Ring and the PC Network. A new APPC/PC program supports Logical Unit 6.2 program-to-program communications via the Token Ring and SNA/SDLC links, and a new NETBIOS program enables applications to be written for use with both local area networks.

STEP HIGH-LEVEL LANGUAGE
FOR BIT-SLICE MICROCODE

Bit-slice microprocessors represented a giant leap for the computer designer looking to implement an arcane instruction set within a reasonably conventional architecture, and the toughest part of designing either a low-cost implementation of an existing processor or coming up with something completely new became the writing of the instruction repertoire in microcode. This has traditionally been done by writing rather tedious assembly code. Now, reports **Electronics** magazine, much of the pain should be removed from that task, too, with the introduction of the MetaStep Language System by Step Engineering of Sunnyvale, California. The MetaStep Language System comprises a definition processor module to define macroinstructions, constants and variables; an assembler to build the microprogram from source code and instructions; and a linker-debugger. It accepts Advanced Micro Devices' Amdasm source code and code generated by its own C-like language. Versions of the MetaStep Language System are available for the IBM Personal and Personalikes under PC-DOS, and for machines running under Unix at a price of $3,000 for either version.

Last week National Semiconductor put its weight firmly behind digital signal processing (DSP). At a conference in London Natsemi said that its DSP device, the LM32900, will be in full production in 1987.
The LM32900 is a single chip device made using Natsemi's CMOS process which according to the company allows a machine cycle of 100 nano seconds giving a 10 MIPS rating. Although Natsemi do not expect initial overwhelming success with the LM32900 because of the current DSP market dominance of bit-slice processors. Natsemi expects bit-slicing to keep the lead for the next two years but it firmly believes that as single chip devices become accepted the LM32900 will be up amongst the leaders.
Selected customers will serve as Beta test sites for the LM32900 during the second quarter of 1986 with general samples becoming available in the third quarter.
This chip, the result of three years of research, has a 172 pin count but the architecture uses a parallel bus interface to program and data memory. A Harvard architecture is used so that separate program and data buses are used to avoid loss of speed. There is no internal memory on the LM32900 because in large scale systems time is wasted reloading internal RAM but internal memory can be accessed faster than extenal so Natsemi uses a pipelined instruction interface in the LM32900 which means an instruction is fetched and decoded two machine cycles prior to execution. This means that execution time for each instruction is effectively one machine cycle although accessing the memory and decoding the instruction takes longer than that. The LM32900 has eight general registers, two register arithmetic units for indirect address generation, circular buffers of programmable length, two 16-bit asynchronous serial ports and five programmable outputs. The software has, according to Natsemi, been designed specifically for DSP applications and has only 50 instructions.
The LM32900 is aimed at the

NATIONAL SEMICONDUCTOR

TO BRING OUT SINGLE CHIP

DSP DEVICE

Natsemi has taken time out over the last few weeks to hold conferences throughout Europe to explain to interested parties details of new products; the LM32900 and Test Pak: the company also spent some time defining the company's strategy and excusing its past sales failure.

high end DSP market and to make it attractive for use with different applications Natsemi uses 128K of data RAM which can be addressed in two separate 64K banks. Natsemi proposes that the LM32900 be used for telemetry, robotics, speech and pattern recognition, high spped modems, digital filtering, image processing and radar/sonar processing.
Natsemi's one own criticism of the new device is that it is rather large - 380mils by 400mils - but justify it by saying that if it was any smaller performance capability would be sacrificed.
In support terms Natsemi will provide: an assembler and simulator for the IBM-PC running MS-DOS, the VAX-11/780 running BSD 4.2 and SYS32 and VR32 running Genix; a development board using the NS32016 as the controller and including the LM32900; and a library of arithmetic and application routines.
Natsemi has also come up with what it considers the answer to the problem of high lead count in integrated circuits - Tape Pak. The problem is that as integrated circuit packages become smaller their leads become more fragile and lead spaces closer so it becomes increasingly difficult for automated equipment to handle and test them. Tape Pak uses Tape Automated Bonding Technology to protect the leads and to test them. Test points are placed in the tape itself outside the package leads. As the body of the package is molded a ring is also molded to hold these test points. The ring is discarded along with the tape once the package has

been removed by the automatic pick and place machines at the point of assembly. This ring, according to Natsemi, not only protects the leads during assembly but allows them to be more accessible for testing as they can be placed at 0.050" centres. Natsemi boasts that with its Test Pak packages can contain from 28 to 300 leads but still measure less than one inch on a side. Standard products are not yet available in Tape Pak form but Natsemi says that several large manufacturers are evaluating implementation of this technology for high volume manufacturing. Pilot production at Natsemi is expected to take place this summer. Natsemi is predictably keen to get Tape Pak accepted as a standard in packaging technology and has given the Jedec committee its specifications for evaluation. At the conference Natsemi was also anxious to point out that over the last five months orders have improved dramatically but only hesitantly suggest that the recession in modern electronics has ended. Natsemi is not predicting a major sales rebound but hope rather than expect sales to increase by 10% to 15% in 1986. Natsemi says that the slump occurred because of ovely optimistic sales forecasts and as result of the slump the memory business is not viable for most manufacturers outside Japan and South Korea leaving US manufacturers to get into other ares such as VLSI products, high-end microprocessors and CMOS. Natsemi is pinning its hopes of success on the 32000 series but say that the make or break factor will be its relationship with major OEMs such as it currently has with Xerox and Siemens.
Natsemi also says that it is going to spend a lot of money on research not only in product and process innovation but also in manufacturing technology - since 1980 Natsemi has spent over $1 billion on capital equipment. Natsemi has also spent more than $100m on building a new fabrication facility in Arlington, Texas. The primary product at this new facility will be gate arrays.

BURROUGHS HAS MICRO 4G ADS

Burroughs has licenenced what it considers to be the first micro-based multi-user fourth generation application development system. The Application Development System (ADS) comes from Convergent Solutions Inc of Forset Hills, New York, who are no relation to Convergent Technologies although ADS was first developed for Convergent Technologies' machines. Burroughs on the other hand is related: it has a large shareholding in Convergent Technologies and the B28 is the 80286 version of Convergent's N-Gen station. ADS will be marketed by Burroughs in the UK and will run on the B25, B28, and XE 520. Burroughs agrees that DBMS III is an ADS competitor but maintains that it considers ADS out on its own in the micro end. A Unix version of ADS will be available from Burroughs and Convergent Solutions next year, some modules are currently written in C. Burroughs is intending to sell ADS directly into large data processing sites and will leave its distributors to produce specialised vertical market applications. ADS has already been installed by Burroughs and Convergent Solutions at United Friendly Insurance and the BBC. Burroughs itself developed a personnel management system, using ADS, for the Cumbria Police. ADS is available now from Burroughs and costs £4,317 for an initial package for use with up to 16 users - for multi-site users subsequent packages cost £1,079. A demonstration development system is available for 60 days for £108 - you get your money credited if you then buy a full ADS system. Convergent Solutions and Burroughs will be jointly marketing ADS in the US but Convergent will go it alone in Australia and Japan.

OLIVETTI FETES THE 3B

Olivetti is pursuing its policy of "software fairs" as a way of publicising the charms of it 3B range of machines to Value Added Resellers. The next Software Fair is to be held at the Castle Hotel in Windsor on April 7th (3B VARs only) and 8th (open). Over 20 applications areas are represented - if you'd like to see the 3B pu through its paces ring Mike McCormac at Olivetti-AT&T on 01-789-6699.

BENCHMARK 32 LAUNCHED
WITH "UNIQUE" MICROCODE DEBUGGER

Right on time benchMark Technologies has launched its CPU-independent 32-bit Unix engine, announced last November. The machine runs a complete implementation of Unix System V.2 concurrently with MS-DOS 3.1, plus the Graphics Kernel System Level 2b with Fortran and C bindings. The benchMark's claim to fame is its architecture: the 32 uses a single board with interchangeable CPUs, so that OEMs can keep up with the times as CPU technology advances.

On the systems side, the presence of the 80186 processor means that MS-DOS can run concurrently with Unix, and I/O operations - never a Unix strong point - can be shuffled off onto the processor. The company has maintained its pick-and-mix policy on the communications front as well: the benchMark 32 supports Newcastle connection, plus interfaces to Ethernet and IBM's Token Ring networks.

The icing on the cake are benchMark's development aids, a macro meta-assembler in C, and a "unique" microcode debugger, developed to take the pain out of microcoding for bit-slice processors.

The meta-assembler, known as bMasm, lets OEMs and end users generate their own programs. It was originally developed for the GIP Graphics Image Processor, and amounts to an intelligent library which saves the programmer from getting involved at oily-fingers level when dealing with real-time graphics and other complex operations. According to benchMark, the system is a sort of manager which deals with some of the embedded information which programmers often have to winkle out for themselves on a hit-and miss-basis, such as buffers used for hardware faults. The bMasm also has critical path analysis built in so that parallel tasks have the minimum impact on one another's performance.

MICRO FOCUS HAS THREE JAPANESE DEALS

Micro Focus PLC, which says that 70% of its OEM business is now with products to run under Unix, has announced contracts for its core Unix product, Level II Cobol/ET (Enhanced Technology) with three Japanese companies - Ricoh Co - planning a 608010 machine - Nippon Telegraph & Telephone Corp and Hitachi-Seisakusho. The ET extensions allow for 32-bit processing so that Unix machines can run larger Cobol programs more quickly, undoing the previous limits of 64K to allow for 32-bit addressing. A further option, known as Upgrade 3, is available under ET to convert Ryan McFarland Cobol programs into Level II Cobol.

The new conservative button-down **Convergent Technologies** has left behind the days of explosive growth – but margins are none too hot: the company says that it will do between break-even and five cents a share in the first quarter on sales of only $70m to $80m, compared with $206,000, one cent a share, on sales of $92.6m sales a year ago.

– o –

AT&T chairman Charles Brown is expected to propose that president and chief operating officer James Olson should succeed him as chairman when he retires in August, and that Information Systems chairman Robert Allen should become president: it is also reported that some line managers were hoping for a real change at the top, and that they characterise Olson, who is 60, as an old Bell System man.

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Other products introduced by **Mannesmann Kienzle** for the Computer-Integrated Manufacturing (UX No 69) are the £1,000 8-bit 2450 series production monitoring terminals which will now handle up to eight machine tools simultaneously; the new £1,500 2475 shopfloor data capture terminal, shown in prototype last year and now commercially available; and the 2478 time and attendance terminal.

– o –

Altos Computer Systems has got its 68020-based 3068 Unix machine aboard the Pentagon gravy train: a US Federal Government contractor wants $25m of the machines over three years for an Air Force contract in which they will be used as file servers on local area networks running the **Applix** Alis office automation software packages.

Minigrams

Perkin-Elmer Corp didn't exactly pick the most auspicious moment when it decided to float a small part of its equity in its **Perkin-Elmer Data Systems** supermini company late last year, at the same time renaming the business **Concurrent Computer Corp:** the Holmdel, New Jersey company now says that fiscal third quarter profits to May 2 will be down on the $3.2m – on sales of $69m – achieved in the second quarter, and that it must cut its work-force by some 200 people, or 7%.

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But good news **Concurrent Computer Corp** is indirect beneficiary of a $39.8m six-year repeat pact to C3 Inc, Reston, Virginia to install to 38 Concurrent 3250 and 3260 32-bit superminis running OS32 at 19 US Air Force bases: the systems are for data transfer management.

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Kalamazoo has decided to set up a network of dealers for Appgen and its related products, following its appointment as UK and European distributor – all training will be given by Kalamazoo: potential dealers should contact David Morris or David Walker at Kalamazoo on 021-476-3131.

– o –

Dyadic Systems has implemented its Dyalog APL on the IBM 6150/51 machines under Advanced Interactive Executive (AIX) – **IBM**'s version of Unix System V – saying that it was the easiest port to date, taking two days.

– o –

benchMark has appointed **Root** to port Unix System V.2 to the benchMark 32 and bAP 32: virtual memory included.

The **European Unix Systems User Group** has announced that its EUnet network, which totals more than 5,000 worldwide connections, is available to UK based memebers of the **EUUG** and its affiliated national groups: members can join the system for about £550 by buying a modem and an auto-dialler.

– o –

The 20/20 Spreadsheet from **Access Technology** is now available on the IBM PC, giving models generated on the PC compatibility with 20/20 spreadsheets on Unix systems: 20/20 is now also available for the **AT&T/Olivetti** 3B20, 3B5, 3B2/400, 3B2/300 and PC.

– o –

Root Computers has appointed Nigel Horne, previously engaged in porting work for Root and the author of ROOTexec, as head of the newly created Technical Services Division: this section of Root will concentrate on Root's traditinal business; Uniplus+ ports, training etc.

– o –

The Laguna Connection facility for communications between machines running the Pick operating system goes by the rather charming name of the **Fifth Thursday Pick Workshop:** if you think about it, the name means that they meet something around four times a year.

Don't Miss:-

8-10 April Unix Systems
Exposition
(Palais des Congres
Paris, France)

18 April Unix Directions:
Conference
(Strand Palace Hotel
London)
Info from The Instruction Set
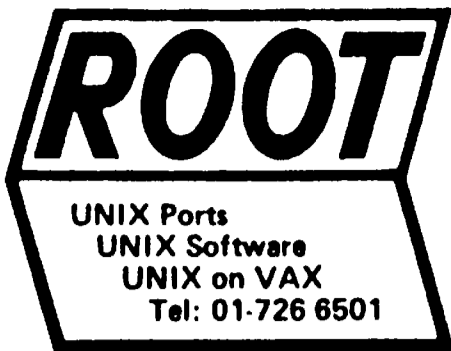
NOHALT BRINGS IN FAULT TOLERANT WE32100 MACHINE

NoHalt Computers Inc of Farmingdale, New York has now got a fault tolerant machine based on AT&T's WE32100. The machine, currently called the Reliant III, will be generally available around July both in the US and here, through Nohalt Computers (UK) Ltd. Nohalt wanted to release the new machine with AT&T's System V.3 but as we all know that has not seen the light of day yet so the company decided to go with V.2. NoHalt also boasts that the Reliant III will be fully compatible with AT&T's 3B line.

Although the company admits that AT&T assisted in the development of the machine it will do no more than hint that negotiations are underway for some sort of agreement between the two companies. AT&T itself has got a fault tolerant machine in its 3B mini line, 3B/20Dbut not in the micro end. Nohalt's previous machines, Reliant I and II, are based on Intel's 8086. The Reliant III will use the 8086 as a disk controller and an I/O processor for dumb terminals. A minimum configuration for the Reliant III includes two 50Mb drives, two cache disk controllers each with a minimum of 128K cache, two WE32100 with a minimum of 2Mb, one I/O processor for dumb terminals – up to eight users for each I/O processor all for a price of around £38,000. A top end system can be configured for a cost of up to £100,000. NoHalt thinks that the machine will be well received when it reaches the market because it brings fault tolerant machines down to a lower level in price terms unlike similar offerings from Tandem and Stratus.

The UK arm of NoHalt will also be launching the machine as a point of sale system with WM-Data Ltd who are based near Gatwick in Sussex. WM-Data will be providing software modules covering retail, financial and fuel point of sale applications. Until now WM-Data has been a consultancy house involved mainly with the oil industry. The minimum price for the software will be around £80,000.

MICRO FOCUS OFFERS IBM-UNIX COBOL CONVERSION AIDS

In the context that the one severe written to run under the AT&T operating system, a new product from Micro Focus Plc is likely to find a very ready market indeed. Launched only in the US so far, VS Cobol/Unix is a development tool designed to recompile the wealth of IBM mainframe Cobol applications to run under Unix. The first version on offer is VS Cobol/Unix 68000, which produces native code for the Motorola 68000 family of microprocessors – but no price has yet been given.

The system combines four Cobol dialects – IBM's OS/VS Cobol and VS Cobol II, Micro Focus Level II Cobol, and elements of ANSI 85 Cobol. First customer, not too surprisingly, is Texas Instruments, which has a host of Micro Focus compilers and tools on its new 68020-based Business System 1500 – and will also offer VS Cobol/Unix under Xenix System V on its 80286-based BusinessPro IBM AT-alike personal computer.

AT&T "TO RUN SYSTEM 36 PROGRAMS BY YEAR-END"

Still casting around in something of a panic to find ready-made bases of application software to make its 3B Unix computers more attractive to more users, AT&T has now lighted on the wealth of software written in RPG II for the IBM System 36 and System 34. **Computer Systems News** reports that the company is promising to support RPG II on the 3B2 by the end of the year – but has not made it clear whether it will simply be offering an RPG II compiler or whether it plans to emulate IBM's System Support Program operating system under Unix. The US trade weekly points out that Language Processors Inc of Waltham, Massachusetts already offers RPG II for the 3B2 and the AT&T PC.

RESELLERS WANT LOWER LEVEL UNIX MACHINES

Resellers of Texas Instruments' Business System family of mini- and micro-computers polled by **Electronic News** at the TI-MIX bash called by the company in Dallas to celebrate the launch of the 68020 Unix model, said that while they were pleased that Texas had embraced an industry standard, they would now want lower level Unix machines to come in under the new Texas box. Likely beneficiaries named by the resellers were the companies we perceive to be the four leaders in the Unix systems world – AT&T Altos Computer Systems, NCR and Convergent Technologies.

It is not an enhanced PC. Its a single or multi-user "supermicro," which it would prefer you didn't call the RT/PC. At least not if you're in Europe. "It" in this case is IBM, and the machine in question is the recently-announced RISC Technology Personal Computer or IBM 6151. The result of ten years research at the Thomas J Watson Centre, the 6151 is IBM's entrance to the 32-bit multi-user Unix marketplace and recognition that in science and technology at least, Unix is becoming a standard.

What then of IBM's traditional home territory in the large corporations? One of the beauties of the 6151 is its open architecture and the fact that the Virtual Resource Manager will allow various operating systems to be run on the machine. Why should the user not run MS-DOS then, or use the machine as a System 370 emulator? Such applications are perfectly possible but one gets the feeling that IBM would be much happier if you forked out the £2,627 necessary for the AIX operating system and used it as a CAD/CAM workstation. The cynic may feel that this is because CAD/CAM is a field which IBM has generally left to other manufacturers, especially DEC with the introduction of the MicroVax range. And perhaps the world's largest computer company now wants in on the act. Moreover, other, non-Unix applications would be more likely to undercut IBM's existing hardware, so why do that, when you can enter virgin territory at the expense of your rivals ?

And what would the non-cynic say? Probably pretty much the same.

IBM's reasons for bringing out the machine now and for emphasising its Unix applications will no doubt remain a matter for speculation. What will become apparent is the validity of the claim, from some quarters, that this machine will do as much for the 32-bit Unix marketplace as the original IBM PC did for Personal computing.

At this point, it seems appropriate to take a closer look at the machine that could affect this revolution.

Firstly, what exactly is RISC

INSIDE THE IBM RISC MICRO

PC/RT OR THE 6151

technology? Like many such innovations it occurred within IBM some time ago, in this case in the mid-seventies, though much of the development work in the meantime has been done outside, in some cases by ex-IBMers. It began with the realisation that computers spend about 80% of their time executing about 20% of the instruction set. These frequently-used instructions, such as load and store are therefore "wired-in" to the hardware so that they can execute in one machine cycle. Also much of a computer's time is spent waiting for data and instructions to be fetched from the memory. To combat this, two paths to the memory, one for data and one for instructions are used, with each path having very fast memory circuits for temporary storage. Virtual memory management, whereby all information is treated as if it was resident in local memory, also helps increase speed and with the evolution of VLSI technology, all memory management functions can be put on one chip.

So far so good. This is standard RISC technology. The interesting thing about IBM'S machine, and something the literature emphasises, is the ease with which applications, both IBM and non-IBM can be run on it. This is acheived largely through use of the Virtual Resource Manager, a kind of interface between the hardware and the operating system. Unlike a hypervisor such as VM/370, which provides complete functional simulation of the real System/370 hardware, VRM provides more functions than the hardware. It is more like a higher-level machine to which guest operating systems can be converted. Like VM/370 it supports the concurrent execution of multiple operating systems.

The operating system chosen by IBM for the 6151, is AIX, IBM's implementation of AT&T's Unix System V. IBM credits Unix with "providing considerable functional power to the individual user," but feels, like many people, that it is

difficult to use. It set about improving this and AIX is provided with a 'usability' package, which helps make sense of some of Unix's more esoteric error messages. A menu-based interface also ensures that the system can be used by non-Unix hackers. An indexed data access method is integrated into the base Unix file system, so that functions such as "cp" (for copy), can transparently operate on data which consists only of an index file and a data file. Nor is there any need to devote the machine to a single application - virtual terminal support allows several interactive applications to run concurrently. For application development, AIX supports Fortran, Basic and Pascal and in addition, can process most PC-DOS commands and data. It also supports a variety of floating point functions not found in Unix and enhanced console support allows for colour, sound and the use of a mouse as well as a keyboard, which is unusual, not to say unique in a Unix enviroment. One of the current technologies for which Unix is popular is developing artificial intelligence programs such as expert systems. The design of the 6151 reflects this and uses AI techniques to diagnose hardware faults in itself. The expert system shell chosen for this purpose was the General Purpose System for Inferencing, developed at the University of Illinois, which was customised so that it could detect faults in the machine itself such as error logs, rather than relying on the user to enter information about suspected faults. IBM says it is very keen for other companies to develop applications for the machine and to this end, has set up a conversion centre in Warwick where software houses can try out the new machine, before first shipments begin in May. It claims to have large queues of people wanting to port their software so we can look forward with interest to the catalogue of applications IBM hopes to bring out this year. And what about that name? No to the RT/PC in Europe, because apparently it doesn't translate well!

MATRA OUTLINES PLANS FOR SUN COLLABORATION

Matra Datasystème yesterday outlined its plans for collaboration with Sun Microsystems of Mountain View, California, saying that under the agreement, Matra will market the Sun 3 68020-based Unix workstation in southern Europe. The two companies will also collaborate on development of new products, which will be marketed by Sun in North America and by Matra in France and southern Europe. The first product from the collaboration is expected to be out next year. Matra said that its collaboration with Norsk Data A/S on development of a desk-top vector processor will involve investment of some FF300m - $43m - with two thirds coming from the French government and the balance from Norway. The Norwegian government is not overly impressed at the plan and is prepared to find only $4.3m of the Norwegian share, so that Norsk Data will have to find the balance from its own coffers.

MICHELS's DANA PLANS "DEEPLY PARALLEL" SYSTEM

Not since the 1960s has there been such an exciting time for new computer architectures, and Convergent Technologes founder Allen Michels' new company Dana Group is planning to make its full contribution. Unforthcoming hitherto, Michels has now lifted the veil on his new company's plans, and says that the box Dana is designing will be a "deeply parallel system" which will process a computational stream already ana-lysed for maximum parallelism. The stream will be distributed over multiple processors executing concurrently to produce results much more quickly than would be possible with conventional machines. Processors will be tightly coupled, and an inherent part of the design will be a powerful built-in graphics capability. Needless to say the operating system will be Unix System V.3, modified to run on a multi-processor machine, and the AT&T remote file system will be supported as well as standard local area networking hardware with Dana's own protocols. The first language to be supported will be Fortran, with C and Ada to follow, and Dana Group's target markets will be anything from commercial graphics to the Strategic Defense Initiative.

EDGE JOINS UNIX STATION FRAY WITH PROPRIETARY 32-BIT CPU

The market for high-performance scientific-oriented Unix workstations is getting decidedly crowded, but start-up Edge Computer Corp of Minnetonka, Minnesota stands out from the mass by virtue of the fact that its Edge 1, just announced, uses a proprietary 32-bit CMOS processor rather than the 68020 or NS32032. Claimed to deliver performance comparable with that of the DEC VAX 8600, the Edge 1 is aimed specifically at the OEM market and comes in two single-user workstation configurations, a server configuration, and multi-user version claimed to be able to support up to 128 users. The machine runs under the company's GSX version of Unix System V with Berkeley BSD 4.2 and its own proprietary extensions. Languages offered are Pascal, Fortran and C, and communications software and interfaces include Sun Network File System, Ethernet and the MAP Manufacturing Automation Protocol. The processor has separate data and instruction buses and memory groups to create a dual four-stage pipeline for data and instructions; it also supports up to four VME or Multi-buses. It comes with an optional proprietary 10m pixel-per-second three dimensional polygon generation graphics processor, and proprietary floating point accelerator. Up to 64Mb of main memory is supported, and the Edge 1 takes up to 3.5Gb of disk storage on seven drives, with capacities ranging from 80Mb to 500Mb. Prices range from $48,000 to $99,000 in 100-up quantities, and a 19" colour graphics workstation putting up 1,280 by 1,024 pixels, 8Mb processor, 167Mb disk, cartridge tape, floating point accelerator, floppy drive and Ethernet costs $63,000. Volume is planned for the third quarter and beta test sites include General Electric, General Motors and Fantastic Animation Machine Inc. Founded in September 1983, Edge employs 92 people and has raised $17m in three financing rounds. Although headquartered in Minnetonka, Edge has based its manufacturing, marketing, development and service activities in Phoenix, Ariz.

ICL's SYSTEM 25 MODEL 400 IS NEW CMOS GATE ARRAY PROCESSOR

Nobody could with justification accuse ICL of blowing its own trumpet - lights and bushels are more ICL's style, so few if any of the people who saw the wraps taken off the company's new System 25 Plus Series 400 at the Which Computer? Show in January got the message that the machine is not simply an enhanced version of the original System 25 AMD 2901-based bit-slice processor, but a completely new 32-bit CPU designed in house and built of CMOS gate arrays. And the distinction might have been thought to have been quite important - the fact that it is a completely new CPU tells users that they can order the machine with confidence, knowing that it will remain a live product for several years yet. The new CPU means that the whole processor comes down to four boards, against eight on its predecessor. The company is also promising Unix System V support on a Motorola co-processor.

THORN EMI BLAZES THE SOFTWARE TRAIL PLESSEY MUST FOLLOW TO SUCCEED

Plessey is aiming for a substantial market in its proposed venture into packaged applications software under the Plessey Information Engineering banner but the company's track record over the years in the computer business is such a dismal one that Plessey's fans will be hoping that this time at last, the company has learned its lessons well. In the late 1970s, Plessey finally sold its 24% stake in ICL, saying that it had tried to find areas of common ground and finally failed. Only two or three years later, it was forming Plessey Office Systems in the belief that there was an enormous potential market in the convergence of computers and office telecommunications. At the same time, ICL was striking a deal to remarket Mitel Corp's SX2000 digital PABX. Had Plessey not lost patience and instead retained its ICL stake, that would very likely have been the original Plessey IDX that ICL sold instead of an imported Canadian box which in the event arrived some two years late. Soldiering on alone, Plessey did a deal with Convergent Technologies for workstations to attach to the PABX, and so singularly failed to sell them that it handed that business over to Burroughs late last year. The company has run a pedestrian business packaging up DEC processor boards with its own add-on memory and other peripherals, and while the business turns a slim profit most years, it has scarcely set the world alight. And it frequently runs into trouble in the US, where Plessey developed its own daisywheel printer, gave up on it and sold the design to Dataproducts, which after playing with it for a year decided that it was such a dog of a product that it scrapped it and started again. Plessey's most recent venture is to plunge into the 68000 Unix systems business - but again, the operation is a very long way from being a market leader, and while perhaps not doing badly enough to demand closure, is scarcely adding any lustre to Plessey's figures. So what of the new Plessey software business? The company is certainly looking at a large and growing market - and one in which Thorn EMI, through its Computer Software division, is building itself into a major player with annual sales of some £30m and 400 or so employees. It has now shed its home computer software business, which accounted for about 20% of the total, and will now concentrate on selling mainframe software, such as the financial modelling system developed by EPS Consultants, which Thorn bought last year. Thorn EMI also sells a transaction processing system and mainframe to microcomputer links. The company claims to have 22,000 mainframe customers world wide and says that in international terms it is the world's second biggest supplier of management information and planning systems. Thorn Computer Software has been growing at a compound rate of around 250% over the last couple of years, due somewhat to organic growth but much more to acquisitions. Currently, about 70% of sales come from exports, with 47% of sales going to the US. Due to the intense competition of the American market, profits there are of lower level than Thorn's business in both Europe and the UK, but Thorn is committed to expanding its US operation. Over the last year the company has invested $5m in expanding its American business and now has 22 offices in America. Two new offices have also been opened in Germany, and the company is moving to larger premises in Holland and Switzerland and is in the process of opening a new office in Italy.

SIEMENS EYES UK COMPUTER MARKET AGAIN

"We are the decathlon athletes of office electronics" was Siemens' message at the Hanover Fair this year, where it announced intentions to boost sales in this market worldwide. The Munich-based company sees the UK as the most volatile market in Europe and the most competitive, and it is now expanding its UK operation in Sunbury-on-Thames to start selling telecommunications and information systems equipment here by about June. The UK office will be taking on between 20 and 30 people, and at first will be targetting niche markets, but leaves us guessing as to what these might be. It is also actively seeking joint ventures with UK computer companies. Siemens has been blowing hot and cold about the UK computer market for years, and very nearly took the plunge in the late 1970s before deciding that discretion was the better part of valour. The advent of standards like MS-DOS and Unix have transformed the market environment since then, and where five years ago, it had little it could market here apart from its mainframes, it now has Unix supermicros - including the Balance machines it is buying OEM from Sequent. It is much more likely this time around to offer that kind of product here than to attempt to take on IBM UK in mainframes. Siemens estimates the world electrical and electronics market to be worth £688,000m, with the communications and information systems accounting for 18% of this figure. By the year 2000, however, it sees the communication and information systems market expanding twice as fast as the overall electronics market. In the past fiscal year, Siemens increased sales in office electronics by 19% to £2,400m. Norton Telecommunications acts as the German company's exclusive distributor in the UK for the 8086-based MCX PABX, with 150+ extensions, which is otherwise known throughout Europe as the EMS 601, and in the US as Saturn III, and for its 8085-based Saturn key system. Norton reports that the low-end system has not been a success over here, although it has sold about 100 MCXs since July. Siemens will be shipping 100,000-extension versions of its 80286-based Hicom Integrated Services Digital Network PABX this year, which is already available for up to 50,000 lines.

Dreams come true

In the longer term, managing director Keith Harpham says that Thorn EMI, will be introducing various artifical intelligence software such as expert systems. The company is one of the backers of the Glasgow-based Turing Institute, a leading researcher in the artificial intelligence area. Harpham also admits that the kind of software tools developed by Micro Focus would be of interest to Thorn. And that exposition outlines the kind of commitment and investment Plessey will have to make if it is to see its software marketing dreams come true. To do £5m of business in the first year when there are just three products in the portfolio sounds extremely optimistic: does Plessey have the commitment to make a go of it this time, or will this be yet another bold and imaginative computer initiative that like all the others gets bogged down when the going gets tough? With observers confidently predicting that the Monopolies Commission will give GEC the nod to go ahead and bid for Plessey, the company may never have the chance to prove that this time it really would all have been different.

WHITECHAPEL LOOKS FOR A PARTNER WITH MARKETING MUSCLE

Whitechapel Computer Works Ltd, the one major success of the controversial Greater London Enterprise Board, is looking for a partner with which to dev-elop and distribute future products.

The London Eastender is on the verge of completing its third round of financing but it still wants a long-term partner, says managing director Bob Haire, to gain "rapid access to mature distribution channels in continental Europe and North America" rather than access to money. Marketing director Mike Cole has identified three possible areas from which help may be forthcoming. These are the traditional computer manufacturers with gaps in their product range that Whitechapel could fill, the terminal and graphics companies that want to move up-market into workstation sales, and reprographics firms that want to acquire publishing technology. Cole says that Whitechapel would bring its full research and development skills to a joint venture as well as "a strong sales force, wide customer base and an instinct for the market".

Whitechapel hopes to find a suitable partner by the end of the year and is about to enlist a merchant bank to help in the search. Already, Whitechapel has had two approaches, one from Europe and one from North America but, beyond saying the companies concerned are "considerably more established than Whitechapel" and are complementary rather than competitive, Cole is not prepared to give details at the moment.

Whitechapel was started in September 1983 and made its first sale in November 1984, but is only now coming to the end of what it considers to be its first full year of trading. Turnover for the year is expected to be about £4m with a small loss resulting.

DEC TEAMS WITH EVANS & SUTHERLAND FOR NEW GRAPHICS LINE

Recognising that after a couple of failed products, its hold on the high performance graphics workstation market is tenuous, depending solely on its new VAXstation II GPS graphics processing system, DEC has moved to bolster its product line in the graphics arena in face of fierce compet-ition from the likes of Sun Microsystems.

Its chosen route is a joint venture with the small but highly-regarded Evans & Sutherland Computer of Salt Lake City, California.

Under the agreement, the two companies will develop a completely new line of "very high performance, very high end" graphics workstations which will not use any of DEC's existing com-puter products. A key feature is that the graphics processor will be an integral part of the CPU.

Both companies plan to market the fruits of the joint development, which is likely to use some technology from chip-maker VLSI Technology, where Evans & Sutherland is a 9% shareholder. Evans & Sutherland Computer is an OEM customer for the DEC VAX line, and also offers solid modelling software on Apollo Domain workstations.

RIDGE, ICT DEAL BRINGS FILE SERVER TO CAD/CAM MARKET

RISC specialist Ridge Computers of Camberley has made an agreement worth $5 million with CAD distributor ICT-Computer Drafting System of San Mateo, Ca. Under the terms of the deal Ridge's compute/file-server will be sold on to OEMs and dealers as part of AutoCAD PC workstations under Ethernet networks. ICT is one of the largest US distributors of the AutoCAD design and drafting software origina-lly developed by Autodesk of San Fransisco Ca. The package is claimed to have over 40,000 users worldwide, and Autodesk itself has been enjoying a period of rapid expan-sion: two years ago it set up a UK office in Elephant and Castle, South London. ICT claims to be shipping over 2,000 CPUs per month of AutoCAD's 2D drafting package.

One of the advantages of the deal for AutoCAD users in the UK and Ireland is that they will now have access to software libraries of utilities and applications developed jointly by Ridge and ICT. Access to Ridge's file-server will make a considerable difference to the performance of networked AutoCAD systems. According to Ridge, they will have up to 20 times the computing power and 15-50 times the file storage, as well as allowing a cluster of AutoCAD workstations share all drawing files and symbol libraries. The Ridge Server/RT uses Ridge's RISC-based CPU and includes 4 Mb of memory, a 300 Mb disk, an Ethernet board, four RS232 ports, plus Versatec plotter, tape cartridge drive, ope-rating system and networking software.

SPERRY, CLOSE TO PURCHASE FROM ENCORE, FORMS NEW UNIT

The Foundation Computer Systems un-it put on the block by Encore Comp-uter Corp in Februa-ry looks like going to Sperry Corp, according to **Electronic News.** Key product at Founda-tion, a Cary, North Carolina company acquired by Encore two years ago, is Ally, an applica-tions development aid for programmers working under Unix. Sperry has also transferred 2,000 computer employees into a new, as yet un-named division in Minneapolis, Minnesota, which will specialise in custom systems inte-gration of Sperry hardware, software and networking products to meet the specific requirements of big users.

Separately, Sperry has attempted to play down reports from Tokyo that it was on the brink of a broad- brush agreement with Hitachi on ECL technology for the next generation of top-end 1100 series mainframes, and that Hitachi is to become its preferred supplier of large-scale mainframe disk drives. Sperry says that the talks are "very preliminary" and that specifics have not been discussed, al-though more talks are planned for late this month. Hitachi however is sticking to its contention that it has received specific proposals from Sperry covering both semicon-ductors for future mainframes, and for disk drives, and indicates that a firm agreement is imminent. The talks, under way for about a year, are likely to lead to Hitachi forging a similar accord with Sperry to the one between Fujitsu and ICL.

UNIGRAM/X

CONVERGENT, 3COM ARE FORCED TO CALL WHOLE THING OFF

Although the boards of both companies thought the merger a marriage made in heaven, Convergent Technologies has been forced to abandon its planned one-for-one share exchange offer for 3Com Inc following a sudden reversal last week of 3Com's investment bankers opinion that the terms of the agreement represented fair value to 3Com holders. Robertson, Coleman & Stephens declined to explain the eleventh hour change of mind, but it is thought to have been triggered by Convergent's warning two weeks ago that its profits for the quarter would be little better than break-even, and that sales would be down on those for the same period last year. Following the decision, Convergent and 3Com tried to renegotiate the share exchange ratio, but were unable to reach agreement. The two companies say that they hope to be able to salvage the joint marketing agreements that were to have been a part of the $135m merger between the OEM workstation and supermicro manufacturer and the local area networking systems specialist. The news did little for the share prices of either company – Convergent slipped $0.625 to $9.50, 3Com saw its shares decline 50 cents to $9.75.

Company Results

Oracle Systems Corp has reported third quarter net profits up nearly fifteenfold – 1,355% – at $2.0m on turnover up 191% at $16.0m; nine-month net was $3.3m against just $79,000 last time, on turnover up 135% at $34.5m. Net per share was $0.15 in the quarter, $0.25 in the nine months against just one cent in each of the fiscal 1985 periods.

Minigrams

According to a chart put together by **Unify Corp,** its own Unify relational database management system held 52.5% of the market for Unix databases last year, against just 1.9% for **Oracle Systems'** Oracle, 2.5% for Ingres from **Relational Technology** and 31.9% for Informix from **Relational Database Systems:** maybe so, but judging by the figures just reported by Oracle Systems, the market leaders will have to look to their laurels – third quarter profit to February 28 was $2.0m on sales up 191% at $16.0m.

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Sun Microsystems has announced communications software for its workstations that conforms to all seven layers of the Open Systems Interconnection standard, and additionally implements the Manufacturing Automation Protocol 2.1 and the Ethernet-like IEEE 802.3 local area networking protocol. The company plans to run its Network File System under the new software in the future. Available in the US in May for the Sun 3, it comes in at $950 per workstation.

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Northern Telecom has enhanced the performance of its B-Form and C-Form Vienna Shared Resource Computers: the main processor, Intel 80286, is now configured to operate at 8MHz so B-Form main memory is incrresed from 5Mb to 8Mb and on the C-Form from 10Mb to 14Mb.

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Sigmex Ltd has streamlined its colour graphics terminal family and made it the 6000 series based on the Graphics Kernal System and includes two new terminals; the 6264 and 6134.

OLIVETTI LAUNCHES M28 IN UK

Olivetti's Micro Division launched the new M28 Personal Computer in the UK this week. The M28 is targetted at small business and departmental users, supporting full Xenix V. Olivetti is claiming that the M28 is 30% faster and 25% smaller than IBM's PC, and cheaper as well; with a 20MB disk, 512K RAM and 1.2Mb minifloppy disk drive the system costs £3,718, rising to £4,662 for the version including the tape streamer unit.

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Tudor Business Systems has announced a contract worth £60,000 for the supply of a Unix based multi-user system to **Pharmaprojects** – an information source on drug development: the system will be based on a **Convergent Technology** Megaframe.

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Utell International – an independent hotel reservation service – is installing £500,000 worth of Unix-based Xelos superminis which will be supplied by **Concurrent Computer Corp** for reservstions, rates information and room availability in, Utell boasts, 3,000 hotels throughout the world.

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Quartz has added Informix to its Unix software range: it will be available from Quartz on VAX, MicroVAX, Hewlett-Pacakard, Zilog, Olivetti 3B and IBM PC boxes.

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The market must be in Unix based database management systems as not only is **Oracle** doing well **Relational Database Systems** can't be doing too badly with Informix as it is expanding by establishing sales offices in Dallas and New York.
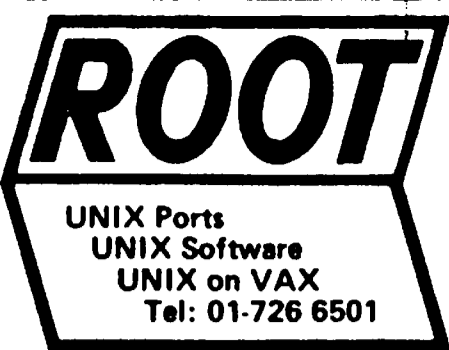
GENERAL MOTORS ADOPTS UNIX FOR INTEGRATED MANUFACTURING

General Motors Corp has thrown down a challenge to IBM and DEC that they will have to clean up their Unix act if they want to continue to get manufacturing computer business from the auto giant. The Detroiter has told vendors that it will not in future buy manufacturing computer systems unless they run Unix System V or a certified equivalent. Michael Kaminski, manager of the company's MAP Manufacturing Automation Protocol programme is quoted by **Computer Systems News** as saying that there will probably be some impact on some of its larger suppliers - "those who have it will be at an advantage," and the others had "best get involved in implementing the technology". IBM and DEC "probably don't have Unix to the degree we want it",' he said. DEC is seen as having the hardest task in adapting its BSD 4.2-based Ultrix to the General Motors requirement, but DEC is committed to meeting whatever standards are set. Although the memo names System V, General Motors is actually backing the definition being established by the IEEE P1003 working group, and once that is set in concrete, the company will work with the P1003 group, manufacturing users and supliers to build a real-time Unix implementation on top of the IEEE standard. General Motors stresses that the new edict is confined to manufacturing systems and does not affect its procurement for a host of other types of computer system; it nevertheless represents a significant additional thrust behind Unix in technical applications, and effectively declares that the Manufacturing Automation Protocol and Unix will in future progress hand-in-hand. Nothing in the standards world is straight-forward, and needless to say there are significant differences between the IEEE P1003.1 and the AT&T System V definitions of Unix. The Pandora's box labelled Unix - pages 4 and 5.

ALTOS FEATURES IN SYSTEMS DESIGNERS' FOREIGN OFFICE XENIX PACT

Systems Designers International Plc has a £4.5m 30-month contract intended to lead to another £6.7m of equipment procurement business and a 10-year support and maintenance contract from the UK Foreign and Commonwealth Office to supply a secure Unix based office automation system. The contract is with the Farnborough, Hampshire company's Scientific Division and involves installing 1,200 Altos micros running Xenix and Ethernetworked over optical fibre links from Belling Lee and Systron Donner. Clusters will be networked on Altos' own Teamnet local network, and 10 offices will then connect through existing underground copper cables. The system will support Hewlett-Packard laser printers, Ricoh daisywheels, and specially-designed keyboards with European accent sets from Lynwood Scientific. Systems Designers had originally agreed with Altos to use the 8086-based Altos 986 and 586 models, but negotiations are under way to use the newer 2086 based on the Intel 80286, which would remove the need for two different models. The system, called Folios, for Foreign Office London Integrated Office System, will be used primarily to distribute the hundreds of thousands of telegrams received each year from overseas missions. The system will also be used for electronic mail, word processing and spreadsheet functions using Redwood's Uniplex 2 Plus package, and for registration of Foreign & Commonwealth Office documents. Systems Designers won the pact against stiff competition from eight other contenders; Unix was chosen on grounds of machine independence and of security.

Inside this Issue

SUN MICROSYSTEMS SIGNS $20m DEAL WITH MATRA DATA

Sun Microsystems of Ascot has pulled off a major OEM and development deal worth $20 million with the French engineering and real time specialist Matra Datasystemes. Under the agreement Matra will be selling Sun Microsystems kit for the next three years in France, Italy, Belgium and Spain, under its own badge and with Matra's own file servers as part of Sun's high-performance network. As well as the "added value" aspect of Matra's Sun configuration, the deal gives Sun a valuable foothold in markets already familiar to Matra which Sun's own European network would find more difficult to crack. Sun is keeping quiet about the nature of the joint development work which features in the agreement, and will only say that the results will surface in product form before the three-year deal is up.

SPHINX' LOOKING TO TODAY FOR FUTURE ADAPTABILITY

Today, the Unix-based applications generator from the Australian firm bbj of Melbourne was recently signed up by Unix distributor Sphinx of Maidenhead, which is predicting a glowing future for the product.

However, like Shah's hi-tech paper of the same name, Today is entering a fiercely contested market, and it has to have something unique to offer if it is to carve out a significant chunk of the Unix market.

According to bbj managing director Ken Begbie, one of the things which marks out Today is its hybrid background, which has ensured that the product has kept very close to commercial reality rather than emerging from academic Unix-oriented roots.

bbj, founded in 1975, started out by specialising in systems for the Hewlett-Packard 3000, and it's in this market that Today's developers built up their expertise in software tools. Today itself comes from more esoteric roots; in 1982 bbj imported a Welsh expert on the Pick operating system from Swansea University, to implement his own Pick-based generator (known as Pobol or CL/1) in C.

Pick is famous for keeping close to commercial end-user concerns, and some of the user-oriented concepts are still visible in Today, particularly the implementation of a "global" dictionary which allows manipulation of data in various guises, but makes automatic adjustments throughout the system if any specification is changed.

Another echo of Pick is Today's ability to handle variable-length records, built into the internal structure but not visible to end users. The redesigned prototype emerged in September 1984, and was formally released to the world over a year ago. The product is now supported and developed by a dedicated team of 12 people, and supports a number of applications which are sold as "shells" for customisation by Value Added Resellers.

According to Sphinx managing director Pamela Gray, the applications supplied by bbj proved one of the most convincing arguments in Today's favour. They cover the standard financial applications of accounts receivable and accounts payable and general ledger. These are supplied as standard "building blocks" but can be fully customised, "not just 80% of the way but 100%", according to Begbie. The company is also using Today to re-write its other vertical market applications, including an integrated suite of manufacturing packages for the mining industry.

The traditional drawback to customisation is the much-complicated task of maintaining code which has been altered away from the supplied "standard". bbj has dealt with this one with a facility which Begbie claims is unique; the "delta recording system" which records only the changes to the code as implemented for each customer.

Like most applications generators, Today caters for fast creation of files, screen-painting, and report generation. Sphinx already deals with Accell, the "fourth generation language which accompanies Unify's database, and Informix-4GL, Relations Database Systems' SQL-like interface to the Informix database.

Gray agrees with Begbie's assessment that these tools are for the most part professional programming tools. Although Accell takes a similar approach to Today, the latter goes further in providing "real life" facilities which can handle on-line transactions, interfaces to other applications and databases, background jobs and "windows", online help, tailored error messages, and automatic documentation, even of customised features. (The online help messages for operators can even be tailored to deal with specific keying errors if required.)

Apart from the customisation facilities, Begbie points to four other features which he says make Today unique.

These are the inclusion of decision tables which allow the user to emulate complex IF ...THEN...ELSE decisions, Today's portability across various Unix implementations, plus Vax VMS, PC-DOS, its high-performance, and the ability to handle C subroutines at command level.

The decision tables can open up windows and test up to eight different factors, with a combination of up to 31 true/false/don't care test results. This makes it possible to build an unusual degree of sophistication into tests and selections made on data at runtime, for example making it possible to open up a window and dipslay a further level of information automatically on the results of a series of tests (for example, assessing credit limits on certain outstanding balances in an accounts payable system).

The portability factor is due to the use of C (the Lattice C compiler loomed large in development of Today) which allows Today's pseudo-code to be moved from environment to envoironment. "You can port to anything under C" says Begbie, and is proving it by casting eyes at the IBM market, including mainframes under VM/CMS, and in the future, the System 36.

The pseudo-code also allows the system to run in a comparitively small environment (640K). Even more important in terms of Today's market are the links made to other proprietary databases. Where not already "close coupled" as in the case of Informix and the other major Unix databases, bbj has made it possible for implementors to tie knots of their own choice, the loose ends to be tied consisting of a set of fundamental pseudo-code commands which deal with such functions as find, read, and select.

The self-residency of Today (the product is written in itself) is said to ensure efficient performance. As important is the consistency of the user-interface, which is maintained whether the system is running under HP, Xenix, PC-DOS or Unix.

Perhaps the biggest test of such tools is their ability to function with existing software packages, and capitalise on existing data files. Not many customers are in a position to start everything from scratch, which is where such idealised tools often founder.

Begbie even has an answer to this one. Today allows uploading and downloading of existing data files. As yet the product is in the early days of marketing in the UK. Sphinx is selling source code and runtime versions on 20 or so target machines. Prices range from £750 (IBM PC, Xenix) to £11,000 (Vax, Pyramid) for source code, and £120 to £4,500 for runtime versions, and anticipates much interest from software houses and VARS. If Today fulfills even half it promises, Unix users should have access to an extensive range of customised software by next year.

A NOISY UNIX-SYSTEMS, UNIXYS PROMINENT BUT A VERY LOCAL FLAVOUR TO THE REST

This week the Unix systems Exposition opened in Paris at the Palais de Congres. The show opened not exactly with a bang but with more noise than in the two previous years of its existence. There are half as many exhibitors again than last year and the first day's attendance figures were better than ever before. Most of the visitors to the show are dealers looking with academics trying to get information about Unix developments. The dealership exhibitors with the most floor space and staff is not Bull but Unixys who are taking the show very seriously and made it the launch pad for its latest addition to its NX series, the NX 16-S. The NX 16-S uses the Motorola 68010 running at 12.5 MHZ as the main processor, 1 Motorola 68000 for peripheral device control and another 68000 for serial 1/0 control and optional 68000 network management. Some of the big Unix names are also making an appearance such as Sun Microsystems and Redwood International. Plexus is taking this opportunity to let it be known that it has a French subsidary less than a month old. Unixsys had been the Plexus distributor in France but Plexus say that association with Unixsys is giving them a bad name in France. According to Plexus, this is due to the poor service and support offered by Unixsys. General Unix varieties are on show: Amdahl is showing off UTB, Gould is again demonstrating its secure Unix UTX/32 and the French, Paris-based, Tenos, has got Venix. As far as software goes, the Reading-based systems and Telecoms is creating a certain amount of interest on its stand with U/Backup, U/Secure, and S/Telex. The Canadians are also here, with a bundle of different companies showing off hardware and software. Human Computing Resources is showing HCR/Pascal and HCR/Edit. Softquad is demonstrating a superset of the At&T documentors workbench which offers nroff/troff a format publishing system for the Unix world. UX software is again pushing its UX line of languages. The general feeling at the exhibition seems to be one of guarded interest. But the tradition exponents of Unix are sure that Unix is finally becoming acceptable in France and that another two years should see it established here.

PARIS OFFICE FOR RELATIONAL TECHNOLOGY

Relational Technology International of London has opened another European office, this time in Paris. The French office is to be headed by Frenchman Robert Kaloscsai, and already has 25 installations of RTI's Ingres relational database on its books. RTI's planned expansion into Europe started with the opening of an Amsterdam office in March.

BENCHMARK 32 LAUNCHED WITH "UNIQUE" MICROCODE DEBUGGER

Right on time, benchMark Technologies of Kingston-on-Thames, Surrey has launched its CPU-independent 32-bit Unix engine, which it announced last November. The machine runs a complete implementation of Unix System V.2 concurrently with MS-DOS 3.1, plus the Graphics Kernel System Level 2b with Fortran and C bindings. The benchMark's claim to fame is its architecture: the 32 uses a single board with interchangeable microprocessors, so that OEM customers can keep up with the times as new microprocessors come along. On the systems side, the presence of the 80186 processor means that MS-DOS can run concurrently with Unix, and input-output operations - never a Unix strong point - can be shuffled off onto the Intel processor. The company has maintained its pick-and-mix policy on the communications front as well: the benchMark 32 supports Newcastle Connection, plus interfaces to Ethernet and IBM's Token Ring networks. The icing on the cake is benchMark's suite of development aids, a macro meta-as-sembler in C, and a "unique" microcode debugger, developed to take the pain out of microcoding for bit-slice processors. The meta-assembler, known as bMasm, lets OEM customers and end users generate their own programs. It was originally developed for the company's own challenging GIP Graphics Image Processor, and amounts to an intelligent library that saves the programmer from getting involved at oily-fingers level when dealing with real-time graphics and other complex operations. According to benchMark, the system is a sort of manager which deals with some of the embedded information that programmers often have to winkle out for themselves on a hit-and-miss basis, such as buffers used for hardware faults. The bMasm also has critical path analysis built in so that parallel tasks have minimum impact on one another's performance.

INTEL APPOINTS IBR FOR UK DISTRIBUTION

Fortune distributor IBR Information Systems of Bracknell has been appointed by Intel Corp as UK commercial systems distributor for Intel's 286/310 Advanced Processor and Apex systems. IBR claims that the Xenix-based 310-AP is the obvious machine for upgrading from IBM's PC AT, and will be broadening its operations to include the Intel machine among its multi-user business offerings.

WICAT LAUNCHES FLIGHT SIMULATOR WITH TWA

Education specialist Wicat of Camberley are now bringing to market the flight simulator developed as the result of a joint project with Trans World Airlines. TWA is already training pilots with the system, which covers operating procedures for a Flight Guidance System, reducing the expoensive hours needed in a cockpit simulator.
WICAT is now marketing the system worldwide to airlines which use DC-9 aircraft.

JSB SIGNS $1 MILLION DEAL WITH ALTOS

Unix systems house JSB Computer System of Macclesfield has signed a deal worth $1 million with manufacturer Altos, based in San Jose, Ca. The deal gives Altos the right to supply JSB's Integrated Office System on its range of Xenix and Unix-based multi-user systems. The system provides its own windowing interface, which fired Altos with enthusiasm at first sight last year.

Given the number of people whose prosperity depends on some other operating environment than Unix, the backlash against the AT&T operating system is remarkably muted, and even those antipathetic to it seem to have been reduced to sullen acquiescence. And when even the stuffy old UK Foreign & Commonwealth Office, hardly a hot-bed of innovative thought and action, routinely opts for the Xenix variant of Unix as the basis of its enormous 1,200 station office automation project, Unix has little virgin territory left to conquer. People like Allen Michels and Bill Poduska, whose original creations, Convergent Technologies and Apollo Computer, developed proprietary operating environments in the early 1980s, both plan to run the products from their new companies under Unix. From the largest Cray to the smallest multi-user micro, Unix is now the de facto operating system standard - and for large areas of computing activity, our prediction of 18 months or so ago that there would come a time when the choice was Unix or nothing, is already close to coming true. Strikingly, since we last looked at the subject in depth, IBM, the company most threatened by the rise and rise of Unix, has shown itself remarkably lacking in ideas as to how to minimise the threat. It had little alternative but to turn to Unix for the RT Personal Computer: the machine simply would not have sold at all into a market that IBM by no means dominates had it run any other operating system. And although there is no evidence that there is any connection between the two events, it is striking that the sector of the commercial market where IBM is feeling the most pain in the US computer recession, the small and medium scale business market covered by the System 36 through System 38 to the 4381s, is the area where Unix is making its biggest strides.

Muddy the waters

Equally striking is the fact that while IBM has to some extent been able to muddy the waters with a divide-and-rule policy of offering a variety of quite different versions of Unix on different products, it has signally failed to accelerate the push behind the VM/370 operating system that is its most convincing alternative to Unix. And pressure from users has persuaded IBM to begin to create order out of its Unix chaos by adding elements of its preferred Unix environment, that provided by Interactive Systems Corp in Santa Monica to the versions of Unix - such as Xenix on the Personal AT - that come from other sources. The only conclusion to be drawn is that IBM really still does not know what will be its best answer to the threat posed to it by Unix. That the threat is real is evidenced by the noises coming out of Fujitsu about perhaps abandoning its policy of 100% IBM-compatibility in its mainframes. Five years ago, Japanese manufacturers had little alternative but to go IBM-compatible if they wanted to grow on the world market. Nobody outside Japan was going to buy mainframes from Hitachi derived from old RCA Corp licences before that company surrendered its

IBM's HOUNDING OF FUJITSU OVER MVS EMULATION OPENS THE PANDORA's BOX LABELLED UNIX

computer business to Sperry, nobody outside Japan would buy Fujitsu machines built to the company's own hardware and software design, nobody outside Japan was going to buy Mitsubishi mainframes derived from old Scientific Data Systems, later Xerox Sigma, licences. Only IBM had the software base to justify the cost of establishing marketing for machines that could under-cut those made by IBM on price and would appeal to some of the enormous base of IBM users.
But that is quite simply no longer true. AT&T is delighted to licence Unix to all comers, and Fujitsu, with its near 50% stake in Amdahl Corp, has privileged access to a full function mainframe Unix that will run on its IBM-compatible hardware. In the short term, it will remain an uphill struggle to win more than a handful of sites away from MVS and over to Unix - but the medium term is quite a different matter. The biggest criticism of Unix - the lack of applications - is being addressed at an accelerating rate, and this month's news, that Micro Focus Plc has a product called VS Cobol/Unix designed to recompile IBM mainframe Cobol programs so that they can be run under Unix.

Achilles heel

And that should have run the IBM equivalent of the Lutine Bell at Armonk. IBM's achilles heel is that its whole strategy for the late 1980s is to derive an increasing proportion of its mainframe revenues from software licences, and already some big US users are beginning to make rebellious noises about the regular and frequent price increases on existing product releases, big jumps on each new release. At some point it will be transparently worth the while of such users to give IBM best and convert all their Cobol programs to run under Unix, at which point they will have the whole non-IBM mainframe world to choose from - although Fujitsu is the most visible example, all Japan is moving rapidly towards Unix, and it is inconceivable that all Japanese mainframes will not offer Unix as an option within a year or two. Nobody ever got fired for buying IBM - yet. But if in five years, users can run their present IBM applications (and remember almost none of the major applications belongs to IBM) as efficiently, and much more cheaply, on non-IBM mainframes running Unix, then IBM is going to have to call in an awful lot of favours to keep its customers loyal - and when did IBM do any but the very biggest any favours? And once the Japanese have a serious foothold in the biggest installations around the world, many of the other arguments for sticking with IBM - that otherwise users will get shut out of the newest developments and technologies - will ring very hollow indeed. For once they have an incentive to innovate, competition and sibling rivalry between the major Japanese players spurs them to innovate at an incomparably more rapid

rate than IBM would ever choose to do. IBM this month announced "new" Personal Computers based on the three-year-obsolete 8088 chip. The deeply serious warning to American companies about the dangers of surrendering much of the consumer electronics technology to the Japanese from Philips chief Wisse Dekker is particularly relevent here: as he warns, once a technology is surrendered to the Japanese, it can only be recovered at astronomical cost. And optical drives are a case in point where the major US manufacturers seem to have decided that magnetic technology will last their lifetime and they simply do not want to have to think about converting to erasable optical technology. But, crystal-gazing, Fujitsu comes out with a 10Gb optical read-write disk drive for mainframes on January 1 1988, by January 8, Hitachi has announced a 12Gb optical read-write disk drive - and promises to ship it three months earlier than Fujitsu's planned delivery date. Moreover when it comes to raw processor performance, as soon as there is a genuinely free market, the Japanese will leap ahead of the rate of increase IBM would prefer to follow. The biggest NEC machines built under Honeywell and under Bull licences both easily outperform IBM's Sierra - even though the starting point for the Bull-derived machine was not a top-end mainframe at all, but a 4300 class machine. Nor can IBM look to American nationalism for salvation - General Electric might reasonably be described as a blue-blood, blue-chip scion of the American corporate establishment - but when it learned that NEC had Honeywell-compatible machines that might offer significantly better price-performance than Honeywell's then new DPS 88, it didn't think twice about benchmarking the two against each other and then giving an enormous order to the Japanese company. Ironically, too, by getting so heavy with Fujitsu and Hitachi over emulation of its top-end operating environments, IBM is mortgaging the future to short-term benefit.

Gas-guzzling

If Unix really does become established in the mainframe world, it will be to IBM's advantage to have as many competitors as possible still proposing IBM- rather than Unix-compatible solutions to their customers. Instead, IBM is stampeding Fujitsu into triggering the Unix revolution which threatens to rewrite all the rules of the game just as comprehensively as did the oil price hike for the gas-guzzling US automobile industry in 1973. Chrysler would have gone bankrupt but for the US government, American Motors Corp has been sold to Renault, and Ford and General Motors tottered. The US automobile industry regrouped and survived - just, but it will never again be as strong as it was before 1973 - and the two strongest companies, General Motors and Ford, are ensuring their future by diversification. Does the knee-jerk style of management fostered by IBM, which works on the assumption that ultimately all power resides with IBM to control its destiny, have the resilience and the imagination to survive and prosper after the computer industry equivalent of the formation of an effective cartel by the oil producers?

BP RESEARCH PICKS INTERACTIVE SYSTEMS' WORKBENCH FOR ITS VAX 8600

Tiny Interactive Systems Corp of Santa Monica, California has the biggest of friends in the highest of places in IBM - when it comes to Unix implementations for its machines, Big Mother bows to the expertise of Interactive Systems. But it never hurts to have a few more mighty friends, and Interactive has won another over here in the shape of BP Research, of Sunbury-on-Thames, Middlesex. The research arm of the oil giant has espoused Interactive Systems' Workbench along with Unix on the DEC VAX. In a deal worth around £25,000 two copies of the Workbench have been installed on BP's VAX 8600 cluster by Calidus Systems of London, which is at present the the sole UK source for Interactive Systems' tools and applications. BP Research has moved up the DEC range to VAXes from its DEC PDP-11/70, which it ran under Interactive Systems' original Unix implementation, IS/1, which is based on Unix version 7. The similarity of the Workbench to IS/1 provided BP Research with a compatible route to running a Unix environment on top of VAX/VMS.

HARDWARE, SOFTWARE MAJORS BACK PC-DOS GRAPHICS INTERFACE

The hunger among manufacturers and software developers for standards has become insatiable over the past couple of years, and a whole string of companies have stepped forward to endorse a new Direct Graphics Interface Specification for PC- and MS-DOS microcomputers proposed by Graphics Software Systems Inc of Menlo Park, California. Hardware manufacturers putting their name to the standard include Intel, NCR, AST Research and Texas Instruments, while on the software front, Ashton-Tate, Lotus Development Corp and Borland International are all endorsing it. Meanwhile we hear that a Unix version in also being planned. The aim of the standard, which defines the interface between the application and the graphics hardware, is to make the task of the software developer simpler, at the same time enabling graphics applications to run between five and 10 times faster and simplifying board design; it will work with Microsoft's MS-Windows program. Graphics Software is making the interface specification available to software developers at no charge, while hardware manufacturers will pay a royalty. Texas Instruments is supporting the standard with its TMS34010 graphics processor, and Intel says it will support it with its forthcoming 82786 graphics co-processor, due for sampling next quarter.

VIENNA TAKES SWAY AT THE V & A

Over 45,000 objets d'art at the Victoria and Albert will be catalogued on a Unix-based Vienna Advanced Office Computer donated by supplier Northern Telecom. The company wanted to assist the V&A in its mammoth task of sorting out the casualties suffered when the basement was flooded last month. The Department of Metalwork will use the system for an inventory of objects ranging from gold jewellery to cast iron cooking pots.

UNIGRAM/X

IBM DECLARES WAR ON FAR EAST CLONES IGNORES XENIX THREAT

Any worries that IBM's next micro announcement was going to bring big trouble to Unix 80286 box suppliers, can be safely forgotten. At the New York press conference called to launch IBM's string of new Personal Computer models last Tuesday, Entry Systems chief William Lowe stressed that IBM was after winning back market share from the stream of low-cost Personalikes flooding the US and Europe from the Far East rather than chasing the Unix market. Price cuts on existing Personal models were remarkably conservative and are a reminder that IBM list prices still stand at levels that few people have actually paid for a PC-DOS machine for many months. Moreover IBM's decision to increase the unit value of AT sales by in future selling the machine only bundled with both floppy and hard disk is splendid news for all the companies that weighed in with low-cost AT-alikes around this time last year. And Xenix is still only offered for three users, keeping IBM at a disadvantage for anyone who really wants to buy a multi-user system. IBM can now match the speed advantage that most other suppliers gained by going for the 8MHz rather than the 6MHz version of the 80286 microprocessor - but their machines were already priced to undercut the IBM AT price, and the new 8MHz version of the AT is priced at about the same level as the 6MHz version before the price cuts. Those that have made any headway with their AT-alikes should by now have sufficient manufacturing economies to be able to cut prices without much pain. And apart from the increase in main memory to 10.5Mb, the specification of the new AT remains extremely conservative IBM admits that 'in very many applications, the 8MHz 80286 **should** be able to support several more than three users without serious response time degradation', but still no sign of anything more agressive on the multi-user Unix front. The most serious warning to the clonemakers seems to lie in the implication that IBM has redesigned the XT motherboard for the new models - if this is the case, as suggested by the fact that it can now support a full 640Kb on the main board, the company will no doubt have replaced much of the ancillary circuitry with a handful of gate arrays, significantly reducing the cost of manufacture and leaving plenty of scope for price cuts in the future. On the thorny issue of 3.5" floppy drives, IBM seems to be leaving the decision on whether to switch to the market - but anyone who has struggled with the ludicrous parsimony of the 360Kb 5.25" floppies currently used will leap at the expanded 720Kb capacity of the 3.5" drives. Even here, IBM is being less than generous: the drives are understood to come from Japan - Toshiba, Alps Electric and Matsushita are believed to be the suppliers - and 1.5Mb 3.5" drives are freely available in Japan. With IBM's built-in inertia, the 720Kb capacity is going to be around for a very long time, and new software is certain to make it grossly inadequate within a year. And IBM's enormous buying power means that it could have acquired the higher capacity 3.5" drives in the quantity it needs for only a few dollars more than it is paying for the ones it is offering. The lap-top Convertible looks no better than and may well fare

bbj LOOKS TO PUBLIC FUNDING TO FINANCE SERIOUS INTEREST IN AI

A public launch on the Australian stock exchange also looks likely for bbj computer services. Stock exchange rules force the company into silence on the subject, so bbj is more forthcoming on the future plans which such an injection of cash could realise.
bbj has plans to invest heavily in the area of artificial intelligence.
Managing director Ken Begbie talked in London this week about his plans to enhance Today with a "machine learning algorithm" or MLA, which involves a degree of heuristics rare in most so-called "expert systems" on the market at present.
bbj already has some installations running in Australia which make inferences or decisions based on 20 different factors in the production process of metal ores. Although he admits that such systems are in the early stages of being commercially useful he is confident that the risk of heavy investment will pay off, predicting that in five years' time intelligent techniques will be used everywhere in computing, and that knowledge-based programming will dominate software. Today's structure makes it easily adaptable to foreign-language versions, and a Japanese version is well under way, although this means some re-writing for two-byte handling of Japanese characters. Other European versions in the pipeline are Swedish, Italian and Dutch, and, a little further off, French, German and Greek.
bbj is one of Australia's most promising software exporters, but according to Begbie the Australian stock market has been slow to invest in technology. As a result private funding has eluded bbj so far, apart from the 25% stake taken by Hewlett Packard, which markets its own version of Today.
The firm's mainstream product is the applications generator TODAY, (see report inside) which has already won the company a lot of interest in the Unix market, and resulted in a $100,000 per month turnover for the company's California-based US subsidiary. TODAY has been the subject of an agreement with UK Unix software distributor, Sphinx of Maidenhead, whose managing director Pamela Gray (aka Geisler) considers it to be one of the most thoroughly implemented and portable products available in a somewhat crowded market.
Only Begbie remains of the three founders whose initials gave the company its name (bbj itself insists on the lower-case spelling, despite the problems it invites with telephone listings). The company now boasts an annual turnover of $5million ($7 million Australian) and employs 45 people in Melbourne, 10 in the US, and 12 in the 30%-owned SE Asian office dealing with Singapore and Malaysia. (See Page 2).

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RIDGE HANDS UK MARKETING OVER TO BULL

The UK office of Ridge Computers Inc in Camberley, Surrey has
been closed and the Santa Clara, California RISC Unix
workstation builder has also shut its Chicago office as part of
a company-wide cut-back announced last week. As the UK
operation was launched only in November last year and no return
on Ridge's investment will be seen at least until the end of
this year it was the first to go. UK sales and marketing of
Ridge hardware will now be handled by Bull SA of France, which
has a 12% stake in the company. The feeling from within Ridge
seems to be that the company will shortly be taken over and Bull
is a definite possibility but Ridge say that some major US
companies, no names, are interested. Although the UK company
was formed in November it did not actually start doing business
until January and no sales have yet been made, although three
were expected this month, which will now be handled by Bull; it
looked for £1.4m turnover here to the end of this year. Only
four people were employed in Camberley – its only direct sales
office outside the US – and two were Americans who will return
to the US headquarters. There it is leasing about one third of
its space to Bull's US operations.

UNIX IMPLEMENTATION OF MAS FROM ROOT AND HOSKYNS

Hoskyns and Root Business Systems think that they have beaten
the likes of IBM and ICL by over a year in implementing Hoskyns'
Manufacturing Control System under Unix. Root Business Systems
is the new company set up by Root Computers at the end of
January (UX No 62). The new system follows another joint
venture with Hoskyns, announced at the same time as the new
company, the conversion of Hoskyns' Financial Control System for
mainframes to run under Unix. These two Unix implementations
are the first of four packages making up Hoskyns' latest version
of its Modular Applications Software (MAS). The two other
packages in the pipeline are: the Purchasing Control System and
Distribution Control System – neither Root or Hoskyns will give
an unveiling date yet. Prior to this venture the MAS products
were available only on IBM mainframes. Hoskyns say that it
decided to go for Unix because it wanted to get into the lower
end of the market – companies that are too small to afford or
need a mainframe but would like the MAS software have according
to Hoskyns been asking it to do something – Unix was decided
upon because it is seen as a standard and runs on powerful
machines although termed supermicros or minis. Hoskyns also
says that it decided to work with Root as opposed to going it
alone because Root has the Unix expertise that it lacked. Root
say that it has converted the software to run under Unix V.2,
which it thinks will get the final vote in the standardisataion
stakes but also says that should there be a surprise winner it
will have to do some work but a new implementation should be
achieved without too much trouble. (See Page 2).

AT&T PROMISES V.3
BEFORE END OF THIS QUARTER

AT&T Information Systems has
called Unix System V licencees
to a technical briefing on
System V.3.0, next month, and
promises that 3.0 will be
available before the current
quarter is out – there had been
suggestions it might not be
ready until the fourth quarter:
the new release is the one that
adds the Streams networking
user interface and the Remote
File System.

SPERRY JOINS X/OPEN

Sperry has now announced that,
as expected, it has become the
second US member of the X/Open
Group of manufacturers formed
to create a common base of Unix
languages, databases and other
tools for machines marketed in
Europe.

UNIX is a Trade Mark of AT&T Bell Laboratories

32-BIT UNIX PROCESSOR FROM DUAL

A VMEbus processor based on the Motorola 68020 running at 16Mhz, supported by 68851 paged memory management unit and 68881 floating point co-processor and 1Mb of memory is on offer fron Dual Systems Corp, the Berkeley, California company that had it in mind to acquire what was left of Vector Graphic. The Chaparral VMPU32 is designed to support 32 users under an enhanced version of Unix System V with Berkeley 4.3 extensions, and has SMD and SDI disk interfaces. Available in 60 days, it costs from $14,900.

ROOT CONVERTS MCS FROM HOSKYNS

The Manufacturing Control System from Hoskyns and Root consists of six basic modules: Engineering Control, Master Scheduling, Inventory Control, Manufacturing Control, Purchasing Control and Cost Control. Optional modules include: Engineering Change Control, Lot Traceability and Repetitive Manufacture. Root started work on the conversion in 1984, the biggest job was writing software to emulate the facilities of the CICS Translation Processor Monitor which took one and a half years, the next task was rewriting the control software, which Hoskyns calls the Strategic Architecture, in 'C'. Root also say that it has automated Hoskyns' software quality tests by simulating them under Unix. Pricing for the software is structured around the power of the Unix box you want to put it on – Root says Manufacturing Control Software for a machine priced at £24,000 would cost about £25,000.

VECTOR BOARDS FOR iPSC HYPERCUBE

Not too much has been heard of the Intel iSPC Hypercube, using a Xenix based front-end processor and built of up to 128 80286 microprocessor nodes, since it was launched in February 1985 (UX No 14). The Scientific Computers division has, however, sold over 30 of the machines since then, and has now crashed back into the Megaflops stakes by adding a vector processing board for the machine, consisting of floating point unit, 1Mb of RAM and a program and control unit. The new processor, designed to be added to each node, relegates the existing node processors to the role of input-output handling, and raises 64-bit vector processing rates up to 100-fold, scalar rates tenfold. Intel claims an iPSC-VX/d6 with 64 nodes and 96Mb of distributed memory, has a peak performance of 424 Gigaflops, putting it in the Cray Research class, but at $850,000 costs only a tenth as much. Base price, with 32 nodes, is $250,000. Existing iPSCs can be vectorised – no price as yet.

RIDGE IN $5m OEM PACT WITH ICT

Not all news coming out of Santa Clara from Ridge Computers is bad it has recently announced a $5m pact with Computer-Aided Design distributor ICT-Computer Drafting System of San Mateo, California. Under the terms of the deal, Ridge's Unix compute and file servers will be sold on to OEM csutomers and dealers as part of Ether-networked AutoCAD Personal Computer work-stations. ICT is one of the largest US distributors of the AutoCAD design and drafting software originally developed by Autodesk of San Francisco, California. The package is claimed to have over 40,000 users worldwide, and Autodesk itself has been enjoying a period of rapid expansion: two years ago it set up a UK office in Elephant and Castle, South London. ICT claims to be shipping over 2,000 CPUs per month of AutoCAD's two-dimensional drafting package. One of the advantages of the deal for AutoCAD users in the UK and Ireland is that they will now have access to software libraries of utilities and applications developed jointly by Ridge and ICT. Access to Ridge's file-server will make a considerable difference to the performance of networked AutoCAD systems. According to Ridge, based here in Camberley, Surrey, they will have up to 20 times the computing power and 15-50 times the file storage, as well as allowing a cluster of AutoCAD workstations share all drawing files and symbol libraries. The Ridge Server/RT uses Ridge's RISC-based CPU and includes 4Mb of memory, a 300Mb disk, an Ethernet board, four RS232 ports, plus Versatec plotter, tape cartridge drive, operating system and networking software.

ITT INFORMATION SYSTEMS
SETS SUPERFAST AT-ALIKE

After the fiasco of the original Xtra IBM Personalike, ITT Corp has learned its lessons fast, and the companies new US Information Systems unit is set to follow up last year's much more impressive Xtra XP 80286 box with an Xtra 2I. This will add an 80186 input-output processor to the 8MHz 80286 to create a machine claimed to be up to five times faster than the IBM AT and able to support up to seven users under Santa Cruz's Xenix V, 12 under Concurrent DOS. It will come with 1.6Mb CPU, 1.2Mb floppy, 40Mb or 80Mb disk, 60Mb streamer, and running Concurrent DOS will create the first convincing multi-user PC-DOS Personalike – with AT slots.

UNIPLEX-II+ LINKS WITH INFORMIX IN
DEAL BETWEEN REDWOOD AND RDS

British software house Redwood International of St Albans has aligned itself with the Informix relational database from Relational Database Systems of Menlo Park, Ca with the new release of its Uniplex-II Plus office automation software.

Redwood has paid an undisclosed sum to RDS of Informix for a product which is not Informix itself, but which, according to RDS, confers Informix/SQL compatibility on Uniplex.

For Redwood it is vital to be seen to be conforming to standards, as a significant part of its US business relies on US government contracts such as the DoD, which insists on compatibility with any emerging standards. That, according to marketing manager Tony Heywood, makes Informix a must, since RDS's C-ISAM is already the accepted access method for Unix System V.

Value added resellers whose products rely on Informix are most likely to be interested in the new Uniplex II Plus since developers of vertical-market applications will have a ready-made office automation suite with which to integrate their software.

ISG OFFERS FIERCE THREE DIMENSIONAL
REAL-TIME GRAPHICS STATION

A Canadian newcomer, ISG Technologies Inc of Toronto, Canada is touting on the OEM market a very challenging three dimensional real-time colour graphics workstation that uses up to 16 of Texas Instruments' sexy 32-bit TMS 32010 digital signal processing chips as the basis of the prop-rietary graphics processor, which runs behind a National Semiconductor NS32000 series microprocessor.

The 3DFX comes with from 4Mb to 12Mb of main memory, two 5.25" 42Mb Winchesters and a 19" colour screen putting up 1,024 by 1,024 pixels with up to 256 colours at a time from a palette of 16,7m shades.

The machine, which needless to say runs Unix - Berkeley 4.2 with real-time extensions - resulted from a development for a video games manufacturer, which sounds as if it will lead to some very exciting video games indeed. It will be offered as a stand-alone workstation, a display subsystem for use with a host, and in board-level versions for system builders.

NEW FILM FIRM USES BENCHMARK KIT
TO CRASH MOVIE GRAPHICS COST

As promised, benchMark Technologies' joint venture for moviemakers has come to fruition on time, resulting in a system that crashes the cost of computer-generated animation and other graphic artwork.

benchMark's partners include the London based Computer Film Company and the California-based Cybervision.

The Computer Film Company is the inspiration behind the venture to produce a graphic arts workstation and input-output station, due for launch in May. The Computer Film Company was formed a year ago with City backing to produce such a system. Initially it looked in the US for a hardware supplier, found one and was on the brink of signing when it discovered that the Kingston-on-Thames start-up was already well on the way to producing a high performance Graphics/Image Processor.

CFC specified a few alterations to make it a more competitive graphic arts system, such as smooth zoom.

Cybervision then joined the team to provide the system with a suite of applications packages - Magic Inkwell. Magic Inkwell was originally written in C but Computer Film decided that some advanced functions would not run fast enough, so Cybervision microcoded some of the more time critical funct-ions.

The NS32332-based benchMark 32 Unix machine will be used as the system processor and a basic system will use four graphics processors. Computer Film has also developed input/output devices to interface to cameras, film output devices and screens. The resulting system can transfer a frame with resolution of 24-bit full colour - that means 16m shades - at 4,000 by 3,000 pixels, to film in under two minutes.

Compu-ter Film will have exclusive marketing rights to the system in the US and Europe, and expects a ready market from video film makers and high performance graphics systems manufacturers. It also hopes that copy shops like the Prontaprint franchise will take it to offer a service to small advertising agencies and also thinks that there is a place for it in the medical world as a centralised X-ray film system.

An entry level system is about £20,000 with four graphics processors and a basic camera input and camera output device, rising to £100,000 fully configured.

WHITECHAPEL STREAMLINES
TO ATTRACT A PARTNER

Whitechapel Computer Works has announced changes within the board of the company. Both Bob Newman, Technical Director, and Bob Baniel, non-executive, have resigned.

IBM QUIETLY PUSHES TOPVIEW BACK TO FOREFRONT OF PERSONAL ENVIRONMENTS

When it was announced in the autumn of 1984, IBM's TopView integrated windowing environment for the Personal Computer family was greeted with horror by more discerning members of the competition, who identified it as the beginnings of a completely new IBM-owned operating environment for the Personal, that relegated Microsoft's PC-DOS to handling input-output. Nothing much seemed to happen with the product for 18 months, so that the foolish virgins with little experience of competing with IBM started heaving sighs of relief and writing the whole affair off as a false alarm. But IBM doesn't introduce seminal products and then just drop them, and this months launch of new products in the IBM Personal family was accompanied by the next release of TopView, and one that confirmed at a stroke most of the predictions made for it shortly after its original introduction. The new release, for the Personal, XT and AT is again seen as casting grave doubts on the long-term future of PC-DOS. It includes virtual memory management, so that big programs can be transparently swapped in and out between main memory and disk. It is designed to support timesharing with multiple applications and supports IBM's local area networking products, all of which is seen as making it IBM's challenge to Unix as the operating system of choice for running file servers in local networks of Personals. It has links to IBM hosts - to the point where it can communicate with IBM's DisOSS and Profs mainframe office automation programs. It even provides support for background batch processing. There are certain weaknesses still - while the new release supports bit-mapped graphics screens, graphics programs can't be used with the windowing feature because they require the whole screen. Nevertheless, it is already being hailed as the basis of a "poor man's multi-user system" and will clearly really start coming into its own with the first release after IBM launches a Personal Computer model based on the much more powerful 32-bit 80386 microprocessor. IBM will move slowly with TopView because it wants to win as many sales as possible for its now rather dated-looking and overpriced System 36 before it bows to the inevitable and allows machines in the Personal Computer family to slug it out unfettered with System 36 and inevitably sweep it into the ashcan of history - unless IBM revitalises System 36 for what will otherwise be an unequal struggle with a much more powerful 32-bit processor. In the meantime, TopView is being priced very much as a low-end product, the new release costing $175, $429 for the tool-kit to facilitate development of TopView applications.

AES ADDS VALUE TO NCR TOWER FOR OFFICE AUTOMATION SYSTEM

Office systems specialist AES of Sunbury has picked the NCR Tower as the vehicle for its integrated office system, the AES 7600. The company is offering Unix System V with its own data processing applications.
In such a crowded and unsure market, a new supplier has to be sure of offering something distinctive. In the case of AES the extra ingredient is its integrated software and the addition of local area network boards and wide area network boards to create the AES 7600. The idea of the 7600, according to product manager Nick Phipps, is to do away with the barrier which at present exists between "data" (as in data processing) and document processing.
AES picked the Tower on grounds on price-performance, although Phipps singled out reliability and resilience as the factor that swayed the choice, particularly the Tower's error-correcting facilities and ability to recover from disaster.
In terms of "added value" to Unix System V, AES is boasting that no-one else will be able to provide the same sort of flexibility. "We haven't seen anything else on the market at this level of integration" said Phipps. Various systems can exchange data and even access one another's commands so that the system is able to pass data between AES' own office automation software and other independently-supplied packages such as those from Tetra Data Systems, and such database products as Informix.
The packages on offer include financial planning, personnel records, and managerial information systems.
The basic configuration (85Mb, 1 Mb memory, plus tape streamer and boards for wide and local area networks) costs around £21,500.

VISUAL ENGINEERING DROPS PRICES ON WORKSTATIONS AND SOFTWARE

Graphics software supplier Visual Engineering of San Jose Ca, is reacting to the barrage of low-price workstations currently being launched on the market by cutting its prices, and offering more for the money.
The company is now offering its Visual:GraphCap "knowledge-based" graphics device management system as standard supply with its Graphics Kernel System library, and its other products C-Chart, Pro-Chart and GeniSys. All these products are now available under a special "W" licence which allows workstation and microcomputer licencees to use the software for an indefinite period of time, incliding 30 days of technical support and one set of documentation. Pricing for mainframe and minicomputers remains at status quo.

SYSTEMS AND TELECOMS MOVING INTO EUROPE WITH S-TELEX

Last week in Paris Systems and Telecoms was looking for French distributors for its Unix software packages including S-Telex. S-Telex is a telex management system which can be run on any Unix-based office automation hardware. Any Unix users can send telexes and receive telex - any terminal or screen linked to a Unix system may be a telex terminal.

The package is written in C and contains shell applications. According to Systems and Telecoms multiple outgoing telexes are organised by queueing and has automatic retry when the telex meets with busy or error messages - it operates analogously to a print spooler. Once a request has been made to S-Telex to send a telex S-Telex then asks who it is to be sent to, what the message is, what the priority on the message is; priority, normal - first come first served, and transmit at a specified time; dials the destination number, performs the routine telex answerback exchange and verification and transmits the telex text.

The system also maintains accounting information for say charging users and checking bills. An optional feature is conversational mode like a telephone conversation over a telex line which when used stops normal call operations on that line.

S-Telex will interface with Quadratron or Uniplex word processors and is approved by British Telecom and PTT. The company, with its UK base in Reading, has a competitor in this potentially lucrative market from Root Computers in its recently launched ROOTtelex (UX No 65).

SORD PRODUCES NEW SERIES USING UNIBOX

Sord has built around its Unibox to produce the M680UX series. The series uses Sord's own implementation of Unix System V, Sord System V. The series uses the Motorola 68010 or 68020 and the architecture is built around the 16/32-bit VME bus. Both processors support 16Mb memeory address and RAM memory is expandable from 1Mb to a maximum of 16Mb. No prices are available yet for the series.

STILL WAITING FOR 68020 ARGUS UNIMAX

The Hanover Fair has passed and so has the Unix Systems Exhibition and we still have not seen the promised 68020 version of the Argus Unimax from Ferranti. The news is that it will now be on show in Nice at Comdex between the 10th and 12th of June and if you cannot make it there try the Greater Manchester Exhibition Centre at Computer 86 between the 24th and 26th of June.

SPHINX LANDS MAJOR DEAL FOR XENIX TUTOR

Olivetti has snapped up a hundred copies of Sphinx's home-grown Xenix Tutor in a deal worth £25,000, and will be distributing the software for its new M28 Xenix-based machine, and its entire PC range.

Olivetti's venture capital arm owns 24% of Maidenhead-based Sphinx, but there is no automatic marketing agreement on products.

SECOND VOLUME OF X-OPEN ON THE WAY

The second volume of X-OPEN Unix System V standards is due out in July. It is planned to cover tools and utilities for development of software under Unix System V.

SUN SHINES ON ACADEMIC MARKET

Sun Microsystems of Ascot has been stung into revealing that it has, like its rival Apollo, been doing well out of the UK education sector. Ordes from the Science and Engineering Research Council for Sun's workstations are thought to amount to £2.5 million in 1985 alone.

INSTRUCTION SET TO SUPPORT MOTOROLA

Motorola has appointed The Instruction Set of North London as its mentor in an "informal gentleman's agreement". The Instruction Set will be providing support for porting generic source code Motorola hardware. The company performs a similar hand-holding service for Intel.

ORACLE SYSTEMS OFFERS ENHANCED RELEASE 5 OF ORACLE DATABASE

A new release of Oracle Systems' Oracle relational database management system brings with it a whole set of development tools including an improved report writer, SQL Plus, an Applications Generator called SQL Forms, and Easy SQL aimed at the first time or casual user. There is also a new graph utility function which converts data resulting from any query into pie charts, bar charts and line graphs. Oracle Version 5 will be sold as a complete package until July 1 of this year after which users will be able to purchase the core database manager and whichever of the individual modules that suit their requirements. Prices for Oracle on IBM mainframes currently range from about £54,000 for a 4341 up to £108,000 for a 3084.

TWO MORE USERS JOIN OPEN SYSTEMS CORP

Membership of the non-profit US Corporation for Open Systems is growing fast, and two more major users - Procter & Gamble and Dart & Kraft - have joined the communicat-ions standards-setting body. And two further manufacturers, Sun Mic-rosystems and Apollo Computer Inc have also joined the Corporation.

UNIGRAM/X

Issue Number 73

As these things go there are few better fits than **Sperry** and **NCR** in the mainframe business so **Wall Street** gossip that NCR is talking to **Sperry** about acquiriing it in a share exchange is encouraging if true - talk of **NCR** bidding 1.6 of its own shares for each Sperry, valuing the latter at $4,070m was good for $1.25 on Sperry's shares at $54.5, 87.5 cents on NCR at $44.5: we have already rehearsed at length several times the arguments for the combination in the past, but briefly, Sperry is only really comfortable at the very large mainframe end of the market, NCR is very strong at the medium and low end and in industry-specific terminals, weak to vestigial at the top; both companies have implemented Systems Network Architecture very comprehensively, facilitating communication between their machines; and, a new bonus, both companies are now betting a large part of their lower-end commercial business on Unix and are already associated to the extent that Sperry is a major OEM customer for NCR's Tower Unix supermicrocomputers.

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"Weak to vestigial at the top" may sound a little overstated after next week when **NCR** is due to announce its new top-end 9800XL mainframe, adding a significant degree of fault-tolerance, and already the subject of a monster $42m order from **Sumitomo Bank**; the machine promises to take NCR up to-wards IBM Sierra performance levels in multiprocessor configurations.

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The new Paris subsidiary of **Plexus Computer** becomes legal on the 28th of April although the company has actually been installed in Paris since Feb.

Minigrams

Sperry Corp has duly acquired **Foundation Computer Systems** of Cary, North Carolina, and its Ally Unix applications generator, from **Encore Computer Corp** on undisclosed terms: Sperry originally simply sought to licence the software to run on its entire Unix line, but was persuaded to take the company, which has 40 employees; **DEC** took a licence to Ally for the VAX minicomputer line but does not yet offer it anywhere as a product.

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Despite being invited to the **Unix Systems Exhibition** at the Palais des Congres in Paris AT&T declined, for the second year, then when the president of **AT&T** arrived in Paris and heard about the show and discovered that AT&T were not represented, or at least did not have a stand - everyone had 'Unix is a Trade Mark of AT&T Bell Laboratories' he became outraged, according to exhibition organisers.

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The **Olivetti** Personalikes announced in February were on show at the Italian Trade Centre this week together with details of UK prices and availabilty; the M28 AT-alike will be available from May and costs £3,718 with 20Mb hard disk, 1.2Mb minifloppy and 512Kb memory; with a 20Mb streaming tape option it costs £4,662; for the M22 lap-top portable users will have to wait until the autumn for delivery but prices for end-users will start at £1,600; the 8088-based M19 educational orientated Personalike will cost £1,246 with 360Kb floppy drive, 256Kb user memory, keyboard and screen; and the 10Mb hard disk model is priced at £2,245.

Following price cuts on the Z-171 last month **Zenith Data Systems UK** has announced a 10% reduction on the price of the ZW-241 AT-alike, with 512Kb CPU, single floppy and monochrome monitor, bringing it down to £3,395 as well as price cuts of between 20% and 60% on upgrades to the Z-200 family; and **NCR UK** has cut the price of its XT-compatible PC6 with single floppy disk drive and high resolution mono scren by 17.8% to £2,998, and there are similar cuts on other NCR PC models.

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An Ada compiler is in development for **Stratus Computer Inc**'s Continu-ous Processing Systems following an agreement with **Verdix Corp**, Chantilly, Virginia, that allows the Marlboro, Massachussetts fault-tol-erant supermicro manufacturer to market a version of the Verdix Ada Development System with its boxes.

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Apple Computer Inc has replaced its original Macintosh 512K with a 512K Enhanced at the same price, that is $2,000: the new model has a faster CPU with ROM for hierarchical files - suggesting a move to Unix/Xenix perhaps, and improved input-output - and the 3.5" disk size is doubled to 800Kb, but the MacPaint and MacWrite programs are no longer bundled in with the base price.
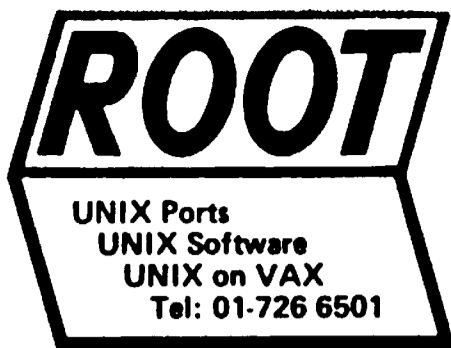
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Intriguing: **CompuCorp** of Santa Monica, California has come up with an NS32032-based workstation, the Connection, claimed to be functionally compatible with **IBM**'s Personal AT and able to run MS-DOS and Xenix concurrently - priced at around the AT price; but no further details are available as yet.

AT&T DROPS GUARD ON SNA AND JAPAN

IBM's SNA Systems Network Architecture appears to be taking its place in AT&T's development of System V VM, according to a paper given at the Spring gathering of the European Unix User Group in Florence this week. AT&T's Bill Pashwa was not in Florence in person to give the paper but his deputy from the Computer Systems Division confirmed that work was going forward to build SNA into System V connectivity.

It also became apparent that the Japanese version of Unix under the wing of Unix Pacific would be be far from international. A presentation from Eli Lamb of Unix Europe explained that AT&T's base language supplements would support two international capabilities side by side, one single-character and óne multi-character (not necessarily restricted to double-character) as is presently used with two-byte handling of Japanese Kanji characters. The international standards ISO allow four alphabets (one ASCII and three Japanese character sets) but in its present form it is impossible for Japanese-character users to interpolate non-ASCII text in their documents, for example, German text with umlauts, or French with accents. A way of dealing with this problem "has yet to be defined", which hardly filled the European audience with optimism.

Japan is high on the list of priorities for AT&T's international marketing push. A pie chart of world market figures put UK share at 33%, and divided the remaining 67% between Japan (15%), Germany (13%) and France (10%), with the Italians and Spanish at 5% each, and China (which recently made a commitment to Unix as its standard vehicle) at only 4%. Internationalisation features strongly as a hot topic in Florence, in various committee meetings and in more informal debates. Perhaps piqued at the speed and enthusiasm with which European users have taken the "international standards" issue out of its hands, AT&T's attitude to Japan is ambivalent. Peter Weinberger of AT&T Bell Labs kicked off a debate on the internationalisation effort with the words "adoption of international standards will make Unix a commodity, and when it's a commodity the Japs will move in"; but he may have just been starting the ball rolling... AT&T is not party to all the debates, since several AT&T folk failed to appear at the Florence conference due to last-minute panic at AT&T about allowing employees to travel in the aftermath of Reagan's attack on Libya.

SUMMER LAUNCH FOR SPERRY-BENCHMARK GRAPHICS PRODUCT

The launch is imminent for a high-performance graphics product developed in a joint project between mainframe manufacturer Sperry and benchMark Technologies of Kingston upon Thames. The system will use benchMark's innovative graphics and image processor which has already attracted joint venture partners including Phicom. Benchmark's microprogrammable bit-slice processor, announced last November appears to lead the image processing field in price-performance terms, and the company confirms that joint agreements with other big US names are in the pipeline.

The product is likely to take some adaptable form which would make it useable with mainframes as well as Sperry's own Unix-based minicomputer range. Likely applications for the GIP include medical (processing X-rays and scans), seismic, and the mapping of satellite images and command control. At present benchMark is sourcing the technology and Sperry will provide the "packaging" although it is possible the tiny but highly-regarded company might also be involved in marketing the final hardware solution. The packaging will be a combination of both Sperry and benchMark-sourced hardware. Sperry formalised the relationship between benchMark and itself with an announcement which gave little away about the actual product, due this summer. Development has been under way for some time, mostly at Kingston on benchMark's part. The project is thought to represent an investment of half a million pounds.

SPERRY, BURROUGHS PICK MICRO FOCUS UNIX COBOL

Micro Focus Group Plc is beginning to make hay in the Unix world with its Level II Cobol ET compiler, and having been the star attraction at the Texas Instruments Business System 1500 launch, the company has now landed major contracts for Cobol ET from two more majors, each in contracts worth "several million dollars". Sperry wants the Micro Focus product, together with its Cobol Animator exerciser and Forms II screen generator, for its Unix machines from NCR and Arete, Burroughs wants them for the XE550 version of Convergent's Megaframe.

BAD NEWS FOR AMDAHL AS AT&T CUTS ITS COMPUTING BUDGET

Bad news for Amdahl Corp is that its largest single customer, AT&T Co, reckons that it is spending too much on its internal computing, and has set a three-year programme to consolidate its computer centres. It plans to cut its computer procurement, use its own machines wherever possible, and standardise on fewer operating environments and applications programs. The news is also bad for IBM - while AT&T is Amdahl's largest customer, IBM is AT&T's largest supplier - and for employment: the cuts will mean 10% fewer staff are required.

DEC READY WITH $16,000 SLIMLINE VAXSTATION

DEC is expected today to respond to Apollo Computer's challenging Series 3000 68020-based workstation with a slimmed-down version of the new MicroVAX II-based VAXstation II GPX.

Called the SV, for Special Version, it is expected to be fitted with less disk storage and to be priced at around $16,000 against $33,000 monochrome, $35,000 colour for the original models - but it may have fewer slots and expansion capabilities. The Apollo Series 3000 starts at $9,900 with no disk storage, and according to Computer Systems News, DEC is reacting aggressively because it has been losing sales to Apollo in the OEM market.

ROOT TAKES A LEAF OUT OF WORDSTAR'S BOOK WITH WRITEWORD

Root Office Systems is on the verge of releasing the long-promised WriteWord word processing package as its premier product. The package is shaping to challenge present market-leaders such as Quadratron and Redwood's Uniplex in the office automation market, and Root is gunning for OEM contracts on the strength of WriteWord's built-in versatility.

The package is something of a chameleon, for although it is built to look like MicroPro's much used (and abused) Wordstar, it can be made to emulate almost any word processing package on the market. Developed in-house by Root, and only just polished for release, the product includes its own filing system, rudimentary database, and "intelligent" windows which allow users to freeze a current document, go to another function, and then return to any current process at the point at which it was left.

Although Wordstar was picked as the vanilla flavour because of its market position, the design of the WriteWord package is not just a matter of "soft keys": it can be configured to emulate almost any word processor, according to Root Office Systems managing director Philip Knaggs.

This isn't a facility open to end users because of the obvious difficulties adapting to various terminals and printers which can be hung off Unix systems, but it does put the firm in a strong position to bid for OEM contracts where the manufacturer wishes to emulate the charms of a forerunner "native" word processor on a Unix system.

ICL and Torch have already experimented with the system on the Clan and the Triple X, and WriteWord will figure in Torch's plans to sell to large corporations, following a royalty-based OEM deal with Root OS.

Other obvious targets include such companies as Wang and AES, whose main trade is in standalone word processing packages which have a strong following on their native territory, but will be seeking a share of the growing Unix market.

Limitations on such aspects as layout (such as changing the pic size) may disappear as Root becomes more conversant with the various terminal and printer options, but at present prevent WriteWord from full emulation of the feature-rich and competent Wordstar.

However there are "extras" to compensate, including the ability to route messages between users, the swapping between paused tasks via full-screen windows, (kept listed so that users don't lose track of where they are), the filing and recording of key words and features for easy access and searching of documents via the filing "database", and the print spooler, which allows a laser printer

to be attached to the system. Root plans to sell directly to VARs and large end-users , but will also be pitching at manufacturers such as ICL, Philips and Nixdorf, even if there is a prior OEM commitment (as in the case of Nixdorf and Quadratron) to another product. Root has already convinced Nixdorf that its own ROOT-ISAM based filing should supplant and supplement its Quadratron offering, according to Knaggs. Now that WriteWord is well-tested, Root Office Systems will be approaching other manufacturers who may be dissatisfied with their present offerings, or find them incomplete. Despite the X-Open group's declared adoption of Relational Technology's C-ISAM as the standard interface, Knaggs is claiming to have interested three of the X-Open group members in using ROOT-ISAM as the basis for a database-like filing system.

Knaggs adimts that Root Office Systems is sailing into new waters with its applications but points out that although the parent company was not known for commercial hard-sell, its technical roots have given it valuable links into other areas. "We've correctly identified the pace of the market and moved from our technical base into areas which are now becoming more important" he said, "particularly on the applications side". He gives the impression that success in the applications market is largely a matter of re-packaging, although it has taken some time to mature WriteWord and bring it to market, and there still remain a few traces of its "techie" origins which may alienate word processing users more accustomed to being spoonfed. Determined not to fall into the traditional traps, Root has produced impressive documentation for Writeword, though the online screen-help facilities are horribly similar to the tortous Wordstar help in their operation.

Root OS is offering discounts to OEMs for bundling, although initial fees for the porting and sublicencing rights will vary according to the hardware implementation. One of the three recently-formed Root divisions, Root Office Systems is selling WriteWord alongside RootMap, the all-purpose Unix interface with diary and mailing facilities, and Root Telex, its telex system.

COMPUTER CONSOLES SETS TWO NEW UNIX CPUs
Two new processors to bracket the company's Power$_{6/32}$ 32-bit Unix mini are due out from Computer Consoles this Wednesday, and the company will also improve disk input-output. Separately, ComputerVision's chief financial officer Richard Krieger resigned to take up a similar post at Computer Consoles, which is now headquartered in Waltham, Massachusetts.

GODFREY DAVIS USES UNIX FOR EUROPE LINKS

Hire-car firm Godfrey Davis Europcar is spending £50,000 on a Unix machine and telex software to link its Paris-based IBM 4381 mainframe with its UK headquarters in Bushey. Watford-based systems house Eastman-Stuart is providing the software for the NCR Tower 32 at Bushey. The Tower represents Godfrey Davis' first step in a campaign to improve operating efficiency by expanding its computer resources. Eventually operations will include and management to control the car rental business more closely. The company has 300 offices in the UK alone,and over 3,500 worldwide offices. At first the system will deal entirely with car reservations. Information about hire-car bookings has to be distributed from the Paris mainframe to the various UK branches by telex. Under the old system, telex copy had to be stripped off, sorted into destinations, re-keyed, and then despatched to the various locations. Eastman Stuart is replacing this clumsy process with a sophisticated version of Systems and Telecom's S-Telex package, adapted for the Godfrey Davis Europcar network. According to Eastman Stuart sales manager Bill Morgan the trickiest job was in handling the communications between the IBM in St Quentin, outside Paris, and the NCR Tower, which then has to alert the various locations in the UK by automatically displaying the information on local vdus. The company installed an international lease-line two months ago, which is used to shuttle information on car hire bookings back and forth between the UK and France. The mainframe transfers ASCII files to the Tower via an Avatar controller. Eastman Stuart's programs, written in C, then put the telexes into distributable form and sends them out under S-Telex.

MS ASSOCIATES RELEASES DOS VERSION OF CGEN, APPOINTS DISTRIBUTORS

Language conversion specialist MS Associates of Bourne End, Bucks, has now released its DOS version of the CGEN Basic-to-C converter, at a price of £950. The company is working on further dialects including a Basic+ -to-C converter for DEC users and Data General Basic-to-C. MS has reached an OEM agreement with ICL for supplying CGEN products on ICL's Unix machine, the Clan, on a royalty basis, and is also looking at a joint development and marketing agreement with Hewlett Packard. Other recent prestige contracts for CGEN include the DHSS, which is using the translator to convert its WIMS asset control system to a Unix host. Recent deals in France following CGEN's appearance at Sicob have resulted in £10,000 worth of business. At home, MS is appointing a Scottish distributor, Mass of Aberdeen, to deal with sales to the oil industry.

CARNEGIE GROUP TO REWRITE ITS LISP DEVELOPMENT AIDS IN C

Throwing the cat among the artificial intelligence pigeons with a vengeance, one of the major software players in the game, Carnegie Group Inc of Pittsburgh, Pennsylvania has announced that it intends to rewrite all its Lisp artificial intelligence tools for the C language. The potential implications for Unix as a are enourmous. Reason, it says, is that C is much easier to use than Lisp or Prolog, that there are no real-time facilities in Lisp, and, worst of all, Lisp appeals only to "techies" and that knowledge engineering techniques will never become widely used until they are attractive to mainstream software developers. There will be some compatibility between the two environments, and a translator will be provided for existing knowledge bases. Products to be converted include the company's Knowledge Craft and Language Craft tools for building expert systems, with the C versions due out in 1987. The company also plans to develop a problem-solving shell designed to enable non-programmers to build expert systems, and the company also plans to develop its own family of applications; the C versions are expected to be offered first for the MicroVAX II, the IBM RT Personal, and the 80386-based Personal Computer model expected from IBM next year.

IBM PUTS FRIGHTENERS ON UK PERSONALIKE MAKERS, SELLERS

Within a day or two of launching his forthcoming IBM Personalike, expected to be next month, Alan Sugar can expect a quiet call from a senior IBM UK employee about possible infringements of copyright. Amstrad is much too careful to run any real risk of legal wrangles with IBM, but at least five UK companies building IBM Personalikes or bringing them in from the Far East have not been so lucky, and while four have bowed to IBM pressure, one, Qubiè Ltd of London SW, is taking IBM on. Qubiè, which has its own BIOS, developed by its US part-parent and not under suspicion, was approached by IBM a month ago and asked to change the appearance of its machine to make it look less like the IBM product. Qubiè is particularly incensed at being asked to sign an agreement with IBM in which it would admit breach of copyright, leave open the possibility of a suit from IBM at a later date, and submit its machine for IBM endorsement and approval. It is flatly refusing to comply with any of IBM's requests and says that it will make a complaint to the EEC Commission if IBM pursues the matter. At the other end of the scale, Computo-processing Ltd of Soho, London responded to IBM pressure by rewriting its BIOS from scratch, which took five people six weeks, changed the design of its machine so that it looked less like an XT, and almost certainly acceded to an IBM demand that it hand over its entire customer list, though it refused to confirm this. Of the other three, PC Upgrade in Walton-on-Thames, says it made very minor changes to its machine to meet IBM's demands; Walters International Plc in High Wycombe, changed the look of its XT- and AT-alikes, and signed patent licensing agreement with IBM; and Concept Data Ltd in Bristol had already switched from its original MegaBIOS to the one sold with a guarantee of purity by Phoenix Software Associates BIOS before IBM made its approach.

ALTOS LAUNCHES PC-PLEX TO PROVIDE
PC USERS WITH DATABASE ACCESS

In order to make Unix or Xenix commands comprehensible to those working in an IBM environment, Windsor-based Altos Computer Systems UK has come up with a product which enables IBM Personal users to access databases held on Altos multi-user systems. The product, which is called PC-PLEX, provides a menu-driven interface similar to Lotus 1-2-3 as well as file transfer, network file management and terminal emulation utilities. Access to the Altos database is obtained by a local or remote connection through the standard asynchronous serial port on the Altos system; a single copy of PC-PLEX will support multiple Personals. Prices range from £595 to £895 for Altos Intel-based systems and are around £1,195 for the Motorola-based 3068 Supermicro.

MBS MICROTEX MAKES ELECTRONIC MAIL DEAL
WITH CIRCULAS FOR ALTOS

Software house Circulas has signed a "six-figure" OEM agreement with a leading Altos supplier for its Unix-based electronic mail system. The Ceemore electronic mail system from Circulas is to be sold exclusively for Altos machines by MBS Microtex, bundled with all Unix-based Altos machines. It will be included in the price of Altos 886, 1086 and 2086 series, partly as a way of convincing users what they're missing, as Microtex says that electronic mail has been overlooked by network users. The Ceemore software gives access to full mailbox facilities through such asystems as Telecom Gold and One To One, as well as providing telex facilites. The software can be used to communicate with any Unix-based system and can make use of data and reports generated by applications packages. The lowest-end version of the packge costs £800 (IBM AT compatible) , with the 8-user configuration priced at £1,250. Value-added-resellers will have to buy Ceemore through MBS following the agreement, by which Circulas will receive royalties on UK sales.

WP PACKAGES ADDED TO SPHINX CATALOGUE

Software distributor Sphinx of Maidenhead has taken on two word processing packages, which will be available under DOS and Unix. The Professional Writer's Package, from Emerging Technology Consultants of Bolder Colorado, and the Lex word processor from West London based Ace Microsystems are both aimed at high-level word processing applications. The PWP package is said to be suited to the production of scripts, novels and technical manuals, while Lex is already well-established in the DEC world as one of the few packages flexible enough to handle basic graphics and financial data in visual and columnar form, with some arithmetic functions. Lex also includes mailshotting and list processing facilities. The PWP package consists of four programs, Edix for full screen editing, Wordix for text formatting, Spellix for checking spellings, and Indix, for creating a two-column index in alphabetical order. Prices vary according to the hardware host. For the DOS versions prices start at a basic (IBM PC AT) £500 for Lex and £490 for PWP. Unix prices start at £595 for Lex, (AT) rising to top-end prices of £3,200 on a Vax 785, and for PWP Unix prices start at £1200 (AT), rising to £2,500 for a NCR Tower 32 implementation.

ITL UNVEILS TOP-END MOMENTUM 10000

Information Technology Ltd will launch its new top-end supermini series, the Momentum 10000, on Monday, and the UK mini suppliers has finally given way to Unix, with a Unix version of the machine out soon.

This would put the Momentum box in the same lofty category as Parallel Computer, Tolerant Systems and Sequent Computer Systems, as the only fault tolerant Unix machines available. AT&T also has the 3B 20D which is only sold to phone companies, but which is also fault tolerant.

The machines have a 32-bit processor which like their pre-decessors use AMD 2901 bit-slice microprocessors with ECL internal logic supported by FAST TTL logic.

The Model 65 has a 40Mbytes per second processor bus, an 8Mb per second input-output bus and an ITL Microbus. In its basic configuration, the 65 has 1Mb RAM with 256Kb of Fast Recovery memory, 4Kb instruction cache, controllers for disk and streaming magnetic tape drives, 24 input-output ports and remote diagnostics.

Up to 4Mb of main memory and 5Gb of disc capacity may be added enabling 150 terminals to be active at any one time. The 65 starts at £150,000 and the dual-processing, fault-tolerant Model 265 - two linked 65s with optional mirror disks and online archiving - comes in at a minimum of £250,000.

The Model 65 can handle up to 6,000 transactions per hour, the 265 some 75% more. The third member of the Momentum 10000 family is the Model 68 which uses what IBM calls a dyadic processor - all input-output common to both CPUs but no resilience if one side goes down, and is claimed to have three times the performance throughput of the 9000X range.

It has 8Mb of main memory and can handle around 9,000 transactions per hour through up to 225 active terminals. It costs £250,000. The 10000 range is upwards compatible from ITL's previous 9000, 9000X and 16-bit 8000 series.

ITL sees 25 Momentum 10000 sales this year, mostly of the 265. It is already 20% of the way to its target with British Telecom, European Space Agency, the Orion subsidiary of the Royal Bank of Canada and Baring Brothers having bought five between them already. For the immediate future, the Momentum line will continue to run only under the Modus operating system but managing director Doug Gemmell says that Unix will be out soon. ITL says that it has just finished its best and most profitable financial year ever and that it will re-register as a Plc this summer as a first step to seeking a public quote late this year or early next.

/USR/GROUP/UK AWARD FOR EXCELLENCE AT THE EUROPEAN UNIX USER SHOW

There are to be awards for excellence and innovation at the European Unix User Show this year. The show takes place at Olympia II in West London, 3-5 June 1985, under the sponsorship of the /usr/group/UK, which is also staging the awards. Forms for entry to the awards will be available at the show, from the /usr/group/ stand 31. According to organisers EMAP, the show is a sell-out, with around 180 stands taken.

TWO NEW SOFTWARE FACES AT TORCH

Three new appointments have expanded the team at Cambridge-based Torch Computers. Two new faces at Torch are Richard Millen, previously with Root Computers, who has joined as international marketing manager, and Richard Millen, who joins from Logica as national accounts manager. Peter Harris, formerly sales director at Torch, has been appointed commercial director with special responsibility for joint venture and large-scale contracts, particularly overseas. Torch is looking overseas for sales of its friendly Unix-interface Opentop. The company has just launched a high-speed version of the Triple X which uses a 68020 processor and floating point mathematical processor to increase processing speed by two or three times.

UNIT-C HAS 'EVERY KNOWN CHIP' TOOL SET

"Every known chip" (well nearly) is covered by the common Tool Set launched this week from Unit-C, the systems inegrator based in Worthing, Sussex. The full Microprocessor Software Development System is written in C and comes from Uniware of Illinois, for whom Unit-C is sole UK supplier.

The common Tools Set contains a macro pre-processor, a link editor, archiver, and a variety of formatters, downloaders and other utilities, independent of their target microprocessors. Target processors supported include Intel's 8051, Zilog's Z80, Motorola's 6800 and 68000 families, Intel's 8086/8088 and Hitachi's HD64180.

Prices for the tools set vary between £1500 for any Unix machine, and £300 for MS-DOS and PC-DOS based PCs, with Xenix versions weighing in midway at £690. The price includes one of the modular assemblers; anyone wanting to address more than one sort of ship will have to pay another £690 per assembler.

CONSEQUENTIAL SALE WORTH £180,000

Basingstoke-based Sequent distributor Quartz has made its second sale of the Sequent Balance 800 system, to communications specialist Case Communications. The sale is worth £180,000 and includes 10 32-bit CPUs and 1200 Mb of disk storage, and the Dynix operating system which allows dual running of System V and 4.2 BSD. Quartz's first sale was to consulting engineers Sir William Halcrow, last November.

NCR JOINT MARKETING VENTURE TO INSURANCE SECTOR WINS FIRST SALE WORTH £155,000

NCR's pitch to the City has succeeded with the first sale, worth £155,000, of the off-the-shelf broking software for NCR's Tower 32 to Hosken, a London market broking group. NCR has been wooing the London insurance market with city systems house Turnkey and Applied Computing Systems. T&ACS' London Market and Retail Broking applications will be installed on a Unix-based NCR Tower 32 at Hosken's Mincing Lane city office, with links to terminals in Ilford, with the intention of bringing 25 users online during 1986.

SUN SIGNS OEM DEAL WITH LSI LOGIC

Sun Microsystems of Ascot has signed a major OEM agreement with LSI Logic Corp of Malpitas, Ca, which ties LSI's software to Sun workstations. Under the terms of the agreement, LSI will sell Sun workstations directly to customers with its advanced schematic capture systems, LSED. The agreement also covers in-house development at LSI, for which Sun kit now becomes standard, and planned sales of the advanced software package for designing applications specific integrated circuit (ASIC) products. LSI is currently part of Sun's Catalyst programme for third party suppliers. Its LDS III/Unix design package is due to be available on Sun workstations in June 1986.

MANCHESTER SIGNS WITH TUDOR FOR PLANNING SYSTEM ON CONVERGENT KIT

Manchester City Council's Planning department has come down in favour of a Unix-based systems and placed an order worth £113,000 with Tudor Business Systems of Alcester, Warwickshire, for a multi-user system based on a Convergent Technology Megaframe. The system will be used to speed the processing of 2,500 planning applications, at present carried out on Jacquard computers. The MS-Associates translation JB-CGEN Translator, which enables the conversion of Jaquard Basic programs into C to run under Unix played a major role in securing the contract for Tudor.

LATTICE LOGIC SIGNS WITH VIA SYSTEMS

Lattice Logic of Edinburgh is to distribute chip design tools from Via Systems, Billerica, Mass, throughout western Europe following an agreement in principle signed last week between the two companies. Via is to integrate Lattice's products with its own BuildingBLOCKS system for combined distribution through its seven regional US offices. The combination of products will allow the designer to select fully automatic or interactive design methods according to choice. The agreement heralds further co-operation between the two companies on development and integration of a full range of automatic function and memory generators and a gate-array layout facility.

MOLECULAR COMPUTER DROPS PRICES

Molecular Computer of Langley, Slough, is re-adjusting its prices to catch the rush at the Unix User show in June. Molecular's main claim to fame for is 16/200 is its binary compatibility with the Xenix-based IBM's AT, which allows users to take a floppy disk out of the AT and put it in the 16/200.

UNIGRAM/X

ICL MOVES UP TO THE 80286 FOR ITS DRS 300 TERMINAL LINE

As part of a £20m DRS development program, which is planned to take in Unix next year, ICL has announced DRS 300, a successor to the DRS 20 networked intelligent terminal family which first saw the light of day back in 1981, when it replaced the antique 1500 intelligent terminal. The new 80286-based terminals support Digital Research's Concurrent DOS 4.1, which replaces ICL's own DRX operating system - users of DRS 20 were also offered Concurrent CP/M in 1985. Each processor can support up to 16 terminals. The new terminals are accompanied by the second release of Microlan, ICL's own local-area network which operates at 600Kbps. The terminals can also be linked by Oslan which allows DRS to communicate with other manufacturers' machines, or DRS-Net which will allow existing DRS users to interwork with DRS 300. The 80286 CPU comes with 1Mb of memory as standard and supports 20Mb and 40Mb hard disks and 700Kb 5.25" floppies. The machines also support high-resolution graphics including all major GEM utilities and are being made at ICL's plants at Letchworth in Hertfordshire and Kidsgrove near Manchester. Prices for the range start at £9,000 for a four-user entry level system, rising to between £18,000 and £20,000 for a typical six-user system.

UNIX WINS IN WAR OF WORDS - BY A WHISKER

Unix nearly lost face in the war of words staged this week by PR company Tim Wickes in which gurus and journalists joined in a debate headed by John Elsden (ABS Computers, for) and former editor of Computing, Richard Sharpe (against). Lively but irrelevant words raged back and forth, debating whether Unix was a truly valuable and essential part of commercial computing, or mere fairytale hype. "It depends whether you can make money out of it", concluded Elsden, but the outcome hung in the balance until a keen proponent emerged from the loo to cast the tie-breaking vote... 11:10 in favour of Unix.

- o -

IBM UK unhelpfully chose to announce the new models of the XT and AT Personal last night just as we were closing for press at 6.30pm: prices and delivery were not immediately available, and the announcement, as in France appears to exclude the Convertible and any mention of 3.5" drives.

Those soaraway third quarter figures from DEC have been fuelled by the seven major new products - a complete replacement of the entire VAX line - over the past 18 months: the company says that all are meeting or exceeding order and shipment expectations, that operating margins are moving back into double figures; the MicroVAX II sold 20,000 units in the first nine months of marketing, and the VAX 8600 and its 8650 variant chalked up $1,000m of sales since launch in November 1984.

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IBM France announced the new XT and AT models of the Personal Computer with half-height 5.25" disks on Friday - but there was no sign of the Convertible lap-top or any 3.5" disk drives: IBM says that the Convertible was not announced because there is as yet no line ready to start making it for Europe.

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Sun Microsystems Inc has reported third quarter net profits up 3.7% at $3.4m on turnover up 69.9% at $57.6m; nine-month net fell 6.2% to $6.0m on turnover up 71.2% at $133.4m. Net per share was flat at $0.13 and fell 11% to $0.24 in the nine months.

AT&T will announce versions of Samna Corp's Word line of word processing programs for the PC6300 Personalikes and the Unix PC and its 3B1 multi-user incarnation on Monday as Write Power I and II: versions for rest of the 3B micro and mini line are on the way.

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IBM has cut prices of two pre-configured versions of the Personal AT/370 in the US: the model with 20Mb disk falls 12.3% to $8,585, the one with 30Mb disk is off 10.1% at $8,985.

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No confirmation, but IBM UK is tipped to launch the Convertible Laptop and the new XT and AT Personals here next week.

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Millions of us are saddled with IBM Personals and Personalikes under-powered by the 4.77MHz 8088 microprocessor, but we need no longer suffer in silence as the thing goes through its snail paces, we can now send for the doctor: Doctor DOS is a $50 program from Anex Technology of Congers, New York that is designed to neutralise or trim whatever is not working well in PC-DOS - from release 2.0 up - and implants new code to replace inefficient calls in the original operating system; it is claimed to make the humble Personal motor at speeds close to an AT or a Compaq 286.

- o -

Pyramid Technology Inc has extended support for Sun Microsystems' Network File System to the System V side of its OSx operating system in the new release 3.0, and says that it has made the new implementation a superset of the Sun record-locking facility as well as adding further security features: OSx supported concurrent System V and 4.2 Unix environments but the File System was previously supported only in the BSD 4.2 environment.
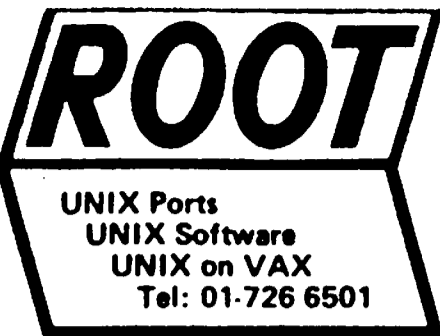
TANDEM PICKS ALTOS 3086 IN $50m PACT WHERE UNIX IS NEEDED

You may, as a company, be dead set against running Unix on your own product line, as Tandem Computers regularly declares itself to be, but even the most anti-Unix company soon swallows its pride if it means holding on to major US government contracts, and with an estimated 60% plus of US computer contracts now making Unix a requirement, Tandem has bowed to the inevitable, reports **Electronic News.** Altos Computer Systems has beaten Convergent Technologies to a $50m three-year contract with Tandem's Terminal Products Division in Austin, Texas according to the US trade weekly, under which it will supply its top-end 32-bit 3068 68020-based Unix System V machines. The machines will be adapted by the Austin division to front-end Tandem's NonStop machines in bids for US government contracts, including a major one from the US Air Force. Tandem's public antipathy towards Unix is believed in reality to reflect the difficulty in mapping the AT&T operating system onto Tandem's fault-tolerant hardware, rather than any a priori dislike of the environment. The contract is the largest single OEM deal ever won by Altos, which already has an OEM contract with Automatic Data Processing on the 3068 line. Its previous biggest contract was from Trans World Airlines for its Intel 80286-based models – that was worth $20m over three years.

TADPOLE FIRST NON-US COMPANY WITH FULL MOTOROLA CHIP-SET

Tadpole Technolgy plc reckons that it will be the first company in Europe to deliver products using Motorola's PMMU – Paged Memory Management Unit. Six months of development at the company's base in the Cambridge Science Park initially resulted in the launch of the Aurora graphics processing board (UX No 63) and at the Unix User Show at Olympia in June two new three board units will be on display. Both sets consists of a 68020 32-bit processor card using the PMMU, a 4Mb memory card and a 16 user 68010 I/O card running Virtual Unix V.2. The two sets differ in that one is configured for the VME bus format and the other for Multibus I. The processor card with 2Mb of on-board memory, SCSI with cache memory and the PMMU will cost around £2,000 for volume orders but will not be generally available until the third quarter of this year because of the shortage of PMMU devices. The other two boards come cheaper at £1,000 for quantity orders from July. Tadpole hope that large manufacturers will buy the boards and part of the attraction for them is that after purchasing a small number of boards Tadpole will give what it calls 'substantial clients' free manufacturing licences against subsequent royalty payments for boards produced.

UNIX is a Trade Mark of AT&T Bell Laboratories

DATA LOGIC WINS £450,000 NIXDORF DEAL

Although Data Logic may have missed the boat as far as selling its massive Sentinel Unix environment goes, it is reaping the benefits of its Unix involvement with an increasing amount of bespoke work and consultancy, the latest sign of which is a £450,000 contract to define and implement a transaction manager for Nixdorf's new Targon range. The software will allow the Unix systems running System V.2 to coexist with IBM in SNA networks, and is likely to be aimed at Nixdorf's prime financial markets. It will support network interfaces to IBM SNA LU6.2 and OSI level 4 standard, and Data Logic claims that applications programs can be written without worrying about the nature of the physical network. The Targon range includes customised Pyramid Technology minis and a dual 68010 fault-tolerant machine. Written in C to the X/Open portability guidelines, software should be complete by the end of 1986; Data Logic is also working on similar projects with other manufacturers.

UNIX: SPERRY ADDS SINGLE-, MULTIPROCESSOR 68020 BOXES

Sperry has added a multiprocessor 32-bit 68020 model from Arete to its line of Unix systems as well as the 68020 version of the NCR Tower. The new 5000/90, from Arete, comes with up to four processors, floating point co-processor, 4Mb to 16Mb of main memory, 8Kb cache, and can support up to 88 users under Unix System V; maximum disk is 8Gb. A 4Mb system with 160Mb disk, 45Mb tape, four-channel DMA adaptor and 16 ports is $68,300, available in June. The 32-bit Tower comes out as the 5000/50, with 8Kb cache, 2Mb to 16Mb, 85Mb to 1.6Gb disk and support for up to 32 users at a $23,300 base price with 85Mb disk, 45Mb tape, out now.

"The nice thing about standards is that there are so many to choose from," remarked Dave Pressotto of AT&T Bell Labs during the round table discussion on UNIX trends which opened the European UNIX User Group meeting in Florence. But which to choose? In the week before the conference started, the P1003 working group of the American IEEE (Institute of Electrical and Electronic Engineers) had convened to discuss its Trial Use Standard for a Portable Operating System for Computer Environments (published by John Wiley at $30 in the US). The longwinded title comes about because the name UNIX belongs to AT&T, who came out with the second edition of its System V Interface Definition (SVID) in January. And the X-Open group is working towards a second edition of its Portability Guide this autumn.

The only thing that seems clear is that Berkeley UNIX is not a standard. Yet despite that, Berkeley's most successful offsping, Sun Microsystems, has come up with a method of transparent access to files across a Local-Area Network, and is running promotional rings around AT&T, a company which does rather more business in a day than Sun does in a year, with the Sun Network File System (NFS). This is a competitor to AT&T's as yet unshipped Remote File System (RFS), and ought to worry AT&T, since Eli Lamb of UNIX Europe, an arm of AT&T, said at the round table discussion that UNIX itself was not an end but a means to an end, the real attraction for the end user being networking.

AT&T didn't present its case in the best light at the conference. Andy Rifkin of AT&T Information Systems had not been able to get his paper through the approvals procedure in time for inclusion in the proceedings, so although his presentation ably refuted most of Sun's assertions about the shortcomings of RFS, it's Russel Sandberg from Sun whose paper appears in the written record of the conference. What's more, Bill Fraser-Campbell of The Instruction Set was able to describe how he had grafted NFS onto System V, release 2 UNIX, RFS needs release 3, which hasn't shipped yet. The ultimate indignity came when Peter Weinberger of AT&T Bell Labs said in his "humble but correct opinion" the Eigth Edition Remote File System - differing from both NFS and RFS - was the only one was worth looking at, but Eigth Edition runs only inside Bell Labs... Weinberger set himself apart from the drift towards

THE NFS - RFS BATTLE
Dominic Dunlop Reports on The European UNIX User Group Conference, Florence, April 21-24

standardisation: "I'm selling anarchy and chaos," he stated, raising a cheer from the large body of card-carrying UNIX gurus in the audience. Standardisation, he contended, would make UNIX systems a commodity product, and give the Japanese another high-volume market to move into. What he didn't say is that standardisation further reduces the control which Bell Labs has over one of its favourite children; as Jim Isaak, chair of the P1003 working group remarked, a future multi-tasking MS-DOS might well comply with the IEEE standard! Internationalisation is an aspect of standardisation. The ungainly word itself exemplifies the problem: you can spell it with an ess, a zed or a zee. Eli Lamb described AT&T'S Base Language Supplement scheme, put to its first test with a Japanese implementation of UNIX. For character sets, it conforms to yet another standard - ISO 2022 - which allows up to four sets in a document. Unfortunately, Japanese alone uses three character sets, leaving just one over for seven-bit USASCII. So if you're Japanese and want to slide some language other than English, Hawaiian or Swahili, the only languages which can be written in ASCII, into your text, you're out of luck until somebody gets around to defining a method to switch code sets. And, as Brian Boyle of US market researchers Novon, pointed out, the only reason that character set issues look difficult is because we know enough about them to be scared. Character classification problems, including sorting, are thornier still (for example, in Dutch, "ij" can occupy the same position as "y" in a dictionary sort.) Most difficult are semantic considerations - how to hyphenate "therapist," for example. Perhaps the X/Open group has some thoughts about these matters. If so, its members aren't saying - to the chagrin of those at the conference who were looking to them for direction. Basil Cousins, who was involved with X/Open at ICL before he moved to UNIX Europe, was at least able to define some of the problems of a European market fragmented in terms of language and suppliers, and Jean Piette of the EEC explained that, while UNIX and MS-DOS were the obvious answers to users seeking independence from individual harware suppliers, there are still problems. Not the least

of these is the time taken "to recycle IBM and Siemens" programmers and operators before the new tools can be used. Another problem that the EEC has is communications between systems, even when all the systems are running UNIX. Partly to blame is the tight regulation and slow introduction of new equipment practised by most European PTT's, but UNIX' traditional lack of fast machine-to-machine communications tools does not help either. Another champion of UNIX, General Motors, has leapt into the breech with MAP (Manufacturing Automation Protocol) and TOP (Technical Office Protocol), conforming to parts of the idealised - and so far unrealised - ISO seven-layer networking model. AT&T's Computer Service Division, rather than waiting for further developments along this line, has come out and said that it has a system for connecting departmental computers and office productivity products (including telephone switches) and "this system is SNA." It's not clear how this fits in with their own proprietary 3BNet, or with TCP/IP (public-domain protocols developed by the US military.) A surprise demonstration of AT&T's unreleased TCP/IP product allowed vendor-independent remote access over an Ethernet to an 3B2/400 computer on the Olivetti stand at the conference's vendor exibits. Most of the vendors at the show were connected to the Ethernet, and quite a few were running NFS. A packed Birds-of-a-feather session pitted AT&T against Sun on networking issues, with Bell Labs playing devil's advocate. Sun makes much of the fact that its system is "stateless", claiming that this prevents data loss if a file server should crash or go off line. After all, if your network connects hundreds of systems, you can't expect all of them to keep working all the time. AT&T's RFS, on the other hand, is "stateful", which brings advantages in security (an area where NFS is weak) and data buffering, but means that some clean-up is needed after a failed operation. And anyway, if you want file locking, which both RFS and the next release of NFS will provide, you have to "stateful." In the end, as Peter Weinberger commented, "statelessness is just a means of product differentiation." A question from the floor asked how the UNIX community could avoid a religious war over remote file access. Well, said Andy Rifkin, UNIX V.3's File System Switch did mean that you could run RFS and NFS simultaneously on the same machine!

IMP BEGINS TO REAP FRUITS
OF EARLY INVESTMENT IN 68020

Integrated Micro Products' efforts to get in early early in building systems round the Motorola 68020 seems to be finally paying off, with the Consett, Durham-based manufacturer seeing record orders and on the brink of announcing several major deals. Orders for the first quarter exceed the complete turnover for last year of close to £1m, according to the company. IMP's products include VMEbus 68020 CPU boards running Uniplus+ and 68000-based boards dedicated to disk handling and serial input-output, as well as a complete system, the IMP-Mentor, built from the board set and first demonstrated at the London Unix show last year. The company is also beginning to set up distribution deals for the 68020 products, with two agreements due for announcement soon with companies which will be selling packaged systems based on the IMP hardware, and will probably move towards building the systems themselves. Industrial systems specialist Unit-C is already acting as a distributor, and a new company, Qontel, which includes staff shed from Motorola's Information Systems business during the shakeup there at the start of the year, will be offering commercial software including word processing, database management, financial modelling and accounting for the IMP-Mentor. The two companies will be sharing IMP's stand at the European Unix User Show at Olympia in June. IMP managing director Richard Penny notes that people "took a long tiome to catch on" - after all the hype accompanying the introduction of the 68020 it was hard for many to believe that IMP's product existed. To cope with expansion, IMP has increased the size of its manufacturing facility in Consett to a total of 12,000 square feet; it says that lines of funding are open to it but that it is profitable at present and further cash is not an urgent consideration. IMP reckons that in "closely controlled environmental conditions" it can get 68020s and the associated 68881 floating point processor to run at 25MHz, and although there are wait states at that speed it claims that performance is kept up by its in-house developed memory management unit combined with on-board asynchronous RAM. While it is not suggesting that customers would buy systems running at that speed, it says that it has "proved our board design".

INTEL LINES UP COMPILERS
FOR UNIX SYSTEM V.386

Pace its own RMX, the most widely-used operating environments to be used on Intel's just emerging 32-bit 80386 microprocessor will be Unix System V and future releases of PC-DOS. And to ensure that the System V.386 implementation, being done jointly by Intel and IBM's Unix partner Interactive Systems in Santa Monica, California, gets off to a stirring start, Intel has signed up four compiler developers to ensure that plenty of applications will run under System V on the 80386 as soon as the first machines are ready. Most comprehensive is the agreement with Language Processors Inc in Waltham, Massachusetts, which is doing versions of its C, Cobol, Fortran, Pascal, RPG II, PL/I and basic for the 386. Ryan McFarland, Rolling Hills Estates, California, is putting up its Cobol and Fortran, and Fortran, Pascal and C will be on offer from both Silicon Valley Software in Cupertino, and Greenhills Software Inc, location unknown. All companies say their compilers will support both the companion 80387 arithmetic co-processor, and the Weitek 1167 floating point co-processor set.

SPHINX OUTLINES PLANS FOR ITS NEW
PERSONAL COMPUTER DIVISION

The new Personal Computer division formed by Maidenhead-based Unix software house Sphinx Ltd will specialise in development tools and expert systems under Xenix and PC-DOS. Personal computer software currently accounts for only 20% of Sphinx's revenue and it is hoping that the new division, which will be headed by Keith Davies, will increase this slice to 33%.

Among the new products to be marketed is the complete range of excruciatingly gimmicky and me-oriented programs from Miami-based Thoughtware Inc. These include tutoring systems on how to be a better manager and one with the zappy title of Sell! Sell! Sell! which is designed to assess how good a salesman the user is!

In addition Sphinx is planning to market a range of expert systems developed using Expertech's Xi expert system shell. These programs, which have often not been developed by professional software houses, will be aimed at vertical markets and will cover subjects such as employment law.

The new division will also be concentrating on applications development tools and fourth-generation languages, with particular emphasis on products written in C. Later on in the year, Sphinx is hoping to take in networking products to the new division, and will begin by selling Microsoft's MS-Net in June.

ARTIFICIAL INTELLIGENCE MARKET TIPPED AS NEXT MAJOR GROWTH SECTOR WITH UNIX COMPETING

With large parts of the US computer market seeming to have gone, at least temporarily, ex-growth, manufacturers and software developers are casting around anxiously looking for the next bandwaggon on which to jump. And a prime candidate is expert systems and symbolic list processing - the elements collectively lumped under the title of artificial intelligence. With leaders in this field, such as the Carnegie Group rewriting software in C this looks like it could be another killing for Unix. The Carnegie decision follows moves by other AI players; IntelliCorp is reportedly rewriting Kee, which is used by Texas Instruments on its Explorer dedicated Lisp machine, and Inference Corp has already rewritten Art for the IBM RT. Although one would think that this move would meet with a certain amount of resistance from the 'techies' within AI the majority seem to be receptive and say that this is the obvious move to allow artificial intelligence to grow and become more widely used and accepted although at the technical level there is the debate that in conversion these tools will lose a lot of their power by running in C. The line that a lot of Lisp users seem to be taking is that for sophisti-cated development Lisp and a dedicated Lisp machine or powerful machine, such as a VAX, is needed with Lisp tools but for a run-time environment C and an average Unix/Xenix box should prove acceptable. The whole subject is, however, littered with minefields because there is keen disagreement between the specialists in the field on what constitutes artificial or machine intelligence, let alone on whether many of the proposed applications are of demonstrable value. Nevertheless, there is definitely a small but growing market for the specialised hardware designed to run the Lisp list processing language less inefficiently than do unadapted general purpose computers, and companies that have established a name for themselves in the software field - like Teknowledge of Palo Alto - are keenly sought after by America's industrial giants who are keen to apply the technology. And at this stage in the game, the field does seem to be wide open.

Perfunctory

IBM lost several of its key artificial intelligence gurus when they quit to form their own company in the summer of 1984, and, perhaps as a result, its offerings so far are perfunctory, the principal one being a Lisp compiler for 370 architecture mainframes, although it has just introduced its first mainframe expert system builder. Of the majors, only Texas Instruments, Sperry and Xerox have made major declarations of intent to be big players in the market if and when it really takes off - and Sperry's main hardware offering is Texas Instruments' Explorer Lisp machine. As for Xerox, it seems to have everything in place except the marketing savvy to make its 1100 series artificial intelligence workstations a success.

The only other noted hardware players are Lisp Machine Inc in Los Angeles, which has not found life easy des-pite a major investment from Texas Instruments again - and Symbolics Inc in Cambridge, Massachus-etts, which is king of the heap in the Lisp world with its 3600 machine. But, both Texas and Symbolics are working on developments intended dramatically to improve price-performance of Lisp processing workstations, and for the first time make them affordable to the kinds of impecunious gurus who would love to get to grips with symbolic processing but can't justify or meet the cost. Symbolics has now introduced its machine as the 3610AE, offering it at $31,500 in quantity.

The market for machines designed to run Lisp is put at $120m for 1985 and has been growing at 50% a year according to market research outfit DM Data in Scottsdale, Arizona. While DM sees that settling down to 25% to 35%, the reverse could happen in the short term in the same way that the CAD/CAM and CAE markets soared once low-cost personal workstations started to hit the market - unless the decision by Carnegie Group to rewrite all its artificial intelligence development tools in the C language proves commercially and technically successful (UX No 74). The new C versions could completely alter the rules of the game again, but are not due out until 1987, and in the meantime, there is enough interest in afford-able Lisp workstations to keep the market bubbling.

Symbolics machine uses Lisp

Making it clear that its new 3610AE low-end 36-bit tagged architecture processor is intended only for running artificial intelligence software that has already been developed on one of its larger machines, Symbolics Inc of Cambridge, Massachusetts is supplying it with a run-time system only version of the Lisp Operating System. The processor of the 3610AE Delivery System has been squeezed onto a single board carrying seven CMOS gate arrays, and the entire processor comes down to five boards from the eight of the 3640, making it 75% smaller overall, while delivering comparable perfor-mance. It runs Ada, Fortran 77, and Pascal as well as Lisp, comes with 4Mb memory, 190Mb Maxtor Winchester, 1,124 by 940 pixel mono-chrome 19" screen, and comes with Ethernet, IBM SNA and TCP/IP communications as stan-dard. It will be available in October at $39,600, $31,500 in OEM quantities of 76 or more.

Symbolics has also enhanced its Lisp Operating System with release 7.0, enhancing graphics, networking and windowing. And pri-ces on its development machines have been cut, with a 3640 configured similarly to the 3610 described above, reduced by 21% to $57,900. The 3640E with 2Mb memory, 140Mb disk falls 28.3% to $49,000, the 3645 with 8Mb and 190Mb falls 20.6% to $77,000, and the 3675 with 8Mb and 464Mb disk 9.0% to $116,900.

HEAVYWEIGHT PROLOG TAKES
FIRST STEPS IN EUROPE

Artificial Intelligence of Watford, distributor for the Quintus Prolog development system, has appointed further distributors in Germany, France, Italy, Greece, and Scandinavia.

The company aims to give Prolog more professional clout in the business market place by providing a fast and efficient implementation of the language which can be used effectively with large, established databases.

Artificial Intelligence Ltd director David Catton is anxious to establish Prolog as a thoroughly professional and heavy-duty toool for solving business problems.

"Most academic researchers are happy with a BBC micro developing Prolog applications which have no real commercial application. Prolog on a PC doesn't have sufficient power or viable speed to do the things which big users are interested in" he said.

According to Catton Quintus Prolog leaves less professional versions standing; he gives the example of Expert Systems International's Prolog at 4,000-5,000 logic inferences per second compared with the Quintus average of 20,000 on the Sun II and 50,000 on the Sun III.

Quintus Prolog runs under BSD 4.2 Unix on such machines as the Sun Microsystems machine, and is also vailable on Vax and Apollo workstations. The software was put thorugh its paces on the GEC Series 42 Motorola 68020 based system at the BCS Expert Systems conference at Warwick University last month, where it ran at speeds approaching 50 KLIPS (1000 logic inferences per second) under GEC's UX42 proprietary Unix-based operating system.

According to Catton, Prolog could be a much more sympathetic tool than most fourth generation query tools. "4GLs demand quite a lot of knowledge about the data, and if non-computer experts are to have free-format input so that they can make their own queries, one needs a parsing program and language rules. Prolog can smash through all that and take you closer to the resoultion of these problems."

Alex Goodall of Expert Systems International agrees that Prolog should be more commercial, and is planning a competitor to Quintus Prolog which will work on Vax machines and under Unix.

Artificial Intelligence estimates that about half of its 750 sites run Prolog under Unix. The 30-strong company has several university and large research users, including Schlumberger and the Turing Institute, and has also strong links with Alvey projects.

SPERRY SETS DISOSS

Sperry Corp has committed itself to a full implemen-tation of IBM's Document Interchange and Document Content Architectures, SNA Distribution Services and Logical Unit 6.2 over two years on its 1100s and its Series 5000 and 7000 Unix lines, to support full exchange with IBM's DisOSS.

STC DATA SYSTEMS FACES UP TO
AN IDENTITY CRISIS

An identity crisis at STC Data Systems would be entirely understandable but Marketing Manager Tom Keenan is confident that confusion will not affect the chances of the top-end ITT Xtra XL which will be launched here at the Unix Users Show in June and he believes will do extremely well. A leftover from the days when Standard Telephones & Cables was simply the UK arm of ITT Corp, Data Systems has now been put under the wing of ICL although it sells ITT's IBM-compatible equipment and retains the STC moniker. It is, in fact, the data division of the old STC Business Systems, the former ITT Business Systems - and it is the rest of this business that is the lossmaker, not STC Data Systems. Despite its propensity to confuse, the Data Systems division is very profitable: pre-tax profits of £7.6m on a turnover of £20.9m in 1985.

Data Systems could well increase its margins further this year as a result of taking over responsibility for its own field engineering service. According to marketing manager Tom Keenan, this will obviate the need for vans with ICL painted on them to enter IBM installations where ICL perhaps might not welcome.

STC Data Systems has three main product areas: display terminal systems, business micros and networking equipment. Keenan thinks that his organisation can sell over 5,000 ITT 9000 displays - the replacement for ITT's equivalent of the IBM 3270 - this year at an average price of £15,000 for a five unit system. If that target is met, the revenue increase from displays in 1986 would be 25%. The target for micros is much more ambitious; 1,200 Xtra Personalikes last year are supposed to lead to 2,500 sales this year with an increase in the typical price of a deal from the £2,500-£2,700 range of 1985 to £3,000.

Amstrad could cause problems

He says that, at least in the short term, he will be able to meet IBM price cuts but admits that Amstrad could cause him problems if it has a high-end Personalike up its sleeve.

Keenan will be happy with £5m from the front-end network products from Comten which sell as the ITT 8800 range. The total business, based on Keenan's estimates, should be worth £24.5m for this year.

At present, Data Systems is evaluating the components of ITT's Office 2000 suite of products, but may look elsewhere for future products including to the rest of ICL to reduce the dependency on ITT though "STC as a whole regards ITT as continuing to be very important".

The main focus for Data Systems will continue to be existing users but Keenan believes expansion should not really be too difficult "as we know where IBM accounts are so we can find new places to do business". He hopes that Data Systems can become a key element in ICL's successor to the surround strategy by offering ICL a way in to IBM accounts.

UNIGRAM/X

Issue Number 75

APPLE PROMISES UNIX AND MS-DOS FOR MACINTOSH

Support for Unix and MS-DOS on the Macintosh Personal Computer line were promised by Apple Computer Inc at an upbeat meeting with analysts, reports the **New York Times.** The company also indicated that the 32-bit 68020 version of Macintosh, due for an autumn launch, will be oriented towards the engineering workstation market. The new fast version, reportedly code-named Milwaukee, will be running Unix as an option. Apple said it expects strong profit growth to continue this year, and after firing 1,200 people last year, has hired 300 new ones, mainly engineers, this year as part of an expanded development programme. Apple Comuter's new Strategic Investment and Corporate Deveoplment Group is keen to see yet more business plans from entrepreneurs ofr possible investment.

300 plans have already been lodged and with investment in only five companies planned for the first year the competition is fierce. Plans will be reviewed from May 5 and Apple says that it is particularly interested in hardware and software proposals in the fields of graphics, telecommunications, artificial intelligence and Compact Disk Read-Only Memories.

— o —

National Semiconductor has restruc-tured into two Groups, Semiconduct-or and Information Systems, to re-flect the growing importance of the computer side of its business: the Information Systems Group, under National Advanced Systems president David Martin, adds the retail point of sale terminal and microcomputer products alongside its IBMulators.

Minigrams

Convergent Technologies Inc, Santa Clara, and **Bull SA,** Paris have extended to 1988 their OEM agreement on Convergent's N-Gen line, marketed by Bull as the Questar 400 range: the extension covers current and future hardware and software and stipulates that Convergent will not sell directly into France, ás well as extending Bull's right to manufacture some N-Gen products worldwide; the two are also discussing formal engineering, marketing and manufacturing pacts.

— o —

North Staffordshire Polytechnic is investing £1.2m in a network package from DEC making it the largest VAX installation in British education: the poly will be buying a VAX 8800 running VMS, two VAX 8300s also running VMS and a VAX 8200 running Ultrix a VAXcluster will be put into the Stafford sites and a VAX 8300 will be installed at the Stoke department linked by DECnet once again it is the Department of Trade and Industry that is putting up most of the cash, through the Polycad scheme.

Company Results

Altos Computer Systems reported third quarter net up 437% at $14.5m after a gain of $11.4m from sale of its stake in Wyse Inc, on turnover up 22.8% at $37.7m; net profit for the nine months was up 138% at $19.5m on turnover that rose 16.2% to $105.4m. Net per share rose 467% to $1.02 in the quarter, 144% to $1.34 in the year.

Fortune Systems Corp has reported first quarter net profit of $345,000 after a tax credit of $164,000, against a loss last time of $3.8m, on turnover up 8.6% to $10.6m. Net per share were $0.02.

We metaphorically ran up and down Main Street, Natick, Massachussetts asking all the **Prime** folk living there if anyone could tell us where **Axiom Computer Inc** lived so that we could bring subscribers first hand news of the mini-supercomputer in development at the start-up company: none of the **Prime Computer Inc** staffers we reached had ever heard of the company, but now Prime has contributed to Axiom's $15m second round financing, taking a stake of "less than 20%" — and we **still** couldn't find out where Axiom is headquartered, but a helpful subscriber told us it was Milpitas, California — details next week.

— o —

One of the arms of **Root Computer, Root Technical Systems,** has launched a software package allowing IBM and IBM-compatible PCs to talk to Unix systems — PC-Interface.

— o —

Wicat Systems and **Trans World Airlines** have completed a joint development of a computer simulated training system for new DC-9 pilots: the hardware consists of a System 155, a Wicat Interactive Terminal and a videodisc player.

— o —

IBR Information Systems of Bracknell will be launching three new products at the European Unix Users Show in June on behalf of **Fortune Systems** two of the products are; the Fortune Unix co-processor — a 68010 based co-processor with Unix; the Fortune Formula — a 68020-based system supporting Multibus and VME architecture.

— o —

Motorola's PMMU mentioned on the front page, delivered by **Tadpole Technology** is in fact the long awaited Motorola 68851.
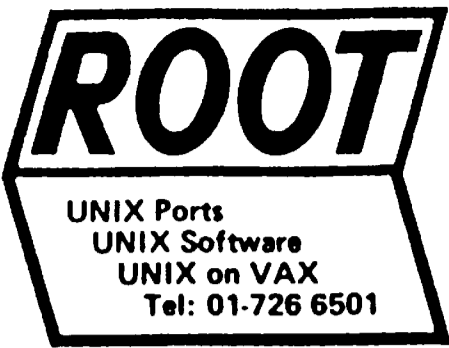
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The newsletter for UNIX systems users

Published in cooperation with the European UNIX ™ systems User Group

ASCII DROPS MS-DOS FOR UNIX

Following the dispute with its former
partner, Microsoft Corp, Kay Nishi's Ascii
Corp, which previously marketed MS-DOS in
Japan, is now moving out of that market and
into Unix applications, reports **Electronics**
magazine. Ascii has teamed with Software
Research Associates Inc of Tokyo to develop
and market Unix software. Efforts will
include utilities and porting services as
well as applications.

LOCUS ENHANCES ITS MS-DOS-
TO-UNIX PC INTERFACE

Locus Computing Inc, Santa Monica, California
has enhanced its PC Interface program so
that it now enables users to start a Unix
process from within an MS-DOS program with-
out emulating a Unix terminal. Release 2.7
of the program, designed to enable transfer
of data between Unix and MS-DOS applications,
also now supports Microsoft Windows, and it
comes in at $250 per Personal.

COMPUTERVISION's CADDS-4X
UNDER UNIX ON SUN-3...

Having slumped to third place after IBM and
Intergraph with just a 10% share of the
CAD/CAM systems market from leadership three
years ago, ComputerVision Corp is pulling out
all the stops to repair the ravages and is
looking for big things from its new
CADDStation, a Sun Microsystems Sun-3 Unix
workstation running a version of the CADDS-
4X design software compatible with the
company's other versions. It costs from
£10,000 for a station running CADDS from a
file server, and from £45,000 for a stand-
alone system.

...AS SUN, INTELLICORP SET
JOINT MARKETING

The 68020-based Sun-3 workstation is turning
into one of the most popular delivery
vehicles around, and Sun's Mountain View
neighbour, IntelliCorp has agreed joint mark-
eting with Sun of the Sun-3 station packaged
up with the IntelliCorp KEY 2.1 Knowledge
Engineering Environment alongside the Sun
Common Lisp Environment from Lucid Inc.

WIZARDS FROM OZ WIN BRITTON LEE
WITH TODAY GENERATOR

Melbourne, Australia-based bbj Computers
International Pty, over here last month to
tout its Today applications generator (UX No
72), has won a major endorsement for the
product from back-end database processor spe-
cialist Britton-Lee Inc. The Los Gatos,
California company has decided to market the
product as BL Today, offering it under DEC
VAX/VMS, MS-DOS, and Data General AOS as well
as under Unix, at prices ranging from $900 on
a Personal to $18,000 on a VAX 8600.
Britton-Lee has also up-graded its IDM 500
back-end database processor again, adding yet
another letter so that the latest version is
the IDM 500XLE. Key to the enhancement is a
new processor board with cache memory claimed
to be 60% faster than its predecessor, which
will be standard on the XL as well as the new
XLE, and an option costing $25,000 to $35,000
on the X model. The XLE also features a new
Storage Module Drive/Extended - SMD/E disk
controller running at 3Mbytes per second
against 1.2Mbps for the previous controller.
The 500XLE costs from $200,000 with 4Mb CPU,
2.06Gb mirror disk drives and 340Mb cartridge
tape controller. The X and XL will continue
to be marketed, at a base price of $90,000
with 2Mb CPU, 680Mb disk and a tape drive.

FOCUS ON UNIX BY SEPTEMBER

Focus, one of the most widely-used fast-development
languages on IBM mainframes, is to be available
under Unix by September. AT&T is one of the lar-
gest users of Focus, and partially funded the deve-
lopment so that it could use the language on its
own hardware. Focus developers Information Buil-
ders of Harrow are planning beta-sites in June, and
full release by September, depending on the availa-
bility of the demand paging system, which needs
System V version 2.1, not fully supported yet in
the UK according to Information Builders' Mark
Inskip. Initially the system will be available on
the AT&T 3B range starting with the 3B/2 300 for
£2,415, and rising to the 3B15 for £16,700. The
Focus language has been developed for Unix in For-
tran 77, Assembler, and C. The full implementation
should be widely available for implementation on
other manufacturers' machines by September.

THOMSON PLANS CUSTOMISABLE
ACCOUNTING APPLICATIONS

Thomson Computers, the York company whose Sea-Change development tools grew out of its own bespoke applications development, is now planning a series of basic accounting modules designed to be customised by resellers for specific markets. And the new software, for which the company is planning an unusual source code licensing arrangement, has got off to an encouraging start; ICL has taken several copies for resale with the Clan range of Unix boxes. The software, due for launch at the European Unix User Show in June, has been developed to enable resellers to get products to market more quickly than by writing them from scratch, even using fourth generation languages or tools such as Sea-Change. While Thomson says that it is not competing with off-the-shelf package suppliers which it notes are in a "race" to add more and more features – the majority of which are not needed by many users but still increase the size of the package – it claims that its software will be flexible enough to allow for example the size of the stock code field to be changed "in minutes". The company will be offering source code of the applications at about £600 per module for a small Unix system. That price includes the rights to resell the software, but resellers will also have to buy a single set of the Sea-Change tools for customising the applications and, for each system sold, a report writer costing £200-£600 – reports are not compiled and require a run-time "interpreter". The company is planning to release a DOS version of Sea-Change in May, which also opens up the possibility of developers who have been using Unix putting their products out under DOS as well; the DOS version is for the IBM Personal, AT and lookalikes. And Sea-Change has also been ported to the IBM 6150, a process that took just three hours compared with the couple of days that Thomson usually takes over a port. Other events at the company include signing Genesis, of Leeds, as exclusive distributor for the small Sperry Unix machines, and a similar deal with S&M Computers of Hull for the Bleasdale machines.

HONEYWELL READY WITH MULTIPROCESSOR
VIRTUAL DPS 6 MODELS

Two years after it signed up with NCR Microelectronics for the NCR 32 32-bit chip set, Honeywell Information Systems is almost ready to launch the first virtual memory models in its DPS 6 minicomputer line. The new models, believed to be based around the NCR 32 microcoded to maintain compatibility with the 32-bit real memory DPS 6 models, are pencilled in for June 2 launch under the DPS 6 Plus name according to **Computer Systems News**. Three new models are reportedly planned, with one, two or four processors: the present limit on DPS 6 is two CPUs, and that only on the latest models. Honeywell also plans to offer Unix System V as a standard option for the first time – and the capability to run it co-resident with the proprietary GCOS 6 Mod 400 operating system. Support for virtual memory will release the present bind which limits DPS 6 program size to 8Mb on the top-end 32-bit, 4Mb on the 16-bit models.

COBOL TO C MIGRATION LOOKS LARGE FOR
RAPITECH: GSA CERTIFICATION SOUGHT

New York systems house Rapitech is promising its Coblix Cobol-to-C compiler for the second half of 1986, and will be seeking government certification approval through the Government Services Association (GSA) to confirm its allegiance to Cobol standards.
The compiler is thought to follow in the footsteps of its current product Fortrix, the Fortran-to-C compiler which put Rapitech on the map.
The company, formed in 1983, has already done very well out of the graphics market, and has sold a lot of copies of Fortrix to users of Sun Microsystems workstations, as well as having OEM contracts with Burroughs for the (Convergent) B550 and with Fortune Systems, and strong links with Olivetti, Quadratron and others.
Now it's trying for the vast repository of Cobol applications lying around out there waiting to be translated into C.
Although not the first to spot the potential of such a tool (there are offerings from Australian firm Austec and MS Associates of Bourne End, Bucks), Rapitech is taking the well-tried route of sticking to standards. Its Fortrix compiler was described by marketing manager Henry White as "as near 100% compatible as it can be to Fortan 77 standards".
White confirmed that Rapitech would take the same route with Coblix, seeking GSA certification and anything else which the Cobol community expected from a pukka Cobol product.
White is looking for more efficient performance from programs translated into C from Cobol.   "Moving from the old systems to the new will involve a tremendous translation effort " said White. "We see the most practical route as being the provision of a portable subset of C, not a proprietary C, so that we can ensure that the code our compiler generates is fully portable."
White predicts that the time is coming when the majority of college graduates entering the computer business will be more conversant with C than they are with Cobol.
So far, those showing the greatest interest are not the applications firms such as MSA and McCormack and Dodge, whose massive suites are still tied to Cobol, but the banks, which have already invested billions of dollars backing their decision to move to Unix.
White sees this as part of the trend away from large IBM mainframes and towards mini and micro-based systems.
One major bank is already negotiating with Rapitech, and while the applications suppliers themselves are hanging back, he reports a high level of interest from large user companies anxious to cut down on development costs.
No pricing information is available for Coblix as yet.

HONEYWELL ADOPTS BROOK STREET'S LOW-END UNIX SYSTEM FOR PROJECT CONTROL

Honeywell's X-Superteam Unix computer is being teamed with the BMCS production control software from Brook Street Computers of Guildford and central London in a goodwill deal between the two companies. At present Honeywell's top-end offerings HDMS and HMS (£125,000+) are targeted at mainframe users. It seems that the 25-strong Honeywell sales force has to walk away from opportunities galore where people have only £125,000 to spend, so the 68010-based X-Superteam, launched last October and manufactured by Honeywell Italia, is providing the vehicle for a low-end offering. The company estimates that the production control business is worth £60 million per annum, and growing, so it cannot afford to ignore the smaller customers. Ian Skinner, managing director of Brook Street Computers, thinks that Honeywell's sales estimate of 120 Superteam-based BCMS systems in the next year is conservative: Brook Street is presently selling at the rate of four a month on other Unix machines including Convergent Megaframe, AT&T 3B 400, and Molecular Xenix-based systems. It will only supply the software on the Superteam when the lead comes from Honeywell.

IBR WITH NEW UNIX PRODUCTS FROM FORTUNE AND INTEL

IBR Information Systems will be showing off three products new to the UK at the Unix Users Show in June. Two products are from Fortune , as we briefly mentioned last week (UX No 75), and the other from Intel. The Bracknell-based company thinks that with these products it will meet the need for low cost Unix, heavy Unix CPU demands, and large user configurations. IBR will be distributing the Fortune Unix co-processor which is a 68010-based co-processor with Unix and .5Mb RAM expandable to 2MB, keyboard and Fortune's own word processing package. According to IBR the co-processor has been designed so that it can be fitted inside any IBM PC XT or AT or compatible producing a multi-user system. If this product is used with Fortune:Windows software it allows PC-DOS and Unix applications to be displayed on the screen at the same time. The other Fortune product is the Fortune formula Fortune's 68020-based system using the traditional Fortune user/operting system interface and supporting both Multibus and VME architectures. This system is expandable to 64Mb RAM with integral Winchesters and tape streamer. The new Intel offering from IBR is the Intel Apex (Adavnced Processor Extension), the third member of Intel's supermicro family. The 8MHz 80286 microprocessor comes in dual-, triple-, and even quadruple-processor configurations. This Xenix running system is rated by Intel as having five times the performance capability of DEC's VAX 11/780.

PYTHON VERSUS THE MICROVAX

General Robotics Corporation of Hartford, Wisconsin is taking on the Microvax II market with its NS32032-based Python/32B. The company has been producing DEC compatible systems for 12 years but decided about a year and a half ago that it was too DEC dependent and went into 32-bit system development to give its DEC/Q-bus peripheral manufacturing business a boost. General Robotics started its development work using Natsemi's 32000 series unaware that DEC was working on a similar project - the Microvax II. When DEC unveiled the Microvax General Robotics was far from discouraged as it saw a way to cash in on DEC's VAR policies. DEC will only sell a limited number of the Q-bus 32-bit processor and research quoted by General Robotics indicates that about 256,000 sites want one of these processors but DEC will only supply 100,000, leaving the Hartford company a market of 150,000 to fill. General Robotics say that the NS32000 series was chosen because when it started on the project the 32032 really existed that is, it was commercially available in quantities, and the 32000 series' instruction set is 100% the same throughout. The company sold its first Python/32B in February 1986. The Python/32B uses Unix V.2, has 4Mb to 16Mb of memory, a communications multiplexor that supports 16 to 24 RS232 ports, HSMD disk controllers and streaming tape data backup capabilities with three or four DEC Q-bus quad size modules. The system also uses the NS32081 floating point unit and the NS32082 memory management unit. The system is configured using two boards mounted together in a piggy back arrangement. Two other Pythons will also be on offer from General Robotics using the 32000 series: the Python Junior and the Super Python. The cost of the 32B is; for a 4Mb system in single quantities $13,995, for 50+ systems $6,995; for one 16Mb configuration $19,995, for 50 or more $9,995; all with Unix System V.2. The Python Junior uses the NS32016 and has 2Mb or 4Mb of memory. The Junior will be available in July or August of this year and for a single system it will cost $6,995 and for more than 50 $4,495. The Super Python, predictably based on the NS32332, will, according to General Robotics, be in beta test at the end of this year and will probably be about twice the price of the 32B. It will support four Q-buses all running at full speed configured with two as high speed disk controllers, one as a tape controller and the other for communications devices. As well as selling Python/32B boards and systems to OEMs and end-users General Robotics will offer a trade-in program to LSI-11 and PDP-11 owners to upgrade to 32-bit systems. General Robotics has wholly owned subsidiaries or affiliates in which it owns large shareholdings in Australia, New Zealand, Singapore, Malaysia, Hong Kong and London. Surprisingly Australia accounts for 25% of its monthly hardware shipments, due to the fact that Australia is a vibrant Unix market, says General Robotics.

The City is not keen on Cifer. But, then Cifer is not too keen on the City. Or, at least, managing director Bill Talford isn't. He thinks that the City is full of "bookies looking for a quick buck. Nobody is looking for long-term growth." But the unwillingness to provide Talford with the cash injection he would like is hardly surprising. The financiers have already had their fingers burned once and, with a debt mountain that still costs around £40,000 a month to service, and trading losses in the last fiscal of £1.8m, Cifer does not exactly look like a sure-fire winner. However, that perception could just possibly be wrong. For a start, the figure of £1.8m, or even £2.6m if extraordinary charges are included, disguises the dramatic improvement in the second half when losses were a comparably modest £110,000. The second reason for a second look is Talford himself. He joined Cifer in September, the end of the financial year, but has already started to move the company back to its roots in specialist high quality, rather than high-volume, terminals. This strategy will, Talford believes, cause margins to shoot up over the next 12 months, although the turnover is unlikely to change very much. Talford insists that in future Cifer will be customer-led rather than a trailblazer. This will, he claims, have two main benefits. The customer base will be happier and because it doesn't change the products it sells every two to three years there is no reason for Cifer to change its offerings with such rapidity. This is an important change of emphasis as at the time of its flotation in June 1983, Cifer employed 40 of its 200 staff in research and development. Most of £2.5m then raised went on developing a Unix-based microcomputer and the high-volume terminal, both of which failed to take off and were largely responsible for the losses incurred over the last two years.

Mumm champagne

A measure of the change in direction can be gauged from Talford's admission that he is prepared to buy in products that are compatible with Cifer's existing range of terminals and the fact that just 5% of Cifer's revenue this year will be spent on development. There are now only 11 staff out of a total of 135 employed in this area. Talford has set great store on improving the quality of management. A new head of sales and marketing, Ellis Conway, has been recruited and second and third layer management strengthened. Conway could well prove to be a valuable asset; he comes from Linwood, one of Cifer's main competitors in the monochrome terminals market, so should already understands the nature of Cifer's business. One of Conway's first tasks is to organise a direct mailshot to existing customers offering a magnum of Mumm Champagne to anyone who can come up with an emulation that the Cifer products cannot do. It may not sound much, but the campaign is a definite step in the right direction. To help products move more quickly, Cifer is doubling its sales force from three to six. Apart from Ellis Conway, a different

UNIX DEVELOPMENT RESPONSIBLE FOR LOSSES — BUT NEW POLICY PROMISES TO PUT CIFER BACK ON AN EVEN KEEL

type of person is being recruited. Future sellers will be more technical in their approach as befits people selling a more specialist product. The main sales thrust will continue to be with the T-series of terminals which in keeping with the new company policy will be kept going for the foreseeable future. These are easily customised and an OEM pack is available so that purchasers can fine-tune the terminals to their own needs. A colour model and a windowing facility have just been added; neither have as yet been pushed but both offer considerable potential. Six months ago the company said it had no intention of moving into the colour market but its new-found flexibility and the low cost of the development have changed its mind. Systems houses will be wooed to develop DEC VAX applications for the windowing terminal. The Unix machine business is now at break even.

Unix seminar

Terry Cosgrove, Talford's predecessor as managing director and still an executive director, concedes that Cifer entered the market too early. The Series 9 multi-user microcomputer line is only 8-bit and, up to now, this fact combined with Unix's frequent use of its host computer's disks has made the Cifer machine rather slow. A new optional fast access 5.25" fixed disk has just been added which speeds up access by a factor of three, increases throughput by 25% and enables the Series 9 to catch up with some of its 16 and 32-bit rivals. Cosgrove and Talford believe that Unix is now 12 to 24 months from take off whereas six months ago they would have said 18 to 24 months. The back-end of the timescale hasn't changed, indicating the uncertainty that still exists over Unix. Cifer intends to do no more than keep a toe-hold in the market, but a seminar organised for the end of April in Manchester on Unix has attracted 60 people so far — compared with the 13 who attended a similar venture in London last October. If Unix sales do start to pick up for Cifer, the company could receive a nice bonus by clearing a fair proportion of the stock that formed part of the £800,000 written off in 1984-5. In the last financial year, maintenance accounted for £1m of the £6.7m turnover. Talford is looking for a 15% increase this year. Like other companies with their own maintenance operations, he is seeking to do more third party work and claims he has something up his sleeve. At present, 50% of Cifer's business comes from just 20 customers with no one company accounting for more than the 8% represented by British Telecom. Two weeks ago, Telecom ordered 750 terminals and Information Technology Ltd, Cifer's second biggest customer, last week launched a new top-end machine that will usually be sold with Cifer termi-

nals attached. With ITL seemingly growing quickly — it has not yet published its 1985 results — extra business should be forthcoming. ITL's Derek Parnam says that Cifer figures "very heavily" in its future plans and he has already placed orders for the next four to five months. All of Cifer's business areas are now at break even or better. Since last summer the company has been trading at a profit on a month by month basis and has reduced its debts so that it is "very substantially inside its credit limit" of £2.5m. Cash flow is positive and all the creditors were paid off by October. Cifer now pays its bills within 36 days, a fact, says Cosgrove, that makes the finance department blench, as Cifer has to wait an average of 71 days for its money from its customers. Cifer has been doing particularly well over the last few weeks: in addition to British Telecom ITL, it Cifer has received orders at the rate of £180,000 per week. Multiplied over a year, that would give Cifer a turnover in excess of £9m but the realism that Talford has brought with him shines through: "it has been an exceptional period and not every week is like that".

Interest rates

The target is weekly orders, including maintenance, of £135,000. More good news is that Cifer will shortly start to feel the benefit of lower interest rates as payments on its debt drop sharply from the £40,000 a month of the past year. Cifer aims to double overseas business, currently 8%, over the next 12 months. Special Finnish and Arabic keyboards are among the attractions that Cifer can offer with its terminals. Talford says of the continent, "competing is easier, we don't have to customise to keep our margins and prices are higher". He finds it interesting that due to their pricing policies he can compete directly with the likes of US giants Qume, part of ITT, and Wyse although he wouldn't dream of challenging them directly in the US. Another bonus lurking in the accounts is that plant and equipment has been depreciated over three years instead of the five to 10 years adopted by some of its competitors — Telemetrix takes 6.75. The effect will be that next year when three years will have elapsed on the existing plant and equipment, there will be an extra £500,000 in the bottom line. Talford has an engineering background which enables him to keep a eye on the manufacturing operation — "I know when I am being conned". He has also sharpened up parts buying. Cifer's interim results for the period to March 31 are due at the beginning of June. The impression is that they will be considerably better than break-even, which could help Cifer get the money to wipe out its debt overnight as Cosgrove says "if we show that we use money well, people will give us more". The shares have been down around the 10p mark for well over a year, in marked contrast to the high of 188p or even the issue price of 115p. But with profits of some £800,000 possible for next year — for a price-earnings ratio of 3.4 — the shares look a good pin-money punt.

ADA: DEC SIGNS FOR VERDIX
SYSTEM UNDER ULTRIX

Verdix Corp of Chantilly, Virginia, has sig-
ned a non-exclusive agreement that allows
DEC to market its Verdix Ada Development
System under the Ultrix 32 version of Berke-
ley Unix 4.2 on the VAX line of 32-bit minis.
Verdix was unable to estimate the likely
revenues from the agreement, but to under-
score the fact that however good you are at
challenging software, it is hard to make much
money on software alone, Verdix says sales
for the past nine months were just $3.3m.

HEWLETT-PACKARD's PICKS ITS UNIX BOXES
FOR ARTIFICIAL INTELLIGENCE DELIVERY

With Hewlett-Packard's Artificial Intellig-
ence Laboratory in Bristol, Avon being that
company's worldwide centre for fifth-genera-
tion research, one might expect to hear more
from the company in terms of knowledge-based
applications. The company stresses that it
is comitted to the discipline in a big way
and says it sees such research as the top
level of its design systems strategy. On the
applications front however, the only new
announcement last month was a development
environment for Common Lisp which runs on the
HP 9000 Series 300 68000 family workstations.
The environment provides an operating system,
complier and interpreter as well as editing
and debugging facilities. The interface has
windows known as "browsers" which allow the
user to move to different programs without
leaving the overall environment. On the
hardware side, Hewlett-Packard has also an-
nounced the ME Series 90 Test system, a piece
of specialist hardware for analysing the
dynamic properties of structures. The system
is basically a Series 300 with specially
adapted software. The software is tradenamed
HP META and consists of three separate mod-
ules, Meta Modal for measuring modal parame-
ters, Meta-Mods for structural modification
simulation and Meta-Force for calculating
structural response for dynamic forces. The
package runs under HP-UX, Hewlett-Packard's
implementation of Unix.

MICROTRENDS OFFERS OS-9 FOR
CD-ROM ON MAC, AMIGA, ATARI

With an eye on the low-end read-only optical
disk drive market, Microtrends Inc of
Schaumburg, Illinois will offer versions of
the OS-9 multitasking multi-user operating
system for the Atari ST, the Apple Macintosh,
and the Commodore Amiga. Specified by NV
Philips and Sony Corp as the operating system
for their Compact Disk Interactive standard,
OS-9 enables several users to access a Com-
pact Disk Read-Only drive. OS-9 for the
Atari 520ST and 1040ST is set for June 1 at
under $300 including full-screen editor,
assembler, and debugger. Three compilers are
offered: C is $495, Pascal $395, and Basic-09
$295. On the Ataris, the system will require
Digital Research's GEM in ROM and will ini-
tially be character only. Microtrends plans
a board with additional serial ports to sup-
port more users. Superficially Unix-like,
OS-9 is most widely used on the Motorola 6809
8-bit microprocessor.

SAS: NO STANDARDS, NO UNIX

The statistical systems house SAS of
Medmenham, Bucks, is hurrying slowly where
Unix is concerned.   Having made the coup of
buying mainframe rights to the Lattice C
compiler, SAS is looking no further as yet in
making its own prestigious applications,
presently largely IBM and Dec-based,
available under Unix.   "It's a matter of
which Unix" said UK managing director Phil
Bond. "Yes, we get interest from users, and
thye answer is that we're looking in the long
term, but first we're waiting for the market
to decide which version is standard."

SPERRY, COMPUTER CONSOLES
TEAM TO WOO BELL ORPHANAGES

The regional Bell operating companies hived
off from AT&T are Computer Consoles'
traditional stamping ground, but now that
Sperry sells the Waltham, Massachusetts
firm's Power$_6$ line of 32-bit Unix minis under
an OEM deal, it is not letting a major market
go. The two will therefore jointly market
the boxes to phone companies, running
operations support programs written by Bell
Communications Research.

NORSK DATA BUYS DATA INFORM

Norsk Data A/S has doubled the size of its
Danish business at a stroke by acquiring
software house Data Inform A/S for an
undisclosed sum. The company specialises in
financial and accounting software and had
sales of $13.3m in 1985 from a staff of 190.
Norsk Data will use it as the centre for
development of financial software for its
minis.

AT&T COMES OUT TOP IN MATH

AT&T'S 3B machines came out top in accuracy,
beating Cyber, Fortune, Masscomp, Pyramid,
Sun, and Ridge in floating point tests, says
the Usenix newsletter :login:. According to
the catchily-titled "Report on the accuracy
of some floating point math functions on
selected computers," in March-April 86 issue,
the AT&T 3B and 7300 (3B1) were the only
hosts to produce consistently accurate
floating point results.

LOGICA AND TANDY USING APRICOT XEN
TO BOOST PROFITS

Logica is hoping to cash in on Tandy's
business by supplying it directly with Xenix
5.0 for all Apricot Xenix micros. These will
be sold through the 16, now Tandy-owned, AT
Computerworld stores. In the past Tandy says
that it has not marketed the Xen machines as
agressively as possible but says that the
deal with Logica marks renewed commitment to
the product as Logica will also be supplying
the word processing package - Uniplex, the
Informix database package and the most
significant package Pegasus, significant
because Pagasus is an accounting package and
Tandy intends to market the Xen for
accountancy applications. Xenix 5.0 will
cost £695 from Tandy and if you buy a hard
disk Xen with 1Mb of RAM it will cost about
£4250 including Xenix a terminal costs extra
£599 - prices are still to be finalised.

UNIGRAM/X

The "mystery buyer" of **Data Logic's** Sentinel Unix environment that the company was boasting about last year turns out to be **Hewlett-Packard** - but don't get too excited, because it looks unlikely to emerge as a product; however we understand that Data Logic is not likely to be too crestfallen because it still ended up assisting the manufacturer with other Unix developments.

— o —

Unigram/X subscribers will be in little doubt that **IBM** views Unix as a serious threat to its hegemony in large areas of the computer industry, and that its primary aim is to neutralise the threat in any way that it can — while recognising that in the computer-aided manufacturing and engineering world Unix is a fact of life and must therefore be supported on machines like its RT Personal: it is therefore extremely embarrassed by some very gung-ho UK press reports following an **Instruction Set** conference a couple of weeks back that in effect said that IBM was now whole-heartedly embracing Unix, so if you're running a Unix conference and want a speaker along from IBM UK, you're likely to get a very dusty answer.

— o —

The Microcomputer Division of **British Olivetti** has teamed up with **Multisoft** of Liphook, Hants, to offer accounting software on Olivetti's M19, M24, M24SP, and M28 PCs. The suite of software, sold under the title "The Business Accounting Solution", will run on the entire Olivetti desktop range, from single-user MS-DOS machines right up to the multi-user M28 under Xenix V. The companies are co-operating in a scheme of dealer training and promotion.

M i n i g r a m s

NCR is cutting the prices of the entire range of Unix-based Tower systems by 18%. The entry-level MiniTower, previously £10,800, costs less than £900 under the new pricing structure, and at the top of the range the Tower 32 drops from over £28,000 to £24,000 - "maintaining NCR's competitive position" is the reason given for the cuts by a company spokesman.

— o —

A report writer has been added to **Tetra Business Systems'** Tetraplan suite of business and accounting software: the report writer module uses a data dictionary and can be applied to all fourteen of the Tetra programs in accounting, production and stock control, the report writer can select and sort on any field and can interface with Uniplex Mailmerge and the File-it database from Logitek.

— o —

NCR and Watford software house **Eastman-Stuart** have formalised their close relationship with the signing of an agreement worth £1 million with NCR, the agreement covers the Tower XP, Mini Tower, and Tower 32s, for which Eastman-Stuart, for which Eastman Stuart will provide multi-user software applications.

— o —

Root Technical Systems has launched a package which allows IBM and compatible PCs to share the data, programs and devices of host computers running Unix — the PC-Interface package enables PC users to access and process files created under Unix, while Unix users can access PC files. PC-Interface runs under Uniplus+, the System V Release 2 implementation of Unix from Unisoft, now 60% owned by Root.

Alpha Micro of Slough now has a C for use on its own microcomputers: Alpha C is based on the the C language definition as defined by Kernighan and Ritchie, According to the company this allows Unix applications written in C to be ported to AMOS/L, the Alpha Micro proprietary operating system.

— o —

Last week (UX No 75) we mentioned that software from **Greenhills Software** would be available on the new Intel 32-bit 80386, its UK distributors, **Unit-C** of Worthing, informed us that the company was based in Glendale, California.

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Digitus Ltd will be producing a sister report to the Unix report - 'The Pick Report' - expected to be available by mid-June at the same price as its predecessor - £95.

— o —

The Comunix '86 conference running concurrently with the **Unix User Show** in June, to be held at the Tara Hotel, will, according to the organisers - **EMAP** and /usr/group/UK, reflect areas where the Unix solution has encouraged growth in implementing Unix systems: after the keynote address from Andrew Davis of **Data Logic** Steve Jobs of **Next** will discuss Unix for users the other session headings include; application development environments, networking, towards standardisation, Unix in use, graphics and user interfaces, emerging technologies and marketing Unix in Europe.

— o —

Due to the rapid growth of Sun Microsystems Mr Dominic Dunlop, Technical Director of **Sphinx Ltd**, thinks that four days is probably a more accurate description of the amount of business that AT&T does compared to Sun's year, not one day as was mentioned last week (UX No 75).
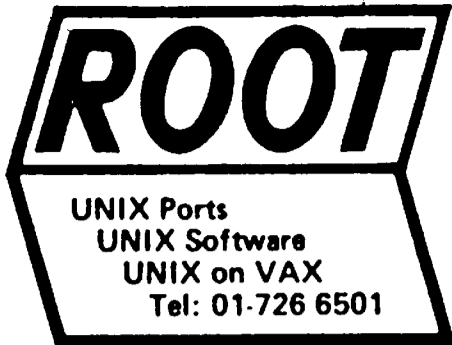
ASTON TECHNOLOGY INSISTS
THERE WILL BE NO INDUSTRY STANDARD OPERATING SYSTEM

Aston Technology Ltd of Aston Science Park, Birmingham, and The Plessey Co have teamed up to produce a multi-processor single board 68000-based microcomputer - with 8086s for terminal support. Ever cautious Plessey is not yet ready to introduce the machine, but it is already out with the Aston badge, under the name Crystal Excel, and Aston will be marketing it as a multiple environment machine, hedging its bets between Pick, Unix and BOS Software's Business Operating System. The reason for supporting all three is that Aston's managing director, Graham Gough, believes that there will never be one single industry standard operating system. Gough also refuted suggestions that inclusion of Unix was an indication that its Pick business was on the wane, saying that in the past Aston had not had the power in its hardware to run Unix effectively; with the multi-processing capability of the Excel this was now possible. The idea and design for a multi-processor on a single board came from Aston, which wished to replace the six boards - mainly from Pertec Computer Corp - which make up its current Crystal machine. The company then took the design to Plessey Microsystems because of its manufacturing capabilities, involvement with Unix, and because it is British. The single board comprises a Motorola 68000 12.5MHz processor with another 68000 handling disk and tape input-output, while an 8086 processor controls the eight channel terminal support. A VME bus is used for memory and port expansion, and up to 2Mb of additional memory can be added. Three RS232C eight channel input-output cards, each with its own 8086, can be added to give a maximum of 32 users. Three Winchester disks can be connected to the board via either a SASI or SCSI interface. An internal 45Mb streaming cartridge tape is also available. A Crystal Excel with eight ports, 26Mb Winchester, 1Mb floppy and 512Kb RAM costs about £7,000. A 32-port system running Pick and having 2Mb main memory, 1Mb floppy, two streaming tape devices and two 85Mb Winchesters costs around £30,000. The Crystal Excel is available now in limited quantities but Aston will go into full production next month, with assembly at its Birmingham base - while Plessey supplies the boards from its Towcester base. Aston intends to sell around 300 of the machines over the coming year, but says that it will not completely take the place of its existing Crystal from Pertec - it reckons the old Crystal has a life of at least 12 months. Plessey will be launching its version of the single board processor at the Unix User Show in June. Plessey's machine will be the same architecturally, but intimates that it will probably be more of a dedicated Unix box than the Aston Crystal offering. Plessey's pricing is however likely to be similar.

AUSTEC's COMPLETES ACE TO OFFER FULL COBOL PORTABILITY

Programs written in the Cobols of Micro Focus, Ryan-McFarland, Data General, Olivetti, and in most other widely-used Cobol dialects, can now run on the Unix machines from 15 manufacturers, with programs on one type of machine able to access and read Cobol data files on any of the others, thanks to the Austec Conformable Environment from Austec International Pty of Melbourne, Australia. The Conformable Environment consists of the AceBridge Cobol-to-Unix interpreter and communications system, which makes programs compiled with the companion AceCobol compiler, compatible with the operating system; the AceGen applications generator; and the AceMenu security option. Austec, which has overseas offices in London's Savile Row and in San Francisco, showed off the product here in February, but has nly now added the final element to Ace-Bridge, a distributed data access facility which enables programs on dissimilar linked machines to access each others' data files. (More Page 2)

MIPS UNVEILS 10 MIPS CMOS RISC BOARD SET

MIPS Computer Systems Inc, which has now relocated to Sunnyvale, California from Mountain View where we found it last year has now announced its family of high performance 32-bit Reduced Instruction Set processor boards as the R2000 series. Core of the product line is a custom 32-bit VLSI two micron 110,000 transistor CMOS processor which the company rates at 10 million reduced instructions per second, or double the performance of the Motorola 68020 - and MIPS should know because among the company's galaxy of star employees is Edward Sritter, who was chief architect of the 68000 microprocessor. The operating system - called Umips - is of course Unix, and is claimed to meet the full System V.3 and BSD 4.3 standards - and MIPS claims that moving to the R2000 from another CPU is as easy as going from the MC68010 to the 68020 - provided you wrote in a high level language and not assembly code. Currently on offer with Umips is a C optimising compiler, Fortran 77 and Pascal, but MIPS is entering joint ventures for implementation of Lisp, Ada, Cobol and PL/L. The chip set developed by MIPS also includes a custom CMOS floating point unit and a write buffer made up of four gate arrays. The current boards on offer are all VME bus and consist of the R2100, rated at 3 MIPS (complex instructions), which costs $3,170, the R2300, 5 MIPS, $4,775, and the R2600, 8 MIPS, set for the fourth quarter at $6,420. Multibus II versions are planned, and there is also a "Model Component Kit", the R2065/12, consisting of a 12.5MHz processor chip, floating point board and write buffer plus a binary copy of Umips and the C optimising compiler for $1,750. The first confirmed customer for the MIPS boards is Prime Computer, but 20 other companies are evaluating them, including Allen Michels' new company, Dana Group, and, we understand, ICL here in the UK.

DATABASIX: GIVEN THE BEST START
ANY PARENT CAN GIVE

Despite becoming a company back in December last year Databasix waited until this week for its official launch. Databasix, a UEI subsidiary, specialises in data acquisition, transformation and retrieval systems using primarily RDS's Informix Unix based database management system. One product from Databasix is Adlib, an information retrieval system for libraries, museums, registries and personnel departments. The Newbury, Berkshire-based company also claims to have multiple microprocessor controlled data acquisition systems for industry and research which are in use in British nuclear power stations monitoring nuclear core and weld temperatures, burst can radiation and control rod drops. Databasix has completed ports for Zilog, DEC, Pyramid and Prime machines. Databasix has drawn on its parent company, UEI, for financial backing, personnel, distribution network and from UEI's other subsidiaries; hardware and software. Databasix has taken about 70 staff from amongst the UEI divisions and also a number of clients.

Among the other subsidiaries of UEI is Cosworth, Quantel, Link Systems, Link Electronics, Micro Consultants Computers and Lipman Management Resources. UEI, which has its shares quoted on the London Stock Exchange, recorded a turnover figure of £95.5m for the year end 31st Jan 1986 and has bases in the US, Japan, France, West Germany and Italy and is also headquartered in Newbury.

AUSTEC DEMONSTRATES ACE IN NEW YORK

AceBridge implements the first four layers of the Open Systems Interconnection networking reference model, with the top three layers proprietary, so that dissimilar machines linked by local area Ethernetworks or wide-area X25 packet nets can share Cobol applications and data files. In New York last week, Austec demonstrated compilation of a Data General Cobol program on an AT&T 3B2 supermicro; following compilation, the object code was down-line-loaded via RS232 ports to, and subsequently run on, an IBM Personal AT, an NCR Tower and a Pyramid 98xe, with each of the machines going back to the 3B2 to access the data files. Implementations of AceBridge are now on offer on Unix machines from AT&T, IBM, DEC, Hewlett-Packard, ICL, NCR, Gould, Olivetti, Sperry, Pyramid, Zilog, Encore Computer, Contel, Icon Systems & Software, as well as Honeywell's DPS 6 under GCOS 6; there is also an MS-DOS implementation. Although Austec is presently majoring on the Unix environment, versions of AceBridge for IBM's MVS and VM are planned, and the system is at present implemented for Cobol because there are more commercial applications in Cobol than in any other language – but versions for other languages are likely to follow later. Prices for AceBridge vary widely according to the machine configuration but are broadly in the range of £150 to £1,500.

UNIX: TEXT RETRIEVAL, FAX, TELEX AND BAR
CODE READER SOFTWARE FROM SKYTRONICS

Skytronics Software Systems, a division of Skytronics Ltd, will be launching a bundle of software products mainly for the Unix/Xenix market at the Unix User Show in June. Most of the software is written in C and Sculptor – the applications generator product from Microprocessor Development Ltd in North West London (UX No 51). Four new products should be on display at Olympia; Found-it is for use with word processing packages and retrieves files from a single or multiple word search. For example you may have entered correspondence with a company called Bloggs Removals concerning a damaged desk in a removal between Yeovil and Liss. A few months later someone else takes over your job and they need to bone up on the case but they haven't a clue which files you were likely to put them in; with Found-it they could simply enter likely words that would have been included in the correspondence such as; Bloggs, desk, Yeovil, Liss, and, says Skytronics, there would be no time delay in retrieving the relevant files. The Found-It package links to two other Skytronics products Sky-Telex, a revised version of Systems and Telecom's S-Telex (Ux No 73) and Sky-Fax – which is still under development but should be ready by the Unix User Show. Sky-Fax is being developed for two facsimile manufacturers and it will allow the facsimile machine to input directly to the computer. According to Skytronics it will scan at 9600 baud rate and will take five seconds to scan an A4 sheet covered in text. It will also allow files on a system to be sent to someone else using a fax machine. Sky-Telex performs the same functions but Sky-Fax's advantage is that it gives an exact copy of what is produced on the screen. The Sky-Telex software lets the fax machine be used to produce high level graphics instead of a printer. The final offering from Skytronics at this years Unix User Show will be Sky-Scan, a bar code reader control system which has already been implemented for the Football Association. Prices have not been fixed yet for the products. The company split from Skytronics Ltd two years ago to produce software packages whilst the parent company continued to produce bespoke systems. Amongst the hardware manufacturers' machines that Skytronics software is available are; Altos, NCR, Sperry, Aston Technology, Plessey, Ferranti and Wicat.

MYSTERY COMPANY BUYS BRITISH

Integrated Micro Products has won an export order for its VME bus boards worth $820,000 over the next twelve months from a nameless computer manufacturer in San Jose, California – nameless presumably because the company does not want anyone to know that it has bought British. The US manufacturer will be using the 68020 CPU, 68000 disk controller and 68000 serial I/O processor boards to build a 68020 multi-user system, the first board consignment will be shipped on May 1st from IMP's base in Consett, Durham.

WILMOT CHAIRS INTERNATIONAL ADVISORY PANEL FOR ROOT COMPUTERS

Robb Wilmot, everyone's favourite whizz-kid, has taken on another role in the furtherance of Unix. Wilmott has been appointed as the chairman of an international advisory panel whose role is to advise Root's board on the company's future global strategy. The idea of the panel was hatched between Wilmott and Root chairman David Saunderson, its function being to make Root a driving force, or at the very least steer the company through the hazards of Unix internationalisation, on the way to meeting company's declared aim of £100 million by the 1990s. Wilmot's enthusiasm for Unix, which he championed when in the driving seat of ICL, coupled with his ability to open doors and charm millions from investors, makes him an ideal cheerleader for Root's efforts to become "the" Unix house of the UK. As yet the company has no established role with the manufacturer's group on international standards, X/Open, but Saunderson's hint that "Root is very enthusiastic about X/Open" is likely to presage deeper involvement. The Root Advisory Panel, as it will be known, is more than a PR exercise in status-scoring: Root's anxiety to be seen as an international company is reflected by its planned change of name to Root-Unisoft. The company wants to beef up its Far East and US presence and emphasise the worldwide involvement of its part-owned subsidiary Unisoft in such projects as the joint effort with AT&T to develop a Japanese Unix. Root is also reviewing its current stake in Unisoft, with the idea of extending it from 60% to full ownership. The advisory panel is entirely internal, but some international Brownie-points should accrue from a high-profile representation by five or six gurus from the US, Japan and Europe. It isn't yet clear who will make up the rest of the panel. Wilmot's involvement in his other ventures, including the European Silicon Structures pan-European chip company, appears to be peripheral at present, but his new chairmanship doesn't sound like a sinecure; the panel's role will include advising on the allocation of re-search resources, the strengthening of Root's relationship with the galaxy of Unix standards committees, and, just as unfathomable, the hows and wherefores of applications development for the Japanese market.

POSITRON'S NEW UNIX BOX WOOS GRAPHICS MARKET

Positron Computers is on the verge of launching its own solution to Unix performance problems. The company, based in Newton-le-Willows, Lancs, is out to grab a slice of the CAD/CAM market with its parallel processing Unix system, due to be unveiled at the Unix User Show, in the first week of June.

Positron is claiming a "completely new design concept" for the system, which can serve up to 120 users without impacting performance, according to managing director Peter Plinston.

The novelty lies in the fact that the parallel processors - up to 35 68020s, with a maximum of 256K RAM, - take care of one Unix process per processor, instead of networking them, or dividing the cpu between I/O and main processing units.

Positron says it has avoided all the dangers that have trapped others searching for the performance grail, simply by starting with Unix itself, and modifying it to allocate different concurrent processes between processors. The system is VMEbus-based, and can be used in various permutations, either as a conventional 68020 or allocating one processor per user, as would be more common in cpu-bound multi-user processes such as CAD/CAM.

The system uses 20 slots on the VME frame, leaving the remaining slots for the system controller and up to three disk controllers. The initial configuration supports 16 modules, consisting of a 16Mbyte 68020, plus a 68881 floating point co-processor, plus a second 68020 used for combined memory management and as an I/O co-processor. There is also a 64Kbyte instruction cache which allows the system to run without wait-states, providing a 95% hit-rate for screen processes, plus a 16Mbytes of RAM. Up to 800 MBytes of disk storage is provided via 50MByte Winchesters. Backup is by laser disk, which makes for both easy archiving, and access to archives.

Positron's implementation of Unix System V allows any process to employ a dedicated processor, ensuring fast response times even when multiple users are performing heavy programming tasks, says Plinston.

Positron is keeping quiet about the System V implementation at the heart of its new system, but the signs indicate that the company may have looked outside the UK for porting expertise. The company is even cagier about the names of specialist CAD/CAM companies which have already expressed an interest in the product.

A starting price of £14,000 should be tempting at least one manufacturer with eyes on the booming CAD market.

Positron was previously best known for its involvement with the Unix-like OS/9 microprocessor development system. The company was backed by Electra Investment Trust in 1982 with £1/2 million venture capital, but since then has been self-sufficient, with a current turnover of around £1 million.

UK ADA COMMUNITY CHAFES AT MINISTRY OF DEFENCE's "IFs & BUTs" COMMITMENT

The Ada Europe Conference 1986 opened in Edinburgh on Tuesday with progress reports on, and full commitments to the use of Ada from the US Department of Defense, the Commission of the European Community and NATO. The British contingent among the 300 plus delegates were hoping for similar words from the Ministry of Defence. The opening remarks of Air Commodore Breadner expressing "full enthusiasm and support for Ada" were, according to Martyn Jordan, marketing director of **Alsys**, and Peter Hanson, an Ada marketing consultant for **CAP**, just what the industry wanted to hear. However, Breadner then went on to describe the conditions under which waivers would be granted when Ada becomes mandatory for real-time defence computer systems in the UK on July 1 1987. As a result, the Ministry's commitment to Ada is still regarded as less than wholehearted by the UK Ada community. In Jordan's opinion, no waivers should be granted, not even for enhancing existing systems, prolonging program life-cycles or simply saving money. As a new technology, Ada will, says Jordan, be more expensive to start with while contractors try to recover their initial investment in Ada. Already, he believes, the cost of actually developing new programs and applications in Ada is comparable with that for other languages but tender prices won't be competitive unless companies can see that their initial outlay in training and development will prove profitable in the long run. Jordan also expressed concern at the Ministry's attitude to project support environments in general and Ada environments – APSEs – in particular. He finds it difficult to take the Ministry's attitude to Ada seriously when its current feasibility study into APSE options includes "doing nothing" amongst its seven choices. The good news to Jordan's mind, though, is that the Ministry of Defence has got US Department of Defense permission to set up Ada validation stations for military applications at EQD Aquila in Bromley, Kent, and for commercial applications at the National Computing Centre in Manchester. Jordan is particularly pleased that Aquila will be testing performance, using tests developed by **Software Sciences**, rather than just functionality as the Department of Defense does at present. This will, he says, avoid a repeat of the situation where a compiler passed the functionality test but was later, when installed, found to have 140 bugs.

Reykjavik

Outside the main conference hall, **Artek Corp** of Reykjavik, Iceland and Alsys Ltd of Henley-On-Thames, Oxfordshire were demonstrating their Ada compilers for IBM Personal ATs. The Icelanders' version comes in at just $895 but is the subject of some derision from a few of the delegates as it does not include tasking, one of the prime components of Ada. Managing director Oaluf Johnsson says that a tasking version will be available for validation early next year although the price will have to rise to around $1,200. The Alsys compiler costs $3,000 and has already been validated. That price includes a 4Mb memory board which Alsys says is vital for anyone wanting to develop in Ada. Some 400 have been sold in two months and Martyn Jordan is expecting 4,000 sales in the first year. Alsys has reached agreement with **Imperial Software Technology** to market the Imperial College spin-off's ISTAR PSE which was developed in conjunction with British Telecom. CAP Industry Ltd of Reading, part of the CAP group, announced the European release of TeleSoft's TeleGen2 and revealed that it has developed a cross-compilation system for DEC VAX and Intel 80286 which TeleSoft will launch in the US at the SIGAda conference in July. **GEC Software** announced an implementation of Verdix Corp's Ada Development System which includes a compiler and 17 tools for Signal Corp's Adamax and Sun Microsystems' Sun 3.

PHILIPS SIGNS MONSTER DEAL WITH APOLLO...

The agreement last year under which Siemens AG of Munich, West Germany is standardising on Apollo Domain workstations for all in-house chip design work is thought to be worth an initial $30m and up to $100m over three years. Now, says Apollo, NV Philips of Eindhoven, Netherlands, has also decided to standardise on Domain for chip design – and the order is of a similar size to the one from Siemens.

...AS APOLLO REVIVES TOP-END SERVER PROJECT...

Having put its Cheetah effort to develop a top-end processor on ice last year in favour of enhancing performance of its 68020-based stations, and then flirted with the idea of waiting for the 20 MIPS station promised by Stellar Computer, the company formed by its former chief William Poduska, Apollo Computer Inc has now revived the original Cheetah development. The idea is to build what will effectively be a 6 to 10 MIPS emulation of the 68020 in CMOS gate arrays for first deliveries during 1987.

...WOOS INTERACTIVE FOR SYSTEM V.3, 4.3 UNIX

Apollo Computer is also reportedly set to sign Interactive Systems Corp, Santa Monica to bring its Domain IX implementation of Unix, which runs coresident with its Aegis operating system, up to the latest AT&T System 5.3 and Berkeley BSD 4.3 levels. It has hitherto done all such development in-house.

...AND GETS NEW CONTRACT WITH OLD CUSTOMER

Apollo Computer Inc has a new new, one-year renewable contract with Mentor Graphics Corp, its largest customer, for an estimated $50m. Mentor, based in Beaverton, Oregon, will buy a range of Apollo products, including the new Domain Series 3000 Personal Workstation and the DN570 graphics unit for incorporation into its IDEA Series of engineering workstations.

HARRIS TO PLUG GAP IN ITS UNIX LINE
WITH THREE MASSCOMPs

Monday is the day ringed on Harris Information Systems' calendar for the launch of three new models which will plug a yawning gap in its year-old family of Unix systems. The line presently consists of the HCX-7, which is based on Power6/32 32-bit bit-slice technology bought from Computer Consoles, and the two low-end Harristations, 10 and 20, which are based on Massachusetts Computer Corp MC500 machine. To fill out the line in between, Harris has gone back to Masscomp for the new 68020-based MC5000 supermicro, which is set to appear as the MCX-3/40, 3/60, 5/60 and 5/70. The 3/40 is the MC5400 with one 68020 and the floating point co-processor which is standard on all models; the 3/60 and the 5/60 are both based on the MC5600, the former coming with one or two CPUs, the latter with two CPUs standard, and 15 slots; and the MC5700, with up to four CPUs and 30 slots will appear as the MCX-5/70. All will run Unix System V with Berkeley 4.2 extensions and support main memory of from 2Mb to 32Mb. Pricing is uncertain, but it is understood that while the original agreement with Masscomp, worth $20m over three years, covered any unannounced machines Harris might want, the new machines are being bought under a much higher value pact.

CULLER SCIENTIFIC SHOWS PERSONAL
SUPERCOMPUTER - WITH SUN

Culler Scientific Systems Inc of San Jose, California this week announced what it describes as the world's first Personal Supercomputer, and plans to market it in collaboration with Sun Microsystems Inc, Mountain View, California. The machine is reated at 18 MIPS peak performance - one quarter that of a Cray 1S, but comes in at less than $100,000 in single unit quantities. No technical details were given, but the first unit will be exhibited next week at the National Computer Graphics Association conference in Anaheim, California - on the Sun stand. Culler is working closely with Sun in marketing the new product because it reckons that the Personal Supercomputer will be particularly effective in the embryonic market for compute servers in networks of workstations. Culler Scientific develops and manufactures a family of high-performance computers for engineering, scientific and educational markets, and was founded, in 1969, by Dr Glen Culler. Culler, widely dubbed the father of array processing, holds several key patents in the array processing field of computer architecture.

SQL: RYAN-MCFARLAND COBOL
EMBEDS IT FOR INFORMIX...

There was a time when the rest of the computer world held out against endorsing IBM products as de facto if not de jure standards, but these days, there is not much resistance to IBM's Document Interchange and Document Content Architectures, and none at all to its Structured Query Language for interrogating relational databases. Latest move on this front is a product from Ryan-McFarland for the Relational Database Systems Informix manager. Informix-ESQL/Cobol enables programmers to incorporate SQL statements into Cobol applications; a translator converts them into Cobol code prior to compilation. No prices are available for the product as yet.

...AS RELATIONAL TECHNOLOGY
TIES IT TO ADA FOR INGRES

Over in Alameda, California, Relational Technology Inc is attempting to bring Ada into the relational world with an Ada support package called ESQL/Ada which integrates the Department of Defense language with its Ingres relational database, offering the Ada prerequisite of a high degree of data independence, and also offering menu selection. A pre-processor translates SQL statements into Ada procedure calls, and the product is claimed to work with any Ada compiler that runs under VAX/VMS, Unix or VM/CMS; the VAX/VMS version costs $5,000.

MITSUBISHI TARGETS LARGE UK END USERS
WITH FULL LINE OF IBM PERSONALIKES

Following in the path which Sony dared to tread, another Japanese giant - Mitsubishi - is entering the IBM personalike fray in the UK. With three models running both MS-DOS and Xenix, the company's Electronics Division is poised to become the largest part of its Uk business and a major force in the European Electronics market, according to the chairman, Sir Peter Parker. The basic machine is an 8088-based Model 816 with twin 360K floppies, 512K main memory and a 12" monochrome screen. In addition there is the 816N XT-alike with one 360Kb floppy and 20Mb hard disk. It has 256Kb of user memoryand runs at a top speed of 7.16MHz. Display's available for the 816N includes a high resolution monochrome one and two colour graphics displays. The third machine is the 816F AT-alike, capable of supporting up to eight users under Xenix. It is an 80286-based processor with one 1.2Mb floppy and 40Mb Winchester. It has 512Kb of main memory and a 14" colour monitor, it again runs at 7.16MHz and has 512Kb user memory expandable to 5Mb. Mitsubishi is aiming to sell the machines to large corporate users and doesn't intend to appoint any distributors. The machines are thus competing head on with IBM and given this, and the fact that Mitsubishi computers are not well known over here, the prices may be considered a bit steep. The cost for a standard configuration of this 816 is £1,700, the 816N is £2,400 and the multi-user 816F is £3,400. The company is hoping to shift a couple of thousand in the first twelve months and is currently selling to the UK market alone, though it will consider large orders from across the channel. Mitsubishi will be showing these machines at the Unix User Show in June along with 'The Mitsubishi Edge' business software package, running under MS-DOS and Xenix and written in RM/Cobol. The company views Xenix as the more lucrative of the two operating systems for the package and machines. The package, initially launched a year ago, will be completed before the show with the addition of a job costing module which will join sales ledger, purchase ledger, nominal ledger, stock control, invoicing, sales analysis, order entry, payroll, purchase order processing and fixed assets. Each module costs £450 for a single user, £595 multi-user.

UNIGRAM/X

HEWLETT SETS HP9000 RISC

Hewlett-Packard's second machine built around its Spectrum Reduced Instruction Set processor is expected to be launched in the next two or three weeks. It will be a top-end server in the HP9000 family of 32-bit workstations which presently consists of low-end Motorola 68020-based models, and higher-end models based on the Cupertino company's first, none-too-successful, four-year-old pass at a 32-bit chip set.

CONCURRENT COMPUTER SETS $1.5m JAPANESE VENTURE

Concurrent Computer Corp, 81%-owned by Perkin-Elmer Corp, has agreement in principle with Nippon Steel Corp for a joint company 60% owned by Concurrent, which will market and eventually manufacture the 3200 series of 32-bit minicomputers in Japan. The joint venture — to be called Concurrent Nippon Corp — will be capitalised at about $1.5m.

MANNESMANN TAKES 65% OF PERIPHERIE COMPUTER SYSTEME

Diversifying steel giant Mannesmann AG has acquired a 65% stake in the thrusting young Unix systems specialist Peripherie Computer Systeme GmbH, whose greatest claim to fame is perhaps the fact that it cheekily dubs its variant of the AT&T opearting system Munix in honour of its home town. PCS, which calls its 68000 family machines Cadmus, now joins small systems manufacturer Kienzle and peripherals manufacturer Tally in the Mannesmann camp. Terms of the acquisition were not disclosed, but annual sales at PCS are running at $21m a year. Mannesman says that computer systems and equipment now account for about 13% of its $8,350m annual turnover, putting it onto the $1,000m mark.

Minigrams

It transpires that the PC-Interface product launched in the UK by Root last week, and mentioned in UX No 76 is the very PC-Interface from Santa Monica-based Locus Computing which featured on the front page of the same issue: it appears that Root is the first to pick up the UK rights to the product, as part-owner Unisoft, the US Unix porting house which implemented the Unix end of PC-Interface: Root is at present the only distributor for the product, which allows Unix users to share files with PCs under MS-DOS and vice versa. Root will be concentrating on OEM sales of PC-Interface, for which it is planning to charge $10,000 porting fee plus $375 per Unix node and $100 per DOS node, Root already reports interest from a customer, unnamed as yet, but possibly Nixdorf.

— o —

Informed gossip in the US is that IBM is preparing – very quietly – to start offering the RT Personal Computer to selected large accounts as a general purpose low-end machine which will effectively replace System 36 in that people who would have bought 36 last week will be encouraged in future to buy the RT – presumably under Unix, but that is not certain: the softly-softly approach is being taken because if all those guys who just spent an arm and a leg on a bunch of 36s got to hear of it, they just might get mad enough to call their lawyer.

— o —

Wicat Systems Inc saw fourth quarter net profit of $34,000 against a loss last time of $216,000, on turnover up 6.9% at $9.7m; net profit for the year to March 30 was $411,000 against a loss last time of $6.1m, on turnover that rose 35.1% to $39.4m. Earnings per share were $0.02 in the year.

Your're not going to hear too much about this from AT&T because when it comes to computers the company still feels itself to be the new kid on the block, and is not about to ask to be squelched by the IBM boot, but word is that AT&T has now sailed into second place behind IBM in the US Personalike market with the Olivetti PC6300 and 6300 Plus, leaving Compaq well down at Number Three: the numbers we hear are 18,000 boxes a month in the US from AT&T against 8,000 to 9,000 a month from Compaq – and Olivetti's Scarmagna plant is finding it tough to keep up with demand from Ma Bell.

— o —

AT&T is due to announce a "strategic alliance" with a chipmaker understood to be Zilog Inc – but the agreement is unconnected with any moves AT&T may make to acquire Zilog Systems – Computer Systems News.

— o —

Last week Apricot added a mid-range model in its 80286 Xen line, the CD, which costs £2,600 with 512Kb 6MHz processor, 20Mb hard disk and 720Kb floppy: the new single-user model was added because the top-end hard disk model is outselling the all-floppy model by a ratio of four to one, Tandy will also be selling the new machine.

— o —

The days of having a day on the sick are numbered: Percom of NW London has developed an absence control package which keeps records for up to 20 different categories of absence and can analyse records not only of individual employees but also departments or the whole company and for any user-defined period: the cost of this pacakge, wriiten in C, running under MS-DOS, PCDOS, CCP/M and Xenix, is £2,450.
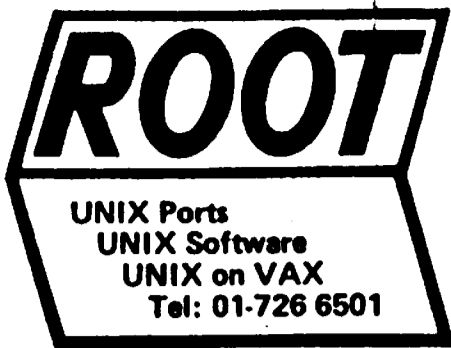
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CRAY RESEARCH OFFERS UNIX SYSTEM V FOR ITS ENTIRE LINE

Cray Research has announced that its entire range will now support Unix or UniCOS – Cray's version. The Cray 2 has always been a Unix machine and now with the X/MP and Cray 1 running Unix it could lead to a greater number of applications being developed for the Cray 2. UniCOS, based on AT&T's Unix System V.2, was initially developed as an alternative to COS now it seems to be pushing it aside the X/MP can run UniCOS native or by invoking the guest feature in COS to run UniCOS underneath it. The X/MP can run two operating systems simultaneously because it has two processors, the Cray 1 having only one processor can either run COS or UniCOS, not both, having only one processor. The Unix V.2 is licensed from AT&T and a binary licence comes with no extra charge from Cray but source would have to be licenced from AT&T. Cray says that customers have displayed a significant amount of interest in the Unix version of COS and three sites already have the Cray 2 running UniCOS. The company say that UniCOS will be available on all future Cray machines and that UniCOS provides equal or superior performance to COS in all processing environments. Cray will also be providing migration tools from COS to UniCOS. Cray is also promising a second release of the Unix environment "within the year".

INMOS ADDS C, PLANS PASCAL, FORTRAN; TEXAS TAKES OCCAM

Inmos International is making major strides on the Transputer software front with the C language now available as an alternative to the proprietary Occam language, and Pascal and Fortran nearly ready. Inmos says use of the C compiler means that existing sequential programs written in C for other microprocessors will run on the Transputer with racey performance similar to that of Occam. Conceiver of the Transputer Iann Barron is particularly excited at the idea of offering the plug-in Transputer board for the IBM Personal as an accelerator for the popular Personal programs such as Lotus 1-2-3, which are written in C. The bad news is that Texas Instruments has now decided against using the Transputer in its evolving process control equipment family; the good news is that it is using the Occam language, but running on the Motorola 68000 family of chips. This is a particularly important development for Inmos because it legitimises Occam as a language which can stand on its own merits rather than one whose utility is tied solely to the Transputer.

NIXDORF CHOSES THE UK FOR UNIX TARGON LINE

Last week Nixdorf launched its Targon range of Unix-based machines in the UK. The UK is the first place outside Germany to get the series but the Nixdorf subsidiaries in the US and the Netherlands will not be far behind. The Targon machines were on show at the Hanover Fair back in March (UX No 69), where the fault-tolerant Targon/32 was first unveiled. (More Page 2)

SUN WELL ADVANCED WITH TOP-END RISC DEVELOPMENT

Sun Microsystems with the Sun 3 and Apollo Computer with the Series 3000 appear to have price, performance and market leadership in the 32-bit Motorola 68020 workstation stakes, but such advantages are extremely short-lived in the computer world, and Apollo has already revealed that it has reactivated the top-end processor development it shelved last year. Sun Microsystems is not prepared to acknowledge the existence of anything beyond its present top-end machine, but according to **Electronic News**, it is already showing potential customers the work it has done on development of a Reduced Instruction Set processor which may appear in both multi-chip gate array and microprocessor implementations. The company reportedly plans to offer the top-end CPU in both board and system-level versions, but is uncertain whether to offer the chips to system builders as well. It is believed to be discussing fabrication of the parts with Japanese manufacturers – and way out in front is likely to be Toshiba Ltd, which signed a $35m contract for Sun workstations in September, and is pulling out all the stops to win gate array business in the US and in Europe.

CRELLON LEAVES PROTECTION OF THORN EMI

Crellon Microsystems as part of Gothic Crellon concluded a £5m management buyout from Thorn EMI arranged by Venture Link. (See Page 4)

NIXDORF HOPEFUL CONCERNING TARGON AND PARTNERPOINT SUCCESS

As well as the Targon/32 the Nixdorf Unix range also comprises: the Targon/31 - Motorola-based supermicro; and the Targon/35 - Nixdorf's version of the Pyramid Technology 98Mx RISC.

To give Nixdorf's Unix offerings a boost into the competitive UK marketplace the company is introducing a third party sales policy - PartnerPoint. Nixdorf say that because third party vendors differ considerably in size and expertise the scheme will take two forms. Small companies with a few 'quality' products will enter a joint marketing agreement with Nixdorf, thus according to Nixdorf, enhancing its own reputation. Larger companies will become authorised distributors of the Targon range and it will be its responsibility to market and sell it. The first category includes systems and software houses and the second - leading OEMs and VARs.

Nixdorf thinks that the Targon line will not experience the same problems of acceptance that other Nixdorf products have encountered previously in the UK because the company name, after a large television advertising campaign, is more widely known here now and the PartnerPoint plan should encourage vendors. Nixdorf also thinks that its involvement with the X/Open group will also encourage sales as it demonstrates the company's reliabilty and commitment to Unix and the related standards.

In an effort to get the Targon range accepted Nixdorf is also offering a range of Unix software tools for business and scientific applications.

These tools include the Reflex distributed relational database which manages data files stored on different processors in a computer network and allows data to be accessed and processed independently from its source, it includes integrity checks, access control and restart mechanisms. Reflex works in a Unix environment and it supports SQL - which handles data definition, data manipulation and database queries. Another tool on offer is TMS - Terminal Monitor System - which Nixdorf claims to be a user friendly interface. It reputedly controls user operation, organises systems resources and guides the user through programs: the information is presented in document form, page by page, and a multi-task windowing facility allows several documents to be processed at the same time. The FMS, Forms Management System, is a means of inputting screen-based information, designed for implementing interactive programs. The fourth package from Nixdorf is RMS - Report management System which is used to prepare reports from databases. Like FMS, RMS includes a listing editor, interpreter and file management. Nixdorf also provides communications software that allows the Targon line to be connected to computers and public services and networks.

Next year Nixdorf will introduce a Xenix version of its Professional Workstation to the UK probably under the name of the Targon/30.

LIVING SOFTWARE AND PERCEPTION FALL OUT ...POSSIBLE LIVING C RELAUNCH

The C development tool Living C, launched with high hopes but insufficient resources, is looking for a renaissance and some venture capital backing. Kevin Grumball, managing director of Milton Keynes based Living Software and originator of the product, has fallen out with marketing partner Perception Software of North London, whose ambitious marketing plans for the product proved to be full of promise, but short on delivery.

Living C is a quick-development environment for C programmers which makes the language more accessible and easier to develop and debug. Described last year by Byte magazine as being among the software bargains of the century, it was launched last summer among razamatazz and high hopes by Perception, which advertised the product at $99 in the US and £99 in the UK. At the time Perception managing director Nigel Elkan was sufficiently confident of volume sales to broadcast that the lack of outside backing for the marketing enterprise was deliberate.

Now Grumball is complaining that Living Software has missed out on much of the booty due from Living C sales, and the campaign has stumbled to a halt. The marketing relationship has ended on a bad footing, while Living Software tries to sort out exactly who has received authorised copies of its product. The company is trying to claim royalties it says are due from sales which it alleges have not been accurately recorded. Caught in the crossfire is duplication house Loadplan, which sold the balance of Living C disk copies to Perception against Living Software's advice, and may now be threatened with legal action.

There was plenty of interest in Living C, (individuals in the US who saw the ads are still knocking at Grumball's door), but it appears that the major deals which Perception lined up failed to tumble into its lap. In the meantime Nigel Elkan has proved elusive, and could not be contacted to confirm or deny the rumours that Perception was on the edge of liquidation. Grumball is now seeking a more realistic marketing platform, and is talking to venture capitalists and potential marketers. These include MS-Associates, of Bourne End, Bucks, to whose CGEN range of C translator products Living C might make an ideal stable mate. There is a new high-performance version of the product waiting in the wings, but Grumball is determined that this time, the product should fulfil its promise, so will release nothing until Living Software has completed talks with interested parties, and has a firm marketing structure in its sights.

As well as animating the development cycle, Living C imposes several useful programming disciplines, which help prevent C programmers from being fools to themselves (and others), and iron out the less endearing quirks of the language. As an interactive development tool, the product won praise from most people who saw it, and according to Grumball the product is now mature, initial bugs are fixed, and performance considerably enhanced.

AT&T SIGNS ZILOG TO SECOND-SOURCE THE WE32100 32-BIT MICROPROCESSOR FAMILY

AT&T joint announcement with Zilog last week (UX No 77) turned out to be the signing of Zilog as official second source for the WE32100 32-bit microprocessor and support chips. AT&T is now also calling the WE32100 the Unix Microsystem chip set, and by selecting Zilog as second source, AT&T is returning a favour - Zilog Systems late last year became the first major Unix systems manufacturer to adopt the WE32100 as the basis of its 32-bit processor family.

Under the terms of the five-year agreement, Zilog will sell the parts under its own logo, and is being encouraged to develop additional original parts for use with the WE32100, which will be licensed to AT&T, as will any existing Zilog parts found to be usable with the 32100.

The WE32100 becomes Zilog's third 32-bit chip - the company is making its own Z80000, and is also an official second source for the NEC V-series parts.

3i INVEST £1.2m IN UNIX

Investors In Industry, better known as 3i, has invested in Unix. MFT Computer won the £1.2m order against competition with Olivetti, Altos and NCR. The Star Computer Group provided the 25 Convergent Technologies Mightyframe Systems for the order. Each machine is capable of supporting up to 32 terminals and one will be installed at each of the 3i offices between Aberdeen and Southampton.

Star also provided the office automation software, Q-Office and Q-One. The other software for the system is the Informix Relational Database and Access 20/20 financial modelling packages. MFT wrote the bespoke database to 3i's specification, it contains details of customers and contacts and includes a range of reports aimed to give managers up-to-date information. All the systems are linked to each other and the 3i mainframe installed at Solihull.

Both Star and MFT believe that the 3i investment is confirmation of its belief in the Unix operating system as the way forward for the late 80's and early 90's.

XI SOFTWARE GROWS FROM ACORN

New Unix porting house XI Software is far from a mighty oak tree as yet, but Acorn's RISC machine should at least help it put down roots. The two-man company was started in St Albans by John Collins in January of this year, with no more capital backing than was afforded by his lucrative years as a freelance since leaving Root Computers three years ago.

Using the usual advantages of small-but-nippy companies over mammoth consultancies, XI Software beat such giant adversaries as Logica to the Acorn contract, and seems to be keeping the chaps at Cambridge content with the results of its System V.2 implementation so far. In the long run the company wants to grow outside Acorn's shadow, but at present the technical strength stands at two; Collins and his ex-GEC colleague Matthew Hart.

Collins says that development has taken place in record time, and is particularly buoyant about the C compiler under development at XI. He is loth to steal Acorn's thunder, but reveals in true Unix techie style, that the C compiler has a home-grown optimiser that was "particularly amusing to write", due to the unusual flexibility of Acorn's RISC architecture. This allows conditional branches on the instructions, making compilation and testing of code much quicker.

The Acorn RISC machine (ARM) is a general-purpose 32 bit single-chip microprocessor, with 32-bit databus, 26-bit address bus, and a bank of 25 registers, each 32 bits wide. Each of the five basic instruction types has a hard-wired condition code. The processor is heavily pipelined, and dedicated registers handle interrupts. Acorn is claiming that the ARM is both smaller and faster than conventional microprocessors, running at approximately 3 MIPS. Its design has been geared towards high-performance functions such as real time processing, artificial intelligence and high level language applications.

The instructions are all 32 bits wide (one word), and the instruction set consists of five basic types. These are:

* Branch and Branch with Link
* Data Processing
* Single Data Transfer
* Block Data Transfer
* Supervisor Calls

The pipelining gives the ARM extra speed. During each processor cycle, one instruction can control the data path while the system decodes a second instruction for the following cycle and fetches a third from memory.

GOTHIC CRELLON COMPLETES £5m BUYOUT FROM THORN EMI

Gothic Crellon incorporating Crellon Microsystems has been sold by Thorn EMI to a company headed by the chairman of Gothic Crellon, Mr Bill Elms.

This management buyout was arranged by Venture Link Ltd and most of the £5m equity raised was placed with financial investors: The Merchant Navy Officers Pension Fund, Touche Remnant, Royal Life Insurance and M&G. Gothic Crellon has two divisions electronic components and microsystems, Crellon Microsystems, which will both continue to operate under the name of Gothic Crellon. As a division of Thorn EMI the complete company produced a turnover figure of £11m.

The reason behind the buyout is, according to Gothic Crellon, to grow – the company has already invested in new offices in Wokingham, Berks, and also a new computer – an IBM 38 Model 6.

Crellon Microsystems is a distributor specialising in Unix boxes covering; the Dansk Data Supermax range, the Zilog 8000 and also the new range of machines, and the Motorola machines.

NCR JOINT MARKETING VENTURE TO INSURERS WINS FIRST SALE WORTH £155,000

NCR UK's pitch to the City of London has succeeded with the first sale, worth £155,000, of the off-the-shelf broking software for NCR's Tower 32 Unix supermicro to Hosken, a London market broking group.

NCR has been wooing the London insurance market with city systems house Turnkey and Applied Computing Systems Ltd, whose London Market and Retail Broking applications will be installed on a Unix-based NCR Tower 32 at Hosken's Mincing Lane City office, with links to terminals in Ilford.

The system is planned to be expanded to support 25 on-line users during 1986.

IMP CONTINUING 68020 SUCCESS

Integrated Micro Products has won an order for which it can reveal the name of the customer. Last week (UX No 77) the US customer chose to remain anonymous. Qontel (UX No 75) signed a marketing agreement with IMP, worth £2.5m, for the supply of IMP-Mentor computers this year. The company, a new Unix and DOS training and support company, will be promoting Unix systems based on the IMP-Mentor covering all application aspects.

IMP has also announced another order from an industrial OEM for a minimum of £780,000 of 68020 and 68000 VME bus boards over the next eighteen months. According to IMP three other British systems integrators have also ordered £3/4m of board sets. Together with the mystery US order these amount to a total amount of about £4m.

IMP is convinced that the reason for these orders is because IMP was the first UK company to design and build a 68020 board and system and with the upturn of interest in VME Bus products IMP is ready and waiting to capitalise.

SUN SIGNS JOINT MARKETING AGREEMENT WITH SILVAR-LISCO

Sun Microsystems of Ascot has signed a joint marketing agreement with CAE specialist Silvar-Lisco of Bracknell, estimated to be worth £5 million.

The two companies will market their products co-operatively, and Silvar-Lisco will distribute and support its CAE software products on the Sun-3 family of workstations under Sun's third-party scheme, Catalyst. Silvar-Lisco is also to use Sun workstations for in-house development of its portable software products, which are used in design automation by integrated circuit producers and large electronic systems manufacturers. The software already runs on DEC, IBM and Apollo hardware.

PICK: TRIFID KEEPS EUROPE IN ULTIMATE 4300 SMI DEAL...

Ultimate Corp has now completed acquisition of Systems Management Inc's Pick-on-IBM 4300 business in the US, and won approval to become an IBM value-added reseller of the 4300 low-end mainframe line.

Under the agreement, American Can subsidiary Trifid Software of Congleton, Cheshire remains exclusive distributor for the product in Europe, paying royalties to Ultimate on each sale. Ultimate is paying 245,614 of its shares – worth $7m – for the rights, the 4300 installed base of customers, maintenance contracts worth $300,000 to $400,000, and distribution agreements with 14 resellers, many of which already handle Ultimate kit as well.

Ultimate is creating a new IBM Products division at its head-quarters in East Hanover, New Jersey, and some 20 Systems Management personnel will transfer with the business.

Systems Management becomes an Ultimate value-added reseller of the system, and Ultimate also gets non-exclusive rights to the Pick implementation, which can run both native and under VM/370, on IBM's 303X, 308X and 3090 top-end mainframes.

...AS VMARK RESPONDS TO PICK SYSTEMS WITH COUNTER-SUIT

VMark Computer Inc, the Natick, Massachusetts company under fire from Pick Systems Inc over its Universe Pick implementation which runs under Unix, has come out fighting with a counter-suit against Pick charging the company with trying to monopolise the market for operating systems that will run applications written to run under Pick.

The suit, brought in Los Angeles, alleges that Pick unfairly tried to prevent VMark from selling Universe and signing up dealers for it, and seeks $6m in damages and a ruling that none of the code used in Universe infringes Pick copy-rights.

VMark is a reseller of AT&T 3B, Convergent Technologies and Pyramid Technology Unix machines.

Meantime Ultimate Corp has joined the original lawsuit brought by Pick Systems against VMark as a plaintiff.

BT AIMS TO MAKE NETWORK SERVICES ACCESS EASIER

British Telecom is testing a system which aims to increase use of public databases and network services, eliminating the complications of logging on.

The company is evaluating a host system, developed by independent seven-man Unix company Brainstorm of London, at its Ipswich research and development centre. This is due to be installed on British Telecom's mid-split broadband coaxial cable network, which links seven of its buildings in Reading.

The system will act as a gateway, switching users of both 40 column videotex screens and 80 column computer terminals to remote network services like Telecom Gold and databases like the British Library's Blaise service.

A company could access the stock exchange's Topic share price information service, at the same time sending a message to a client in the US over Telecom Gold to confirm a contract, for example.

In addition to this, the system can have local applications connected into it, a company's private database for example. It also allows users to write their own onboard applications in videotex format.

As part of the project, British Telecom is using an Ethernet style Ungermann Bass UB Net 1 local area network to test high speed access to online services. Access over the public switched telephone network is slow, using asynchronous lines with no error-checking.

Brainstorm has developed the system on a DEC MicroVAX to run under the multi-user Unix operating system. It says the software is portable to all forms of Unix, including Ultrix, Xenix and System V. This means that BT could run the software on the Sentinel Unix computers it makes under licence from Bleasdale Computer Systems.

If the trial is successful and theory turns into reality, users will be able to access services, normally obtainable over BT's packet switching service, PSS, or the public switched telephone network, PSTN, without having to remember the separate passwords and log-on procedures for each service.

Brainstorm's gateway will recognise a subscriber's password, and what is available to them. It will transparently carry out the mechanics of logging onto services to the user.

Growth predictions in the online database services market vary. International Data Corporation estimated that the European market for online database services in 1982 was worth $85.7m and that it would grow 565% to $570m by 1987. Frost & Sullivan's estimates over the same period indicate growth of around 138% from $757m in 1982 to $1,800 in 1987.

The current installed base of communicating terminals in the UK is put at 200,000 units by Pira.

It expects this to grow 150% by 1990 to 500,000 units.

16-BIT TRANSPUTER, DISK PROCESSOR, 40-CPU UNIT BOW

Inmos has also (see front) launched the promised IMS T212 16-bit Transputer variant which like the 32-bit T414 has 2Kb of on-chip static RAM and four communication links.

The T212 and T414 can be combined in systems, but the new part is claimed to be faster than its big brother.

Potentially even more interesting is the latest in the planned Inmos family of Transputers customised for particular applications, in this case as a disk controller-processor.

The M212 is described as a programmable disk processor that incorporates a 16-bit Transputer and is designed to support small soft-sectored 5.25" or 3.5" Winchester or floppy disk drives; Inmos says that the integrated Transputer can provide an on-chip filing system, but several of the new generation of relational database managers are written in C, and now that Inmos has a C compiler, one of these could in theory be implemented on the M212 to create a back-end relational database manager for desk-top micros.

Two new link adaptors mean that all Transputers can now communicate at 20Mbits per second, double the previous rate. At the system level, Inmos is offering the Item 400, a 10-board module containing 40 32-bit Transputers, which costs just £40,000 including development system but is claimed to run at up to 400m of the reduced Transputer instructions per second - pricing it at just £100 per MIPS.

Each of the 10 B003 boards includes four T414 Transputers, each with 256Kb of dynamic RAM, run from a single 5MHz clock.

18 months to take off

Although it looks to move into operating profits later this year, losses at Inmos are currently growing. Nevertheless, Inmos has every reason to feel that the Transputer is within a year to 18 months from take-off, and the company does not now expect a foreign shareholder to be invited in this year.

The Floating Point Systems supercomputer announcement was an enormous fillip, but the real money lies at the other end of the market, in the things that the Transputer can do on the desk-top.

We suggested the challenging idea of running a micro relational database management system on the new disk processor, which has become feasible now that C is available for the Transputer, and we hear that "a well-known company" is using the Transputer in a workstation that it is developing at a base in the US.

We also understand that with C available, work is progressing fast on implementing Unix on the Transputer, and an AT&T-validated Unix System V.3 available for what is now very satisfactorily evolving into a family of parts would be of enormous commercial significance.

Thorn has won itself the doubtful honour of having to bankroll what now must be seen as a priceless national asset - but the medium term outlook is good.

UNIGRAM/X

TORCH GETS DESIGN COUNCIL TAG

The picturesque Triple X computer from Torch Computer of Cambridge has received the badge of approval from the Design Council, and will now be entitled to sport the design Centre's black-and-white tag. Torch is claiming that it has shipped more Unix systems by volume than any other UK company, wooing customers with its icon-based Opentop user interface, and the alluring price-tag of £4,700 for the basic system. The company is projecting sales of 5000 units in 1986.

VME-BUS DISK AND TAPE ADD-ONS LAUNCHED

Computer International of Aylesbury has announced high-performance disk and tape subsystems for the VMEbus controller for use with Unix V, VersaDOS, and P-DOS. The subsystems make it possible to add o 10.5 in Winchester disk drives with formatted capacity of 670 Mbytes, and a transfer rate of 24Mbits per second, wth and average positioning time of 18 mS. The driver software used is compatible with such manufacturers as Eltec, EMS, Force, Sun and Motorola.

REAL TIME SYSTEMS IMPROVE XA8 FOR UNIX AND IDRIS

Real Time Systems of Douglas on the Isle of Man has announced new improved versions of the XA8 family of cross compilers for Unix and Idris systems. The most important addition in version 1.6 is the increase in symbol table size, which can now support up to 32,0000 entries.   RTS wrote the cross-assemblers in Whitesmith's portable C, which it distributes in the UK. Target machines include DEC PDP 11s and Vax, Intel 8086, Motorola 68000 and NS32032.

Minigrams

Hewlett-Packard will be launching a new CAD system for printed circuit board design and layout on June 2nd, a combination of systems that, according to Hewlett-Packard, takes the process from the logical design stage to manufacturing: it will be based on HP 9000 Series 300 technical workstation running under HP's Unix V derivative HP-UX.

- o -

Just how many machines are there running the two leading operating systems, PC/MS-DOS and Unix? The New York Times' Science Times section reckons that the Microsoft operating system is running on 7m boxes, the AT&T on 250,000 - most of them of course very much bigger.

- o -

Access Technology Ltd has launched a machine independent spreadsheet for the Sun workstation series - a new version of 20/20, any 20/20 model or data generated on Sun Workstations can run not only on Unix machines but on any other computer for which 20/20 is available: the Marlow, Bucks company is offering 20/20 licences for a fee of £895 to £1,000.

- o -

Root Technical Systems has introduced a C compiler optimiser which will, according to Root, reduce the size of programs written in C and increase the speed at which they run: the principal areas of optimisation in Optim-2 are: removal of loop-invariant computations from loops, elimination of common sub-expressions, register allocation, elimination of copies, elimination of redundant stores and fetches, simplification of loop expressions and machine specific optimisations.

Relational Technology has announced an addition to its Ingres relational database package which turns it into business graphics software, it allowsthe results of SQL-like queries of the database to be represented in graphical form: initially the product is available for VAX/VMS and Unix operating systems, priced according to system size ranging from £3,000 to £18,000.

- o -

Bleasdale Computer Systems has put a 2Mb error detecting memory module into production which has been designed so that any loss of data due to radiation is both detected and corrected: this module which uses an eight-layer PCB, is also being manufactured by British Telecom for use in the BT range of Unix machines.

- o -

The Superfile database management package from Southdata of West London has been ported to the recently launched ICL DRS 300 multi-user system, the NCR Tower and Plessey's Mantra: the package is available running under MS-DOS, CCPM-86, Unix/Xenix and VMS for all DEC VAX machines.

- o -

Silicon Graphics has cut the price of its Unix-based Iris 2300 and 2400 workstations: the Newbury, Berks company has reduced the 2300 price from £27,000 to £15,500 and the 2400 now costs £20,000 reduced from £35,000.

- o -

CAP of West London has announced that it has agreed UK marketing rights for Linkware with Linkware in the US which has atotal of 70 customers for the product: Linkware is a communications software product that allows personal computers to connect to a host mainframe, it supports DEC VAX, IBM's VM and MVS, Unix and System/38.

BURROUGHS BUYS RIGHTS TO RABBIT SNA, UNIX SOFTWARE

Looking for SNA and Unix terminal emulation facilities for its
B25 family of microcomputers, Burroughs has lighted on Rabbit
Software of Malvern, Pennsylvania. It signed an agreement worth
$5m over five years for the 3270 Plus, Bisync, RJE Plus and
Unix/SNA emulation programs for the B25 and XE520 and 550 for
the BTOS operating system.

COUNTERPOINT COMES TO UK...

Former head of Convergent Technologies Bob Groves is heading
the newly-formed UK subsidiary of Counterpoint Computers of San
Jose. Counterpoint was set up in 1984 by Convergent refugee
Pauline Lo Alker, as an OEM supplier of low-cost 68020-based
workstations.   It is now looking for long-term partners which
will give it clout in worldwide market places, and in the UK has
added the unlikely-sounding investor of British and Commonwealth
Shipping to its more readily recognisable allies AT&T and
Kyocera.
British Shipping is already an investor in several West Coast
enterprises including Telerate and MicroBio, and appears to
have been bowled over by the personality of Pauline Alker as
much as by the strategy devised for her product. "It's not a
one-off investment in technology by any means " said a British
Shipping spokesman. "We see oourselves very much as a long-term
investment company".

...AS ACCESS TECHNOLOGY LANDS IN EUROPE

The company which developed the 20/20 spreadsheet, dubbed the
Unix answer to Lotus 1-2-3, has landed in Europe.
Access Technology of Boston, Mass, has set up its UK base in
Marlow, Bucks, and from there is planning an international
attack on the European market starting with France and Germany.
Access already has a client list which reads like Who's Who,
(Barclays, British Aerospace, Beechams, BP, British Telecom,
British Gas.. and that's just the Bs), and the number of
manufacturers with whom it can boast close links lend credence
to its declared aim to become accepted as the standard
spreadsheet for the Unix community. The spreadsheet works on a
wide range of machines and operating systems including IBM, DEC,
Data General, Prime, Wang, and Unix-based systems, and has sold
20,000+ licences worldwide.

ACORN UNVEILS ARM CHIP AS VL86C010, SIGNS XI FOR UNIX

Acorn Computer Group Plc, 80% owned by Olivetti, has reached
agreement in principle for VLSI Technology, Santa Clara, to
manufacture and market worldwide the 32-bit Acorn RISC Machine,
ARM, as the VL86C010. Acorn has also, reportedly, commissioned
a company to implement Unix System V.2 and C for the ARM. The
ARM is a general-purpose 32-bit microprocessor, with 32-bit data
bus, 26-bit address bus, and a bank of 25 32-bit wide registers.
Each of the five basic instruction types has a hard-wired code.

In this weeks issue:-
Page 2:- More on **Access
Technology**'s arrival.
Page 3:- A few interesting
people to visit at the **Unix
User Show.**
Page 4:- A look at Sofchip
Technology from ASA; an update
on **GEC Software**'s IPSE.
Page 5:- **Instate** formed from
Systime.
Page 6:- Company results and
news in brief.

AT&T PERMITS CONVERGENT TO SELL UNIX PC, 3B1 TO OTHERS

Sales of AT&T Information
Systems' Unix PC and 3B1 have
been decidedly disappointing,
so much so that AT&T has agreed
to allow Convergent
Technologies, which designed
them to AT&T's specifications,
and manufactures them, to
offer them both to other OEM
customers and to Value-Added
Resellers. The latter will be
able to sell the machines with
AT&T's logo on them. Both
machines are built around the
Motorola 68010, the difference
being that the Unix PC is
configured as a single-user
machine, the 3B1 having extra
user ports. The machine is
thought to be similar to
Convergent's MiniFrame, but has
a proprietary AT&T
telecommunications chip.
● The long-promised Unix
System V.3 release from AT&T
should be out next month, and
the company will reportedly
accompany it with a stripped-
down System V.2.3 release
specifically configured for
low-end single-user
microcomputers such as its Unix
PC and PC6300 and Plus.

Since its foundation in 1981 by ex-Data General luminary Alan Kluchman, Access Technology has grown at the rate of 40% to 50% per annum and now has a turnover of £10 million.   The company dipped its toe into European waters just nine months ago since when it has accounted for 15% of profits. Access already has OEM agreements with Siemens and ICL, which is supplying 20/20 on the Clan.   The 20/20 product has been badged under a variety of guises, including being sold by Information Builders as FoCalc, the integrated spreadsheet teamed with the leading IBM "fourth generation language" Focus.

Now Access Technology has taken its European marketing firmly into its own hands and has laid the groundplans for some grandiose translation efforts which should bring it to the thickest, most tangled part of the wood surrounding the issue of Unix international standards.   Access has made a start with a three-phase plan; German and French versions of the user manuals were already on show at the 20/20 launch in London last week.

The 20/20 spreadsheet was conceived as a multi-user equivalent to Visicalc and its PC-DOS successor Lotus 1-2-3. It has evolved through several stages since starting life at Data General as Supercomp. Kluchman saw the potential of a minicomputer spreadsheet which would add a multi-user dimension to the flexibility of a personal spreadsheet tool. The first attempt was in assembly language and although it incorporated most identifiable 20/20 features, it was limited to Data General kit. In 1981 Kluchman set up Access Technology, which is privately owned but backed by two US venture capital companies, John Hancock Insurance in Boston, and Oxford Partners, Connecticut. Realising he needed a firmer grasp on the technical environment, Kluchman drafted

ACCESS TECHNOLOGY PLAYS
JEUX SANS FRONTIERES

Jon Sachs, who was closely involved in thye development of 1-2-3, and the result was Supercomp 20, written in 1982. The vehicle chosen was C - by no means an obvious choice when the rest of the work was raving about Pascal, and before Unix was more than a fringe flavour. The aim was to make Super-comp the standard multi-user spreadsheet - an heir rather than a rival to Lotus 1-2-3, which Access now sees as a valuable source of "compatible" business.   From small beginnings using the DEC and Onyx C compilers, the spreadsheet developed into a typical "departmental" tool. Its re-incarnation as 20/20, in fully portable C, has fed on Access's message that it should be seen as a sort of financial lingua franca, getting people to work together without the petty restrictions imposed by specific computer environments. One of 20/20's strengths is that a spreadsheet can be transferred from one computer to another by means of three keystrokes, and sent back again with another three, making the transfer of data between "incompatible" departments much more efficient.   One unnamed user in Maidenhead was quoted as typical in that it can now consolidate internation results from Europe in a half an hour in a process which used to take eight days, and involved posting Apple disks between sites. Another feature of the product is its use of windows and the strong integration of spreadsheet and graphics. At the launch this was demonstrated by a change of one cell on the spreadsheet, which automatically generated a redrawn pie-chart in a juxtaposed window. Access claims to have invented the concept of "goal-seeking" by which the

user can state the desired value of a variable and let 20/20 work out the target percentage growth to reach that value. Only 20% of the company's business is Unix-based at present, although UK managing director Paul Burness predicts that it will be the fastest growing sector this year, eventually accounting for the greater part of profits. At present the system is available on Altos, Plexus, NCR, Elxsi, Sun Microsystems, Pyramid, Gould, Apollo, Olivetti and AT&T 3B systems. In the case of Altos 20/20 is a component of the Altos Office Manager Plus office automation system. There are also versions for the Wang PC and VS, and Prime , planned for release in August, and an IBM VM/CMS shared implementation for mainfame users, including graphics.   The PC version just released uses the IBm standard GSS VDI interface , and links with MS-DOS from inside 20/20, so that entire models can be moved from other applications such as Lotus 1-2-3, Visicalc and Multiplan: Access has been working closely with Microsoft on a Windows implementation.   The company's answer to the thorny issue of licencing has been its policy of "site licences" which allow a user to run an the product on an unlimited number of processors across a range of manufacture types in a specified location. Access's target market is large corporations and government and quasi-goivernment organisations running a mix of kit, whose costs would typically be in the region of £19,000. Prices for individual versions of the product vary between £395 for a single-user micro version, £5,200 for a typical multi-user minicomputer licence, and £13,400 for a mainframe system irrespective of the number of users.

WHAT IS ON AT THE EUROPEAN UNIX USER SHOW
OLYMPIA JUNE 3 - 5

Next week the third UK-based European Unix User Show hits London and the organisers, EMAP, are anticipating 5,500 attendees this year. 1985 attendance figures totalled 3,600. There will be the usual mixture of old and new, hardware and software to attract potential customers and here we have outlined a few products and companies that are worth a viewing.

Andor Systems will be using the show to introduce its GATOR series of 68020-based supermicros and GX/1 - a high resolution bit mapped graphics subsystem. The GATOR series comes in small and large sizes, the GATOR S and GATOR L. The GATOR S is priced at £7,950 in OEM quantities and includes the M68020, power supply, cables, six slots, MMU, disk controller and Unix System V. A prepackaged version of the S is available at £5,950 for which you get the M68020 CPU, four serial and one parallel ports, SCSI interface, 1Mb of RAM, 20Mb of Winchester storage and 1Mb floppy. The stanadard GATOR L has 16 serial ports and 2 parallel ports. Options include 1/2 Gb of Winchester disk storage, M68881 floating point co-processor, up to 24Mb of RAM, 60Mb cassette backup, 5 1/4" floppy drive, VME adaptor and an additional 16 serial ports and 2 parallel ports - prices start at £10,000 for OEMs. The GX/1 subsystem consists of a graphics card, mouse, keyboard and monitor. Monitors are available in 15" or 19", portrait and landscape, with a resolution of 2 million, 4 million and 8 million pixels, but the 8 million pixel resolution will not be available in portrait mode. The 2 million and 4 million pixel resolution will be available in third quarter 1986 and the 8 million in fourth quarter and will cost around £7,000.

UNIX

Precision Software of Worcester Park has developed EMPRESS/32 relational database from the MISTRESS/32 database. EMPRESS/32 includes M-BUILDER a fourth generation application builder and has language interfaces to Fortran, C and Cobol. According to Precision EMPRESS/32 is available on most hardware running Unix or Xenix. Prices start at £1,125 for an IBM PC AT version running Xenix.

USER

Optim Computer Group will be showing off its Unix-based range of business application packages. The company, with its UK base in Letchworth, Herts, specialises in systems for hotels, furniture retailers, office automation, field service operations and the glass and glazing industry. Most of the software is written in-house but standard packages such as Tetraplan and Uniplex are also supported by the Optim Group. Optim has a base in New York and also has subsidiaries in Holland, France, Germany and Yugoslavia.

SHOW

The Unix mad Canadians will predictably be at the show and one we have not seen before **Officesmiths** is looking for distributors for its Officesmith database management system.

UNIX

Zilog will give the first European showing of its new AT&T WE32100-based processor the System 8000/32 (UX No 78). The Models 110 and 130 are priced at £19,000 and £31,000.

A new British Unix hardware development and manufacturing company will be launched at the show - **priorKnowledge.** priorKnowledge is an Eastleigh, Hants - based company whose initial offering to the market will be a 16 user Unix system that is, according to the company, CPU-independent. The main system board houses a plug-in module which supports the primary processor, MMU and floating point processor. This module may then be swapped in and out by the user when he decides to upgrade or for other reasons decides to change CPUs. The first model will be supplied with the National Semiconductor 32032 and CPU module options will include NS30332, Intel 80386 and Motorola 68020. For £20,000 the system is supplied with 8Mb on-board RAM, 74Mb hard disk, 60Mb tape back-up, terminal, printer and support for 16 users. GKS and graphics resolution of 1280 by 800 are provided as standard. Unix V.2 is also supplied as is the ROOT office suite. MS-DOS 3.1 may also be supported concurrently

UNIX

The benchMark 32 will be the main attraction at the **benchMark Technologies** stand and will be seen with two different processors: the National Semiconductor 32032/332 and the Motorola 68020 - benchMark is promising an Intel 80386 version for the near future.

USER

The European heavyweight in the Unix market - the AT&T division of **British Olivetti** - will be out in force at the show and will also be joining its weight with that of some of its VARs, who will be demonstrating some of their software packages for the Olivetti 3Bs.

SHOW

Sanderson Computers will be demonstrating Unix orientated support tools: Pro IV and Revelation. Pro IV is an applications development system based on the premiss that there is a finite set of data processing operations necessary to develop, implement and execute any business application. Sanderson will be sharing its stand with Parkway Systems who will be showing Revelation - a single user or network database facility.

UNIX

Sphinx's stand will be playing host to XENIX-NET a packaged version of Microsoft's Networks for Xenix - the product of a joint effort by **Microsoft** and **The Santa Cruz Operation.** It provides networking and distributed file system capabilities on Xenix V-based systems. Sphinx will also be demonstrating Informix-4GL, Xenix Tutor and the Hi Tech Business Graphics package.

USER

TIS Computing, Convergent Technologies and Fortune Systems distributor, will be launching the Mightyframe C in the UK and TIS will also be showing the Unix co-processor from Fortune along with **IBR** (UX No 76).

ASA INVESTING IN SOFCHIPS AND HAS BIG CONTRACT NAMES

Advanced Systems Architectures of Camberley, Surrey has come up with a system that it considers to be the answer to the problems associated with cost, performance, reliability and maintainabilty in real-time systems including telecommunications - Sofchip Technology. Sofchip Technology is a system designed with specific applications in mind and, according to ASA, it provides the tools for design and development of similarly functionally orientated systems. A Sofchip is a collection of structurally or functionally related processes and the system is defined by ASA as being the total collection of Sofchips in a Sofchip library. Sofchips are self-contained pluggable system elements and they may be implemented either by hardware or software means. Hardware implementation means that each process within the Sofchip will correspond with a particular circuit. Usually, however, Sofchips are implemented as bit patterns occupying one or several memories or only parts of these as required. These bit patterns define interpretable information as data or as machine instructions to be executed by its associated Sofchip processor.   Each Sofchip has exclusive use of its assigned memory areas which can not be accessed by any other Sofchip. The Sofchip processor is predictably designed to support the Sofchip architecture. The Sofchip processor control and support functions are performed by a Sofchip Master Control Unit and up to eight MC68000 processors. Support tools for this Sofchip environment include: Auto-G - a CAD tool for automatically producing G-Diagrams (which can be compared to program flowcharts); the Semantic Checker which analyses the consistency and completeness of any design; target code generators for Sofchip processors; and a functional exerciser for manual or automated rapid prototyping and dynamic testing of designs.
Auto-G can be used on ASA's own Sofchip processor and in a Unix environment, the company itself uses the MG-1 workstations from Whitechapel Computer Works.
ASA has won two contracts. One for the £650,000 EEC-funded FORMAST(FORmal Methods for Asynchronous System Technology) joint research project which is part of the Esprit program.
ASA's partners in the project are MBB-ERNO, a West German space systems company, the University of Kaiserslautern and Imperial College. The project is to develop a framework for provably correct design of complex 'open architecture' real-time computer systems and a tool-set for their development. It will use the company's G language, around which Auto-G is based. ASA has also made its first commercial sale of Auto-G to GTE-ATEA, the Belgium-based subsidiary of US electronic systems giant GTE. GTE-ATEA will use Auto-G for requirements capture, fuctional specification and system design of a new range of a new range of distributed architecture electronic systems products.

ASA is two years old and was formed from the consultancy business that the founders Goran Hemdal and Chris Williams had been involved in since 1982. The Sofchip Technology development project is funded with: £250,000 from the Department of Trade and Industry; and £500,000 from The City. ASA numbers Racal, Plessey, Bell Telephone in Belgium and the UK Ministry of Defence.

UNITED BUSINESS SYSTEMS
TAKES IBM RT - FOR BUSINESS

Pace IBM's pitch that its RT Personal Computer was aimed solely at the engineering workstation market, United Leasing's United Business Systems unit has become an authorised dealer for the RT - and says that it will be marketing it for commercial applications under Unix. The RT has a Virtual Resource Manager executive that sits between the operating system and the hardware, making the machine ideal for emulating other operating environments - which suggests IBM may offer System 36 SSP under the VRM.

GEC ADDS FRAME TO GENOS

GEC Software obviously did not receive sufficient publicity following the Ada Conference, held in Edinburgh at the beginning of the month, as it held a press conference last week in London to push the same points. The company, with its headquarters in Covent Garden, announced that its IPSE (Integrated Project Support Environment) project now has an 'environment administrator'. GEC's IPSE project has been given the name Genos. The news is that Genos now has a framework on which to hang the rest of IPSE software which it has either acquired from other companies or developed themselves. Genos to date conists of VADS, Gecomo, IP/TCP, Eunice and Ten/Plus. VADS, Verdix Ada Development System, is an Ada program development system, consisting of an Ada compiler, runtime facilities, program library utilities and a symbolic debugger. Gecomo is GEC's own product that estimates software development and maintenance costs. The estimates are achieved by using Cocomo, a cost estimating model. IP/TCP is a communications system residing under VAX/VMS or VAX Unix and supports the interconnection of VMS and Unix systems which incorporate the TCP/IP protocol environment. Workstations and laser printer devices can also be connected to VMS using the IP/TCP implementation, according to the company. Eunice is a suite of software which allows VMS and Unix to co-exist on a VAX. Ten/Plus is the user interface that is based cupon the product from Interactive Systems of the US. The price for a typical Genos environment is £20,000 for a Sun III workstation and £60,000 for a VAX 780.

ANOTHER NEWCOMER – INSTATE – FORMED FROM SYSTIME's D-SERIES DEC VAX UNIT

A new company has been formed to challenge DEC for the former Systime Computer Ltd D-Series customer base. Instate Technology is the result of what Systime describes as an "amicable management buy-out" of the D-Series sales and marketing operation and Fungus Computer Products. Buyout leader and chairman of Instate, John Arnold, ex-head of DEC products at Systime and one of the Leeds' company's first employees, pledges to take on DEC, the new owners of Systime's D-Series maintenance business, at least in the short term: "we don't want to annoy DEC... but we do want to look after the smaller customers. DEC isn't capable of looking after Joe Bloggs with his £40,000 installation". In the short term, Instate will try and sell the £1m worth of DEC kit, including 20 VAX-11/750s, that came with the buyout. In the long run, though, Instate may look to do "something different" as Arnold recognises that DEC is unlikely to sell to Instate. In his view, Emulex and Fujitsu represent short-term solutions and he may use his friendly terms with his old bosses to take on distribution of Systime Unix-based S-Series. Arnold is also not adverse to recommending his other former colleagues who left Systime to form Independent Computer Maintenance recently. Instate has taken premises on the same Leeds Science Park as Systime and is establishing a Slough office in the old Systime premises to target Systime's southern customers.

SUN MICROSYSTEMS, APOLLO STAR AT UP-BEAT HAMBRECHT & QUIST CONFERENCE

With Wall Street looking slightly wan but still within a few percent of its all time high, what of the US high technology sector, which has largely sat the US market boom out? William Hambrecht, chairman and chief exective of San Francisco investment group Hambrecht & Quist is cautiously bullish. "There are numerous signs that the technology industry has weathered the toughest part of the recent down cycle," he told a group of institutional investors at the opening of the Fourteenth Annual Hambrecht & Quist Technology Conference last wek. "Book-to-bill ratios for the semiconductor industry are up; engineering workstation orders are on the rise, and many peripherals companies are experiencing equipment order backlogs," Hambrecht said. Hambrecht & Quist analyst Robert G Herwick told investors that sales and orders for engineering workstations are continuing their first quarter increase, which began at the end of 1985. "We expect the second quarter to be marked by similar growth as large systems buyers become familiar with the latest products from Apollo Computer and Sun Microsystems, and with the first offerings of DEC and IBM for this market." Herwick predicted that the 1986 growth in sales for 32-bit engineering workstations would exceed 50% over 1985 levels. Apollo Computer and Sun Microsystems were among the more than 160 companies presenting at the conference. Chief executives from the two companies reported strong sales figures reflecting large increases in orders from Europe and domestic US OEM customers. In 1984, European sales accounted for 19% of Apollo's revenues, and just 10% of Sun's. According to Apollo and Sun representatives, those figures, fuelled by major orders from Siemens and Philips for the former, the likes of Matra and GEC for the latter, have already climbed to 40% for Apollo and between 30% and 35% for Sun in 1986.

£3m ALVEY PARSIFAL PROJECT USES INMOS TRANSPUTER IN QUEST FOR GRAIL

A research computer using 64 Inmos Transputers, each with 1Mb of memory, is being built over the next three years with £2m of investment from the government-backed Alvey directorate.

Seven academic and commercial partners are involved in the project with a further £1m of investment coming from Inmos, Logica, GEC Research and FEGS Ltd. A total of 50 man-years are being spent on the parallel simulation facility, which lends the project its name Parsifal.

Academic bodies involved are Manchester University Computer Science Department, the Polytechnic of Central London and Cambridge University Engineering Department.

Parsifal is intended as a research project but Clifton Hughes, its co-ordinator from Logica, anticipates that much of the work will result in marketable, commercial products.

Logica has already begun work on converting the Transputer Development System to run under Unix, adding to the existing VAX/VMS and IBM Personal Computer versions.

The project aims to connect the Transputers via a switching matrix to enable the investigation of different configurations. Results of performance analysis and simulations will be presented on colour monitors via Graphical Representation of Activity, Interconnections and Loadings, GRAIL. GRAIL, produced by GEC Research and Central London Polytechnic, enables developers to manipulate a program structure on screen.

Using GRAIL, different program positions can be explored and bottlenecks pinpointed prior to construction.

Monitoring and debugging tools are also being developed, the Polytechnic of Central London's Transim for example.

Transim allows designers to describe Transputer-based architecture to it, and then tells them how the configuration would behave if they were to build it.

The Inmos Transputer, using Inmos' own Occam language, has been specifically designed to work in multi-processor architectures.

A few blind alleys

Each Transputer has four bidirectional input-output channels which can transfer 10Mbits per second, a total of 80Mbits per second transfer – and those speeds have just been doubled using new links.

Parsifal has a total of £3m investment from three areas.

The Alvey directorate, operating through the UK government Department of Trade and Industry, offers a 50% grant to encourage industrial high-tech chip research. It has matched the £1m invested by the industrial partners. The other £1m needed for the project comes from the Science and Engineering Research Council, which gives maximum 100% grants for scientific academic research.

Clifton Hughes emphasises that Parsifal is a precompetitive research project, and admits that "we may go down a few blind alleys" before marketable products emerge.

UNIGRAM/X

ZILOG PICKS UP ENHANCED Z80 - UP TO 512Kb, FROM HITACHI

Zilog Corp, Campbell, California has acquired non-exclusive worldwide manufacturing and marketing rights to an enhanced version of the Z80 8-bit microprocessor from Hitachi. The HD64180 has an on-board memory management unit which enables it to address up to 512Kb and Zilog will sell it at $14.50 in 1,000-up quantities as the Z64180. It plans to have a version fully compatible with all Z80 support chips and market it as the Z180 by the fourth quarter of the year.

Company Results

Ashton-Tate Inc has reported first quarter net up 122% at $5.1m on turnover that rose 72% to $41.2m. Net earnings per share rose 88% to $0.47.

Concurrent Computer Corp has now given full comparative figures, reporting a third quarter net loss of $724,000 against a profit last time of $4.0m, on turnover that fell 14.3% at $56.9m; net profit for the year so far was up 48.5% at $4.9m on turnover that fell 2.3% to $189.0m. Net earnings per share fell 51% to $0.49 in the nine months.

Hewlett-Packard Co has reported second quarter net profits down 1.5% at $127.0m on turnover up 5.9% at $1,780m; mid-term net fell 3.7% to $236.0m on turnover up 5.3% at $3,280m. Net per share fell 4% to $0.49 in the quarter, 4% to $0.92 in the half.

Floating Point Systems Inc has reported second quarter net profits up 6.3% at $3.4m on sales up 7.0% at $32.3m; mid-term net fell 0.8% to $6.3m on sales up 6.8% at $61.9m. Net per share, up 3% to $0.40 in the quarter, fell 4% to $0.75 in the half.

Minigrams

Altos Computer Systems Ltd is launching a value-added reseller programme in the UK to complement its existing UK Alliance distributor programme for its Unix and other microsystems: it will address top management from selected resellers in selected vertical markets in London this Friday.

- o -

Oryx Corp has been formed in Paramus, New Jersey to develop parallel processors for military signal processing and analysis, and is also doing contract work for **Kodak**.

- o -

AT&T Co has been asked by the US **Federal Communications Commission** to reduce its long-distance telephone rates by more than the 9.5% it had proposed, a move that would put even more pressure on the struggling independents led by **IBM**'s partner **MCI Communications**: the FCC says AT&T has not calculated access charges correctly and has underestimated growth in demand, and the expectation is that the company will add another two percentage points to the reduction; if so, it would make long-distance charges 21% lower than they were when AT&T spun off the local tele-phone companies in January 1984.

- o -

While companies building smaller machines are planning lay-offs for this year, **Cray Research Inc** is not suffering any lack of demand for its scientific supercomputers, and plans to increase its workforce 30% this year: the company told the an-nual meeting that it expects to install 40 machines this year, 42% more than last year, and that it has orders for half already, eight of them from new customers; users are also tending to buy not lease.

Pick Systems has announced release 2.0 of its implementation of Pick for the IBM Personal, saying that it runs 24% faster, provides a transfer bridge between MS-DOS and Pick files, and includes a new ap-plications generator: it costs $495 to new users, $90 for those who already have an earlier release.

- o -

Olivetti has signed for **Digitalk**'s enhanced implementation of the Smalltalk artificial intelligence programming language, which runs on the 80286 in the native protected mode: Olivetti will major on the language in artificial intelligence research at its Cupertino, California base, and will use it in forthcoming products; Digitalk, of Los Angeles, will reportedly have some marketing rights to the resulting products.

- o -

Sun Microsystems acknowledges that it has run into the usual problems associated with managing explosive growth: US users have been complaining of long lead times on deliveries, shortages of spare parts, machines arriving with pieces missing, and the odd dead-on-arrival; Sun says it is pulling out the stops to fix the problems, noting that demand for the Sun 3 station has greatly exceeded its original internal sales forecasts.

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Pyramid Technology Inc, of Mountain View, California has introduced an imput-output subsystem for its 98x Unix RISC machine: the product includes an input-output processor, an SMD controller for four drives - with a 3Mbyte per second transfer rate, an Ethernet controller, tape controller and printer port, and it costs £13,800.

London, Week Ending June 7 1986   **Number 80**

CONVEX BRINGS C-1 MINISUPER TO EUROPE

Convex Computer has decided that the European market is now
sufficiently mature to bring its C-1 CMOS gate array-based
supercomputer across the Atlantic. European headquarters will
be based in Guildford, Surrey and a direct sales and support
office is also being opened in Frankfurt, West Germany - another
similar office is planned for France. European operations will
be headed by Adrian Wise, former General Manager of Northern
Europe for Gould Computer Systems. Convex started C-1 shipments
a year ago and now has 50 installed and has orders to ship 15
per quarter for the year ahead. Convex considers that it has no
competitors and thinks that the patent cross-license agreement
it has with Cray Research, the financial backing of Sevin Rosen
and the product itself is sufficient to assure potential
customers of the Richardson, Texas company's credibility.

ALTOS INVESTS CASH IN BRITISH SOFTWARE

Cash-rich Altos plans to invest some of the $30 million it
received from the sale of the Wyse terminals firm in British
software houses. Managing director of Altos UK's Windsor-based
operation Archie Thomas is asking the San Jose parent firm for a
sum between $10 and 15 million to invest in several software
enterprises. Thomas is looking at the particular areas of
database, communications, graphics and office automation, with
th intention of taking a maximum stake of 30%, not investing
more than £5 million in any one firm. The aim is to find
stable, profitable operations which have proven products but are
in need of more capital to secure future development.
Thomas emphasises that Altos would not want to keep the benefits
of the product development tied to its own kit. "Quite the
contrary" he said. "The idea is encourage software development,
not restrict it. The products must be allowed to find their own
place in the market. We don't want to take companies over and
lose the people at the top by dictating to them. The whole
market must benefit or there's no point." At present Altos is
talking to companies of an average of around 20 employees,
mostly based outside London. Last week Altos launched its VAR
scheme in the UK accompanied by 15% price cuts across the range
of its 886, 1086, and 2086, designed to bring its prices in
line with other manufacturers' 16-bit multi-user computers,
particularly NCR, Olivetti, and IBM. Along with the price-cuts
come huge discounts calculated to lure VARs to the Altos cause.
Of the 35 companies invited to its conference, including such
names as Hoskyns, and Miles 33, Altos will pick only seven to
pilot its VAR scheme in spoecific vertical markets.   Altos is
perparing to raise its profile, working with the chosen VARs in
joint promotions, co-operative advertising, sales efforts and
sharing of contacts; Typical of this effort is the plan to have
an Altos-dedicated show at Hammersmith's Novotel on October 7th
to 10th, called "Computer Solutions with Altos". The VAR scheme
does not mean that Altos is loosening its links with its main
distributors Logitek and Microtex; according to Thomas UK
business increased by 50% last year. Altos now claims to have
installed over 75,000 systems worldwide, and 1985 turnover
topped $124 million. Its this boom which has forced Altos to
take what Thomas calls "a more focused approach" to the market
to encourage the development of applications in vertical markets.

SPERRY UNVEILS BENCHMARK-BASED GRAPHICS SUBSYSTEM

Sperry Ltd has now announced
the fruits of its collaborative
venture with benchMark
Technologies Ltd of Kingston-
on-Thames, Surrey, to produce a
high-performance graphics sub-
system based on benchMark's GIP
Graphics & Image Processor -
with window manager designed to
interface to Unix systems by
Spider Systems Ltd of Edin-
burgh. The system is designed
for bus-level connection to a
Unix machine, and will initial-
ly be offered with Sperry's
PC/IT AT-alike running under
Unix, and with its 7000/40 Unix
minicomputer which is based on
the Computer Consoles Power$_6$
processor. The system, which
includes 20" 1,280 by 1,024
pixel monochrome or colour
screen and mouse and keyboard
input, and 40Mb image memory
option, can support six screens
on the 7000/40 - 24 screens
when four GIPs are attached.
Target markets include image
processing, graphic arts and
animation, and geophysical i-
mage analyis. A single-user
system including the PC/IT
costs under £20,000, and is on
show at the European Unix User
Show, which opened at Olympia,
London, on Tuesday this week.

CROSSING THE LANGUAGE BARRIER WITH UNIX

Claire Gooding takes a look at how one translation company is addressing the problems of internationalising Unix applications. Next week: Hints for software internationalists.

Internationalisation is one of the most disputed topics in the Unix arena; it is fundamental to the claim that Unix will serve world in the coming decade. At the moment it looks like reaching a compromise which will neither delight, nor disappoint everyone. Relatively few companies develop software which is designed from the start to be translated and marketed in another country. Most have enough difficulty making the UK-US transfer, and even more never get the documentation right in the first place. While various Unix committees seem to have taken the reins from AT&T to speed the process, individual companies are still having to evolve their own processes to cope with international boundaries, particularly character sets. The committees deal in theory, and their work takes a long time. Software developers, in the meantime, cannot afford to hang around waiting, and several have already tackled the European translation problem, which can mean not just manuals and documentation, but the actual software and interface screens. Lexitel is a company which has grown from a its broad-based technical translation business to specialise in Unix systems. Customers whose international products have already been announced include Access Technology, whose 20/20 spreadsheet was recently launched in Europe, and Altos, now broadening its market with VAR agreements. Lexitel keeps quiet about other customers until their products are released, but given the company's specialist knowledge it would be surprising if AT&T were not one of the several companies having multi-lingual chats with Lexitel. President Andrew Thorburn holds a brief which includes not only a variety of languages, but specialised knowledge of the various options open to clients in the mode of publishing. With Access Technology's 20/20 spreadsheet, Lexitel used a laser printer, but the company has to be well-versed in the various methods of transferring data and text, as well as developing specialised online help. "What we are basically doing is creating a new vocabulary for non-English users" he explained. "It's difficult to see how such a project can be managed from the US, so we tend to work closely with national headquarters in the country concerned, which also saves on printing and production costs." One of the difficulties facing Lexitel is that the translation of a product may well impact the software itself, to a degree that the product does not stand still. This is a problem with any documentation, compounded in

translation... "it's like trying to hit a fly with an elastic band", says Thorburn. Often screen translation can cause problems, particularly in German where compound words take up more space. The keystrokes may have to change as well; the choice between F for File S for Save and P for Print means some complex manoeuvering in German translation where the workds for File and Printing (Datei, Drucken) both begin with D. Even with the re-organisation of menus which is often necessary, Lexitel reckons it can translate the software (not the manuals) in a week, though this obviously impacts software development as well. Another hidden overhead is the effort that has to go into managing and co-ordinating a translation effort, which can involve a great amount of management time for the client as well as Lexitel. At a technical level, Lexitel relies on the various clients to have sorted out their own ASCII character table, and names HP and Bull as shining examples in this area, who have also standardised on commands. Unix should, theoretically, be an ideal environment since it already includes such complete editing tools. Though Lexitel has not yet used such Unix-based electronic publishing systems as Interleaf for "what you see is what you get" layout on the screen, it has developed its own techniques. The translation into French and German of nine software products for Altos' Office Automation suite was made easier by being able to transfer entire screen layouts into text files, for example. For Access, Lexitel tranlated the manuals of the 20/20 spreadsheet. The product is complete (manuals and online help) in French and German, with Italian on the way, but two phases remain. Already under way are the modification of software to supply international support, and international formats such as date, time, and decimal separators, and will then address 8-bit character support. In the long term Access is addressing the translation of error messages and menu lines; the eventual aim is to be able to transfer models across international barriers in whatever language, and switch languages from the host terminal. Lexitel's service embraces the peculiar flavour of each international market, as well as translating the manuals word-for-word. Often the patronising style of US manuals simply will not do for the French and German market which sees computing as serious, not fun. Examples are often inappropriate or simply inadequate. "US manuals tend to be NOT culturally neutral, too long, and just irrelevant to European users" says Thorburn.

RELATIONAL TECHNOLOGY OUTLINES PLANS TO SOLVE DISTRIBUTED DATABASE PROBLEMS

Relational Technology has announced Phase 1 of what it considers to be the first commercially available distributed database product. The system is based on RTI's own local SQL-based database product - Ingres. The distributed relational database product, called Ingres/Star, is due for completion in 1988. RTI set out to produce a system that provided 'transparent, simultaneous access to data on multiple, dissimilar systems' and decided that the right architecture to do this: includes leaving local database management systems unchanged; maintaining security and integrity through the local dbms; making the distributed database a union of local databases; allowing multiple distributed databases; allowing deferred and concurrent copies of files to made; and using an open systems architecture. Ingres/Star will be implemented using: a distributed data dictionary; distributed query decomposition and optimisation - a query is made by a user which is then transferred into sub-queries by Ingres then sent to the different, relevant, remote databases; companion dbms gateways - software that allows communication between different environments - operating systems and sizes of machine - provided that the dbms is based on SQL, if another dbms is used RTI is intending to produce a Gateways toolkit so that users can build their own interfaces to any dat source. Phase 1 of the package allows multisite reading but only single site update, deferred copy transparency, support for SQL and RTI's own initial query language QUEL, support for VAX/VMS and Unix and all the existing INges application tools. Phase 2 due for completion during 1987 will allow multisite update, concurrent copy, support for IBM VMS, VM/CMS and PC/DOS and the companion SQL gateways. The final stage will provide the companion non-SQL gateways and the gateway development tool kit. SQL feels that its effort at distributed dbms will succeed where other efforts, such as Cullinet's have failed, because its approach makes use of artificial intelligence. It fears no competition from IBM with its RStar project because its sources have revealed that IBM is about two years behind them in development, DB2 - IBM's dbms was brought out a year after Ingres. Another point in its favour, according to the company with its UK base in SW London, is that it has a history of expertise in the DEC/VAX and, later, Unix environments. Ingres/Star and Ingres/Net will be offered as a combined option with prices ranging from £3,500 to £45,000.

GEC SOFTWARE TO DO ISO FILE TRANSFER AT NETWORKS '86

GEC Software will demonstrate FTAM, File Transfer Access and Management between three different Unix computers at Networks '86 from 10 to 12 June. FTAM is a subset of the application layer of the OSI model, the seventh layer. It will be shown on Sun Microsystems' Sun 3, British Telecom's Fulcrum S1000 version of the Bleasdale box and ICL's Perq. BT has jointly funded the demonstration and, if it comes off, GEC Software will target computer manufacturers to sell it as a commercial product. The company also hopes to show the US Defence Department-designed TCP/IP protocol, transmission control protocol internet protocol, running under Unix between a VAX and a Sun 3.

AT&T DETAILS ITS US REORGANISATION...

AT&T Co has now outlined the merged organisation it plans to create in September by bringing its 118,000-strong Communications and 92,000-employee Information Systems units together. There will be four group presidents under Randall Tobias, the biggest group being the Busin-ess Markets unit, which will take in computers as well as large acc-ount telephone services and equipment, and represent 50% of sales and over half of profits, employing 33,000 people. The General Markets Group will market long-distance services to small business and dom-estic users, and will and employ 72,000 people. The Special Markets Group will employ just 200 and be in charge of strategic planning and joint ventures and joint marketing. The remaining group will be in charge of the long-distance telephone network, and AT&T's internal management information systems.

...SLASHES ORDERS TO CONVERGENT TECHNOLOGIES

Convergent Technologies has been hit by a major cut-back in orders from AT&T for the Unix PC and 3B1. The company says ships to AT&T will account for $25m of business in the current quarter, down from $35m - almost half its business - in the first quarter, and will decline to only $30m for the rest of the year. Last year, Convergent shipped some 40,000 to 50,000 machines to AT&T, of which it is thought to have sold only 10,000; just 2,000 are thought to have gone in first quarter 1986.

ICL's PARTNER DATAMEDIA CORP LAUNCHES 68020 UNIX LINE

Datamedia Corp, the Nashua, New Hampshire company where ICL has a 16% stake - it supplies ICL with its low-end Clan Unix machines - has intro-duced a family of three upgradable models in its DMC/932 Unix family, all built around 16.7MHz incarnations of the Motorola 68020. The three are the 2610, 2620 and 2624, coming in above the 68000- and 68010-based 1610, 1620 and 1624, and are field-upgradeable through the new line, topping off with 16Mb processor, 32 users and four disk drives. The 2610 has 2Mb main memory, 64Mb unformatted disk, 1.2Mb floppy, four RS232, two RS422, plus serial and parallel printer ports, and Unix Syst-em V for $18,500. The 2620 adds a 16Kb cache and 20Mb cartridge tape, bringing the price to £22,500, and the 2640 adds a second 64Mb disk drive and costs $28,500. Datamedia says that they do not replace its existing machines, and that first US deliveries are set for this month.

The Unix User Show opened on Tuesday this week to attendance figures up on last year but the show was by no means packed. IBM's move into Unix has given confidence to the Unix marketplace — the standard speech is that Unix is here and IBM's decision with the Personal RT proves it. Unix Europe declared that the long-awaited Unix System V.3 would be out next week — and a key feature is the RFS Remote File Sharing system. Networking indeed is one of the main buzz words and a highlight of the products being shown. Logic Replacement Technology launched EtherTERM — a windowing terminal with integrated TCP/IP networking protocol which can be connected into the Ethernet local area network and costs £995. EtherTERM is based on the Atari 520 hardware with a daughter board placed on top of the MC68000 processor, and it supports either Ethernet or the Cheapernet connection. Tadpole Technology, Torch, and Pyramid were all demonstrating Ethernet and were allowing their machines to talk to each other. Tadpole took to the show its application of Motorola's MC68851 paged memory management unit — the TP20 processor board, based on Motorola's 68020. Tadpole also announced an agreement with British Telecom Fulcrum to supply its board level products for integration into a new Bleasdale Computers-developed Unix box from BT Fulcrum, this agreement includes the TP20. BT Fulcrum and Tadpole intend that the BT subsidiary wil start manufacturing some or all of the Tadpole board products later this year. Pyramid Technology's communications offerings inclued UUCP, MS-DOS to Unix, Ethernet with both TCP/IP and XNS protocols, X.25 and SNA. The focus of the Pyramid stand is on the 98xe supermini and its new Workcentre — also based on the 98xe. The WorkCentre is intended as a Network Server, a

AT&T PROMISES SYSTEM V.3 FOR NEXT WEEK AT OPENING OF EUROPEAN UNIX USER SHOW

DBMS Server, a Software Development Engine and as a low cost departmental system for the academic market — the US price is $66,666, it is available in the UK today but no-one could work out the UK price after a hectic morning at the show. Another of the major interst area at this years show is software and more imporrtantly working applications software: Unify was demonstrating Accell, Access Technology is demonstrating the newly developed Unix version of the 20/20 spreadsheet and a little known Canadian publishing software house — Softquad — has produced a revised version of AT&T's Documenter's Workbench that includes many facilities that publishers need but AT&T does not provide. AT&T will be demonstrating the Softquad publishing software on June 5 to 200 of its publishing customers — the rationale obviously being that even if AT&T has not got the software it is still anxios to keep its customers happy and make some money out of hardware. Optim, a subsidiary of the MCS Group of New York, considers itself one of the most experienced Unix systems houses around and then goes on to say that it does not consider itself a Unix house. It produces Unix applications software for hotels, furniture retailers, office automation, field service operation and the glass and glazing industry and numbers Everest, NatSemi, ITT, Corby Timber Press and Truste House Forte amongst its customers. National Semiconductor produced its second Integrated Computer Module, the ICM-3232, the NS32032 version of the ICM-3216 — announced at the beginning of this year, running System V. NatSemi also announced its

addition of the 'Streams' input-output feature to System V/Series 32000 — NatSemi's implementation of System V.2. AT&T made an interim release of System V.2.1 available to NatSemi for implementing streams on the ICM. NatSemi is banking on the new release of System V from AT&T and expects to be making an announcement concerning its own port within the next month or so and the corresponding announcement for the ICM line is scheduled for September. Two new Unix based companies decided that the Unix User show was the place to tell everyone else that they had arrived — priorKnowledge and Computer Consoles (Europe). Last week we took a brief look at priorKnowledge (UX No 79) and next week we will put a little more flesh on the bones. Computer Consoles (Europe) is the newly formed subsidiary of Computer Consoles Inc (CCI). At the show CCI demonstrated its Power5 and Power6 computers. The Power6/32 is the Clan 7 from ICL and ICL is expected to launch the lower end-of-the range Power6/32E as some sort of Clan some time this year. As well as the announcement benchMark Technologies made as a result of its collaborative agreement with Sperry concerning benchMark's GIP Graphics & Image Processor (see front) benchMark also announced a low-end version of the GIP which has the unwelcoming name, for those with jab phobias, of the bCG. The bCG uses the same architecture as the GIP and provides a resolution of 1280 by 1024, eight planes and 256 simultaneous colours from a palette of 256,000. The price for a 12 user black and white system is around £2,500, for a single user with 256 colours the price is about £1,500. Alternative Business Systems is offering Cifer 9 T3 windowing terminals with 1Mb of RAm and 21Mb hard disk at 50% off for the duration of the show.

HEWLETT-PACKARD DECLARES PRICE WAR WITH HP9000 SPECTRUM

Last week Hewlett-Packard launched its latest addition to the HP 9000 series - the Model 840. This multi-user Unix supermini uses RISC technology - called HP Precision Architecture - and is also used to extend the 1000 series. HP's Precision Architecture was first implemented on the HP 3000 Series 900 systems and the Model 840 uses the same architecture. The 840 threatens to trigger a new price war in the scientific supermini market, having a base price of around £95,000 and, according to HP, giving half as much again in the price performance ratio as any of its competitors. The company cites a MIPS rating of 4.5 - based on the IBM MIPS scale and perhaps a more accurate perfromance ratio is the Whetstone based on the Linpack benchmark giving 3,000,000 Whetstone instructions per seconds for 32-bit single precision and fro 64-bit double precision 2,000,000 Whetstone Instructions per second. The machine is comparable to a DEC VAX 8600 which costs four times as much. The machine runs under HP-UX, System V.2-based Unix and comes with a proprietary floating point co-processor and the basic configuration comes with 8Mb main memory, six channel multiplexer, and Unix licence for 16 users. The machine is rated by HP as having two to three times the performance as the previous top of the 9000 line the 550 and three times the power of the 1000 series. The 1000 series is used primarily for real time applications, running under RTE, so putting Unix on it may not seem a sensible idea but HP say that it has added real time extensions to its version of Unix which allow kernel pre-emption, setting of real-time flags and process scheduling. Included in the 840 base system is PORT/HP-UX which is a set of migration tools that helps HP 1000 users analyse existing code and migrate programs a nd databases to the Model 840. PORT/HP-UX also includes routines in HP-UX that emulate most

RTE operating system calls. HP says that it has helped migration further by ensuring that subsystems of the Model 840, such as: graphics libraries; database software; and high level languages; are compatible with subsystems on the HP 1000 real-time computers. HP is adamant that the introduction of the 840 does not mark the demise of the existing 1000 range. HP says that it will continue to invest in the present HP 1000 systems and its manufacture is already committed beyond 1990 and as HP has a ten year support guarantee we will see the 1000 systems in the next century. The company says that it will add to the line soon with the densest chip it has built. Along with the Model 840 HP introduced its Solutions Creator program which is designed to assist in-house systems designers - in manufacturing companies, OEMs, VARs and system integrators in the development of Computer Integrated Manufacturing. The program will provide these people - HP customers - with: early technical information of new products; access to systems prior to volume shipments; open-systems tools to help in software and hardware development; custom engineering of special products; financial incentives for the purchase of development systems.

HP is confident that the 840 will be welcomed in the supermini marketplace not only because of its price performance credentials but also because of the company's commitment to standards: OSI, MAP, SVID, scalable graphics standards, common peripherals and internationally accepted, machine-independent networking standards. HP is also in the process of adding support for the Advanced Research Projects Agency and Berkeley Unix 4.2 networking to the AdvanceNet strategy which will allow communication among Digital, Sun and other HP systems with the Model 840. HP will be actively marketing the 840 in four areas: as high-end solutions for existing HP 9000 and HP 1000 users; as area managers in CIM; as workstation servers; and as a general technical computer competing with the offerings from the likes of Pyramid, DEC, Gould and Concurrent Computer.

SEQUENT SETS UP IN UK

Sequent Computers of Oregon is convinced that it $50m contract with Siemens will herald the acceptance of its new European division and its Balance range of Unix-based computers. Sequent thinks that any potential users that may be loath to spend vast sums of money on a relatively untried machine from a pretty new company will be reassured by its customer list including: AT&T, Hughes, Ampex and Tektronix. The company investors are also impressive: Institutional Venture Partners; Kleiner, Perkins, Caufield & Byers; Venrock Associates; Hambrecht & Quist; Morgan Stanley; LSI Logic Management; Security Pacific; Tektronix; Xerox; Analog Devices; Harvard Management. The company, that intends to position its European headquarters near Heathrow, thinks that the Balance series gives value for money in that to support 16 to 32 people with the performance of a PC it is actually cheaper to buy a Balance rather than a PC per person. The price range is from £60,000 to £400,000. The Balance 21000, the 30-processor version of the Balance 8000 transaction processing machine, was first seen at Uniforum in Anaheim, California and the European launch is at the Unix User Show. Siemens AG's agreement with Sequent covers the incorporation of the Balance machine into Siemens computer systems and other, unspecified, rights of manufacture. Software for the Balance series is compatible to the 8000 and 21000, both systems need only one copy of the company's Dynix operating system, its version of Unix supporting 4.2 BSD and System V applications simultaneously. The 21000 is intended for: parallel research; commercial OEMs; government use; Ada software development; and high end relational databases. According to Sequent the Balance 8000 can be field upgraded to a 21000 at any time. Sequent decision to move into Europe itself rather than leave the market to its distributors: Compass Peripherals; Quartz; Eledra Systems; and Macrotek follows its success in the US. The company attributes this to its interest and concern for the user and considers that a European subsidiary will maintain this image. UK customers include Sir William Halcrow and CASE. The company did $5m worth of business last calendar year and expects to triple that figure this year. The new subsidiary, headed by Stuart Bagshaw - ex-national sales manager of Apple UK, expects to do $5m.

PLEXUS ADDS LOW-END 68020 P/55 UNIX SYSTEM IN US...

Plexus Computers Inc, San Jose, has introduced a low-end P/55 model in its 32-bit 68020-based Unix line, effectively replacing the 68000-based P/35 and P/60, although these will continue to be available. The P/55 supports up to 32 users when fitted with two communications pro-cessors, and slots in below the P/75. A 1Mb CPU, 71Mb Winchester, 60Mb cartridge tape and support for 16 users is $25,250; the machine can be expanded to a top-end con-figuration of 8Mb processor, 68881 mathematics co-processor, two term-inal controllers and 435Mb of disk.

...OFFERS OPTIMEM OPTICAL DISK BACK-UP IN UK

Plexus has also become the first Unix systems manufacturer to offer an optical disk drive as an optional alternative to cartridge tape for back-up archiving on its systems. It has picked the Xerox Optimem 12" drive and is offering them here in the UK at £36,000 for drive with a write-once capacity of 2Gb.

ALTOS ANNOUNCES STRATEGIC AGREEMENT WITH TANDEM

Part of Altos's limbering-up operation has surfaced in a joint marketing agreement with Tandem. The agreement, for an undisclosed sum, involves joint product development centred on the 68020-based Altos 3068 multi-user supermicro.

WHITECHAPEL SECURES THIRD ROUND OF FUNDING

Whitechapel Computer Works has announced that the company has secured the third round of investment funding as planned. The source of the £900,000 funding will be announced shortly. The funding is to allow the company to continue to grow whilst still talking to potential partners. The growth will be in terms of development - a new product is promised for the autumn based on the Natsemi 32/332 chip - and to strengthen its marketing operation particularly in its European distribution channels.

Minigrams

High performance reduced instruction set computer manufacturer **MIPS Computer** Inc of Sunnyvale, Califor-nia is on its way following a $15m three-year OEM contract from Silic-on Graphics Inc, which wants to use the newcomer's processor as the basis of its next generation of three-dimensional graphics worksta-tions: MIPS, which already has an OEM deal with **Prime Computer** Inc, announced a family of OEM boards built around the 10 MIPS CMOS RISC microprocessor as the R2000 series this month.

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The construction industry is the latest target for **Tetra Business Systems**, which has won an order worth £145,000 from Kalamazoo for its Bespoke software Division to develop a specialised package. The software is to integrate with Tetra's business range and will be based on Tetra's Source Code and C Base.

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Pyramid Technology Inc, Moun-tain View, California has in-troduced an input-output sub-system for its 98x Unix RISC machine: the product includes input-output processor, SMD controller for four drives - with a 3Mbyte per second trans-fer rate, an Ethernet controller, tape controller and print-er port, and it costs $13,800.

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Those new **Harris** MCX-3 and MCX-5 Unix machines from **Massachusetts Computer Corp** are being acquired under an OEM contract worth $30m over two years: the pre-vious Harris contract with Masscomp, of Westford, Massachusetts, was worth $20m over three years.

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AT&T has picked up **Ryan-McFar-land Inc**'s RM/Fortran for the PC6300 Plus and the Unix PC.

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And **AT&T** has introduced a custom-programmable CMOS encryption processing chip, the T7000A, which runs at up to 8MHz and has a 1.8Mbyte per second throughput rate: it costs $45 in lots of 1,000 or more.

From today, the text of **Unigram/X** going back to 1985 and updated weekly, is available on a new specialist database covering computing and electronics on London EC-based **Finsbury Data Services'** Textline system: also on the data-base are our sister papers **Computergram International, International Businessgram** and **Investment Computergram** - and, shortly, **Telegram**, as well as **Elec-tronic Times, Computer Weekly, El-ectronics Weekly, Electrical Revi-ew, Computing, Datalink, Infomat-ics, IDB, PC News** and **Network**; the Computer Database from **Information Access Co** in California is also included in the new service, giving abstracts rather than full text, from 500 US computer and electronic publications.

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Seems **NCR Corp** still hasn't settled on a processor to come in above its Tower 32 supermicro in its Unix line: contenders have included RISCs from **MIPS** and **Edge**, the **Fairchild** Clipper, and **Intel** and **NatSemi** CPUs in partnership with **Weitek**'s floating point chip set.

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Intel Corp has taken exclusive marketing rights to the MAP Manu-facturing Automation Protocol com-ponents - including a Token Bus controller - which were developed by **Industrial Networking Inc** in Folsom, California; Industrial Net-working markets the parts inte-grated in board-level products.

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Fortune Systems Inc has a $5m one-year contract for its entire prod-uct line - plus bilingual French-English software - from **Tyme Systems Ltd** of Montreal, Quebec: Tyme Systems supplies turnkey systems for general business and has some 400 customers across Canada.

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Control Data Canada is to dis-tribute **Wicat Systems Inc** hardware and software to the Canad-ian educational market: the agreement is the latest step in the two com-panies' 14-month-old **Plato Wicat** joint venture.

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$9m to **Cray Research Inc** for a Cray X-MP/48 with proprietary 32 Megaword on-line storage unit pro-prietary to Cray from **McDonnell-Douglas** in St Louis, Missouri, which wants it for design and pro-duction of aerospace products.
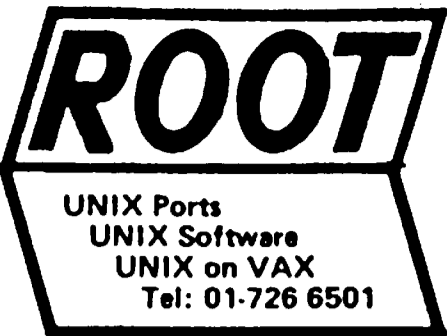
SPERRY's UNIX PLUNGE PAYS OFF WITH $255m ARMY PACT

Sperry Corp's courageous, almost reckless plunge into the Unix systems market 18 months ago has triumphantly paid off for the company, and the whole venture has been underwritten by the US Army, with an enormous supply contract worth an initial $255m, and likely growing towards the billion dollar mark. And Quadraton has good reason to celebrate too – the systems, for providing office automation facilities to US army bases worldwide, will be supplied with the Q-Office office automation suite. The significance of the contract extends far beyond its enormous value, because it validates Sperry's move into Unix systems, and will give wavering customers confidence that the company is in the Unix business to stay. Until now, major customers have reserved judgement on the Sperry initiative, fearful that the company's commitment might prove to be less than full-hearted if early sales failed to meet expectations. The chosen Unix machine is Sperry's 5000/80 multi-user system, which makes the contract equally good news for the Arete Corp which supplies the multi-processing 68000-based system. Around 1800 machines, complete with peripherals, software packages and support services are involved in the contract, awarded by the US Army Information Systems Selection and Aquisition Agency at Alexandria, Va. Sperry says it won the award from a "very competitive field" of computer companies.
The software packages cover inventory control, accounting, finance, budget control, scheduling and transaction processing. And Sperry has followed up the Army pact with a $91.5m contract for computers from the US Navy.

MOLECULAR COMPUTER FILES CHAPTER XI – STAYS OPEN IN EUROPE

CPU-per-user and networked systems specialist Molecular Computer Inc of San Jose, California, has filed for Chapter XI bankrupty protection – but intends to keep its European subsidiary here in Langley, near Slough open. All manufacturing is done under contract in South Korea, and the UK company sees this as en-suring continuing supply of products. The company employed 346 in the US at peak, but its rolls had fallen to 77 before the filing, and they have now been laid off. Molecular acquired fellow microsystems maker Durango last year, but never turned a profit, and has run up debts of $10m. It is hopeful of a successful reorganisation to enable it to restart operations in the US, but according to European chief Arthur Kennedy, it will operate mainly as a research and development operation for the European company.

MICRO FOCUS & UNIX: COBOL FOR IBM RT, PACT WITH AT&T

Giving the RT Personal Computer – touted by IBM as an engineer's box only – a further big shove into the general-purpose business market, Micro Focus Plc has introduced a full set of Cobol tools for the RT as the Cobol Developer's Toolkit. The kit comprises Level II Cobol/ET with Animator, Forms-2 and Upgrade III, the last being a sneaky little pre-processor and migration aid in-cluded with the compiler that helps conversion of Ryan-McFarland RM/Cobol programs to Level II. The set is an introductory £2,000; the compiler and Upgrade are £1,450, Animator is £750 and Forms-2 £185. Micro Focus also has extended its agreements with AT&T to cover Cobol products for all AT&T Unix boxes.

IBM RT GETS ETHERNET AND MICRO FOCUS COBOL

This week's announcements on Ethernet and Cobol must strengthen any suspicions that the RT might turn out to be a commercial rather than a scientific machine.
IBM broke its own strict rules on product announcements for the Unix User Show, to tell Unix punters at Olympia about its Ethernet board before telling the rest of the world. There are no prices available yet, and no firm release date, though the board is likely to be on sale this year.
Micro Focus has announced the first Cobol to become available for IBM's RT machines. The company has bundled its main products Level II Cobol, Animator, Forms II and Upgrade III as the program Developer's Toolkit at an introductory price of £1,995, although the products are also available separately.
Micro Focus is also working closely with AT&T on its Cobol and associated development tools. The contract follows other agreements between the two companies, and gives Micro Focus the task of providing a Cobol product for all AT&T Unix-based systems.

HOW TO CROSS THE LANGUAGE BARRIER WITH UNIX

Claire Gooding continues this week by explaining Lexitel's hints for potential software internationalists in this the second part examining one company's efforts to internationalise Unix applications.

Scratch the surface, and international translation begins to look so frightening that it's a wonder anyone attempts it at all. Andrew Thorburn of Unix specialist translation house Lexitel believes that because of the expense (estimated at roughly £20 per page, without production costs), suppliers will probably look to their distributors and OEMs to undertake the effort.   Even so there's no guarantee of success for a translated product in competition with "native" software. As Thorburn points out, there can often be a conflict of interests between international universality (dictated by "standards") and the "product plus" factor which sells and individual piece of software.

For those who are determined to straddle the world, Lexitel has ten basic suggestions to cut down the cost, and make operations flexible from the start.

1. Make sure that source documentation is culturally neutral and clearly written before translation begins.
2. Identify all software constraints to translation such as field lengths, command mnemonic sequences, and set up rules for translation with a thorough briefing prior to starting the project.
3. Freeze the software for the duration of the project.
4. Translate the software before document translation begins.
5. Provide translators with running versions of the software during the project.
6. Set up a glossary of key terms and have it approved by all parties to the project before work starts.
7. If local signoff is required make sure that the individuals involved have the time available to perform this importanbt task throughout the project life.
8. Plan in advance how you want to produce the final document so that appropriate formatting codes can be input during the translation phase.
9. Plan the layout of your source document to allow for language expansion of up to 30%.
10. Good translations take time to complete. Don't wait until the last minute to plan your project.

For US documentors Thorburn has some particularly hard words.
"It's not just a matter of translating, it's a matter of transforming their copy" he said.

"The European user has a very different relationship with his computer, so we have to cut out a lot of the California cool. Also the examples are rarely thorough enough, or they use something irrelevant such as the Declaration of Independence as a word processing example. We also find we have to remove a lot of redundancy."

Lexitel has to find translators who are particularly sensitive to the needs of computer users who may be novices.   A large proportion of the Lexitel specialists went into the translation business from the technical side, having been communicators of some sort, such as marketing managers.

A good translator can perhaps manage 12 pages a day, if a really fluent writer; specialists in lexitel's field can make around £40,000 per annum. Management is a key point in any translation project. It's an extremely heavy time commitment for any company to make, because co-ordinating deadlines across countries can soak up management time, and many high-level individuals have to be involved with the various rounds of editing, checking off, and approving drafts.

"You need to be able to talk at a high level" said Thorburn. "We usually deal with project managers, but you have to be very sure that the company is fully committed before going ahead." The other cost centre is the actual printing and publishing, which varies from country to country. It isn't practical to do this from the US when working in several European languages, though some companies insist that things are done that way so that they can keep control. As yet there is no standard route to typesetting and publishing, though Lexitel have worked out their owwn routine for clients who are happy to pass the whole job across to them. "Unix per se seems to handle most of the things we need. We can code and format documents. The availability of laser printing has had a drastic effect on cost, but people still have to make a cost/quality decision. The whole time that there is no accepted standard, we have to be very diverse in what we handle. Sometimes we format word processor output, sometimes we use typesetting, or laser printers."

According to Thorburn a lot of small companies are being pulled into translating their products by market demand. Even so he advises that the actual translation is only part of the battle. It's vital to make a market study and set up sufficient distribution resources, but if you get this right, he says, your market can expand by 50%.

SYSTIME WINS OLIVETTI FOR
DEC-BASIC-UNDER-UNIX TOOL

Systime Computers has dumped its DEC
products and is now concentrating on the Unix
marketplace. Systime has produced an
emulation product, Trans-Basic, that allows
software written for the PDP-11, in Basic-
Plus, under RSTS/E to run under Unix. Trans-
Basic is intended to run on the company's
recently launched S Series computers and
other Unix-based systems. The first sale of
Trans-Basic is to British Olivetti and
Systime estimates that the deal will be worth
about a quarter of a million pounds to them.
Olivetti considers this a good way of weaning
DEC VARs onto the 3B range of computers as
they will be able to use all their Basic-Plus
software on the 3Bs without any re-writing.
British Olivetti intends to sell Trans-Basic
to VARs in the UK and distribute it to other
Olivetti subsidiaries throughout the world.
Trans-Basic was developed specifically to
provide a means of moving away from DEC
hardware whilst maintaining faith with and
protecting the investment made by the 1000-
plus existing users of Systime systems based
on DEC machines. This move away from DEC-
dependence started about 12 months ago when
Control Data Corp acquired a major interest
in Systime. The intention to move towards
Unix was, according to Systime, in evidence
before CDC's intervention but the weight of
CDC provided a financially secure launch pad.

MOTOROLA EVENTUALLY ADDS UNIX-BASED
68020 MODELS

Motorola Information Systems has rather
belatedly introduced a line of machines, the
series 8000, based on its own 32-bit 68020
chip running at 16.7Mhz and equipped with the
68881 maths co-processor, and the 68851
virtual memory manager. Although seen at
last week's Unix User Show the line will not
actually be officially launched worldwide
until later this month. Motorola are non-
plussed by the suggestion that it has
enetered the 68020 game a bit late and says
that customers are more likely to buy from
them as opposed to the many other 68020
vendors because it feels that people will be
reassured buying a machine from the company
that actually manufactures the chip-set as
well - ensuring problems such as non-delivery
of the various components do not arise.
Motorola is aiming the series 8000 at
commercial and technical users for groups of
up to 32 users. The new series is, according
to Motorola, twice as fast as the existing
top-of-the-range 6000 series. The 6000 and
8000 are object code compatible, so 6000
application software packages can be used on
the 8000. Many of the packages are written
by Motorola's VARs involved in the Freeway
programme who will now be supplying the 8000
with System V/68 - Motorola's implementation
of Unix System V.2. Motorola, and most other
Unix-based companies, reckons that it
will be amongst the first to offer version
V.3 later this year. For £22,000 you get 2Mb
of memory, 85Mb Winchester, 60Mb tape unit,
655Kb floppy, 10 ports and System V/68.

BRITISH TELECOM SIGNS WITH
TORCH, TADPOLE

British Telecom has signed up to buy
equipment worth £500,000 from Torch of
Cambridge, and at the same time is making
deal with Tadpole of for its MC68020-based
processor card.
The two deals, announced at the Unix User
Show last week, follow last year's agreement
with Bleasdale, whose machines form the basis
of BT Fulcrum's S1000 kit. BT Fulcrum is a
wholly-owned subsidiary of British Telecom
through which BT's own internal systems needs
are supplied.
Torch's Triple X machines are purely for
internal use within various divisions of BT;
a BT spokesman said it would be very much up
to individuals how they were used.   The
Tadpole add-on cards will allow the S1000s
to run Unisoft's Uniplus+.
Unlike the Torch machines, the S1000s are
badged for selling on as well as internal use
at BT.
The spokesman described BT Fulcrum's posse of
British Unix manufactuers as "entirely
complementary to a cordial degree".
The Torch running its user-friendly Opentop
user interface, will give a low-end option
for users who want PC-type facilities, while
the S1000, which BT Fulcrum manufactures
under licence in its Birmingham factory,
fills the slot for "ambitious and
sophisticated large office systems", said the
spokesman.
The Torch joint marketing agreement runs for
two years and includes an option for BT to
manufacture the systems.
Torch estimates its worth at £3 million over
the two years. Torch bills its machine as
ideal for office communications, especially
since winning BT approval for the Triple X's
X25 connection to BT's packet-switched
service.

MBS MICROTEX JOINS RANKS OF
IBM RT RESELLERS

MBS Microtex of Ascot, Berks has been
appointed dealer for the new IBM 6150 range,
or the the IBM PC RT, and is intending to sell
it as a business machine.
MBS, a subsidiary of Micro Business Systems
Plc, will be offering the RT with the IBM
office automation software products and other
Unix packages, that have proved popular.
MBS will be covering application areas of
word processing, database management,
electronic mail, telex management,
spreadsheets, financial accounting, desktop
publishing and integrated office software.
MBS thinks as many other companies do
concerning IBM's move into Unix - "the 6150
will have considerable impact on the Unix
market, not least by legitimising Unix as the
basis for a viable multi-user system."
MBS will be providing the Models 10, 20, and
25 with both monochrome and colour displays
available. Under Unix the machine from MBS
has support for up to eight users.
IBM is also believed to have a double-speed
version of the 32-bit RISC microprocessor
used in the Personal RT ready to go.

Network Systems has decided to forego its low visibility and join the Corporation for Open Systems in a bid to get its de facto networking standards written into OSI.

Network Systems claims to be supplying the largest computer centres in the world with the fastest networks – 1000 times faster than conventional telephone networks.

The company's Hyperchannel 50 million bits per second can be found behind most of the major manufacturers with the notable exception of ICL, and is used in over 800 of the world's largest computer centres to transmit data between different computers and terminals.

Network Systems is arguing from a position of strength that its own Hyperchannel should influence the OSI standard, whose own higher levels have not yet been evolved.

Since setting up in the UK in 1982, its customers have included heavyweight users such as BP, CEGB, Cray, Littlewoods, TSB, Royal Bank of Scotland, Prudential and Sun Alliance. These are in the UK commercial sector alone, Network Systems customers also include prestige government and scientific installations such as UK AERE at Harwell, and GCHQ at Cheltenham.

The Hyperchannel products played a major part in merging the computer facilities of the Williams and Glynn bank with the Royal Bank of Scotland, and many manufacturers including AT&T, Burroughs, Bull, Cray, IBM, already rely on Network Systems expertise for large networking jobs.

The company's strong presence in Europe has given it extra incentive to take an active part in the standard setting game.

"Most of the major banks are already users of network systems" said Paul O'Callaghan,

NETWORK SYSTEMS MAKES COMMITMENT TO COS

In this the age of standardisation we take a look at how Network Systems sees its own position as regards OSI and networking issues in general.

MD of Network Systems. "Our customers don't have time to hang around and wait for standards. We work very closely with many manufacturers to protect users against future changes; in fact we'd say we're in a unique position, since any other solution is a compromise."

This fighting talk is backed up by cash.

Network Systems is to forego all proprietary rights to its products by joining the board of COS.

The company is also paying around $200,000 per annum for the privilege of joining the COS board. Its payoff should be the fact that its Hyperchannel "de facto" standard fast networking products (increasingly software rather than hardware based) should be able to leap the queue for certification, and set the accepted standard for high-level interconnectivity.

As well as its commitment to OSI, Network Systems has launched a pair of "down-market" products designed to broaden and strengthen its presence in the networking market.

Network Systems has added a 10 Mbps facility, designated Hyperchannel B, for addressing workstations, supermicro PCs, and mainframes. Its faster 50Mbps product becomes Hyperchannel A.

The idea of the B-stream product is to bring personal computing workstations into high-powered networks: the A products can be linked with the Hyperchannel B system, whose average price is quoted at £26,000.

The second product ventures even further downmarket with "Netex on a card" which plugs into IBM PCs or XT and compatible systems.

The PC Dataport is actually more powerful than its host, since the co-processor can act in three ways, as a 3270 terminal, an ASCII terminal, or as a computer in its own right.

The single unit price for the Dataport is given as £880, and like the Hyperchannel B is available in the UK immediately.

The company's founder James Thornton started Network Systems in 1974, having worked on the development of CDC computers.

Headquartered in Minneapolis, the company now employs over 900 people worldwide, has grown at the rate of 50% per annum until last year.

In 1985 it turned over $90,000,000, and grew by 30%.

In 1977 the company had launched the first 50 Mbps (million bits per second) Hyperchannel in the US, now used worldwide to link a wide range of mainframes, minis, microcomputers and peripheral subsystems.

In 1981 it was followed by the Netex Network Executive, which enables any two application programs to communicate with one another irrespective of host operating system or computer.

Since setting up in the UK, in the Ascot headquarters which it shares at present with Sun Microsystems, the UK division of Network Systems has grown to contribute 46% of turnover to its US parent, and it has also become a significant local employer.

MODULA-2 FOR TEKTRONIX 4400 ARTIFICIAL INTELLIGENCE BOX

The Modula-2/68 implementation by Djavaheri Bros, Foster City, California of Niklaus Wirth's language - the one he says he always **meant** to write when he wrote Pascal - is now available for the Tektronix 4400 family of MC680XX-based artificial intelligence workstations, which run under the UniFlex non-licenced, rewritten Unixalike from Technical Systems Consultants Inc, Chapel Hill, North Carolina. The Tektronix workstations also support the Smalltalk, Lisp, Prolog and C languages, and Djavaheri Bros says that the standard C object libraries can be used by any Modula-2 program.

NEC INFORMATION SYSTEMS BOWS TO PRESSURE FOR UNIX, PC-DOS

After eight years' perseverence in the US market with its 32-bit Astra computer and its proprietary ITOS operating system, NEC Information Systems, Lexington, Massachusetts, is bowing to the relentless pressure for industry standards, and is ready to move off on the PC-DOS-Unix track. Instead of using NEC's own custom 32-bit microprocessor, the next Astra will be a 68020-based Unix machine, reports **Electronic News**. The company's plan is to offer a compatible line of machines ranging in price from under $10,000 for the Advanced Personal Computer III, right up to $100,000 to $150,000, with support for both PC-DOS and Unix System V.

WANG "TESTING VM-LIKE OPERATING SYSTEM FOR VS IN-HOUSE

Wang Laboratories has been testing a hypervisor for its VS family of small mainframes for some time, and may bring the product to market later this year, reports the US trade paper **InformationWeek.** The paper suggests that the hypervisor is being developed primarily to enable Wang to offer support for its forthcoming implementation of Unix, and also the Pick operating system, alongside VS applications. What the paper fails to point out is that the VS is not dissimilar to IBM's own 4300 line, and **includes the full 370 instruction set.** That being the case, the company could also use the machine to seek to plunder IBM's 4300 base, particularly at the DOS/VSE and lingering OS/VS 1 end of the market, enabling users to run their old IBM applications under the hypervisor while alongside they develop new ones under VS, Pick, or Unix. The other major benefit of an operating system like VM is that it enables users to test a new release of the native operating system - VS in Wang's case - while running their production workload under the old release. Wang's long-promised Unix is thought to be coming from IBM's best friend in the Unix world, Interactive Systems Corp, Santa Monica.

HONEYWELL BRINGS PERSONALIKES TO UK, ADDS VDU LINES

Honeywell Information Systems UK has abandoned the microSystem eXecutive machine following the collapse of Future Technology Systems Ltd and brought in the line of IBM Personalikes introduced in the US last October. A spin-off company set up by former Future Technology employees failed to attract sufficient backing to keep the Honeywell contract. The new AP - running Xenix System V as well as MS-DOS, is an 8MHz 80286 AT-alike, the EP and XP are both based on the 8MHz 8088-2 and are aimed at the IBM XT market. The XP and AP are being made in West Germany by NCR, and the EP comes from an unidentified US source. The EP comes with single or dual 360Kb 5.25" floppies or a single 360Kb disk with 10Mb hard disk, with 256Kb CPU and one floppy costing £1,335. The mid-range XP has one 360Kb disk and a 20Mb Winchester for £2,480. The AP with 1.2Mb floppy disk and 256Kb memory is £3,645 and there is a 20Mb Winchester option; it has eight slots. All models come with Honey-well's microSystem VIP 7300 and 7800 terminal emulator package. The company also introduced the low-end Wyse 50 and 350 as the Commodity Display Terminal family with support for both Pick and Unix as well as Honeywell operating systems; the CDT 50 is £595, the CDT 350, £1,195. The Honeywell Display Terminal HDS ET replaces the VIP 7300 and 7800 family, and costs £1,150; other HDS displays are planned. Honeywell has also signed VDU maker Lynwood Scientific Developments Ltd of Alton, Hampshire to make specialist displays to specific customer requirements.

MICRO FOCUS ON COURSE FOR RECOVERY

Micro Focus Plc has reported year-end results much as expected with pre-tax losses of £2.8m on turnover down 13% at £13.4m for the year ending 31 January. The company is in the currently unfortunate position of having 70% of its sales made in US dollars which has had the effect of turning an 8% increase in dollar sales (from $17.4 to $18.8) into a 13% decrease in sterling terms. However, if the US economy and value of the dollar picks up over the next six months as it is expected to do, Micro Focus should turn in profitable results at the end of the current year. The biggest drain on business was the slump in its OEM business, selling the VS Cobol and Level II Cobol products to other manufacturers and suppliers for retail resale. But there is evidence that this has picked up again - Micro Focus incurred all of its £2.8m loss in the first six months of business. The company looks set for a healthier year ahead with negotiations well under way with the likes of Sperry and AT&T over the latest - and very hot - VS Cobol/Unix compiler which allows any IBM Cobol package to run under Unix, and should do good business with it.

The new System 16/300 looks like doing well for **Molecular Computer** in its guise as a file server: Molecular has already delivered the first system, running with the Novell networked software, to Latham House Software Services, whose underwriting package is to be made available on the network for customers such as Lloyd's syndicates KA Horton and MC Watkins.

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Surbiton-based **Jarogate** has capitulated to commercial pressure and upgraded its Xenix 3.2 to Xenix 5 on its 80286-based Sprite supermicros, with the help of Xenix expert Logica – Jarogate claims that the Sprite has consistently out-performed rivals in benchmark tests: the machine is aimed mostly at scientific and engineering sectors, although the Xenix implementation brought in its wake agreements between Jarogate and suppliers of business software inluding the likes of Xitan, Sphinx, Pegasus, Tetraplan, and Multisoft.

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More accounting software for Unix has appeared, this time from **Eastman Stuart** of Watford, the company is moving into the mass market with the ES Accounting Suite, developed specifically for Unix as a set of inter-related modules: Features include multi-currency consolidation, alphabetiucal search on accounts, and some adjustable installation parameters – the first modules, nominal and purchase ledger, and payroll, are already available at around £13,000 bundled, with more modules to come in September.

Minigrams

It's not too long ago that the only computer on the Isle of Man was the **Sperry** 90/30 installed to handle the island's administration in 1975, but now the Manxmen boast their own software houses, and **Real Time Systems** in the capital, Douglas has announced new improved versions of the XA8 family of cross compilers for Unix and Idris systems: the most important addition in version 1.6 is the increase in symbol table size, which can now support up to 32,0000 entries; the company wrote the cross-assemblers in **Whitesmiths'** portable C, which it distributes in the UK, and target machines include **DEC** PDP-11 and VAX, **Intel** 8086, **Motorola** 68000 and **National Semiconductor** 32032 lines.

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Reporting a return to marginal profit for the first half of its current financial year VDU and Unix systems maker Cifer Plc says that it will definitely report a loss for its full year because of £390,000 in extraordinary charges associated with closure of its three-year-old Cwmbran, Gwent factory: the closure, announced on Friday, will be followed by consolidation of manufacturing at Cifer's other plant in Melksham, Wiltshire.

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Cifer has reported a first half net profit of £10,000 after a tax credit of £5,000, against a loss last time of £1.7m, on turnover that fell 16.4% to £3.0m: at the pre-tax level, profits were £5,000 against a loss last time of £1.7 – net earnings per share came out at 0.6 of a penny.

In the first management reshuffles since setting up in the Uk in 1981, **Apollo Computer** has appointed David Howes, formerly MD, to the newly created post of Director, European Sales Development. John Parkinson will be stepping into Howes' shoes as managing director.

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Celerity Computing Inc, the San Diego company that uses the **NCR** 32 chip set as a Unix RISC, has a $3.4m contract from **Able Image Research Inc**, a Los Angeles movie computer graphics and animation production company: Able wants the Celerity boxes as the basis of the compute engine for a turn-key graphics station it is developing.

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An agreement has been signed between Uniplex-II Plus developer **Redwood** International of St Albans, and software distributor **Sphinx** of Maidenhead, the international marketing agreement covers Redwood's recently-launched upgrade of its integrated office automation system, Uniplex-II Plus: the new features include an improved user-interface, word processor, and expanded spreadsheet, and a database compatible with Relational Database Systems' Informix-SQL and Hooks open architecture.

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The **European Unix Systems User Group** is calling for papers relating to the title 'Distributed Unix Systems' for the EUUG Fall'86 Conference which will be held in Manchester, September 22 to 25: abstracts should be sent to the EUUG Secretariat by June 20 at Owles Hall, Buntingford, Herts.
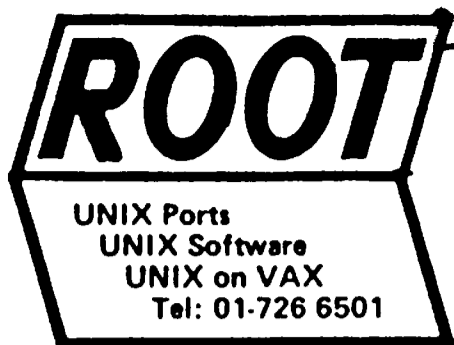
AT&T ANNOUNCES SYSTEM V.3 – WITH NO PRICES

Unix System V release 3.0 has arrived and is available in source code for vendors and in bianary form for AT&T 3B2s. The major features of this new version include, predictably: streams, RFS, shared libraries and a transport level interface. Streams, for those familiar with Unix, is, simplistically, a networked version of 'pipes' it allows applications software to be independent of the underlying network – a change in the network medium or protocol does not need changes in the applications software, Streams acts as a bridge between networking applications and software. Remote File Sharing, RFS, is a means of allowing information to be shared across different computer systems and includes file and record locking procedures. The transport layer interface forms an integral part of both streams and RFS; it, combined with a Transport Provider Interface gives users the ability to run applications independent of the underlying hardware. The Transport Layer Interface specifies user-level functions giving access to standard protocols defined in the ISO Transport Service Interface. Shared Libraries is a disk and memory saving feature that stors functions once which are shared by all executable files and processes. No prices or licensing arrangements are avialble until next Tuesday because AT&T want to make a big splash with this announcement this week at NCC – Las Vegas.

SECOND SOURCE COMPUTER REVIVES SPERRY V77 WITH 32-BIT CPU

The sad tale of Sperry Corp's acquisition of Varian Data Machines and its 16-bit V77 minicomputer line will have a happy ending if an 11-year-old Tustin, California company, Second Source Computer Inc has its way. Sperry bought Varian Data Machines from Varian Associates in the mid-1970s, saying that it wanted a mass-market OEM minicomputer manufacturer – ignoring the fact that the company specialised in low-volume high-coupon turnkey systems. The conflict of strategy proved too great, and after promising a 32-bit successor for the V77 line for about three years, Sperry quietly ditched the entire business, deciding that it conflicted with its other product lines. However it **had** developed the 32-bit processor, and it even more quietly sold the entire manufacturing rights to the product line to Second Source Computer. The latter is now ready to announce the news to the world at the National Computer Conference, which opens in Las Vegas this week. The SSCI-3200 machine will be offered to existing users as a processor and memory swap-out for the previous top-end V77-800. The upgrade involves reclocking the memory and putting in a second cache for memory addressing, liberating users from the 32K-word program boundary of the V77. As well as the proprietary Vortex operating system, which is a real-time executive optimised for heavy communications environments, the machine will be offered with Unix, for those who perceive Vortex as a dead end from which they want to escape. Sperry still owns – and maintains – Vortex, and Second Source will buy a licence for each machine it sells. The company was due to have a London office open by now, but was diverted by the need to get the SSCI-3200 ready for the NCC – but hopes to be open for business here and in Frankfurt, West Germany, by the end of the month. Second Source Computer Inc has a decade of experience in V77 users; when Sperry threw in its hand, several of the key people on the 32-bit project moved to SSCI.

MOTOROLA SLASHES 68020 TAGS

Further price pressure in the 32-bit workstation and multi-user Unix systems market is certain following Motorola Inc's decision to slash prices on its 68020 microprocessors and the key support chips for the family. From the beginning of next month, 12MHz 68020s will cost $174 each for 100-up, a cut of 46%, with the 16MHz version falling 35% to $311 and the 20MHz version down 25% at $579. The 68881 floating point co-processor is similarly reduced, with the 12MHz version falling 45% to $132 for 100-up and the 16MHz version 58% to $194. Similar cuts will be made on the paged memory management unit, which will be available in volume in the third quarter. The cuts, which coincide with volume production of Intel's 32-bit 80386 chip, are designed to step up design wins for the 68020.

HONEYWELL ITALIA PICKS NCR 32
SET FOR DPS 4 SUCCESSOR

It is still not confirmed that the NCR 32 chip set is at the heart of Honeywell Information Systems' new 32-bit DPS 6 Plus minicomputer line, but the company's Honeywell Italia unit has definitely chosen the NCR chip set as the basis of the follow-on product from its 24-bit DPS 4 small business computer, which according to **Electronic News** is code-named Altair and due for launch next year.

It is not clear exactly how Honeywell Italia will map the DPS 4 architecture onto the 32-bit CPU, but the likelihood is that it will follow the same approach as ICL has in emulating the 24-bit architecture of 2903 onto 32-bit processors - effectively ignore two bits in every byte.

The DPS 4 already uses a single bit-slice processor replicated several times in each system to perform roles such as disk and input-output control, and it is likely that the same approach will be applied with the Altair.

Separately, Honeywell US has announced that it plans to launch Honeywell Italia's Superteam 68000 family Unix microcomputer line in the US by year-end, going mainly after government and third party sales.

CONVERGENT TECHNOLOGIES TO
BUY DISPLAY DATA FOR $60m

Following its purchase of 40% of Baron Data, the next step in Convergent Technologies' plan to build a portfolio of vertical market resellers to smaller businesses will be acquisition of privately-held Display Data Corp. Convergent will pay 7.6m shares, worth $60m, for the Hunt Valley, Maryland company.

SIEMENS READY TO BUY
SPERRY's CHIP OPERATIONS

The proposed acquisition of Sperry Corp by Burroughs is unlikely to affect the sale of Sperry's semi-conductor fabrication operations in Egan, Minnesota, and Siemens AG is tipped to buy the operations for $183m. The plant employs 1,000 people making both MOS and bipolar circuits to VHSIC design rules, and Plessey reportedly considered buying the operation but walked away from a deal once it had seen it.

Burroughs has an in-house semiconductor capability in Rancho Bernardo, California, so is unlikely to want to pull the Egan operations off the market.

Acquisitive Siemens - it has a cool $5,000m earmarked for acquisitions - is also negotiating to buy Hyundai's vacant wafer fabrication plant in Santa Clara, California for $50m, says US trade weekly **Electronic News**.

IBM ACCOMPANIES NEW SYSTEM 38, 36 MODELS
WITH 3270+ASCII 3174 CONTROLLER

A new 3174 controller that supports ASCII as well as 3270 displays, and links to ASCII hosts, was the high-light of IBM's broad-brush upgrading of its mid-range product line this week. The new controller, which al-so comes with a model able to support the IBM Token Ring local area network, and was accompanied by a string of new display stations, including a black and white portrait screen, and a high-performance 3270-type dis-play backed with a floppy drive for intensive interactive applications. The most significant item in IBM's major mid-range systems announcement was probably the 3174 display station controller, which adds much of the functionality in the 3274 market that users have been awaiting impatiently. The company now regularly adds to its display station offerings, and this week's items include a 3179 for System 38 users. Also in the announcement are two IBM firsts in one product - the first time it has offered a touch-sensitive screen, and the first use of optical drives on the Personal.

The new IBM 3174 cluster controller provides about half of the additional functions that users had been seeking, but a key feature is that it supports up to 24 ASCII displays as well as 32 3270-type displays - a low-end version supports 16 and eight respectively - and links to System 36 and 38 as well as 370 processors. As well as linking ASCII displays to 370 hosts, it links 3270 displays to ASCII hosts, which is a key benefit for Unix users: the implication is that with the 3174, users of IBM's VM/IX mainframe Unix will be able to dispense with the Series 1 mini controller and use the 3174 instead. It has a 1.2Mb floppy drive and a 1Mb processor, and two models provide Token Ring Attachment so that 3270 devices can be linked to the 3174 via the local net. The facility also provides a gateway into SNA hosts for Token Rings. Out in the US next month, it costs $5,900 to $12,950. The new **3299-3 terminal multiplexer** allows 3270s to be linked to 327X controllers via telephone twisted pairs rather than coax, and costs $795, next month. The **3191** is a 12" mono green or amber display for use with 370 cluster controllers, provides optional 122-key typewriter or enhanced 102-key boards and costs $1,295, out now. The **3196** offers the same functionality for 36/38 users at the same price.

The **3194 high-function transaction processing terminal** is a colour 3270 with its own 720Kb floppy disk drive that can store and play back up to 30,000 keystrokes. Designed for heavy on-line transaction work, it provides windows to up to four host sessions, and can be customised for specific applications. It arrives in the fourth quarter and costs $2,895. The **3193 alpha-graphics** VDU is a 15" black-and-white portrait monitor supporting integrated text and graphics, and puts up 48 lines on an 11" by 8.5" display. It can be used with the new 3117 and 3118 image scanners and costs $2,495 in September. The **3179/220 colour display** is available now at $2,195.

LIVING C LIVENS UP

One of the UK's largest investors in industry is putting its weight behind Milton Keynes firm Living Software to keep Living C alive. The unnamed venture capital firm is discussing further investment in Living Software, and wants to spice up its marketing plans as part of the deal.

Living C was hailed as a breakthrough by a lot of people who saw the pilot product; it was an attempt to bring sophisticated interactive development tools and disciplines to the esoteric art of C programming. But the marketing scheme of Perception Software, appointed to launch the product in the UK and US, turned out to be over-ambitious and unproductive.

As a result Perception Software is thought to be in liquidation and Living C developer Kevin Grumball is claiming £10,000 unpaid royalties from Perception's managing director Nigel Elkan; so far with little success as the latter has proved elusive.

The investment will make it possible for Living Software to recruit heavyweight marketing staff. Grumball is already pursuing discussions with several large firms in the UK, Europe and the US, who are interested in distributing the product. It has already won considerable attention in the US, where Perception advertised Living C by mail order for $99.

ARETE's SHARE OF SPERRY's
US ARMY UNIX PACT IS $100m

Arete Systems Corp, doing some $20m a year in San Jose, California, leaps out from the morass of struggling Unix start-ups into dazzling sunshine with the news that its share of Sperry's $255m US Army contract for Unix supermicros will be worth approximately $100m. The Arete multiprocessor 68020-based machines are designed for intensive input-output. Sperry won the contract in competition with IBM bidding 4300 and Honeywell and Burroughs' Systems Development Corp, both bidding Convergent Tech-nologies kit - which raises the is-sue of whether Sperry will be free to bid on such pacts against Systems Development after the merger.

LOGICA PICKS UP UX-BASIC

Toronto-based UX Software, whose UX-Basic emulates Basic in C for Unix systems, seems to have found a UK distributor in Logica of London, which was representing the company and its products at the Unix User Show recently. UX Basic was evolved through NASA to provide a familiar interpretative language for all the new Unix programmers who were not so comfortable with C as with Basic, but nevertheless needed a multi-user multi-tasking business programming language.

DIGITUS CELEBRATES ITS BIGGEST
ORDER EVER FOR UNIX SYSTEM

Digitus Ltd of London has won its own perso-nal best in terms of orders and also one of the largest UK Unix orders ever. The order is worth £1.1m from the Metropolitan Police Force and will be used in the TOPSY project: crime analysis and resource allocation. The system, to be installed in 76 Metropolitan divisions and eight area headquarters, is based on the Olivetti 3B2 and each sits will have two graphic VDUs from Cifer of Melksham, Wiltshire, and two colour print plotters. The software provided with the system in-cludes Informix SQL; Q-Office and Q-Plan from Quadraton; PBG 200 graphics software; and a mapping suite developed by Digitus. This pacakge is to provide a graphic display of crime statistics. The system will be instal-led from September '86 to March '87. This contract is obviously very important to Digi-tus as the company's total turnover was £6.7m last year but more than that it is seen as a police area pilot project and a fore-runner of many other projects within the police force and the military. Digitus also sees this contract as an endorsement for Unix and says that within the public sector in parti-cular Unix is a mandatory requirement when invited to tender.

ITT's BELL TELEPHONE OF BELGIUM
DROPS UNIX EFFORT

ITT's Bell Telephone Manufacturing Company, which has been distributing in Europe the products from IBM's Unix partner Interactive Systems Corp, as well as developing and mar-keting Unix applications, tells us from its Antwerp base that it has abandoned the ef-fort. The company was marketing a range of software products under the Xware name, in-cluding the Netix networked Unix designed for use on Ethernets, and Eurix, which implements the full CCITT European teletex character set in place of the usual ASCII set. It had also been building applications around the Mis-tress relational database from Rhodnius.

SOFTWARE EXPRESS MATES WITH RABBIT

Window-Plus and Spooler-Plus, two housekee-ping packages for Unix, are about to be wrap-ped into Appgen, the Unix-based applications generator from Houston-based Software Ex-press. Rabbit Software Corp of Malvern, Pennsylvania, has reached an agreement with Software Express through which the two sys-tems are to be integrated with Appgen. It's planned to release the results of the joint development project before the end of the year, when it will be made available in the UK through Appgen distributor - Kalamazoo. Window-Plus is considered the first Unix system to open 14 windows simultaneously.

The Networks '86 show at the Wembley Conference Centre, North London, opened last week for the sixth staging of the event, with more than 50 companies exhibiting. **British Telecom** has padded out its Network Management Division products, adding further to its announcements at **Communications '86** last month. The two new products are GuardsMan, another data switch from Avant Garde Inc in Mount Laurel, New Jersey with which Telecom holds an exclusive UK marketing agreement, and LinesMan, developed in-house at its Martlesham Heath, Suffolk research centre. Guardsman, aimed at medium to large businesses, does protocol conversion on dial-up data networks and prevents unauthorised access. Based on a 32-bit processor, it handles four to 4,096 access ports. On the network, Guardsman is linked to microcomputer-based interface control units and sits between the computer host and the remote terminal dialling in. The system offers a dial-back facility for extra security. LinesMan monitors private networked PABXs. A 16-bit processor is attached to each PABX to analyse call data. This service sells at around £100 per line per month.

Broadband nets

Information Technology Ltd of Winchester, Hampshire is building on the groundwork of its former Network Technology unit to become a networks integrator. Selling Sytek's broadband local area network under the Cablestream label since 1982, the company claims to have doubled its turnover each year to date. Networking represents about 25% of ITL's total business now and it claims to have around 75% of the UK broadband market. It says it has an installed networking product base worth £10m. The company aims to take on further OEM deals, as well as renewing its deal with Sytek – this time with UK subassembly written into it. Sytek is the company that originated IBM's broadband PC Network. ITL is talking to another US manufacturer now. It is also now coming into the IBM market with products to offer IBM-compatible Personal Computer networking on broadband cable, which offers a 400MHz bandwidth, multiple services and thousands of users on

LOCAL AREA CONNECTIONS

FEATURE STRONGLY AT

NETWORKS '86

one cable. This means that asynchronous and synchronous terminals and IBM-compatible personal computers can talk to IBM hosts on broadband as well as micro-to-mainframe links. The 8000 Ethermodem series allows equipment linked on Ethernet to run along a Cablestream broadband local area network, doubling the range of Ethernet to 3.5 miles from 1.6 miles. The 3000 and 7000 series complement the Cablestream 2000, which is a packet switched service for asynchronous devices. The 3000 and 7000 allow it to support the IBM 3270 protocol as well as asynchronous terminals. The 3000 series allows asynchronous terminals and IBM-compatible personal computers to access IBM mainframes and minicomputers over broadband. The 7000 series provides for IBM-compatible terminals to link to IBM hosts using Cablestream 2000 switching. The 6000 series enables IBM's PC Network to operate with other ITL broadband services. The 4000 series is a line of broadband radio frequency modems which provide point-to-point synchronous and asynchronous communication circuits. The Momentum 9000 minicomputer is being sold as a network management system at from £32,000. Prices are £500 per port for the 2000 Series with an extra £200 per port for IBM connection, using the 3000 series. The 8000 series costs £3,500 for two ports and £5,000 for eight ports. The radio frequency modems cost £600 per connection, £1,200 a pair.

Texas Instruments announced that it would soon be producing Token-Ring boards in volume by 1987. The products will use the TMS380 chipset which the company developed for IBM's Token Ring. The company is producing its own IEEE 802.2-compatible software, which defines the fifth layer, the session layer of the Open System Interconnection model. The 802.5 standard defines up to the fourth layer, the transport layer. An IBM-compatible Net-Bios software interface will also be available and the company says that it has many more Token Ring network products in the pipeline. Scottish **Spider Systems of Edinburgh,** which formed a new company called Spider Networks last month to handle its Ethernet installations, announced a reciprocal distribution agreement

with **BICC Data Networks Ltd** subsidiary of the giant BICC Plc, the former British Insulated Callenders Cables. BICC, with distribution outlets worldwide and over 50% of its products exported, will be selling the SpiderMonitor as the ISOMonitor, and Spider will sell BICC's products. BICC has introduced two types of multi-port repeaters. The first, at £5,500 offers seven fibre optic connections and one copper connection. The second costs £3,000 offers six Cheapernet connections and two copper cable connections. It has also introduced two fibre optic active hubs, one with six fibre optic ports and one copper connection at £3,500. The second offers 12 fibre optic connections and two copper connections at £6,000. The other addition to its range is a £425 fibre optic transceiver. BICC, which has OEM contracts with names like ICL, Norsk Data, Ericsson and Olivetti announced on Tuesday that Fibre Optic Systems Sales had renewed its contract with the company for an initial £150,000. Figures from International Data Corporation's figures suggest that BICC has 18% to 19% of the UK baseband market, 15% of the European market and around 10% of the US market. The UK company's revenues for 1985 were £5m and it is targetting a leap to $12.5m in sales for 1986. BICC also announced a £10m contract to supply and install cables to the Singapore Public Utilities Board.

Viewdata

Microscope Plc has launched its Red Box cluster controller which allows 40-column viewdata terminals to access IBM host mainframes, using the normal viewdata commands. This gives travel agents, for example, direct access to databases, cutting out the need for direct sales people in between. The box supports up to 32 terminals simultaneously. Microscope says one of the Big Four clearing banks is its first customer for the product.

Motorola Information Systems Ltd of London has filled out its 6000 line of statistical multiplexors and network nodes with the 6740, which slots in below the 6760 to create a mid range model. The 6740 handles up to 64 channels running at between 50Kbps and 192Kbps, and supports both asynchronous and most common synchronous protocols. Motorola claims the 6740 gives least-cost routing and trans-fers to a new line if the first line goes down. The 6740 cost from £5,000 to £15,000.

EAGLE COMPUTER FILES
CHAPTER XI BANKRUPTCY

Eagle Computer Inc has been fighting for two years to stay alive after it lost the lawsuit brought by IBM alleging infringement of micro-code copyright in its Personalike - but the Garden Grove, California company has now given up the unequal struggle and filed for Chapter XI bankruptcy protection, showing debts totalling $7m. Last November Eagle moved right away from its IBM Personalike roots, introducing a multiprocessor machine, the Concorde, which includes an NS32000 family microprocessor for Unix System V and Pick, and an 80286 for MS-DOS.
The machine was to have been manufactured by Eagle's partner, Aceco Electronics Ltd in Seoul, South Korea. Most recent figures from the company showed a loss of $1.9m on sales of $1.5m for the July-September 1985 quarter. It lost $10.1m on sales down 71% at $14.1m in fiscal 1985.

JUDGE GREENE's CONTINUING ROLE IN AT&T
BREAK-UP UNDER FIRE IN CONGRESS

Should Judge Harold Greene have more power over the actions of AT&T and the seven regional telephone companies spun off from it that does the Federal Communications Commission? The FCC and the phone companies think not, and now Senate Majority Leader Robert Dole is preparing to introduce a bill backed by the administration, that would strip the judge of most of his powers for overseeing the working out of the settlement over which he presided, and hand responsibility over to the FCC. Under lobbying from the regional phone companies, which are impatient to have restrictions over their freedom lifted, a similar bill is being prepared for the House of Representatives. The seven regional orphanages are chafing at the Judge's insistence that they stay out of manufacturing, long-distance telephone services and computerised services, because he fears that they will abuse their monopolies of the local telephone system. The FCC is keen to allow them wider freedom to compete, but Judge Greene is seen to be on the side of the consumer: in January he accused the companies of being more concerned with climbing into "the ranks of conglomerate America" than with providing the best and least costly local telephone service. Supporters of the status quo point out that they have been permitted to make major inroads into personal computer retailing, offering cellular telephone services outside their regions, and buying software companies, and point to moves such as Ameritech's acquisition of IBM mainframe software specialist Applied Data Research as possibly unwise.

. Financial News

MAI Basic Four Inc is rather long in the tooth for the "new issues" tag, but the company, previously public as Management Assistance Inc before Asher Edelman intervened, sold its Sorbus third party maintenance business to Bell Atlantic and took the rest of the company private, is going public again late this month. Now making multiprocessor 32-bit minis that run its BOSS Basic Operating Software System, and a Unix variant called Bossix, MAI Basic Four is now based in Tustin, California, and is seeking to go public with an initial offer of 5m shares which are expected to be priced at $17 to $20 a shot. It will be the biggest new issue since the high-tech debutants' ball in 1983. The company did $1.08m net on turnover of $266m in the year to March 31. Lead underwriter to the MAI Basic Four issue is junk bond junkie Drexel Burnham Lambert.

Multiflow Computers Inc, formed in 1984 in Branford, Connecticut to develop Unix parallel processors and vector systems for science and engineering, has raised $10.6m in its second round of fin-ancing from an enviable list of blue chip venture capital names - including **Olivetti,** which has a string of venture successes led by Stratus Computer to its name. Others include Aetna Venmtures, Alan Patricof, Alex Brown & Sons, Bessemer Investment Partners, Fairfield, General Electric Ventures, L F Rothschild and Paine Webber. In its first round funding in February 1985, the company raised $7m.

Human Computing Resources Corp the Toronto, Canada company specialising in Unix implementations, and diversifying less than painlessly into applications has raised $Can2.15m from five venture capital funds, management and employee shareholders. Funds contributing to the financing were Ventures West Technologies Ltd, Mayfield Group, BG Acorn Capital Fund, Novacap Investments Inc and TD Capital Group. Proceeds will be used to finance growth; the company made the biggest (unquantified) profit in its 10-year history in its second quarter to April 30 on $1.4m turnover, after a first quarter loss from suspension of its Chariot applications project.

Compagnie des Machines Bull, 93%-owned by the French state, is to raise the equivalent of $140m by way of a one-for-four rights issueto which the government intends to subscribe fully. Honeywell with about 3%, is not expected to take up its rights, thereby further diluting its holdings.

The MG-1 personal workstation from East-London based **Whitechapel Computer Works** now sports its own MGLP laser printing package - the MGLP package can print at a resolution of 300 dots per inch, and has direct access to workstation memory, which puts the printer ahead of the screen quality when reproducing drawings: Whitechapel says the system is particularly efficient for complex images and drawings - it is fully integrated with the 42-nix operating system and can be networked for remote printing over Ethernet.

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Unix has got the thumbs-up from **ITUSA** - the Information Technology Users Standards Association: X/OPEN's involvement in creating an international standard has convinced ITUSA that Unix is a practical route forward - "For the business user looking for a standard operating system, Unix will be the only game in town" said Dr Mike Smith, who is chairing ITUSA's Unix Action Group, ITUSA's members are thought to account for around 50% of information technology buying power in the UK, and include such names as BP, Kodak, ISTEL, Marks and Spencer, CCTA, Barclays and Lloyds banks, British Aerospace and GEC.

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Financial services firm **Midas Advisory Services** of Wallingford, Oxon, has become the latest addition to Olivetti-AT&T's network of Value Added Resellers - MASL has specialised in insurance broking and other financial services since setting up in 1976: it now offers Unix versions of its MIDACS and MIFAS software originally written for Hewlett Packard kit, and implemented them on 3B hardware in February.

Minigrams

The picturesque Triple X micro from Cambridge-based **Torch Computers** is now available in a diskless version for the low, low entry-level buyer who had budgeted for a mere terminal: the diskless workstation provides a dedicated 68010 processor, 1Mbyte RAM, and a range of peripheral connections - the price is £2296.

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Template, the 3D graphics tool-kit from Epsom-based **United Information Services** is now available on the **IBM** RT Personal: it supports IBM's graphics support library as well as its own independant device library.

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Hewlett-Packard added a 560 packaged model in its 68020 HP-UX line.

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Sun Microsystems is shouting from the hilltops in Mountain View, Cal-ifornia the striking acceptance of its Network File System for suppor-ting distributed files, primarily under Unix 4.2 but also under System V, VAX/VMS and MS-DOS: latest to sign is **Hewlett-Packard Co**, and the company has recently added 20 other manufacturers - bringing to total to 40 - and 20 universities worldwide; others that have just joined the club include the **Atex Inc** unit of Eastman Kodak Co, **Bull** of France, **Cadnetix Corp, CSEE** of France, **Datamedia Corp, Edge Computer Corp, Encore Computer Corp, GCA Corp** Tropel Division, **Harris Corp, Integrated Solutions Inc, MIPS Computer Systems Inc, Parallel Computers, Ridge Computers, Silicon Graphics Inc, TTI Citicorp** and **UniSoft Systems**; in Japan, **NEC** and **Toshiba** are in.

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Bull SA has slashed prices of its top-end **Honeywell**- and **NEC**-origin GCOS 8 mainframes.

Sun Microsystems Europe has an OEM contract worth $5m in the first year from **Wild Heerbrugg Ltd** of Heerbrugg, Switzerland under which the latter will package up its geographic information and mapping software with the Sun-3 and market it as System 9: the systems will automate the process of making maps from aerial and other traditional map-making means: photographs.

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Hewlett-Packard Co reports that 12% of the HP3000 user base has ordered the new 930 32-bit Spectrum CPU, putting it ahead of target - and that orders for the top-end 16-bit HP3000 Series 70 are also going well; the bad news is that total orders are up only 3% on last year.

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Texas Instruments is still struggling to fulfil the terms of its second source agreement for the **National Semiconductor** NS32000 microprocessor family: the first parts were due out in the first quarter, but following qualification snags, the new target is scheduled for the third quarter.

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Oh dear, **not** a hopeful sign for sweetness and light after **Burroughs** acquires **Sperry** - or hadn't the guy heard? While **IBM**, which bid its 4300 for the monster $255m US Army contract Sperry won bidding **Arete** Unix kit responded to **Computer Systems News** with a gallant "IBM has nothing to say... congratulations to Sperry", Ed Quinn, programme manager for **Systems Development Corp**, bidding **Con-vergent** kit, was clearly devastated: "When you've been gored, it's hard to talk to people," he said, "I don't know what happened yet, except that I lost"; Systems Development is owned by Burroughs...

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UNIGRAM/X

The newsletter for UNIX systems users

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SUN SETS AT-ALIKE BOARD FOR SUN 3

Sun Microsystems Inc has announced a plug-in IBM AT-alike board
for the Sun 3 68020-based family of workstations and servers.
The AT board is expected to come in at $1,995, and will be
accompanied by a new implementation of Sun's celebrated Network
File System, called PC-NFS at $400 for linking Personals the
Unix machines. This is the first product out of Sun's enginee-
ring operations the other side of the country from its Mountain
View, California headquarters, in Lexington, Massachusetts.

ULTRA-CAUTIOUS SIEMENS SIDLES INTO UK MAINFRAME MARKET

Siemens finally ended a decade of speculation yesterday with the
announcement that it is to invest a modest £15m to £20m over the
next three years on a computer marketing and software
development operation in the UK. The company says that the UK
market is the fastest-growing data processing market in Europe
and that this, combined with the fact that Siemens now has
communications terminals, networking, PABX and laser printer
businesses in the UK so can offer "total solutions", has prompt-
ed the decision. Initially, Siemens will concentrate on Xenix-
based office systems, with its single-user 80186-based PC-X and
the multi-user NS32016-based PC-MX, and mainframes for three
vertical markets – cartography, printing and publishing, and
computer integrated manufacturing. It is bringing in its
complete line of 7.500 series mainframes – most recently
modernised last autumn suppoting PC-2000s – PC-MXs
with co-processors that run a subset of the BS2000 mainframe
operating system – as workstations. The mainframes have the
same ancestry as ICL's now-defunct System 4 and Sperry's 90/80,
being derived from old RCA Spectra 70 licences. Siemens has
been making the applications interface in BS2000 more
compatible with that for IBM's MVS with each release, to
facilitate transfer of IBM applications to run under BS2000 on
the 7.500 line. The company has no plans to introduce its top-
end 7.800 IBMulators, bought OEM from Fujitsu, into this
country, but will be offering the top-end 7.590, which is a
Fujitsu M380 microcoded to run BS2000. In the vertical markets,
Siemens will be selling its own software though it is
considering acquiring CAD/CAM products to add to its Computer
Integrated Manufacturing offerings. In the office environment,
Siemens has signed a worldwide agreement with Quadratron Systems
Inc for Q-office software and with Liverpool-based software
house, Fraser Williams. It will also be developing software in
the UK for marketing worldwide, through a new division which is
expected to employ 40 by year-end and 200 by late 1988. Siemens
says that UK universities are producing good Unix software
engineers but, says marketing director Hamish MacArthur, the
software operation will also make it easier for the company to
show its commitment to the UK when it tenders for government
contracts. It will also "show customers that the company is in
the UK to stay". Siemens is reluctant to give prices for its
kit as it says it will only "be selling solutions, not boxes".
The computers will be sold by the newly formed Data Systems
division which will also include the communications products
currently on offer. According to director Hans-Martin Steinle,
the combined units that make up Data Systems are looking for a
30% increase on the £60m of business done last year by the
communications arm alone, which implies little computer bus-
iness. Similar growth is forecasted for the next five years.

INTERACTIVE SYSTEMS, PHOENIX PLAN UNIX+PC-DOS FOR 80386

Phoenix Software Associates
Ltd, part of the Norwood,
Massachusetts company that has
made IBM's life a misery by
coming up with an IBM-compati-
ble BIOS guaranteed not to
infringe IBM's copyright, is
going to upset the giant even
more with its latest move. It
has teamed up with IBM's own
partner on Unix, Santa Monica,
California-based Interactive
Systems Corp to exploit the
virtual memory capability of
the 32-bit Intel 80386 to
create an implemention of
AT&T's Unix System V.3 that
will run multiple PC-DOS
applications as tasks under
Unix. According to reports the
implementation, called V 86/ix,
is set for completion by the
fourth quarter; it will
effectively combine the
benefits of Digital Research's
Concurrent DOS with those of
Unix in a single operating
system. The plan is for each
company to market the resulting
product to its own OEM
customers, and the first
implementation will be a
single-user version, followed
by full multi-user capability
in mid-1987. The architecture
of the 80286 precludes such an
elegant solution, and versions
of Unix that run MS-DOS tasks
need special hardware support.
A similar product to V 86/ix is
expected for the 80386 from
Locus Computing Inc of Santa
Monica, whose Multisystem Merge
is used by AT&T on the PC6300
Plus to run PC-DOS as a task
under Unix.

ISKRA OF JUGOSLAVIA OFFERS XENIX, UNIPLUS OR RSX-11 ON ITS TRIDENT

Jugoslavia flagship computer manufacturer Iskra Delta has ambitions to corner 5% of the European computer market by 1990 - and has just launched a 16-bit VMEbus machine - the Trident, capable of supporting a choice of three CPUs. Trident can run Xenix 3.2 or RMX-286 on the 80286, Uniplus, CP/M-68K or OS9 on the 68010 or the RSX-11-compatible Delta-M using the DEC J-11 microprocessor implementation of the PDP-11/70 CPU. In that incarnation it is claimed to be the first PDP-11-compatible VMEbus machine. The Trident is available in the UK from Iskra Delta's distributor, MCP Electronics Ltd in West London, who first attracted to the Trident at the beginning of this year by the J-11. The 8Mhz 80286 version costs £7,995 with 2Mb and offers 80287 co-processor option; the 12.5Mhz 68010 version, which offers NS32081 floating point co-processor is £8,195; and the J-11 version configured with 2Mb memory, 6 channel serial card, operating system licence, 20Mb hard disk, floppy disk drive, one terminal and card rack would cost around £8,500. MCP, however, say that if a customer wants any different options put in - if it is feasible the company will do it, the personnel there regard themselves as systems integrators. Iskra Delta, with a turnover equivalent to $110 million in 1985 and 1,600 employees in five countries, is a subsidiary of its parent company, Iskra Holding, manufacturers of batteries, consumer products and electronic components. The parent is a typical Eastern European conglomerate enterprises manufacturing of batteries, consumer electrical and electronic products and electronic components. The parent company does $250 million business in the West, and has 35,000 employees generating a turnover of $1.8 billion in 1985.

Iskra Delta, with operations in France, Germany, Austria and the US as well as Yugoslavia, launched the Trident two weeks ago. MCP predicts that the majority of sales will be for the J-11 version of the Trident because when used in conjunction with the VMEbus it provides a far more rugged system than the PDP-11 for applications such as process control. Jugoslavia is not a full member of Comecon, the Soviet Bloc's free trade area, but the bulk of its trade goes that way.

BRINGING UNIX TO THE DARK CONTINENT, BUT UNIXSYS RUNS INTO NAME TROUBLE

Unixsys, the Paris-based Unix systems manufacturer, is seeking to open subsidiaries in French-speaking African countries in addition to its Cameroon office. The company, with a FF120 million turnover, equivalent to about $17m, in 1985 and 120 employees, already sells around 30 systems to African nations, including the Ivory Coast and Senegal, and opened a UK office in Warrington, Cheshire earlier this month. Unixsys, established in 1981, is currently having its name disputed by AT&T, although company representatives at last week's Comdex show in Nice, France were reluctant to say what the outcome might be. Unixsys applied for a source code licence for 1986 and were turned down by AT&T, leading to the present name wrangling.

ITT BELL TELEPHONE EXPLAINS ITS DECISION TO ABANDON UNIX

The demise of the specialised Unix development unit of ITT's Bell Telephone Manufacturing Company (UX No 82) means that a number of distributorships are vacant. The division acted as distributor for Interactive Systems, ICL Belgium, UX Software and Canadian Company - Rhodnius - developers of relational databases; Mistress and Empress. Bell Telephone Manufacturing decided to disband the division that developed and marketed its own Unix applications as well as acting as Belgium's Unix software distributor mainly because sales were not going well. Although Bell Telephone will continue to use Unix internally it thinks that the continental European market is not sufficiently mature to warrant subsidising a dedicated division. Although the head of this division, Guy Schoups, is obviously biased in favour of Unix he believes that the Antwerp-based company is making a big mistake in totally abondoning the operation because in about two years time it will be crying out for experienced Unix developers like the ones it has just dismissed. Guy Schoups is considering stealing the distributing market himself.

PHILIPS DRESSES UP ITS P3200 AT-ALIKE

Colchester-based Philips Business Systems is following up the P3100 XT-compatible range with an AT-alike, the P3200. Due to be released in late July, the P3200 is 82086-based running MS-DOS, with the possibility of Xenix later on. The P3200 is part of Philips' overall office automation strategy, following its P5040 word processor last month. a 25Mb hard disk as standard with 360Kb or 1.2Mb floppy options, colour graphics support and 512Kb main memory expandable to 1Mb. The P3200 will be launched across Europe from late July onwards through Philips' authorised distributors, priced at from £3,500 in the UK. Philips Business Systems still has no plans to sell Philips Austria's Yes personal computer, launched at Hanover in mid-1985. The Yes runs DOS Plus and is not considered by the UK comp-any to be sufficiently IBM-compatible for Britain.

IBM ENHANCES RT PERSONAL WITH TOKEN, ETHERNET, TCP/IP

IBM has made hardware and software enhancements for the RT Personal Computer. On the software front, the 1.1 release of IBM's AIX Unix comes with new C routines, support for the TCP/IP communications protocol and improved 3278-79 file transfer. There are improved Fortran and Pascal compilers, the former providing a global optimiser and true single precision floating point.

It also supports colour displays. The 1.1 release of the VRM hypervisor supports the new baseband Ethernet adaptor, the 6154 colour graphics display and 6155 mono graphics display.

The Ethernet adaptor is $850 from September, a Token Ring Adaptor is $1,095, available now, and a Multiport Communications Adaptor at $850 from September has three ports, two of which can be active at a time, supporting async, bisync, SDLC, HDLC and X21 communications.

Up to two adaptors are supported.

APPLE COMPUTER MAPS OUT PRODUCT STRATEGY: PC-DOS FOR II?

IBM compatibility on the Apple Macintosh will come in the second quarter of next year. And there is a strong possibility that the forthcoming 16-bit Apple II will also feature support for PC-DOS applications, Jean-Louis Gasske said in Paris yesterday.

Apple Computer Inc's new technology chief was outlining the company's new product strategy, which remains committed to the 3.5" floppy for all products.

The Macintosh and Apple II lines will continue in parallel, with three or four versions on offer in each line at any one time, including compact and portable models - a portable Macintosh?

Sounds interesting. ..

And all new peripherals will be common to both products lines, with the Small Computer Systems Interface, SCSI, the standard for attaching Winchesters.

The AppleTalk local area network continues but without major enhancements, although a star server configuration will be added, and the cabling system will be unified.

On the Unix front, Apple, as already reported, has bought a licence to an implementation for the 68000 family by Cadmus Computer Systems of Cambridge, Massachusetts, and is doing a portable Unix for universities and the engineering market.

But there will be no full native Macintosh implementation of Unix providing all the icon and windowing features.

Users wishing to use icons and windows will still have to to run Mac-DOS for that.

AES UPGRADES ITS NETWORKED OFFICE PRODUCT LINE

AES Data UK has announced new products for its Unix and in-house-designed office automation systems, at the same time opening new headquarters in Hammersmith, London. The company has introduced a new 7370 CPU for the AES range, claimed to double or better the speed of the 12-bit bit-slice 7300 range. The 7370 includes 1.5Mb of system memory and supports eight IBM-compatible AES workstations or up to 72 workstations on nine nodes in a local area network. A top end configuration with two 1.2Mb 8" floppy drives, 85Mb Winchester, 53Mbps tape streamer would cost around £19,000. Screens then cost £1,795 each after the first for £1,595, basic software costs £3,000 and daisywheel printers cost £1,695 each, taking the average cost per workstation up to £5,000. The company will also introduce Ethernet support in the third quarter of 1986, supporting speeds of 10Mbits per second against the pedestrian 250Kbps of its own AESnet baseband HDLC network. To add AESnet to the 7300 range costs around £1,000 for board and software. AES is also offering an X400-compatible message handling package which sets the standard for all text traffic including teletex and electronic mail - now, but prices will not be fixed until next week. This comes from Canadian software house, Sydney Development Inc, which is also the source for ICL's and Siemens' X400 packages. The company is also hoping to get into desk-top publishing with a graphics product, called AESIG, which will be available in August. This costs £9,500 for a graphics terminal and laser printer. AIF, AES Interchange Facility, was written for the company by Computer Solutions Inc and allows users on AES systems to work on and transfer documents to and from IBM systems. AIF host software for MVS and VM users costs £8,250 and AIF DisOSS costs £18,000. AES Gate is a package for network to network communications. The company will also be launching its own version of the NCR 68020-based Tower 32 as the 7600 on Friday in Frankfurt.

COMPAQ TELECOMMUNICATIONS SET TO CUT STAFF

While Compaq Computer Corp makes a deal of noise about how well it is doing, much less is heard of its Compaq Telecommunications diversification into telephone terminal computers - with good reason. Sales of the Telecompaq have been so slow that the lease is not being renewed on the Dallas headquarters; staff will move to the Carrollton manufacturing base. Some staff are being moved to other units, but there have been no lay-offs yet.

SGS OF ITALY SET TO BUY CHIP
SIDE OF ZILOG FROM EXXON

Exxon Corp, which had been looking for
investment partners for its Zilog subsidiary
in Campbell, California, has instituted cost-
cutting measures, and now wants to sell the
loss-making company outright, according to
Electronic News.
It is likely to go in two parts, chips and
systems, and while AT&T is expected to pick
up Zilog Systems, front of the queue for the
chip unit is the company's European second
source, SGS of Italy.
SGS second-sources the Z8, Z80 and Z8000, and
is associated with AT&T on other chip pro-
jects; Zilog second sources AT&T's WE32100,
which would make the changes of ownership
fit very well. The acquisition would put SGS
on a par with Thomson and Philips-Signetics
in terms of US operations, and approaching
Siemens and Sanyo in the world ranking of
chipmakers.

ALTOS ADDS TO 80286 MODELS,
CUTS 50 IN THE US

In an effort to downsize the company to
current levels of business, Altos Computer
Systems has laid off 50 of its 750-strong US
workforce.
The cuts come from right through the company,
and half those who lost their jobs were
temporary employees. Altos also added two
new models in its 80286-based Xenix line, the
six-user 686 and the 32-user 3086. The 686
comes with up to 2.5Mb main memory, 80287
option, 25Mb or 50Mb Winchester and optional
internal 60Mb tape streamer.
Base price for the machine, due next month,
is $5,000. The 3086 is due in August at a
base price of $29,990 and comes with up to
8Mb memory, 170Mb ESDI Winchester, 1.6Mb
floppy, 60Mb tape streamer and three slots.
The company has simultaneously dropped the
8086-based 486 and 80186-based 586, so that
the line is all-80286-based.
The price of the 886 entry configuration is
cut 16% to $6,695, and 12.5MHz processors are
available to upgrade the 8MHz 80286 boards in
the 1086 and 2086. The faster processor
board comes in at $2,490.

HEWLETT-PACKARD RISC GURU
QUITS FOR MICHELS' DANA

William Worley, one of the designers of the
Hewlett-Packard Spectrum RISC architecture as
headed Spectrum software products
development, has quit to join Convergent
founder Allen Michels' new Dana Group Inc.
Dana, in Sunnyvale, California, is doing a
"personal supercomputer" in the 20 MIPS to 30
MIPS range and has now settled
on a parallel processing architecture based
on the RISC CPU from MIPS Computer.

APRICOT INTENDS TO MOVE INTO £40,000
BRACKET WITH 80386

A likely early customer for the new operating
system from Interactive Systems (see front)
is Apricot Plc here, which intends to move up
into the £40,000 price bracket with 80386
early next year. Now Apricot is entering a
market that is completely new to it -
competing head to head not with IBM but with
a rapidly expanding crowd of companies
marketing AT-alikes, and it will have to
compete on price with machines made mainly in
Japan and the Far East. Apricot will not be
the only company desperate to get a 32-bit
80386 machine into the market ahead of IBM.
Companies have to try to do that, but there
are two big dangers in the strategy. The
first is that early versions of the 80386 are
not likely to work perfectly: the early
80286s were plagued with problems and the
80386 is a more complex chip. The second is
that IBM will want to build as many traps
into its own 80386 machine to catch the
clonemakers as possible - and may even decide
to make its own 80386 chips, designing in
subtle differences from the part Intel will
offer to the rest of the world. The complete
change of strategy at Apricot suggests that
the company's best bet will be to try to turn
itself into a British Altos, trading
primarily on the benefits of the non-IBM
industry standard operating systems led by
Unix and Pick. And it will be dangerous to
wait for the 80386 and hope that it performs
to spec - in the interim it needs to buy a
68020 machine OEM and learn as much as it can
from it about the new market it is entering.
On the acquisition front, who would want to
buy the company? Most likely would be
someone like the thrusting new ultra low-cost
producer Tandon. As soon as Tandon heard the
Apricot news it initiated urgent internal
discussions as to whether it should recommend
its parent launching a bid - but reflection
persuaded it that there was all the capacity
it needed for the next year or so at its
plants in California, the Far East and India,
and that while it might want a European
manufacturing base at some stage, it
certainly didn't need it yet. It also
already had its own distribution established,
and doesn't need Apricot's research and
development. While there are aspects of
Apricot of interest to the likes of NCR and
Altos, and to the more ambitious of the
Japanese such as NEC Corp, the liklihood is
that a long string of companies that might
well also include British Telecom and GEC,
will consider it, take a look, and, like
Tandon, decide against. The conclusion is
that Apricot will have to soldier on trying
to evolve its new strategy - the company is
thoroughly solvent after all.

OLIVETTI SETS UP ACADEMIC SUPPORT PROGRAMME FOR SYSTEM V UNIVERSITIES

Olivetti is investing in youth to gain European acceptance and expertise in Unix. Olivetti has chosen three British Universities and is looking for another nine that use Unix System V from the rest of Europe to join its Academic Support Unix Programme.

Each University will be provided with a free fully-configured Olivetti-AT&T 3B2/400 system.

The three UK Universities are Cambridge, Stirling and University College London. In return for funding these Universities and the others that join will undertake projects that will be used for teaching Unix System V and teaching using Unix System V.

Initially these projects will not be used commercially but Olivetti say that in time they may become saleable products.

The three existing participating universities proposed projects at the inaugral meeting last month. These included: Moving from colour books to OSI in the academic community using 3B2 computers; Experience with using ADA in the Unix environment; and Cross-compiler environments for teaching operating systems under Unix System V.

Olivetti anticipates that it will have the full twelve universities by the end of the year.

THE EUROPEAN UNIX USER SHOW POST-MORTEM

EMAP, the joint organisers of the Unix User Show held earlier this month along with the Unix /usr/group and Unix Systems Magazine, is very pleased with the shows attendance figures and say that next year's show will be better than ever.

EMAP says that the presence of companies such as Autodesk and benchMark shows that Unix is now accepted within the manufacturing industry and it re-iterates our thoughts at the time of the show (UX No 80) that the presence of IBM making its first steps toward the European Unix market confirms the acceptance of Unix as the operating system too.

The areas that provoked most interest at the show were software for office automation, training, and networking.

EMAP says that 66% of exhibitors rebooked at the event itself for stand space for the 1987 Euroean Unix User Show to be held from 20-22 May at Olympia II.

Although next year's show will have a 47% increase in available stand space more than 61% of it has already been sold: companyies that did not have stand space at the show but visited have also booked space for next year - obviously impressed.

AT&T AND THE MYTHICAL V.3

AT&T did not announce prices and licencing agreements for the latest version of Unix System V last week in Las Vegas, as we were told (UX No 82). The latest date for these details is the end of the month - they have not been finalised yet. The majority of Unix users and distributors are taking V.3 seriously and cannot wait to get their hands on it. The technologies causing the excitement is RFS and streams. The Instruction Set of North London is waiting for the microport versions for the Intel, Motorola and National Semiconductor chips - it fears, however, that they will not be available before the end of the year. Although The Instruction Set is an advocate of NFS it emphasizes that this does not inhibit its interest in RFS as it considers the two file systems to be complementary.

UNIX GOES INTO THE SHOPS

Thorn EMI Micrologic plans to take EPOS into the retail industry using its newly-developed in-store processor, running Unix and supported by Choice software. Choice comes from Choice Retail Systems based in Marietta, Georgia. Choice will, according to Micrologic, run under any version of Unix and its derivatives and this is seen by the Kempton, Bedford -based company over here as a means of attracting customers to the system as it will protect software investment during hardware changes or upgrades. Choice consists of three main products: Retailers Choice - which provides retail merchandise management from sales entry and reporting to full stock control and purchasing management; Choice-Net (ISP) which controls communications between the processor and EPOS terminals; and Choice-Net (Polling) which handles communications to and from Head Office via the public switch network.

VOEST-ALPINE ABANDONS CHIP AMBITIONS

After Gould's American Microsystems unit dropped out of the standard parts business to concentrate on custom circuits, hitting its joint venture with Austrian steelmaker Voest-Alpine, the joint venture with Oki Electric agreed by Voest-Alpine in May last year, has now turned sour. The plan had been to invest $285m by 1990 in building a VLSI wafer fabrication plant in Graz, Austria, for a new company 51% owned by Oki Electric. But the residents of Graz were not keen on the idea, and Voest-Alpine has seen declining profits in its core steel business, and management changes have led to much less enthusiasm for the project. As a result, Voest-Alpine is pulling out - but Oki says that it still wants to build a plant in Austria.

Motorola will have the CMOS 68184 Manufacturing Automation Protocol controller chip for makers of broadband modems out in volume in September at $40 apiece in 100-up quantities.

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Quick off the mark, **Pyramid Technology** says that **AT&T**'s new Unix System V.3 will be supported under its dual mode V-plus-BSD OSx Unix on its RISC CPUs.

- o -

The **Sperry Users Association Europe** is making enthusiastic noises about the acquisition by **Burroughs** of Sperry following a meeting with Michael Blumenthal and Joseph Kroger at which they were assured that Burroughs would continue to develop the Sperry 1100, System 80 and Unix families and protect their investment in software: Blumenthal told the meeting that the merger was "different from any previous merger" within the computer industry.

- o -

Regarding an article we ran a while ago (UX No 74) we would like to apologise to **Xtechnology Ltd** for not giving them credit where it was due: the **Avatar** owned company was resposible for the commuications between the **Godfrey Davis** bases in Paris and Bushey.

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Which Computer? gave SunAccount from **Systems Union** the highest score in four out of seven categories in a review of ten accounting packages available in the UK.

- o -

Systems and Telecoms of Reading has signed a distributorship agreement with **Gaul Software Services** of Antwerp, Belgium for the non-exclusive right to distribute Systems and Telecoms' S-Telex in Belgium: although the value of the deal is undisclosed it is thought to be a five figure sum.

Minigrams

SEMADS Ltd - Systems Engineering Maintenance & Distribution Services - have signed an agreement with NCR that allows them to act as distributors for the NCR Tower range of equipment.

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Sphinx Ltd has extended its product line with UX-Basic and HCR/Pascal, both are languages specifically for use on Unix hardware: UX-Basic comes from **UX Software** of Toronto, Canada and HCR/Pascal from **Human Computing Resources** of Newbury, Berkshire - additionally Sphinx has taken on board USecure and UBackup from **Systems and Telecoms** of Reading, Berks.

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Root Technical Systems is making the Unix spreadsheet, UltraCalc from **Olympus Software** based in the US, available on National Semiconductor 32000 and on VAXs running 4.2BSD or System V.

- o -

We remarked when the machine came out that the design of the new Triple X Unix box from Torch Computers Ltd of Cambridge was as pleasing and elegant as that of its original machine was perfunctory to non-existent: no doubt making all the extra effort thoroughly worth-while, the Triple X has now received the badge of approval from the **Design Council,** and will now be entitled to sport the design Centre's black-and-white tag; Torch claims that it has shipped more Unix systems by volume than any other UK company, wooing customers with its icon-based Opentop user interface, and the alluring price-tag of £4,700 for the basic system - and the company is projecting sales of 5,000 units in 1986 - **Root** has provided System V.2.

Northern Telecom Data Systems of Hemel Hempstead, Herts will be running courses for Xenix Programmers and Xenix System Management starting in July and ending in November: for more information contact Adrian Knights on 0442-41141.

- o -

The **usr/group/UK** has recently appointed its new board of 12 directors: representatives come from **Data Logic, Redwood, Torch, Pyramid, AT&T Unix Europe, Sphinx, Root, ICL, Logitek, Bleasdale, and DEC.**

- o -

Logica has launched MacCadd which allows creation and revision of software design diagrams: the package developed by Logica will run on VAX machines and on any Unix machine provided it is compatible with VT100 terminals - the price for one MacCadd licence is £12,000 reductions for larger quantities, but if you want to have a look at it before buying you may buy an evaluation copy for £50, the save and print functions on this version will be disabled, but you will get your money back if you decide to buy the real thing.

- o -

IBM indicates that orders for the RT Personal are a little ahead of its forecast, which was 8,000 shipped by the end of the year.

- o -

benchmark Technologies's bAP has been taken on board by the newly launched **priorKnowledge** to form the heart of its multi-user Unix system: the system includes 74Mb hard disk and 60Mb tape back-up and costs around £20,000 - the Eastleigh, Hants company also provides an integral battery-backed power supply to provide additional security against multiple power failures that play havoc with the majority of Unix systems.
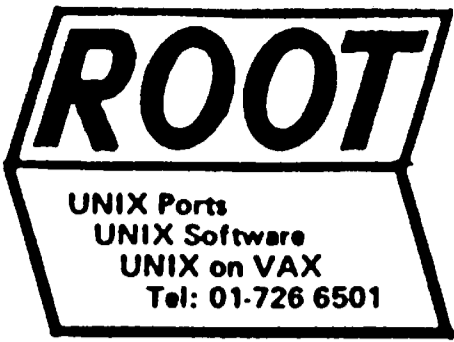
ROOT

**UNIX Ports
UNIX Software
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UNIGRAM/X

The newsletter for UNIX systems users

Published in cooperation with the European UNIX ™ systems User Group

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$200m-$300m US UNIX CONTRACT UP FOR GRABS

A Unix workstations contract that could transform the outlook for the lucky winner is out to tender in the US. Customer is the National Security Agency, and the contract represents the third phase in the shadowy agency's computer procurement. The second phase, worth almost $1,000m, went to AT&T with 3B computers. The new contract is for up to 4,000 stations over five years, and according to **Computer Systems News**, those preparing bids include IBM, AT&T, Apollo Computer, DEC, Hewlett-Packard, Burroughs' Systems Development Corp - likely bidding Convergent machines, Mass-Comp, and Sun Microsystems. It seems likely that Sperry will also bid - if Burroughs allows it to go in against Systems Development.

PYRAMID DEVELOPS OWN COMMON LISP FOR ITS UNIX RISCs

Pyramid Technology Corp is reportedly developing its own Common Lisp compiler for its 90x and 98x family of Unix Reduced Instruction Set Computers. The product is believed to be about 90 days away from introduction, and Pyramid has been consulting with Symbolics Inc to ensure that the compiler maintains compatibility with what it perceives to be the industry standard for artificial intelligence systems.

MICROPORT OFFERS FULL SYSTEM V FOR AT AT $159

Microport Systems Inc, the company spun out of Digital Research when the latter abandoned its development effort on Unix System V/286 for Intel Corp, is offering what is believed to be the cheapest run-time System V implementation - for the IBM Personal AT and compatibles. Microport, now headquartered in Aptos, California, offers a run-time licence for System V/AT at just $159. Unlimited site licences to educational institutions cost $800, and the development system costs $169, the text processing system $169, and the two, bundled with the run-time system, is priced at $439.

UNIX SUBSET FOR PERSONAL FROM WENDIN - FOR $99

Few details are available, but Wendin Inc of Cheney, Washington, has a subset of Unix for the IBM Personal Computer family which it is offering for just $99. The new product, PCUnix is claimed to support up to three users and consists of the Bourne shell, about 70 Unix commands, and a facility to run MS-DOS programs as tasks, intercepting most of the MS-DOS system calls and translating them into Unix calls.

ROOT CELEBRATES FIRST ORDER FOR MAS HOSKYNS SYSTEM

Root Business Systems is celebrating the first order for the new Unix version of Hoskyns' MAS-Manufacturing Control System and Financial Control System (UX Nos 62 & 73). Integrated Micro Products is expanding and will be using the Hoskyns Systems internally for a range of financial and manufacturing applications. Root says that other companies are interested but cannot name names. No cost could be put on the order.

ICL PICKS IRELAND FOR MAJOR UNIX DEVELOPMENT EFFORT

ICL has plans to set up a Unix software development unit in the Irish Republic. This is part of ICL's international expansion plan - it was deliberately seeking for a base outside England. ICL chose to position the Information Technology Centre at the Irish Development Agency, South County Business Park in Leopardstown, Co. Dublin because, according to ICL, the area is rich in graduates and experienced computer and business professionals. The centre will specialise in software research and development centred around the Unix operating system. ICL will initially recruit 25 staff mainly from around the centre and intends that total employment will rise to 100 people within three years. ICL says that this investment, an undisclosed sum, demonstrates the importance of Unix to ICL and that Unix will play a key role in ICL's future. ICL has two approaches to Unix; one to use it for development work in-house and the other for producing commercial applications. ICL will be devloping applicatiion software for six vertical market areas: retailing; health; public administration; defence; manufacturing; and financial services. ICL also intends to make use of local universities to extend its research power. This will make the X/Open progenitor's biggest commitment ever to Unix and the company is reportedly seeking other bases outside the UK for different projects in its international expansion plan.

National Semiconductor has announced that it will have Unix System V one month after AT&T officially launch it. The problem is that no-one knows and AT&T are not saying when the official launch will be or exactly what the pricing strategy will be, although AT&T will be unbundling the operating system and it will have to be bought in modules. NatSemi will be using V.3 on its VR32 series of 32-bit micros and on the ICM-32 series of 32-bit board level products. At the National Computer Conference in Las Vegas NatSemi launched a second generation of software development tools for the Series 32000. The new tools conform to the Unix System V Interface Definition so software can be moved from different architectures to the Series 32000 via a simple recompilation. The tools can be used on the NS32008, 32016, 32032 and 32332 and includes C, Fortran 77 and Pascal Compilers, plus an assembler, support utilities and debuggers. Natsemi also intend to add Fortran 77 and C optimised compilers to the GNX tools package, these were developed by NatSemi's Compiler Technology Group and were designed in a modular, backend manner so that the bones may be used with other languages. The tolls package is available at a cost of $1,000 to existing customers and will be readily available in the autumn of this year.

Another recent announcement from NatSemi is the signing of an agreement with Opus Systems for the series 32000 co-processor. Opus Systems of Cupertino, California will provide its Personal Mainframe 32-bit Unix-based co-processor subsystem to NatSemi for use in PC-compatible systems. The Opus product is based on the series 32000. NatSemi is palnning to use the Opus product as the basis of a new microprocessor development

NATSEMI AND THE 32000 SERIES CLAIMING COST PERFORMANCE ADVANTAGES OVER M68020

system. The Opus based system together with the GNX language tools will be offered to designers who want to use their IBM PC or PC-compatible system as a development system. NatSemi will also be aiming the Opus system at its independent software vendors of which NatSemi now has about 150 for the Series 32000: these ISVs include Quadraton, Quality Software Products, Rhodnius, Software Express, South Wind Software, Uniplex and Visual Engineering. NatSemi says that the Opus system may be used as a 'friendly' porting system to move products to the Series 32000.
NatSemi also announced at NCC that it is sampling 15-MHz versions of the the NS32332 CPU. The 15MHz versions are initially being targetted at the real-time market for applications such as high-performance laser printers, factory automation and robotics, aerospace and military guidance and control systems, deep space satellites and global positioning systems. cNatSemi's supporting processors, including: the NS32081 floating point unit; the NS32081 timing and control unit; and the NS32202 interrupt control unit, are also available running at 15MHz. NatSemi says that the 32000 instruction set is effective in producing compact code and is also more efficient in typical ROM-based real-time systems: the compact code the series 32000 reduces PROM requirements to save cost and also, according to NatSemi, has access time advantages that allow higher system clock rates without increasing RAM and ROM requirements. As an example NatSemi cites that the burst mode of the NS32332 allows the entire ROM space of the processor to respond at

speeds similar to those of cache memory, whilst using ordinary RAMs. NatSemi says that these factors increase performance at reduced cost and the NS32332offers higher performance at about half the cost of a comparable 68020 design and continues saying that the power consumption of the NMOS NS32332 is about the same as the CMOS 68020. As a means of supporting these claims NatSemi has produced a Comparative Benchmark Analysis of the NS32332 versus the Motorola 68020. Although the Benchmarks obviously come out best on NatSemi's side the company says that not too much emphasis may be placed on them as a true comparison of performance can only be made in a real situation as results will depend on the type of application being run and the ideosyncracies of the system. In each of the benchmark test carried both microprocessors were run in 0 wait state environments, with, according to NatSemi, comparable system and software configurations. For those of you into benchmarks we have listed some of NatSemi's findings here.
1. The EDN Link List Insertion Test resulted in the NS32332 bettering the performance of the M68020 by 3.12. 2. The EDN Bit Matrix Transposition Test resulted in the NS32332 bettering the performane of the M68020 by 1.09.
3. The LINPAC Test resulted in the NS32332 bettering the performance of the M68020 by 1.55.
4. The Ackermann's Function Testresulted in the NS32332 bettering the performance of the M68020 by 2.17.
5. The Fibonacci Recursion Test showed that the NS32332 bettered the performance of the M68020 by 2.75.
6. The Fcall Test resulted in the NS32332 bettering the the M68020 by 3.29.
Next week we examine Motorola's reaction to these results and look at the benchmarks in more detail.

SCIENTIFIC COMPUTERS OFFERS
FRAMENTEC EXPERT SYSTEM
TOOLS FOR UNIX MACINES

Framentec SA, a subsidiary of the French
nuclear reactor builder Framatome, has
appointed Scientific Computers Ltd of Burgess
Hill, West Sussex as sole distributor of its
three expert systems development tools in the
UK. The first product is the S1 System which
comes in two versions: the Development
System, which runs on Symbolics 3600 and
Xerox 1100 workstations as well as DEC VAXs,
and the User System, for 32-bit workstation
based machines such as the NCR Tower 32, the
Hewlett-Packard HP9000 Model 300, the IBM RT
Personal, Sun 3 and Altos 3068; the User
System can access other languages and
programs. S1 costs from £8,700 and runs
under Unix. Like the M1, for IBM Person-
alikes, it is written in C, but was
translated from Prolog; the products were
developed jointly with Teknowledge Inc. S1
includes multiple windowing, a knowledge
consistency checker and a method of gen-
erating a library of test cases. Framentec
says that S1 is primarily for industrial
applications and has already been used for
optimal tool selection, diagnosis of drilling
problems, maintenance of a hydraulic system
and engine design. The M1 System, for IBM
Personals and compatibles with a minimum
256Kb, can take up to 1,000 knowledge-based
rules and starts at £2,500. The K1 System,
launched in January, operates on IBM 370-type
mainframes under VM/CMS and MVS/TSO, and on
DEC VAXes under VMS. It costs £8,000.
Framentec is involved in two Esprit projects,
one with British Telecom, Krupp Atlas
Electronik and Queen Mary College; and the
other, for development of a Knowledge-Based
System development tool-kit for the chemicals
industry, is with Heriot-Watt University up
on Edinburgh, CAP-Gemini Sogeti,
Aerospatiale, and CISE of Italy.

RIDGE GETS VENTURE FUNDING

Ridge Computers Inc of Santa Clara,
California, which ran into a cash-flow crisis
earlier in the year, has landed $2m in
additional funding from Hambrecht & Quist Inc
and existing investor and industrial partner
Groupe Bull of France, and the company says
that the interim cash is the first step in a
$10m refinancing package. The company has
taken Hambrecht & Quist general manager Bob
Evans as its new chief executive to assist in
expanding the company's Unix RISC product
lines and marketing operations. Evans, 33
years with IBM before joining Hambrecht &
Quist, succeeds founder Dave Folger, who
resigned from the company in April.
Hambrecht & Quist currently has about 17% of
the company's equity, Bull has 12% to 14%.

MICROSOFT ACQUISITION BUYS
IT TOPVIEW COMPATIBILITY

One of the strangest relationships in the
computer industry is the link between IBM and
its Personal Computer operating system
supplier Microsoft Corp, Bellevue, Washing-
ton. On one level, the two companies are
ascloseasthis, on another, Microsoft is snug
in bed with IBM's arch rival Ma Bell on
Xenix, and is ambivalent about whether its
high-end future really lies with MS/PC-DOS or
with System V-compatible Xenix. The
innocent little announcement last week that
Microsoft had acquired Dynamical Systems
Research Inc, Berkeley, California turns out
to conceal another stick of dynamite which
scarecely seems calculated to endear Micro-
soft further to IBM. Because it turns out
that Dynamical's product is an operating
environment called Mondrian, which is
compatible with IBM's own TopView multi-
tasking and windowing product - but is
claimed to take up 50% less memory and run 30
times faster. TopView - and Mondrian - are
character-based, Microsoft Windows is
graphics-based, and Microsoft is expected to
woo TopView users with a combination.

JAPAN MOVES TO PUSH ITS FIRST
PORTABLE OPERATING SYSTEM

About the only Japanese operating system
widely recognised in the outside is Fujitsu's
ingenious - and faster - OSIV/F4 rewrite of
IBM's MVS. But, as we have long forecast,
Japanese chip manufacturers are determined to
play a major role in the world market for
commodity 32-bit micro-processors. And they
would clearly like to make their mark with at
least a soupçon of original Japanese
software. And while there are plenty of
multi-tasking, multi-user business operating
systems around, when it comes to real-time
operating system kernels, the choice is much
more limited - yet these are what will be
needed most in the field of computer-
controlled industrial automation. People
have added non-standard real-time extensions
to Unix, there is Hunter & Ready's VRTX
Virtual Real-Time Executive, which sounds
like a contradiction in terms but isn't, and
then you're down to machine-specific
offerings like Intel's iRMX and DEC's RT-11.
For the 32-bit generation of microprocessors,
Japan is pitching for Tron, The Real-time
Operating system Nucleus, which was conceived
at the University of Tokyo, and to promote
its adoption and use, the Japan Electronic
Industry Development Association has formed a
Tron Council, bringing together Fujitsu,
Hitachi, Matsushita Electric, Mitsubishi El-
ectric, NEC, Oki and Toshiba; NEC, Hitachi
and Fujitsu already have Tron on 32-bit
microprocessors.

COMPAQ COMPUTER WILL NOT MAKE ANY MISTAKES WITH XENIX

Compaq Computer has picked the Xenix market in which to make its next killing. Compaq has announced Xenix System V/286 - based on Xenix System V, a licensed derivative of Unix System V from AT&T, from Microsoft Corporation. Compaq added drivers to this system for dual mode, key board, tape drives and screen for compatibility with the Compaq Deskpro 286 and Compaq Portable 286 personal computers. The operating system comes in three modules and may be bought separtely. The Base operating system contains the Xenix kernel and standard utilities, including access facilities for MS-DOS formatted disks. Included in the price - £495 - for this base system is the Cbook Introducing Xenix for Beginning Xenix Users. The Software Development System costs £545 and contains a C compiler, a linker, a macro assembler, a source-code control system and other software development utilities, including those for developing MS-DOS based applications. The final module is the Text Processing System which for a price of £180 includes text formatters, macro packages and some other document and word processing utilities - spelling and grammar checkers, a typesetting program and a mathematical formula preprocessor.

Compaq says that Xenix System V/286 has advantages over many other versions of xenix and Unix because it has: increased printer support for simultaneous connection of several parallel and serial printers in multiple configurations; easy transfer of files between MS-DOS and Xenix on fixed disks; and an increased number of programmable keys. According to Compaq Xenix System V/286 allows end-users to install third-party device drivers without using the software development package. To run Xenix System V/286 on a Compaq Deskpro the minimum the minimum hardware configuration is is 20Mb fixed disk drive, 512K RAM and a 1.2Mb floppy disk drive, retailing for about £2,500. Having been successful in the portable business personal computer and business personal computer and made a thorough investigation into the Xenix market after receiving a number of requests from customers for Unix Compaq decided that the market was right for them to enter it. Compaq has done so not without a little trepidation because it considers that it has never made a wrong decision throughout its four years of being in business. The company headquartered in Houston, Texas reckons that it is the world's leading manufacturer of portable business computers and second only to IBM in supplying business portable computers. Compaq based in Richmond, Surrey over here set up in the US in February 1982 and in 1983, after a full year of operations, its total revenues was $111.2m - which Compaq says is the most successful first year of sales in American business history. Although Comapaq Computer Corp makes a great deal of noise about how well it is doing, much less is heard of its Dallas-based subsidiary, Compaq Telecommunications, and its diversification into telephone terminal computers - with good reason. Sales of the Telecompaq have been so slow that the lease is not being renewed on the Dallas headquarters; staff will move to the Carrollton manufacturing base. Some staff are being moved to other units, but there are no layoffs yet.

LOGICA SELLS RAPPORT RIGHTS TO US UNIT IN BUYOUT

Following its announcement earlier this year that it was terminating further development on its Rapport relational database management system, Logica Plc has sold marketing and development rights to the former managers of its Logica Database Products Inc operation in New York, who have formed a new company, The Rapport Corporation. The rights extend to all countries save those driectly managed by Logica from the UK, and distributors in France, Italy, Japan and Canada are free to transfer their agreements to the new US company. Logica will offer continue to support its UK customers will offer them enhancements made to Rapport by the US company.

US COMPUTER SALES "TO FALL 18% THIS YEAR" - IN-STAT

US market researcher In-Stat Inc is forecasting a crushing 17.6% fall in computer and office systems sales in the US to just over $14,000m this year - and the continuing softness in the computer industry has stalled the semiconductor industry recovery, reports the **Financial Times.** The paper quotes Donald Bell, president of chip distributor Keirul-uff Electronics saying that "the phones stopped ringing" last month. The bad news comes on top of a deterioration in the Semiconductor Industry Association's book-to-bill ratio in May after several months of encouraging improvement. The consensus is that the semiconductor industry will not move out of the doldrums and into strong recovery until computer manufacturers start ordering in large volumes once more, and most manufacturers are keeping their fingers crossed that this will start to happen in the fourth quarter of the year. Even so, semiconductor sales this year are expected to improve only 3% to 5% over a horrendous 1985, which saw a headlong plunge of 30% in industry sales. The nagging worry that few dare voice is that the feeling of surfeit afflicting US computer users may prove not to be a short-term hiccup, but may reflect the fact that computers have been so heavily oversold for so long that the entire industry may tend to go ex-growth for many more months as users try to come to grips with kit already installed.

SUN BRIDGING THE GAP AND GAINS 20
NEW NFS LICENCEES

Sun Microsystems is confident that its announcement last week (UX No 83) will effectively close the gap between the power of high-performance workstations and the broad range of software available for IBM-compatible personal computers. The plug-in IBM AT-alike board for the Sun 3 68020-based family of workstations and servers is called the Sun Integrated Personal Computer (SunIPC) has a 10Mhz Intel 80286 and Sun is offering it as a bridge to MS-DOS and it supports the Lotus/Intel/Microsoft expanded memory specification so that PC applications running on a Sun workstatin can access up to $MB of memory. Included in this announcement from Sun was a number of new orders and new licensees. The University of California, Berekeley is reportedly acquiring 1000 Sun Workstations for use in its campus communications network. Sun also announced that 20 manufacturers had licenced its Network File System including Hewlett-Packard, Harris, NEC and Toshiba. This brings the total NFS licencees up to 40 vendors and 20 universities worldwide.

CHIPS & TECHNOLOGIES STARLAN,
$150 A NODE

Chips & Technologies Inc, the Milpitas, California company dedicated to offering low-cost VLSI chip sets for people who want to build IBM Personalikes has diversified with a very low-cost local area network chip set, designed to reduce the cost per node connection from the present $700 or so to between $100 and $200. On the basis of cost, it rejected the IBM Token Ring and went instead for the AT&T StarLAN, coming up with a single chip serial interface which replaces between 80 and 90 chips on the AT&T board, and a companion hub controller. The parts, both in CMOS, are the 82C550 serial interface, priced at $15.60 for 100-up, and the 82C551 hub controller, which costs $56.70 for 100-up. Samples are available now. The hub controller supports up to eight nodes in the star network, and up to five of them can be cascaded to create a 40-node network. The interface chip includes Manchester encoder-decoder and transceiver functions on one chip, and the network, which runs at 1Mbps, can use ordinary twisted pairs, and includes diagnostic loop-back and collision-detection features. It is fully compatible with the Intel 82586 serial interface co-processor that was designed to be used with Ethernet.

PICK SYSTEMS OFFERS NEW
COMMUNICATIONS FOR PERSONAL

New from Pick Systems Inc, Irvine, California, is a successor to its PC ComSys communications package and claimed to transfer data five times faster. The new MainLink product, for IBM Personal XTs and ATs running under the Pick operating, provides a bi-directional link to supermicros, minis and main-frames running Pick, and costs $295 on the XT, $395 on the AT, out now.

SANDERS DISMISSES $863m
LORAL BID AS "INADEQUATE"

Loral Corp, the defence electronics specialist that bought the Rolm MilSpec division from IBM is bidding $44 a share in cash and paper for Sanders Associates, another defence electronics specialist that is also a major supplier of graphics terminals to IBM following settlement of a dispute between the two companies. It is widely reported that IBM will be supplying Sanders graphics terminals under its own label for the RT. Sanders, based in Nashua, New Hampshire, immediately rejected the Loral bid as "inadequate" - and the market agreed, marking Sanders shares up $15.75 to $50.50, putting them a full six dollars ahead of the Loral bid. The shares of Loral, based in New York, also rose a modest 67.5 cents to $43.25. Loral did $52.9m net on $663.8m in the year to March; the rather larger Sanders did only $37.1m net on $885.8m in the year to last July. With six million of Sanders' 19m shares changing hands on Friday, the Loral bid has almost certainly unlocked the company and it will now be acquired - either by a higher bid from Loral, or a rival. An important attraction of Sanders to Loral is that it is one of two finalists for a major integrated electronic warfare contract from the US Department of Defense, from which Loral was eliminated.

SINGAPORE TRUMPETS ITS SUCCESSES IN
FACE OF THE ELECTRONICS RECESSION

Silicon Valley may look rather like a neglected golf course after the moles have got at it, but by comparison, Far Eastern nations that counted on providing services to chip and peripheral makers as the route to fast growth are looking like a World War One battlefield in mid-winter. The bulk of the lay-offs in the semiconductor industry have been not in California but in Malaysia, Indonesia, the Phlippines, Hong Kong and Singapore. But Singapore is fighting back with some hard-hitting advertisements in the US press to get the message over that the island state is by no means on its knees, and still has enough to offer to be set for a quick recovery. Who would be mad enough to invest in Singapore in the depths of a recession? trumpet the ads, and goes on to list **Apple Computer, Data General, Motorola, National Semiconductor, Prime Computer, Seagate Technology, Silicon Systems, Sunstrand and United Technologies.** It is also bidding to rival Hong Kong as a financial centre - with almost nothing but the skills of its people and its strategic location to exploit, Singapore is vitally dependent on inward investment for its economic survival.

Motorola Inc had been indicating that it would return to the merchant dynamic random access memory chip market with 256K-bit CMOS part already designed, and a 1M-bit CMOS part in development this year, but the company has still not made up its mind whether to re-enter the market: it says it will decide by the end of the third quarter, and meantime is putting its merchant market muscle behind fast CMOS static RAMs.

- o -

It is taking **AT&T** a very long time to get up to speed in its new chosen markets, and while it continues to struggle in the computer business, it has not made any impact in the merchant semiconductor market either: although it announced its entry back in 1982 and has set up a big marketing infrastructure, memory chips are only just now filtering out to its two US distributors, **Hamilton-Avnet Inc** and **Schweber.**

- o -

Jugoslavia's **Iskra Software International,** which has its US base in Farmingdale, New York, has signed a three-year agreement with **Corstar Business Computing Co** of White Plains, New York for joint development and marketing of applications for the **DEC** VAX line using the Iskra Formatix applications generator: the products, which will interface to the DEC RDB and **Oracle Corp** relational databases, will be for sales and marketing administration, repair authorisation and user-oriented monitoring and control systems; the agreement is valued in hundreds of thousands of dollars.

- o -

Fault-tolerant supermicromaker **Stratus Computer Inc** has created **Stratus SA** in Brussels to serve the Belgian and Luxembourg markets.

M i n i g r a m s

An ironic comment in **MIS Week** notes that had **AT&T** bought **DEC** two years ago when it was widely believed to be considering the move a couple of years ago, the acquisition would have cost less than the accumulated losses recorded by its go-it-alone computer business since then.

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National Semiconductor says it is now sampling the 15MHz version of the NS32332 second generation 32-bit microprocessor, and the NMOS device is claimed to dissipate about the same power as the CMOS 68020.

- o -

Apollo Computer Inc has now announced the parallel megafloppers it is buying OEM from **Alliant Computer Systems,** Acton, Massachusetts in France: the machine, which has up to eight 64-bit computational processors and up to 12 Motorola 68012 support processors, is offered as a server on a Domain network, where performance ranges from 11.8 Mflops and 4.5 MIPS in base configuration, up to 94 Mflops and 35 MIPS when all eight CPUs are installed; the UK company says it does not plan to launch it here in the dog days of summer and will wait until around September-time, suggesting that France may have an order lined up.

- o -

PPL has won a batch of orders worth £133,000 for its Unix-based Uniplan manufacturing costing and accounting system: companies include: **Lincat** - a catering equipment manufacturer; **EMS** - manufacturers of electrical machines for hospitals; **Hanovia** - which manufactures water sterilization machines for hospitals; and **Wilkinson and Simpson** manufacturers of water testing equipment.

Logica will be supplying the Xenix operating system for **Apricot's** XEN-i micro: shipments will begin in early August.

- o -

MFT Computers has announced a Unix-based Service Desk Software package for sales and service desks: an operator on receiving a call logs it using two or three key strokes, this informatin is then recorded on a database as is all follow up action.

- o -

Redwood, developers of Uniplex-II and Uniplex-II Plus, has signed a distribution deal with Carl Lamm Systems of Sweden: Carl Lamm will be the main distributor of Uniplex in Scandinavia and has also become a source licensee for Uniplex-II Plus.

- o -

Is the writing on the wall for the giant **Compec** show at Olympia? "**Comdex** morose sur la Riviera" was the way **Le Monde Informatique** summed up **Comdex Europe,** and with a word changed here and there, the same headline would sum up the **National Computer Conference** in Las Vegas earlier this month: kind people accept **AFIPS** estimate of 41,000 attendees, the crueller ones put it as low as 25,000 - and in either case that includes all the people manning the stands as well as visitors, and even the proceedings only remained at doorstop size by taking a nostalgic look at papers from past NCCs; it's sad, because NCC was **the** computing event even three years ago, but if there is any good news it is that the show will now very definitely fit into New York again (it's set for the giant McCormick Center in Chicago next year, which sounds crazy) - in fact at this rate, by 1988 it will fit into the Faneuil Hall in Boston, and by 1989, there will probably be room for the whole show in New York's Fraunces Tavern.
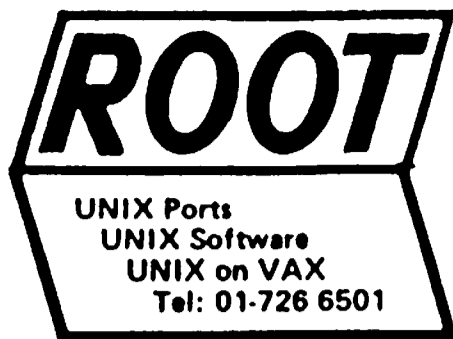
UNIGRAM/X

The newsletter for UNIX systems users

Published in cooperation with the European UNIX™ systems User Group

IEEE COMMITTEE FINALISES DETAILS OF POSIX PORTABLE UNIX

The IEEE Computer Society's 1003 Working Group is continuing its efforts to derive a "Full Use Standard" for Unix-based systems. After releasing its "Trial Use Standard" for Posix – Portable Operating System for Computer Environments, IEEE's trademarked name chosen to avoid using AT&T's trademarked "Unix", the organisation has proposed forming two new groups to help finalize a standard. One group, called 1003.2, would address the shell and tools, which make up a large part of Unix environments; the other group, 1003.3, would work on the specs for verification tests. (See back page for contact nos.)

PYRAMID LAUNCHES DATABASE CAMPAIGN

Pyramid Technology has turned its back on the OEM principle and has formed a circle of half-a-dozen database specialist companies instead. Its intention is to become recognised as a leading supplier of large online database systems. Four relational databases are involved; Informix from Relational Database Systems, Ingres from Relational Technology, Oracle from Oracle Corp, and Unify from Unify Corp. The other two in the group are the database processor Britton-Lee, and the full-text data retrieval system Search from Bibliographical Retrieval Services. Pyramid has quite surprised itself with its success in the area of online database sales. One third of its UK customers – roughly 130 – are running large databases where performance is crucial. Its prestige customers include ICC, whose recently installed Pyramid 98x Isoprocessor is the largest Unix installation in the City, supporting 100 terminals. ICC's online information service started with 1.2 gigabytes of data, planned to expand to 6 gigabytes within the year. In the US, Bell's Pyramid-based online database runs to 8,000 MBytes. The Pyramid's design concentrates extra power on input/output operations, which has helped in performance, allowing the databases to run large amounts of data on comparitivelys small hardware configurations. "Very few machines can run a DBMS of that size effectively " said David Thornley, Pyramid's UK General Manager. "What we have found is that customers are wary of going to two suppliers, but they are a lot happier if they know that there is a strong relationship between hardware supplier and database vendor. We let the user decide rather than forcing them down a particular path, as in an OEM agreement. Different databases are good at different things." He identifies Oracle as the "blue chip" database, Ingres as the one to use for complex searches, and Unify as the most screen-oriented system with its Accel fast-development language.

BOLT, BERANEK SETS COMPUTER UNIT FOR PARALLEL BUTTERFLY

Bolt, Beranek & Newman is one of the biggest repositories of computer genius in the US – but is so uncommercial in its approach that it is not even widely known. It an effort to change that, the company is forming a new unit, BB&N Advanced Computers, to market its revolutionary Butterfly parallel processor and successor products. The Butterfly consists of 128 Motorola 68000 family processors, each with 512Kb to 4Mb of memory and programmed – in C – as a 60 MIPS multiple-instruction, multiple-data parallel system front-ended by a DEC VAX running Unix. A packet net similar to a Fast Fourier butterfly switch links the CPUs.

LOCUS CONFIRMS UNIX+MS-DOS FOR 80386

It didn't take Locus Computing Corp, of Santa Monica, California long to respond to the announcement that Phoenix Technologies Ltd had joined forces with Interactive Systems Corp on support for PC-DOS programs as tasks under Unix for the 32-bit Intel 80386 microprocessor. Locus confirms that it, too, will be developing concurrent Unix and MS-DOS for Intel's 80386 chip. Under the terms of the agreement with Intel, Locus will bring its Merge operating system to the Unix System V Release 3 80386 port. This will enable DOS 2.X and 3.X applications to run without modification using the Virtual-86 mode of the 80386. Merge made its debut as OS Merge on AT&T's PC 6300 Plus (AT&T later changed the name to Simul-Task). The new product, Merge 386, will support multiple PC-DOS tasks where Merge 286 allows only for a single task. Locus expects to ship Merge 386 in the fourth quarter and grant Intel marketing rights.

MICROSOFT WARNS OF MARGIN PRESSURE

Newly public Microsoft Corp has taken a preliminary look at the books for the year to June 30 and reckons that its results, due out in three weeks or so, will show net profit up over 60% to some $39m on the $24.1m recorded last time, on turnover up around 35% at some $190m. The microcomputer software company is not making any forecast for the year just started, but warns that it won't be able to maintain its present margins of around 20%.

The new combined Burroughs and Sperry company yesterday pledged to maintain all its existing architectures and marketing organisations for ever. Speaking in London at the end of a European visit designed to reassure staff and customers that their interests would be looked after following the merger, W Michael Blumenthal, chairman and chief executive of Burroughs, said "we will not converge the architectures... they'll be able to co-exist but there will be no convergence - in perpetuity. We will maintain the separate architectures because it is profitable to do so". Blumenthal went on to say that it might be nice to have a standard architecture but it was just not possible. He pointed out that IBM also had around half a dozen different operating environments, "each designed for a different purpose, each one profitable and, together, leading to higher sales". He would not, however, take the IBM analogy much further. When asked whether the new grouping needed telecommunications expertise to take on IBM and its Rolm acquisition across the board, Blumenthal said "this [the computer market] is a huge market - the world's largest. Telecommunications and networking skills are important but they are not critical. It's not a burning issue. We do have Systems Development Corp". He said that there were no plans for further acquisitions in the next two to four years.

35 days

Instead, the management will concentrate on putting two main-framers together, something for which Blumenthal asserted "there is no precedent". He repeatedly referred to "the last 35 days" as if it were as momentous as the 100 years war or the first 100 days of Harold Wilson. During that time, according to Blumenthal, the top management has been very busy making what he described as "principal decisions". One of those will be a new name for the conglomeration although "it does not mean we will eliminate the names of Sperry, Univac and Burroughs. He said the merger - Amerispeak for takeover - would lead to an improved cost structure, benefits to the users and a greater competitive edge. He described the two companies as "complementary rather than competitive," adding "Sperry will continue to focus on large volume

SPERROUGHS: BLUMENTHAL's
35 DAYS HE HOPES WILL SHAKE
THE COMPUTER WORLD

processing" such as airline reservations and energy management. "Burroughs is strong in finance and banking". Blumenthal is convinced that the merger will have many advantages, the most important of which will be economies of scale. He sees savings in componentry and subsystems such as power supplies, cabling and cabinets in which to house the two companies' products. Field service and support will be rationalised to eliminate duplication. "Product planning will be done jointly. Peripherals, also, can combine to advantage. Research and development can be more effective and the same amount of money can give us greater depth". He cited artificial intelligence and semiconductor technology as areas where resources could be pooled with the separate teams benefitting from each others' experiences and talents. In the case of semiconductors, Sperry executive vice-president and head of the Information Systems Group, Joseph J Kroger said that "substantial" operations could be jettisoned but he was quick to say that "we are not talking of plant closures or sell-offs in the short-term". He said that Sperry had talked to Siemens in the past about the Minnesota plant but that was "some years ago". Despite all the talk of economies and rationalisation, the savings target looks rather smaller than one might have thought that either could have achieved on its own had it embarked on a determined cost-cutting exercise. The former US treasury secretary is sticking to his earlier estimate of $150m a year in the first stages of the merger. He says "so far analysis shows that figure to be conservative" but even $250m would be peanuts on a combined turnover of $10,500m for the Burroughs-Sperry entity. One obvious area for serious cost cutting is marketing but, instead, there are apparently to be four separate marketing divisions; one each for predominantly Sperry and Burroughs sites, one for mixed sites - "we will, on an account by account basis, work out representation" - and one for new users for which new accounts branches, with sales staff versed in all products, will be set up. In particular, Blumenthal was

quick to dismiss the idea that Sperry might in future still be permitted to bid against Burroughs' Systems Development Corp on major US contracts "We are only one company so we only have one bid". This affirmation is particularly disconcerting for Sperry in the context that Sperry recently won that $225m US Army contract with its Unix systems specifically bidding against Systems Development Corp, which felt very bitter indeed about the defeat. It is noteworthy that Systems Development Corp is named as a bidder on the up-coming $200m to $300m National Security Agency contract which on its recent form Sperry might have hoped to win.

For the combination, then, to be a success the powers that be will have to submit the most appropriate kit for tenders, not the one that promotes their personal fiefdoms. No mention was made of Memorex during the strictly limited one-hour session, but, tackled briefly afterwards on Sperry's evolving agreements with Hitachi on magnetic and optical disk and tape peripherals, intended to lead to close collaboration on semiconductor technology for future generations of Sperry 1100 mainframes, Blumenthal said "we'll be right behind Sperry when it goes to talk with Hitachi". Until full details of the new structure become clear, it will not be possible to tell where the balance of power lies - but for all the talk of merger, Burroughs has actually taken over Sperry. A critical decision will be who does what. The agreement is that Blumenthal, Kroger, Sperry chairman Gerald G Probst and Burroughs president and chief operating officer Paul Stern will share out the top four jobs with, presumably, Blumenthal as chairman.

Increasingly excited

Probst's apparent unhappiness at the whole deal could lead to his influence being reduced and Sperry becoming very much the junior partner. However, according to Kroger, "the Sperry management is becoming increasingly excited" by the agreement. He said that "the two proud companies" have the same cultures with no difference at all in their thrust. He admits to being surprised at the speed with which Blumenthal has moved over the last 35 days: "I am a couple of years younger that Mr Blumenthal but he's running my legs off. I am in no doubt that with the talent that is at the disposal of the business we will be successful. In my opinion, one and one can make three".

CONCURRENT XENIX AND MS-DOS
FROM COMPUCORP

The 32-bit Compucorp Connection workstation
Xenix and MS-DOS is now available from
Compucorp Ltd. It uses the NS32032 32-bit
microprocessor that uses up to 2Mb of RAM to
run Xenix-based applications software and a
16-bit I/O processor with 640Kb of RAM for
running the IBM PC-compatible MS-DOS
software.

The two processors work together providing
concurrent operation between Xenix and MS-DOS
programs and at the same time allowing data
transfer between applications. Thus allowing
the popular Lotus 1-2-3 and DBase II to be
run.

Compucorp say that the reason for chosing
NatSemi is that the 32-bit architecture
maintains upward and downward compatibility
and the architecture and instruction set are
similar to those of DEC's VAX computers, so
that the Unix-based applications written fo
the VAX can be 'easily converted' to run on
the Xenix Compucorp Connection. NatSemi's
memory mangement unit was another reason for
the choice of processor, because the
availability of an MMU means that there are
fewer limitations on memory registers than
competitive processors which makes it easier
to write software that takes advantage of
demand-paged virtual memory.

These workstations can be networked together
using StarLAN-type systems using MS-NET so
that they can be linked with other PC
compatibles. The Connection comes with
Compucorp developed office automation
software - Omega.

The UK company based in Kenton, Middlesex is
a completely indepenedent company to the US
corporation but an agreement still exists
whereby the UK company acts as a distributor
for the US company's products.

The UK company was set up in 1976 and has
been involved in office automation systems -
both hardware and software, and local area
networks. The Omega office automation system
has won the Datapro award three years running
and forms the basis of the company's system
for universities used in scientific and
administrative applications. Twenty
universities throughout the UK have the
Compucorp software.

The UK company had a turnover last year of
£2.5m and employs 40 staff, the US company's
figures were not available. Compucorp Inc
does its manufacturing for the US in Los
Angeles but all its manufacturing for the
European market is done in Ireland. A PC
compatible Compucorp Connection with the
StarLAN network would cost around £2,750 -
the 32-bit PC compatible system is priced at
around £4,000.

NO 68020 PACT SO HITACHI SETS
COMPATIBLE 32-BIT SUPERSET

Motorola Inc, which insists on getting rights
to parts of equal value before it grants
second-source agreements on any of its major
components may find that it is storing up
trouble for itself in denying 68000 family
second source Hitachi rights to the 32-bit
68020. Hitachi has been working for three
years on a compatible superset of the 68020
and in light of the Motorola decision on the
68020 has now decided to bring it to market
next year. The unnamed Hitachi chip, details
of which only reached the US press in
November 1984 although it was described in
the UK press as long ago as June 1983 has
been designed to run all 68000 family
software, but is being designed to deliver
about twice the raw performance of 68020, and
to be clocked at as much as 40MHz in the
fastest versions. A key feature is copious
on-chip memory - 32K-bytes of ROM and an
unquantified but enormous on-chip RAM cache,
as well as a separate address unit with its own 32-
bit registers. The 1.3 micron pipelined part, in
CMOS except where NMOS is needed for performance,
integrates 300,000 transistors, and is being
designed to dissipate no more than 1 Watt.
According to **Electronic News,** Hitachi is working on
a floating point unit, graphics co-processor and
memory management unit to go with it - and unless
Motorola moves quickly to release details of the
follow-on product to its own 68020, the Hitachi
chip is likely to become the upgrade of choice for
a host of 68020 Unix machines. Of the four
official second sources for the 68000 family, only
Thomson of France - and through Thomson, its Mostek
acquisition - has second source rights to the
68020. The other two are Rockwell International
and Philips-Signetics. Also in the Hitachi plan is
a 32-bit microprocessor specifically designed for
running artificial intelligence languages, notably
Lisp and Prolog.

HONEYWELL AGREES VENTURE TO
SELL NEC SUPERCOMPUTERS

It didn't take Honeywell long to decide that the M-
flops game is worth the candle and the company this
week announced it would form Honeywell-NEC Superco-
mputers as a joint venture company to market the
Japanese company's SX family of megafloppers in the
US and Canada. The 50-50 joint venture company
will open its doors for business by the end of
September. NEC claims that its SX machines, which
are derived from its ACOS general-purpose main-
frames, are the most powerful supercomputers in the
world, but the joint venture is likely to have an
uphill struggle getting the machines established
against those from Cray Research and Control Data's
ETA Systems. NEC looks to sell more than 50 SXs in
North America over the next five years - for $15m
to $25m apiece.

TEXT RETRIEVAL: ALL THE INFORMATION IS IN THERE SOMEWHERE
IF YOU ONLY KNEW HOW TO FIND IT...

Text retrieval systems look like becoming big business in the next few years. They are the obvious corollory to such Unix-based electronic publishing systems such as Interleaf, but can also be used to great effect with existing corporate or information databases. It's all very well having thousands of megabytes of information, but getting at it to extract relevant information can be a slow, expensive business.

Two systems available in the UK have got round the problem of speed by creating secondary indeces which save the tedious waiting around involved in online searching. The Search system from Bibliographical Retrieval Services (Europe), based in central London, is already recognised as a major text retrieval package in the mainframe market. The system has recently become one of Pyramid Technology's chosen six products in its "database circle", but is already well known in the IBM arena as a faster rival to IBM's Status package.

Index+ comes from System Simulation Ltd, also in central London, better known for its graphics and drafting software.

Both systems are written for C, specifically for running under Unix, although Search exists in Assembler for the IBM mainframe market.

Search is described by BRS technical consultant David Hardingham as "basically and inverted filing system". It uses four files for data retrieval; a dictionary file, an inverted a text index, and a text file. "Every word you put in can be indexed" explained Hardingham. "You can search on a word or a string of words, or, for example, specify all words ending with a certain letter or combination of letters." The system can read ASCII files, and communicate to a certain degree with word processors. Search's secret is its reliance on variable length records, which makes possible the "fuzzy matching" type searches for words which correspond closely, not exactly to the the specified search key.

The system relies on a series of pointers across its four components, which makes it faster than systems which perform a genuine online search for key data. Performance speed varies according to the size of the memory available.

The text file contains a compressed version of the full document, and its associated index file stores information on each document in the form of headers, recording where each paragraph, and each sentence starts.

The powerhouse is the dictionary, which indexes the individual words and items, and the number of times they occur. The inverted file records where to find all these items; which document, paragraph, sentence and word. At present Search's biggest users are in publishing and libraries, although it has also just won a major contract, involving 60 or so copies, as part of the FOLIOS project being undertaken for the Foreign and Commonwealth Office by Systems Designers.

Prices for the system range from £2,500 for small machines at the bottom of the range, to £250,000 at the top. It is the subject of several OEM deals with manufacturers.

Index+ has an interesting pedigree since Systems Simulation Ltd is better known in the fields of graphics and computer-aided design, with its GKS/X package and design system Alpha for computer graphics and drafting.

Index+ is portable, and interfaces with word processors. It is the basic ingredient of two specialist applications; Samson, developed for the Stanford Research Institute's British arm in Croydon, and Aries, the Advanced Retailing Information Service designed for real-time use in shops and stores. Aries manages stock levels, linked to Point-of-Sale transactions, and also produces management reports.

Like Search, Index+ uses four principal files, in this case the main database, text dictionary, entry algorithm and data (similar to Search's pointers), and a "record reconstruction builder". It can retrieve data in free form style, or in tabular form.

The system is already beinng used, on NCR Tower kit, by a major record manufacturer, and is presently being evaluated by the Department of Trade and Industry for text retrieval on project co-ordination.

One of its strongest advantages is the ability to cross-reference information so that the user can turn a "woolly" search into a more closely targetted exercise. "It helps refine a general search, particularly where a client wants to browse through a subject but is on the lookout for links and conections and specific contexts " explained marketing manager Wojciech Krawczyk. "It copes particularly well with a broad base of questions across a very large database."

The system costs a basic £2,500 or thereabouts, but the cost is more likely to escalate with individual tailoring, which according to Krawczyk, looms larger in SS business than OEM agreements.

The company is backed by Thorn EMI and Electra Investment.

DANISH DEAL FLAVOURS UNIPLEX

Denmark's leading Unix suppliers have plumped for Uniplex office software from Redwood International of St Albans in two separate deals worth more than $500,000 in the next 12 months. Following its Swedish distribution agreement with Carl Lamm, Redwood is claiming to have the whole of Scandinavia addicted to its office software. The Danish version of Uniplex is almost complete, and the Swedish and Finnish versions undertaken by Carl Lamm are already well under way. The Danish distributorships deals are with hardware suppliers R C Computer, a member of the ITT group which manufactures Unix Systems, and with S C Metric, a division of the Scandinavian Metric Group which distributes and supports Unix-based systems throughout Scandinavia. R C Computer's OEM contract with Redwood has been updated to include the recently launched Uniplex-II Plus, and the company will soon launch the system on its own RC39 Unix machine. S C Metric will be marketing Uniplex II Plus ona wide range of Unix kit including NCR Tower, Zilog, Convergent Technology, IBM, AT&T, and MicroVax. According to Redwood's Tony Heywood, the design of Uniplex has really paid off in the the Scandinavian translation efforts. "They have a far more forward-looking view of translations" said Heywood. "By two or three months they should have completed Swedish, Finish, Norwegian and Danish versions. The translators don't need access to source code to make the translations, and we don't need to support different binary versions - it's all the same one." This, says Heywood, gives Redwood a big advantage over US competitors who have not necessarily built their products with the difficulties of European translation in mind. Redwood itself has commissioned French and German translations, which are well under way. The Scandinavian countries are an important outpost for Redwood as there is a high level of commitment to Unix, with authorities such as the Swedish Department of Defence requiring Unix systems as a matter of course.

SPERRY DEAL STAYS OPEN-ENDED

The general rejoicing which followed in the wake of Sperry's securing of the $255 million US Army deal may have been premature. It appears that the US Army may have made a committment to the hardware in question, but the other elements of the deal will depend on how the proposed system performs. The contract ensures the purchase of a modest two systems, initially, using the Sperry hardware and Quadratron's office software. Having done the reconnaissance, the rest of the Army's Big Spend will depend on the systems' performance under fire.

CONFUSION - MICRORIM R:BASE
SYSTEM V IS FOR PERSONALS

In a move likely to lead to not a little confusion, MicroRim Inc of Redmond, Washington, has stolen the Unix community's cherished System V designation and applied it to a new version of its R:Base relational database - for IBM Personals and Personlikes under PC-DOS. R:Base System V is claimed to be easier to use than the previous R:Base 5000, which sees its price cut by 30% to $495. It comes in both single - under PC-DOS 2.0 and up, and multi-user - under PC-DOS 3.1 and up sup-porting a local area network. It features a Prompt By Example menu facility which enables users to create database programs and struc-tures without the need to learn a language. R:Base System V needs a Personal with 512Kb memory - 640Kb for the networked version - and a hard disk and costs a flat $700.

REDAC'S VISULA ON APOLLO DN3000

Racal Redac has launched its Visula electronic data design system on the newly announced DN3000 range from Apollo and the VAXstation II/GPX from DEC. Redac considers that with the two new ports it should have covered the CAD/CAM/CAE market incorporating Unix, C, Informix, Ethernet, Domain, CADAT, and VMS. According to Redac Visula already has over 100 installations in Europe because Visula is the first time that CAE/CAD/CAM/CAT systems have been completely integrated into one package. Redac say that it has been overwhelmed by demo requests.

TORCH PUSHING TRIPLE X FOR MILITARY

Torch Computers is hoping for more military orders following the Milcomp Exhibition in September at the Wembley Conference Centre. Torch is pushing the Triple X as the main attraction to military establishment buyers. According to Torch the Triple X has all the standards that the military require: its network system has no central box so it will operate after the system has gone down; it uses Unix System V which is now standard for military installations as it lends itself to multi-tasking; it has a built-in local area network capacity - Ethernet - with modem and X25. Torch already has installations in several MOD sites including Chatham, Biggin Hill, RSRE and two MOD Computer Bureaux: covering applications covering training, accounting and stock control. Torch is confident that the military will also find the price attractive - £4,200 for the PC and monitor, keyboard and mouse, Unix System V and Opentop Software.

COUNTERPOINT :WITH PRODUCT AND BASE

Now that Counterpoint Computers has a product it will be setting up its offices in Amersham in about three weeks time. The product is the mix and match System 19 family of advanced computer systems. By the time the new office has been opened Counterpoint hope to have recruited two technical support personnel and a salesman. Counterpoint has had a number of discussions with companies who may wish to buy the 68020 and Unix V-based system.

NEW MAN FOR GOULD

Gould Computer Systems of Sutton, Surrey, has a new divisional managing director, Derek Leadbetter, who will be responsible for the company's operations in the UK, Scandinavia, and the Netherlands. He has set a target of 25% growth in Gould, whose main areas remain engineering, scientific and industrial applications.

PLAY IT AGAIN, SAM

You saw the show, now hear the book. If you missed the Comunix '86 conference, you can now buy bound copies at £22, or tape recordings of the sessions at £5 per tape. The conference papers cover topics including networking, application development, standardisation, graphics and user interfaces, and emerging technologies. For further details ring Fenella Fabling at EMAP International Exhibitions on 01 608 1161.

RTS EXTENDS ITS CROSS-ASSEMBLERS

The Isle of Man's leading - or only - Unix specialist, Real Time Systems, has added to its range of XA8 cross-assemblers with the X68000, targetted at 6800, 68008 and 68010 processors. The X68000 is already available for VMS and Unix on Vax, Idris and Unix on PDP-11 and 68000-based machines, and PC-DOS and MS-DOS on IBM PC compatibles.

LISP MACHINE CUTS ITS WORKFORCE BY 25%

Lisp Machine Inc, the Los Angeles company with sub-licence rights to Texas Instruments Nu-Machine technology, has reduced its workforce by 60 people, 25% of the total, citing a slow-down in the artificial intelligence systems market.

Minigrams

The major European computer manufacturers have never been so united in their approach to the outside world - witness the formation of the X/Open organisation for a common library of Unix applications, and the unanimous commitment to the seven-layer standard for Open Systems Interconnection: the latest move by the Big Six - **ICL, Bull, Olivetti, Siemens, Nixdorf** and **Philips** - is to lobby EEC ministers to commit their governments to insisting on European standards for all public procurements - only the UK government has made the commitment so far, and they also want the EEC to insist on equal treatment for European companies in the US and Japan in return for companies from those companies being free to compete in the European market.

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AT&T is open a branch of its formidable **Bell Laboratories** research arm in Japan - its first overseas base: the unit will start out as a listening post, but may move on to applied research in the future.

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(Continued from the front page)... Pending **IEEE** approval, the two spin-off groups, as well as the parent committee, will next meet in Palo Alto, California, on September 17-19. If you're interested in participating in the IEEE 1003 effort, contact Jim Isaak at Charles River Data Systems Inc., 983 Concord St., Framingham, MA 01701. For a copy of the Trial Use Standard, phone the IEEE at (714) 821-8380 and ask for Book No 967.

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ICL has delivered the first part of the £15.5m **Alvey Flagship** project to **Imperial College** London: Alice is a parallel processor using 132 **Inmos** Transputers with 56Mb memory, hosted by a Series 39 Model 30 CPU.

Norsk Data A/S marketing vice-president Asmund Sløgedal firmly refutes gossip that the Norwegian minimaker might be sizing up **Prime Computer Inc** for acquisition: "we do have an acquisition policy," he said, "but it is for European software houses or companies with a very national connection - and are marketing-oriented; we wouldn't be interested in anybody's hardware technology - and Prime is many times our size," he said, laughing; Prime is running at around $770m a year, Norsk Data at some $270m.

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Making an offer it hopes they won't be able to refuse, **Apollo Computer Inc** has raised US discounts to value-added resellers on the first five machines they take to a startling 50% from the present 35%: discounts on the sixth to twentieth machines remain at the old 35%.

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Pick Systems Inc, Irvine, California reckons that at the end of last year, there were 50,000 machines running the Pick operating system worldwide for a base of 500,000 on-line users: the largest number of licences have gone out through **Cosmos**, offering the **IBM** Personal version, which has now pushed **McDonnell Douglas Information Systems** - formerly Microdata - into the number two spot, although the latter still accounts for the largest base of user VDUs connected to Pick.

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Dear oh dear! On June 30, **Apollo Computer UK** told us it would not be launching the DSP 9000 from **Alliant** over here until the end of the summer (UX No 84) but this week we get a UK press release dated July 2 announcing the thing: the entry-level DSP 9080, with one 64-bit computational processor delivers 11.8 Mflops and 4.5 MIPS and comes with 8Mb of memory, expandable to 64Mb, 2Gb virtual memory per process, a 379Mb hard disk and a 6,250 bpi tape drive at £125,000, rising to £1m.
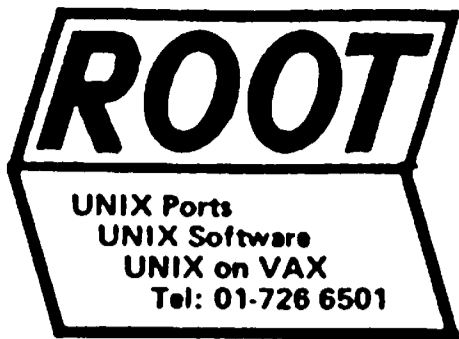
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UX-BASIC GOES TO HUMAN COMPUTING RESOURCES

Human Computing Resources has announced that it has acquired the world-wide marketing rights to UX-Basic from UX Software. UX Software, a one product company, will now only exist within the confines of the trustees office - the five original shareholders will continue to receive the royalty payments from UX-Basic. Under the terms of the agreement HCR will be responsible for product support and development and is in the process of acquiring complete rights to the technology.

UX-Basic is a version of Basic designed for Unix based computers, versions of UX-Basic are offered by IBM, AT&T, and Siemens. All contracts for UX-Basic distributors will remain valid. UX Software deceided on this move because it was simply not making enough profit it had far too large an overhead for a single product company despite the success of that product. The company had a distributor network in North America, Europe and in the Pacific. Japanese and Chinese versions of UX-Basic have been devloped for the Far East market.

HCR say that it has met with no opposition to the move at all as the two companies were selling into the same markets and more often than not had the same distributors. HCR has also taken on the majority of the 20 people that comprised UX Software's workforce "to provide uninterrupted support and marketing". Despite this move no major relocation had to take place as both companies were positioned in the same office building in Toronto, Canada.

FAULT-TOLERANT UNIX: PARALLEL MOVES TO 68020

Parallel Computers Inc, Santa Cruz, California, whose fault-tolerant Unix machines are sold over here by Control Data's Systime Ltd, has moved up to the 32-bit Motorola 68020 for some models in its new line, which also sees a substantial reduction in prices.

The new models are the 32-bit 400XR and 500XR, and the 68010-based 200XR, which is offered at less than half the price of the company's original machine, the 68010-based 300XR. Like the 300, the 200XR supports up to 32 users, and comes in at an OEM price of around $21,000 for a dual processor system with uniterruptible power supply and BSD 4.2 Unix with System V extensions.

The 400XR and 500XR each support up to 256 users; the 200 and 400 each come with 2Mb of main memory and 86Mb on disk, with eight user ports.

At the top OEM discount level, the 400XR comes down to $23,900 for the entry configuration. The 500XR comes with up to 3Gb of disk and up to 8Mb of memory on each processor, with OEM prices starting at $47,900. The 200XR can be field-upgraded to a 400XR, the 300XR to a 500XR, by changing processor boards. Parallel is now supporting Sun Microsystems' Network File System and a fault-tolerant version of Ethernet. All the new products are due for first US deliveries during October.

HEWLETT PACKARD JOINS X-OPEN

The international Unix standardisation organisation X/OPEN has shut the doors behind its tenth member, Hewlett-Packard, of Palo Alto. The company was admitted into X-OPEN membership last week at the Paris meeting of the controlling Strategy Management Group. For the time being there will be no more members admitted, as X-OPEN consolidates. It has grown rapidly from the the original initiative of six companies, galvanised into action by ICL, then under the enthusiastic leadership of Rob Wilmott. The ten are seeking to establish "a common applications environment on de facto and international standards".

Two significant players, IBM and AT&T, are still missing from the list which now includes Bull, DEC, Ericsson, Hewlett-Packard, ICL, Nixdorf, Olivetti, Philips, Siemens, and Sperry. Now that X-OPEN has to adjust itself to accommodate more members, it may be considering a change in its present committee structure.

NINE IN JAPAN TEAM TO SET 32-BIT UNIX STANDARD

Nine Japanese companies - IBM Japan among them - have agreed to set a single standard for Unix on 32-bit Personal Computers. The others are NEC, Hitachi, Fujitsu, Oki, Ricoh, Sharp, Sony and Toshiba, plus software distributor Japan Softbank Corp. AT&T and the Ministry of International Trade & Industry will have observer status in the group.

UNIX is a Trade Mark of AT&T Bell Laboratories

When Texas Instruments announced that its new Compact LISP machine was nearing completion last week, it was the culmination of a research program which has cost TI $80 million in 1985 alone. TI has put its shirt on its "Lisp machine in a shoebox" but with a backer like the US Defense Advanced Research Projects Agency, DARPA, it's not likely to lose it. TI sees the artificial intelligence market (which it prefers to call "symbolic processing", as the safest bet for survival in the long-term future, and a golden opportunity to take the lead in something of worldwide significance. Its efforts to bring AI to the masses (cost-effectively) are a long term investment, but its forecasters have put a deadline; it must be commercially profitable within five years at the maximum, or TI will be embarassed.

TI's Explorer processor is already well established in the AI market, but the new machine, due out in prototype form this September, "will shrink most of the TI Lisp processor to a single chip", in the words of David Monk, TI's International AI Business Manager. The Explorer processor implements around 60% of its circuits on a CMOS sub-2 micron VLSI chip, which is in turn packaged in high-density form so compact that the width of the connecting wires compares, says Monk "with the amount your fingernails have grown while I'm talking". The idea is to enable the processor to be embedded in space-crucial military applications (such as aircraft), and at a more general level, plugging in to other people's hardware, including (though this is hard to imagine, so much would the power of the processor overshadow its parent) PC-class machines. Also under development is the Explorer Megachip, which like the DARPA VLSI chip, will support the same superset of Common LISP and be compatible with existing

ARTIFICIAL INTELLIGENCE: TEXAS INSTRUMENTS IS THINKING ON ITS FEET

implementations of Explorer. Unix appears to be peripheral to TI's plans in the AI area. Unix is a shrinking violet where Prolog and LISP are concerned, and TI regards it as too unfriendly and exclusive for its purposes. However the first links between Explorer and other environments involve Unix-based Sun and Apollo kit. Monk presented TI's aims and achievements so far to the 7th European Conference on Artificial Intelligence in Brighton last week, a gathering whose presentations, for the most part, were unintelligible to ordinary mortals. The more tangible and sympathetic side of AI was presented in a small exhibition at the conference centre where a dozen or so booths were demonstrating a collection of expert system shells and AI "environments". TI's prognosis of the AI market is that expert systems will become embedded in instruments and machines which will then participate in their own diagnostics and maintenance, and will also be able to interpret data. The LISP processor makes this possible in hardware terms, though there is no small way to travel on the software route.

DARPA has not funded any of the software effort, so TI has developed its own system software and development tools for the compact LISP machine in its own internal R&D program. About 130 out of 150 researchers have their own Explorer workstations (no small investment at over $60,000 each). The Explorer environment has been built with the idea that "non-technical" experts should find their way around easily, and it has been made pictorial not just because it's concerned with image processing, but because it has been necessary, along the path, to show their investors something concrete, understandable and real.

(The Explorer demonstration was the classic application: a robot-like arm moving blocks). The developers have gone to enormous lengths to make the Explorer "accessible". The alternative, said Andy Poulter of TI, "is something like Unix, which is only available to hackers". So, there is a PC-like friendliness, complete with icons, and a "suggestions list" down the side of the screen. The documentation is built-in, complete with an online search facility on keywords, invaluable for those who know LISP but not the Explorer environment.

The apple of TI's eye is the Prolog compiler, built by Aditva Srivasta, which enables user to move between Lisp and Prolog, two very different AI languages.

Some problems are ideal for Prolog in terms of problem-solving, but need the flexibility of LISP (which is closer to assembly-level style), so TI's unusual flexibility should make it possible for those embracing one or the other method to share and communicate.

Japanese research has standardised on Prolog, while the US AI community is faithful to LISP, which is faster in performance terms. (C-ITOH is to distribute the Prolog in Japan.) TI is boasting high performance for its Prolog, at 40 KLIPS, and Srivastava promises "tools which programmers have never dreamt of before" as well as astonishing rapidity.

TI is moving towards "conventional" computing, one of the most significant links being with existing old-fashioned databases on existing old-fashioned IBM mainframes, which, on the whole tend to be where the precious data is. As well as links with Unix-based Sun Microsystems and Apollo workstations, TI is working on links with DEC Vax kit, via VT100 emulation, and thence to SNA and IBM, using the IBM protocols.

68030 CPU+MATHS+MMU, 78000 RISC DUE FROM MOTOROLA

One of the few ways open to semi-conductor makers to maximise their sales during the chip slump is to bring forward any really hot new parts in the pipeline, and two of the hottest are due out from Motorola shortly. Sources at the company's microprocessor group in Austin, Texas confirm that two new central processing units will be announced by the company in the near future.

Slated for September is the 68030, a highly integrated version of the 32-bit 68020, which is expected to have both memory management unit and maths co-processor included on one chip with the CPU.

Due in the first quarter of 1987, probably in February, is the 78000 Reduced Instruction Set microprocessor, which is described as an evolutionary progression from the 68020, implying that it will use the same basic architecture but include only the primitives needed to create the 68020 instruction set; the part will be the first RISC chip from a major merchant manufacturer. Although it is possible to use the NCR 32 set as a Reduced Instruction Set Computer – comparable to the approach taken by Celerity.

INTELLIGENT TERMINALS' EX-TRAN 7 NOW ON MVS/TSO HOSTS

The Ex-Tran 7 expert system generator from Donald Michie's Intelligent Terminals Ltd of Glasgow is now available to run on IBM mainframes under MVS with TSO.

The inductive rule generator and run-time enquiry system was previously available only on Unix superminis and the IBM Personal family. It automatically converts rules induced from decisions entered into the system by a specialist in the chosen area of expertise into Fortran 77 code.

NCR DISBANDS OFFICE SYSTEMS

NCR Corp has dismembered its US Office Systems unit, putting sales and marketing into the Data Processing Group and the product development and systems integration side into its General Purpose Systems development and production division in Columbia, South Carolina.

The marketing side of Office Systems, which has been unprofitable since it was formed in 1981, goes into a new Computer Systems division with the NCR special purpose and federal systems business units.

AT&T HAS 32-BIT SIGNAL PROCESSOR CHIP PROGRAMMED IN C-LIKE ASSEMBLER...

AT&T has a new single chip digital signal processor, WE DSP32, in full production, and claims to be the only manufacturer able to supply in quantity a 32-bit, single-chip, floating point signal processor. The part represents the third generation of such devices developed by AT&T Bell Laboratories since 1978, and is is the first from AT&T to offer floating point arithmetic. AT&T claims that the WE DSP32 provides cost savings of between 30% and 80% to designers currently using multi-chip solutions for floating point operations. Fabricated using a single level metal NMOS process, the WE DSP32 dissipates 1.8 Watts. It is clocked at 16MHz and has an instruction cycle of 250ns for a rating of 8 Mflops. It includes 2Kbytes of on-chip ROM, 4Kbytes of RAM, so that in many applications external memory chips will not be needed. It is available in two ceramic package designs: a 40-pin dual-in-line package and a 100-pin Pin Grid Array, the latter version providing access to 56Kb of external memory via a 32-bit data bus. A Support Software Library, including high level, C-like syntax assembler and a full architectural simulator are offered, as is a single board development system for real-time testing, debugging and evaluation of both program and hardware. Needless to say the DSP32 software and hardware development tools run under Unix System V, but MS-DOS and VAX/VMS versions are planned for later in 1986. Samples are on four to six weeks delivery, production quantities in 13 weeks. OEM prices start at $175 per device. Reduced power and high performance versions of the device are planned for late 1986.

...AND AT&T TECHNOLOGY UNVEILS UNITE INTERFACE CHIP FOR ISDN

AT&T has unveiled Unite, a chip that provides all the intelligence needed for high speed communications among digital telephones, terminals, personal computers and workstations and an Integrated Services Digital Network digital PABX. The Unite chip will allow fully digital transmission and reception of voice, data, video, high fidelity audio and other forms of communications twisted pair telephone cables. AT&T says that the part is the first in a family of ISDN chips, and is already widely used within AT&T. Samples are set for later this month with volume set for the fourth quarter; the Unite chip is $16 for 1,000-up. Siemens is currently the market leader with a full set of ISDN chips available.

CADNETIX SCORES MIPS FIRST

Cadnetix Corp, Boulder, Colorado has become the first company to announce MIPS Computer Systems Inc's reduced instruction set chip set as a product. It is offering boards using the MIPS set as the CDX-760 general purpose accelerator for its CDX-7700 Simulation Engine, CDX-7900 Physical Modelling Engine, CDX-79000 Analysis Engine as well as its two CDX servers, all of which run under Unix. US prices for the CDX-760 start at $29,900.

MOTOROLA HAS 25MHz 68020

Motorola's microprocessor group, based in Austin, Texas, now has 25MHz versions of its flagship 32-bit MC68020 microprocessor available, as well as 20MHz versions of the MC68881 floating-point co-processor. The new high-speed version of the 68020 is claimed to achieve sustained throughput of 5 MIPS, which means it delivers seven times the performance of the MC68000.

VMARK, PICK SYSTEMS KISS AND MAKE UP

Pick Systems has duly settled its $6m lawsuit against VMark Computer and VMark will become a licencee for the Pick system while Pick will jointly market VMark's Universe system. Universe enables the Pick operating system to run as a task under Unix. The settlement is particularly good news for AT&T, which had been relying on Universe to liberate a greatly increased base of applications for its 3B Unix computers. There is now a strong possibility of Pick Systems, based in Irvine, California, and VMark, of Natick, Massachusetts, working together on other products in the Pick-Unix area. Unix poses a medium term threat to Pick, so such a marriage is vital to it.

X-OPEN GETS ITS ACT TOGETHER

Before looking for further members, one of X-Open's most pressing tasks is its own organisation. Chairmanship of the controlling Strategic committee is planned to rotate, although at present, all four committees are chaired by ICL folk for historical reasons. One cause for concern is that until there is a Japanese participant, the group will not be regarded as truly international. In the meantime its original European boundaries appear to be quite enough to patrol. At the top of one X-Open's "international" list comes the 8-bit character set for coping with different languages. Hewlett Packard will be particularly welcome in this area for its expertise on accommodating different national languages on Unix; other specialities include real time instrument and process control. At present the £100,000 joining fee brings each company a presence on the controlling Strategy committee, and three subject committees; training, technical, and marketing. This demands considerable investment in terms of time, particularly that of key technical staff. With meetings taking place every six to ten weeks, progress is described as "slow but effective". The group has already organised outside consultancy from the Instruction Set, Root Computers, and, most recently, has taken on the PR agency Sterling Public Relations of West London to front the marketing of X-Open, and organise its secretariat (other Sterling clients include CP/M originator Digital Research and the IBM applications giant McCormack and Dodge). Sterling's Mark Riminton is dealing with X-Open enquiries, and can be reached at Sterling Public Relations, 1 Lowther Gardens, Prince Consort Road, London SW7 2AA; Telephone 01-581-1721.

US PROFESSOR IN TOKYO FINDS DEC DOESN'T SEEM TO BE TRYING IN JAPAN

A feature page article in the Wall Street Journal raises serious questions about whether Japanese restrictive import practices really reflect the whole story about the failure of US and European companies to break into the Japanese market. Do these "restrictions" include the "unreasonable" requirements that sales people speak the local language, or that printers are adapted to handle Japanese paper sizes, or that manuals are printed in Japanese? The writer, Robert Geller, is an associate professor of geophysics at Tokyo University, and wanted a DEC VAX so that he could run it under BSD 4.2 Unix - Ultrix. Two years earlier, at Stanford, DEC had sold him a VAX at 62% off list price under the usual academic discount programme. This time DEC offered a measly 5% off a Japanese list price (higher than in the US in any case). Mitsubishi offered a faster machine under vanilla Unix only, but at half the DEC price; Mitsubishi won.

SPERRY SIGNS FOR SECURE KERNEL TO UPGRADE ITS 1100 OS

The secure operating system market has been in the doldrums since it took a knock with Honeywell announcing that the grandaddy of them all, Multics, was to go onto a care and maintenance basis, but the prospects could be revitalised by a newcomer to the market that has caught the eye of Sperry Corp. Sperry has bought a perpetual licence to KeyKOS, a new secure fault-tolerant operating system kernel that it plans to use to upgrade its flagship 1100 OS offering on its top-end mainframes. The KeyKOS transaction processing kernel, from Key Logic Corp of Santa Clara, California, and is described as a portable, capabilities-based, object-oriented, single level store system kernel with a standard message interface for application or function enhancements; it is also designed to be used as a hypervisor for running guest operating systems. Key Logic's first pitch on its own account will be with a version of KeyKOS for IBM 370-type mainframe users, and the company is currently looking for a few test sites for final verification of the IBM version before starting to market it to end-users. KeyKOS is also being evaluated by the National Computer Security Center of the US Department of Defense, and is in with a chance of winning the highest security level certification of any mainframe system. Key Logic is a spin-out of a nine-year development programme at a "major corporation" that has been using KeyKOS for three years now.

MIRTH AT MOTOROLA

Motorola claims that National Semiconductor's attempts to produce benchmark tests are laughable (UX No 84). The main criticism is that the tests themselves are not fully documented in that it does not mention any hardware or software configurations. In some instances Motorola says that it has had to assume that a theoretical system was used - Motorola's customers in the US require an RS232 connection to do a benchmark test. Motorola also had trouble in discerning which tests NatSemi was using; it assumes standard ones but says that in the EDN tests - numbers 1 and 2 - the different varieties are usually referred to by a letter. Motorola says that the Linpac test is a specific floating point benchmark and the NS32081 should perform well in this as it only handles straight arithmetic, no sines and cosines. The semiconductor arm of Motorola claims that the Dhrystone benchmark is more accepted within the industry, as opposed to the Linpac test, to test the floating point capabilities and array indexing capabilities of a microprocessor. Motorola adds that although NatSemi's Linpac taest was carried out using an M68881 FPP running at 12.5MHz Motorola is actually in production with a 16Mhz version. Motorola claims that the Fcall test is not a valid test for these processors as the system performance is governed by disk input/output. Motorola also added that as NatSemi has not made the 32332 generally available it cannot produce comparable tests to either prove or disprove NatSemi's findings. Motorola says that a recent article on the Japanese market pointed out that between 1-6% of that market is using the 32032 and that very few manufacturers in Japan are planning to use the 32332 and over 45% have already chosen the 68020.

HIGH LEVEL BRINGS IN FRAGMENTS

High Level Hardware has released the second version of its Orion Time Sharing system. The OTS is based on Unix version 4.2 BSD and is used on the Oxford-based company's Orion superminicomputer. High Level says that Release 2 has improved networking support and inter-process communication, with an enhanced file system and optimised disk usage. It includes B-Net networking software - allowing fast file transfer and remote login to other Unix systems provided the TCP/IP protocols are used. The 4.2 operating system allows other communications protocols to be added as required such as OSI, Coloured Book or XNS.
The original OTS has been restructured by introducing fragmentation. If a page is not fully filled the remainder can now be shared out amongst small files - both hardware and software pages are now 4K. File names may now be up to 255 characters long and Unix pathnames may be up to 1024 characters long. The file access control has also been altered so a user can be a member of more than one group at the same time.
Release 2 of OTS is free for existing OTS users as part of High Level Hardware's support arrangement.

DYNIX: EVEN MORE PARALLEL

The recently set up (UX No 80) Sequent Europe now reckons that its Dynix operating system offers more parallel support than ever. Sequent has added language extensions for C and Fortan and parallel utilities for ptime, lint, shell and apply. These utilities speed up syntax and semantic checking says dave McLeman, Sequent Europe's Technical Support Manager. 'ptime' is based on the Unix 'time' utility and measures execution time for the parallel application; the parallel version of the Unix 'lint' utility checks source code syntax and semantics on separate program modules simultaneously; parallel 'shell' executes a Unix shell script to make each command a separate background process - the numbers of commands executed in parallel can then be set at run-time with the shell command; 'apply' is used within Dynix to execute the same Unix command on mutiple files simultaneously. Sequent has also added microtasking support which mimics parallelism found in program loops or array operations and the new Fortran compiler has had a number of commands added to make the most of this support and a pre-processor. According to Sequent this allows a number of Fortran programs to be converted into parallel forms in a matter of minutes. The company, currently with its UK base in Huntley, Gloucester but with plans to move to Heathrow, say that Fortran source code portability is maintained because the additional commands appear as comments if the preprocessor is not used. Sequent will begin shipping Dynix 2.1 in September, an upgrade is free of charge for Dynix users with service contracts but for users without the cost is £1,350.

ZILOG CHOSEN BY BIS FOR IPSE

BIS Applied Systems has now made its agreement with Zilog official. The agreement, worth about £1.5m to Zilog, is to supply hardware for BIS Applied Systems BIS/IPSE installations. The Zilog 32-bit supermicro will be used to run the BIS/IPSE software tools having been connected to the clients mainframe. BIS chose the Zilog hardware because it was assured of support from Zilog, a low entry level price for the hardware, an extensive hardware range, binary compatibility between models and standard Unix. Systems worth around £500,000 have already been installed by BIS and Zilog.

ULTIMATE SETS PICK-BASED
MICROVAX II, EYES 68000

Number One US Pick-popper Ultimate Corp of East Hanover, New Jersey is planning a Pick machine based on the DEC MicroVAX II which like the full VAX version will include its own Pick accelerator board and run the operating system as a guest alongside MicroVMS. The system goes into beta test this month in the US and is set for launch around September time. Ultimate says that it is also looking at a 68000-based Pick implementation, and that if it decides to go ahead it will likely buy the Superteam 68000-based processor designed by Honeywell Italia and offered by Honeywell US and UK as a Unix box.

NIXDORF's INTERNATIONAL GROWTH CRIMPED

Previewing its first half performance – minus profit figures because continental companies are never in any hurry to decide on the bottom line – Nixdorf Computer AG yesterday reported that worldwide turnover for the first half of 1986 rose 18% to the equivalent of $862m, while orders were 15% ahead at $2,107m. The company has clearly not yet recorded that monster $100m plus contract from Montgomery Ward in its figures – West German business grew 29% to $352m, international business rose only 8% to $378m – but the slowdown was substantially down to currency translations. In fact the Montgomery Ward business will not start to show up until next year: $50m of it will be spread over 1987 and 1988 with another $50m over the following five years. The company also has a contract Down Under worth the equivalent of $23m from Myer Emporium, for point-of-sale equipment. The company continues to create jobs, adding 1,270 people in the first half of the year to bring the total to 24,560; research and development expdenditure spend rose 9% to $91m, and capital expenditure has risen a whopping 28% to $110m, with expansion at home in Paderborn, in Ire land and in Singapore, and a new plant in Berlin.

SOFTQUAD MAKES THE CAMBRIDGE GRADE

The Softquad electronic publishing software from the Canadian company of the same name based in Toronto has found a prestige site for its first UK installation. The Department of Pure Mathematics at Cambridge University has installed the first copy of Softquad, via Unixsys of Warrington. It will be used for formatting papers, PhDs, and theses, using complex formulae. The hardware includes a Pixel machine and an Apple Laserwriter, worth around £12,000. The software is a comparitive snip at £1,500.

Company Results

Control Data Corp has reported a second quarter net loss of $7.8m, up from a loss last time of $4.8m, on turnover that declined 9.3% to $828.5m; the mid-term net loss widened to $29.0m from $14.0m last time, on turnover that declined 11.1% to $1,600m.

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Cray Research Inc saw second quarter net profits up 227% at $44.5m on turnover up 132.7% at $179.9m; mid-term net rose 69.0% to $75.4m on turnover up 64.0% at $321.9m. Net earnings per share rose 213% to $1.41 in the quarter, 64% to $2.41 in the half.

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Wicat Systems Inc has reported a first quarter net loss of $1.2m against a profit last time of $110,000, on turnover down 21.8% to $7.5m.

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Convergent Technologies has reported a second quarter net loss of $5.1m against a profit last time of $2.4m, on turnover that fell 42.5% to $58.1m; the mid-term net loss was $3.2m against a profit last time of $2.7m, on turnover down 32.1% at $131.5m.

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Fortune Systems Corp has reported second quarter net profits up 14.0% at $253,000 after a $116,000 tax credit, on turnover down 33.6% at $9.7m; mid-term net profit was $598,000 after a $280,000 tax credit, against a loss last time of $3.6m, on turnover up 16.6% at $20.4m. Net per share, flat at $0.01 in the quarter, was $0.03 in the half.

Minigrams

A third party, unnamed as yet, looks likely to take over the marketing of the Omicron accounting and financial software suite: **Omicron** has invested a lot of time and money in converting its software from Basic to C, via MS-Associates CGEN tools, but has decided to stick to its more familiar MS-DOS beat for the time being.

Commenting on its second quarter figures, **Control Data Corp** says that it closed its last data processing centre outside the US – the one in Brussels – at a cost of $11.7m, and that while overall its computer operations made a loss, the data storage business moved back into profit; **Commercial Credit Corp** profits improved to $12.5m, and CDC says it needs its cash generation and won't sell it.

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Altos Computer Inc has come to some very cosy arrangements with its newly-acquired SNA software specialist **Communications Solutions Inc**: although Altos people move onto the board, the 40-employee company, profitable for the past two years and growing at 40% annually, will be left to run its own show, although it will have the additional task of advising Altos on all matters relating to IBM-compatible communications; the key personnel will have Altos stock options, and the company may eventually be floated; Altos is pursuing four key horizontal market areas – communications, database systems (it has a stake in **Relational Database Systems Inc**), office systems and graphics, and Altos acquisitions in the latter two fields are likely.

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PriorKnowledge has signed a contract with Root Computers for a range of Root software, from now on all systems sold by PriorKnowledge will be supplied with the Rootmap suite which includes a menu driven front-end, mail, diary, file system manager, print manager, and the WriteWord word processor.

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Convergent Technologies has now made the switch to the 32-bit 68020, and ahead of formal launch is already shipping a version of the Miniframe, called the Miniframe-20, using the chip and offering 1Mb memory, 85Mb disk, quarter inch streamer and two ports for around $10,000; main memory goes to 5Mb against 2Mb on the original Miniframe, and ports go to 22 against 18.
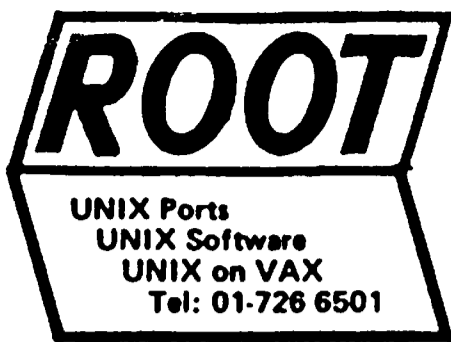
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SUN BRINGS BERKELEY 4.2 AND SYSTEM V TOGETHER...

As anticipated Sun Microsystems this week announced its new operating system, SunOS 3.2, that converges the Berkeley 4.2 version of Unix with AT&T's System V. This release is phase 1 of the fruits of the agreement between AT&T and Sun, announced last September, to converge the two operating systems. The company says that this first phase of convergence is based on 4.2 with enhancements from 4.3BSD merged with the functionality of System V into the SunOS kernel. Also included in this version of the operating system is Sun's remote execution facility (REX) which works in conjunction with the Network File System (NFS). REX allows users to execute programs on remote systems across a network transparently. Another addition to the operating system is the SunNet lock manager which supports System V Interface Definition-compatible file and record locking in a network. SunOS 3.2 includes most of the system calls, library routines and commands that Sun's and AT&T's research efforts have found to be identical or similar in the two systems. System V unique calls, commands and library routines have also been added to the default SunOS environment. SunOS 3.2 will be available in 60 to 90 days to existing customers under support contracts and will be bundled with all new Sun workstations. Phase two of this project is expected to be available mid-to-late 1987 and will provide full base level SVID cvompatibility, including the System V terminal driver interface, and enhancements to allow System V features of SunOS to use all the features of Sun's windowing system. Sun has also added to its workstation range giving what it considers the broadest range of technical workstations on the market today (see page 2 for details).

...AND ICL DUMPS PERQ SYSTEMS IN FAVOUR OF SUN

ICL has has become the second British company after GEC Computers to go to Sun Microsystems for its Unix workstations, phasing out the stations that it has built under licence from Perq Systems in the process. The three year non-exclusive agreement between ICL and Sun is valued at some $60m, and ICL will be offering the Sun line, including the additions mentioned above and overleaf, in the computer-integrated manufacturing and public administration markets where it is strong. The five-year agreement with Perq Systems has proved a disappointment, with the stations criticised for poor performance, and the privately-held company, where ICL made a small investment, running into severe financial problems. ICL will remain a sleeping partner in Perq, but will probably end up having to write off the investment. The company says that there will be no lay-offs as a result of the phasing out of the Perq systems.

DOROTECH OFFERS OPTICAL FILE SOFTWARE UNDER UNIX

A new company, Dorotech France SA of Paris, has unveiled its first product, a file management program specifically designed to manage write-once optical disk files linked to Unix systems. Dorofile, developed joint with the CNET state research organisation, is written in C and is claimed to handle files stored on multiple dissimilar 12" and 5.25" optical disks. It is described as the first piece of software to enable transparent management of optical disk files from a Unix system and is designed to allow sharing of physical and logical disks, the creation of tree structures of unlimited depth, and to access directly any type of file system. It is currently implementing Dorofile on Sun Microsystems' Sun 3 workstation and on the Bull SPS7 Unix machine, and plans to offer Dorofile on AT-alikes under Xenix. The company is offering the software to manufacturers and system integrators on an OEM basis.

PARAMETER DRIVEN SOFTWARE HAS ADEPT GENERATOR FOR UNIX

With the dearth still of applications written to run under Unix, a new product from Parameter Driven Software Inc, Birmingham, Michigan, sounds likely to find a ready market. PDS-Adept Unix is an applications generator and database manager that is claimed to cut by 80% the time it takes to develop customised Unix applications. The system is designed to enable non-programmers to create applications by filling in the blanks on display screen menus to set the parameters for the database program, and the Unix version is a companion to the company's existing PDS-Adept PC-DOS and Convergent CTOS products. A conversion filter enables applications written under Unix to be converted automatically to run under PC-DOS, CTOS or their MS-DOS and BTOS variants. PDS-Adept Unix is offered for the AT&T 3B line and Unix PC, and Convergent Technologies 'frame family of Unix machines, and the company also has a ready written suite of 10 Unix System V business applications developed using Adept. It costs $995 on the Unix PC and 3B1, $4,000 on larger multi-user 3Bs or the Megaframe; the conversion filter sells for $750.

NO SOFTWARE COMMITMENT IN SPERRY's PENTAGON UNIX DEAL

The general rejoicing from software suppliers which followed in the wake of Sperry's securing of the $255m US Army deal may have been premature. It appears that while the US Army has have made a committment to the hardware in question, the other elements of the deal will depend on how the proposed system performs. The contract ensures the purchase of a modest two systems initially, using the Sperry hardware and Quadratron's office software. Having done the reconnaissance, the rest of the Army's Big Spend will depend on the systems' performance under fire.

SUN ADDS TO TOP AND BOTTOM
OF WORKSTATION RANGE

Sun also announced additions to its
workstation range at the top and bottom of
the line. Sun has introduced the Sun 3/200
series which displaces the Sun 3/160 series
as the top of the range. The Sun 3/200 is
based on the new 25 MHz 68020 processor from
Motorola and uses the 20MHz MC68881 floating
point co-processor with 64Kbyte virtual
address memory cache and a 64-bit processor
to memory bus that, according to the company
with its UK base in Ascot, Berks, produces a
4MIPS integer performance and 125Kflops
floating point performance. A Floating point
accelerator board option can extend floating-
point performance to 865Kflops for a price of
£4,300. Main memory is expandable from the
standard 8Mbytes to 32Mbytes with error
checking and correction codes. The Sun 3/200
has a two million pixel high resolution -
1600 by 1280 - monochrome frame buffer,
double the resolution of Sun's existing
workstations. The Sun 3/200 can be
configured as a standalone workstation, as a
diskless node on a network or as a fileserver
in a deskside model the Sun 3/260S and
cabinet mounted 3/280S. The base price for
an entry level system is £30,000 additional
memory can be bought in 8Mbyte increments for
a price of £10,600. Sun say that a sensibly
configured system would cost around £50,000.
The new bottom of the range workstation,
competition to the Apollo 3000 - the Sun
3/110, comes in below the Sun 3/150 and is
based on the MC68020 and uses the MC68881 and
is rated with a 2MIPS performance. This
single board design model can come with a new
15" colour monitor which reportedly gives the
same resolution as the traditional 19"
monitor. The Sun 3/110 has a ten-plane frame
buffer - eight for colour, a black and white
plane and a control plane for simultaneous
display of high speed black and white and
full colour windows. It uses 1Mbit DRAMS and
video RAMS. The base price for an entry
level system 3/110 is £14,000 and for an
additinal £5/6,000 you can have a standalone
system.

MATRA GOES FOR FRENCH GOVMT
WITH SUN

The deal that Sun signed with Matra of France
during the spring this year is a $35m agreement for
a period of five years. It is an OEM agreement
with Matra for Sun's entire product line - similar
to the agreement Sun now has with ICL. Matra is
using Sun workstations with Norsk Data machines as
file servers and adding software in a bid to get a
number of contracts with the French government.
Matra is also selling Sun workstations into Italy
and Spain.

PHAR LAP SETS 80386
ASSEMBLER AND LINKER

A new Cambridge, Massachusetts company, Phar
Lap Software, is ready with an assembler and
linker for Intel's 80386 microprocessor. The
assembler will run on the IBM Personal and
will work either directly with a 386 chip, if
it is available on a plug-in board, or as a
cross-assembler if it is not. The company
says both products will be upwards-compatible
with the current 80286 Microsoft Macro
Assembler.
Phar Lap claims the assembler will support
all capabilities of the 80386. Assembler and
linker will be out in mid-September for $495
the pair. Cross-assembler versions may also
be available later for some DEC VAX systems
under Unix.

WRITTEN IN C FOR THE IBM PERSONAL AT,
ARISTOTLE IMITATES ACTIONS OF A SLUG

The Japanese are not the only ones that have
gone back to primitive nature in their quest
to imbue computers with the ability to
imitate human cogitation. For his 1965
doctoral thesis in behavioral cybernetics at
Stanford University, California, John
Voevodsky developed mathematical equations
that describe the storage and transmission of
information in brain cells. He has now used
those same equations to design a knowledge
processor, which he calls Aristotle, that
demeans the great Greek philosopher by
emulating the nervous system of a slug.
Written in C and running on the IBM Personal
AT, the program tries to match the activity
of approximately 300 nerve cells, each with
1,000 synapses - junctions between cells.
This is said to be about the mental level of
caenor habditis elegans, a type of nematode
or small, wormlike slug. Voevodsky hopes to
have a program match the aplysia level soon.
Aristotle works interactively via a text
editor. Voevodsky has already trained it to
perform several tasks, including turning a
light on and off, then ringing a bell, then
blowing a whistle. Aristotle doesn't under-
stand slug: instead it has a vocabulary of
approximately 45 words in both French and En-
glish. Voevodsky has now formed a company,
Neurologic, to pursue knowledge processors,
and hopes to use a supercomputer for further
development Aristotle.
Eventually, he wants to design "adaptive"
computer chips that could be the building
blocks for a hardware version of Aristotle or
its successors. And other researchers are
working on similar processors across the
Pacific.
NEC is developing a caenor emulator, while
Mitsubishi is working on a 400-nerve-cell
system that is about the level of the aplysia
slug.

DATA GENERAL ADDS MV/7800 WITH BOARD-LEVEL OPTION...

Data General UK last week introduced the 32-bit Eclipse MV/7800 to replace the MV/8000II and the MV/4000. The MV/7800 fits into the MV family between the MV/2000DC and the MV/10000 and is the first Eclipse MV to be offered as a board-level product. The chip set for the MV/7800 is implemented on a single board using an unusual combination of parts: a CMOS gate array makes up the arithmetic logic-arithmetic translation unit, the high speed floating point unit is in ECL, and four NMOS circuits for the input-output chip, memory control array, burst multiplexor channel array, and microsequencer chip. The system has 4Mb of main memory and can support up to 128 terminals: it provides 14 input-output slots which support up to 9.4Gb of disk storage. Data General claims that processor executes 1.067m Whetstones per second; the input-output bandwidth is 10Mbytes per second. You can buy it as a standard rack-mounted system, as a 16 slot chassis system for integrators, or as a board-level processor as an upgrade for Data General's 16-bit Nova and Eclipse ranges. As complete commercial system the MV/7800 is £22,950; a rack-mountable version is £15,869; and as an upgrade board the price ranges from £9,330 to £13,204 depending on the processor. Data General says that its entire MV range, including the new model, is 24% cheaper than the corresponding DEC machines. There are a choice of three operating systems available for the MV/7800 – the Advanced Operating System/Virtual Storage, AOS/VS; the AOS/Distributed Virtual Storage, AOS/DVS; and DG/UX – Data General's implementation of Unix System V with Berkeley 4.2 extensions. US prices for the MV/7800 run from $19,050 to $27,550.

...RAISES US PRICES 6% TO 10% ON 40% OF ITS PRODUCTS...

In the US, Data General Corp has gone against the industry trend by raising prices on 40% of its product line, effective at once. On the hardware front, the prices, averaging 6%, are to bring margins on older products closer in line with those on new ones. Software licences rise an average 10%. Products affected are primarily those announced prior to February 1985 and include the MV/10000, up 6% to $167,100, and the MV/8000 II, up 6% to $92,400. Software increased includes the top-selling Comprehensive Electronic Office, and there are also increases on some peripherals and older terminals products. There are no increases on recently announced products, such as the MV/20000 and MV/2000 DC, Data General/One Model 2 portable, DS/7000 workstations, terminals and large disk storage devices. The UK company was unaware of the US increases.

...AND LAYS SIEGE TO DATAPOINT's USER BASE WITH DG/DBUS

Data General is also laying siege to Datapoint Corp's customer base with DG/DBus, a software environment that enables applications written in Datapoint's Databus language to run on Eclipse MV minis with almost no code changes. DG/DBus consists of a development module, which provides programmers with all the features needed to develop and maintain Databus applications, including the compiler, which produces code that can be executed by the run-time module on any Eclipse MV exactly as it would be on a Datapoint box. The development module also includes features that enable programmers do development work without interrupting the system. DG/DBus, out now, costs $6,250 to $42,250, depending on model.

GE USES MICROVAX II IN CAFS-LIKE TEXT RETRIEVAL SYSTEM

General Electric's Silicon Systems Technology unit has come up with a text retrieval system called GEFILE that is based on the DEC MicroVAX II and sounds similar in operation to ICL's CAFS Content-Addressable File Store. The system, which stores the equivalent of between 50,000 and 500,000 typewritten pages, combines the MicroVAX with a custom Text Array Processor and from three to 18 Query Processors, each claimed to do 5m comparisons per second. Searching can be on name, word or phrase, no indexing, keywords, file inversions or tables are required, and GEFILE supports either an RS232-compatible terminal or a DEC VT100-type VDU, or an optical recording device. The GEFILE comes in three configurations: a 2Mb MicroVAX II CPU with 128Mb disk is $64,900, a 9Mb processor with two 330Mb disks is $98,500, and a second pair of 330Mb drives can be added to the larger.

BENCHMARK ADDS HIGH DENSITY COLOUR GRAPHICS BOARD

One thrusting little company that doesn't intend to sit around waiting for things to happen is benchMark Technologies Ltd of Kingston-upon-Thames, Surrey. Ingenious new products come out from benchMark in a steady stream, and the latest is a high-resolution colour graphics board built around the Motorola 68000 family Hitachi HD63484 graphics chip. The bCG board provides resolution of 1,280 by 1,024 pixels and eight planes, cascadeable to 24 with 256 simultaneous colours from a palette of 256,000. The board comes with 2Mb of dual ported video memory and a 5Mbytes per second command interface. The number of colours and the number of users are in inverse proportion: the 12-user version is monochrome, at £2,500, the single-user version with the full colour range is £1,500. The bCG was previewed back in June at the Unix User Show held at Olympia (UX No 80).

VMARK SIGNS UP VARS FOR UNIVERSE

The Pick-under-Unix developer VMark has lost no time in setting up marketing channels for its Universe system, and is appointing Value-added Resellers, including Gathers Software, (address unknown) to sell Universe-based applications. The marketing push follows the kiss-and-make-up agreement with the litiginous Dick Pick, originator of the Pick system who was threatening legal action against VMark for its ingenious implementation of his operating system under Unix.

WAFERSCALE OFFERS 20MHz Am2901-TYPE 32-BIT SLICE

Last year, WaferScale Integration Inc of Fremont, California, lived up to its name by introducing the WS59032, a 32-bit CMOS microprocessor functionally equivalent to eight Advanced Micro Devices Am2901 4-bit slices on a single chip. A year later, the company has come up with a second-generation version of the part, in 1.2 micron CMOS against the 1.6 micron of its predecessor, and at a lower price. The microcodeable WS59032D is clocked at 20MHz, has a 52nS read-modify-write cycle, and dissipates 350mW. It is being sampled now, and costs $93 for 100 or more.

THIRD SPIN-OUT FROM SYSTIME IS FORMED AROUND THE SYSTEL VAX TP MONITOR

A management buyout from Systime Computer Ltd backed by £500,000 from Schroder Ventures has acquired the worldwide rights to Systel, the highly-regarded teleprocessing monitor developed by Systime for the DEC VAX which is installed on around 130 machines. The resulting 20-staff company, Performance Software Ltd, is the third spin-off from Systime involving senior management - it follows Independent Computer Maintenance Ltd and Kernel Technology Ltd (UX No 86) - to receive major funding since DEC's takeover of the D-Series maintenance business in March (UX No 63). It has set up its headquarters in Bradford with the help of a £75,000 grant from the Department of Trade and Industry. The launch of the company was timed to coincide with version 3.2 Plus of Systel, which will be shipped this month. The new release will allow a 20% increase in the number of terminals that can be handled by a VAX. Later this year, Performance will add a multi-processor version of Systel and a report query language based on SQL. Performance managing director Tom Hankinson claims that Systel "offers higher performance on the VAX than anything else" and that it could be the international market leader within a few years. The product's orignal developer, Ian McNeil, now chairman of Kernel Technology, has joined Performance as non-executive director. Fellow director and head of sales Bob Fowler is predicting first year revenue of £1m with exports, currently accounting for 30% of sales, rising to 70% of the total within two years. Moves are already underway to establish a presence in the US and discussions with DEC have been initiated on joint marketing arrangements.

PPL TO TAKE ICL SOFTWARE AGENCY, SEEKS INTEGRATION DEAL ON QUICKBUILD

Packaged software supplier PPL Plc, the former Packaged Programs, of South London is is in the midst of negotiating a Software Agency agreement with ICL. The company is also discussing a possible collaboration agreement which would give it privileged access to the guts of ICL's own quick-development tools, the Quickbuild suite. The plan is to build them into PPL's own range of packaged financial software, so that users in ICL's VME environment will be able to use such ICL tools as QueryMaster and Reportmaster with PPL's General Ledger, for example, as well as with in-house applications created through the Quickbuild "fourth generation" tools. Database supplier Cincom and financial modelling house Comshare already have software agency agreements with ICL, and have also interfaced the Quickbuild products with their own, but PPL appears to be the first major player in the financial packaged software market to make such a firm committment to the ICL Quickbuild route.

COMPAQ ANSWERS THE SCEPTICS WITH 70% PROFIT SURGE, MARGINS UP 10 FULL POINTS

Compaq Computer Corp's second quarter and first half figures - see back - represent a powerful answer to the sceptics, among which we count ourselves, who question whether the company can maintain its superlative growth record in the face of the deluge of price-cutting that has only just begun in the IBM Personalike market. By far the most important element in the figures is the one that indicates that the company has sharply trimmed its costs to the point where the company is in sight of being recognised as a true low-cost manufacturer: in the second quarter, margins improved 10 whole percentage points over the same period last year at 41.9% against 31.5%. The company makes a strong pitch for the top end of the market and says that the 24% sales surge was lead by the 80286-based product line, notably the Compaq Portable II, which is the company's best-selling product - and one in which it of course has no competition from IBM. The big boost in margins leaves scope for the company to trim prices as pressure - led by determinedly low-cost producers like Tandon Computer - becomes more intense in the 80286 market.

Premium products

Commenting on the way Compaq sees the world in which it operates, president Rod Canion declares that the low-priced clones meet a demand for commodity Personalikes offering low function at low cost, and that this is a low-priority market for Compaq. Compaq sees itself as a supplier of premium performance products at premium prices, and Canion reckons that while in the second quarter of 1986, low-priced clones accounted for 9.2% of the dealer market by volume, they accounted for only 5.8% of the market by value - and that Compaq accounted for 22% of dealer revenues. Compaq also reckons that it has sold more AT-alikes than all other clonemakers put together - and that more than 70% of its desk-top AT-alikes are going to second time buyers. As for its portables - now available under Xenix (UX No 84) , a market in which IBM has signally failed, so much so that it does not now offer a cathode ray screen portable, Compaq says that its three portables continue to account for more than half its business, and for eight out of 10 portables sold by US dealers. Nor is it worried if its dealers offer cheapo clones alongside the Compaq machines to serve the price-sensitive end of the market. The fact that Compaq has taken a stake in Conner Peripherals, which plans to make 3.5" Winchesters, shows that the company still sees the high-performance portable as a major market opportunity for several years out - and indicates that the benefits Tandon gains from making its own disk drives are not lost on Compaq. At some stage the company is still likely to come under severe pressure from forces outside its control, but the latest set of figures suggest that the company still has several more very good quarters in it before a major diversification becomes essential to secure its long-term future.

LOGICA PORTS LUCID TO MASSCOMP

Logica was pleasantly surprised to find out
that it was relatively easy to port its Lucid
image processing software package to the
Masscomp 5000 series of micro supercomputers.
Logica chose Masscomp for its first port
outside the DEC VAX arena because of its
particular niche within the engineering
market. Under the terms of the agreement
Logica and Masscomp will market the product
together. Logica will supply and support
Lucid directly to the end-users. The initial
release of a multi-user version of Lucid will
use the MC68000/IGP display system but plans
are underfoot for the recently announced
Aurora Independent Graphics Processor from
Masscomp. Logica claims that Lucid is
rapidly becoming an international standard
for image processing algorithm development
and says that this port now makes Lucid
available to the Unix community. Logica says
that it is very difficult to put an actual
price on Lucid as it depends on the actual
application but adds that most systems are in
the range of £20,000. Lucid was originally
developed for defence purposes but is now
used in the commercial sector as a
development tool. Lucid is marketed by
Logica in the US under the name of Vista-IPS
because the name Lucid was already registered
there by Lucid Inc.

GENERAL ROBOTICS DELIVERS PYTHONS
FROM NEW UK OFFICE

General Robotics has delivered its first
fifteen Python systems in the UK from its new
wholly owned subsidiary in Isleworth,
MIddlesex. It is the Microvax II competitor
(UX No 76) - the Python 32/B that has been
shipped so far and the company says that the
Python Junior will be available at the end of
this quarter. Deliveries of the Super Python
are not expected until the end of this year.
The entire range uses Unix System V.2 and the
National Semiconductor chip set and drive
standard Q-bus peripheral controllers.

CONTROL DATA ALMOST IN THE CLEAR AFTER
REPAYMENT OF $315m DEBT

Management at Control Data Corp should soon
be able to return to rebuilding the company
full-time without the need to be
constantly looking over their shoulders at the
bankers. Following the Minneapolis company's
successful issue of $350m in debt securities, and
has now repaid $315m in short-term debt - some five
months ahead of the December deadline, and its
bankers have released the shares of its Commercial
Credit Corp that were being held as collateral.
The banks still hold the shares of its broadcast
ratings company Arbitron against other, less
onerous financial arrangements, but CDC now has
some $20m in cash to rebuild its businesses.

VICTOR LAUNCHES NON-UNIX UNIXALIKE

Victor Technologies (UK) is hedging its bets
by introducing an operating system that looks
like Unix, runs Unix software, is written in
C but is not Unix. Victor say, however, that
this is not a bid to get into the Unix market
but a means of allowing its users to network
their systems to PCs. The new operating
system called Coherent was developed
independently by the Mark Williams Company in
Chicago and although the German arm of Victor
helped in the final stages of development no
marketing agreement has been decided yet.
Coherent will run on the Intel 80286, 8086
and 8088 and according to Victor it is
compatible with its entire model range.
Prior to Coherent the operating system for
Victor's 16-bit machines was a derivative of
8-bit software. Coherent will be available
in two versions a run-time system and a
development system which includes a C
compiler from Mark Williams and support tools
such as lex, yacc and make. Victor are also
planning to add VBasica - an implementation
for Coherent of Victor's GW-Basic compiler.
According to Victor this will include
graphics support and implementation of the X-
Open group proposed C-Isam standard for
index-sequential file handling.

US LOOKS FOR £1,200m FOR ITS CHIPMAKERS
IN JAPAN FROM SEMICONDUCTOR PACT

The twelfth-hour accord between the US and
Japan on their differences over semiconductor
trade - already roundly criticised by the
EEC Commission, which says that it may take
legal action on it - is actually very much a
preliminary agreement, and the provisions for
further action in it are very likely to be
invoked. Under the agreement, Japan agrees
to allow US memory chip makers to expand
their sales in Japan in a phased manner over
the next five years, so that according to the
US negotiators, they could garner $1,500m of
additional business on top of the $600m they are
currently doing there each year. The US and Japan
will both monitor Japanese chip sales in the US to
ensure that dumping is not taking place; in the
event of complaints, the two sides will consult,
and if disagreement continues, the US may reopen
the unfair trade practices and the dumping suits
against Japanese manufacturers that are suspended
under the agreement. Japan will guard against
dumping in third countries where the US competes,
implying that Japanese chipmakers will be free to
dump in countries where the US is absent, opening a
back-door to cheap re-exports. Enforcement will be
under provisions similar to those for the US.
First reaction to the announcement on the London
Stock Exchange was for the shares of component dis-
tributors to be marked sharply higher, although it
is not immediately clear that they will be major
beneficiaries from the agreement.

Issue Number 89

UNIGRAM/X

Minigrams

Compaq Computer Corp has reported second quarter net profits up 70% at $9.6m on turnover up 24% at $147.1m; mid-term net rose 75% to $18.0m on turnover up 35% at $291.1m. Net per share rose 62% to $0.34 in the quarter, 68% to $0.64 in the half.

– o –

Sun Microsystems has reported fourth quarter net profits up 181% at $5.9m on turnover that soared 105.6% to $76.7m; net profit for the year to June 30 was up 40.0% at $11.9m on turnover that rose 82.4% to $210.1m. Net earnings per share rose 162% to $0.21 in the quarter, 28% to $0.46 in the year.

– o –

Sun Microsystems is a pure Unix company, so superb figures that saw fiscal 1986 sales up over 80% at £210m (see above) confirm that there is a genuine and substantial world market for Unix systems.

– o –

AT&T Information Systems, still a long way from getting its act together on computer marketing, is rethinking its entire CAD/CAM strategy and at present is not directly marketing anything from **Omnicad**, where it took a stake almost two years ago.

– o –

Meanwhile **Omnicad** has put its OEM agreement – originally for 100 32/110s for use as compute servers – on hold because sales of the machines have been so slow, and is looking at processors from **Alliant**: it is also evaluating workstations from **Apollo**, **DEC** and **Sun** alongside the ones being bought OEM by AT&T from **Counterpoint Computer**.

– o –

Things are turning sour at **Gould Computer Systems**, and the company will reduce its workforce in Plantation and Melbourne, Florida 2% to 3% – that's 58 to 87 jobs – to reflect current market conditions.

Pick-popper **Ultimate Corp** warns that fiscal first quarter profits will be down on the year-ago figure – but it doesn't look like much to worry about because sales will be 35% to 40% up on the $26.4m this time last year, and special factors include a big ad budget for the new **IBM** 4300, VAX and 32-bit HIS lines.

– o –

Prime Computer (UK) Ltd has cut UK prices on all its hardware and software by 9% – apart from mono and colour workstations, which fall 38% and 18% respectively – to reflect the decline in the value of the US dollar against sterling.

– o –

Our experience is that things are looking dim when a company starts talking in terms of addressing only major geographic markets in the US, so it doesn't sound like good news that **Concurrent Computer Corp**, majority owned by **Perkin-Elmer**, says that it has formed a business unit to address the on-line transaction processing market – only in New York, Chicago and Los Angeles.

– o –

The hyenas are baying at **Floating Point Systems**, which faces two shareholder suits alleging that the company and certain directors and officers violated securities laws by not disclosing sooner that sales for the current quarter would be well down on previous forecasts: the announcement caused the Floating Point share price to sink.

– o –

Root Computers has appointed a new senior consultant in its Technical Systems division: Geoffrey Graham, formerly of Australia, where he founded Unix firm Insystems, will be concentrating on spreading Root's expertise in Europe.

We can now provide a reference number and an address for anyone seeking state-of-the-art information on the **IEEE** committee's standard for Unix-like operating systems. The trial use standard is document SH10546, and is available from the IEEE Service Centre in Piscataway, NJ – the group has selected the name "Posix" as a trial-use generic name for systems meeting the standard, and has declared its aim to make closer contact with the X-OPEN group.

– o –

Not only was **Plexus** of Swindon the first Unix disciple to offer laser disks (on show in June at the Unix User show), it is also offering a "mirror disk" facility for the safety conscious, available on its larger systems costing £250,00 and upward. The Mirrored Disk feature is a sort of tandem arrangement which protects against drive and controller failure; users can keep going on the unaffected disk without interruption. Customers have to purchase the second disk drive separately. The Mirrored Disk capability will be included in Unix System 5.2, Release 1.4.

– o –

The PC-Interface product for connecting MS-DOS based PCs to Unix systems has become the subject of a marketing agreement between **Locus Computing Corp** and **AT&T**: AT&T has been using the system on its machines for some time but will now be marketing it as well. The product is already sold by Root Technical Systems in the UK.

– o –

Moves are afoot at **DEC** to move its Unixalike Ultrix, famed for its Berkeley alignment, towards AT&T's standard System V. DEC has declared its intention to "adhere to the System V interface definition", and is thought to be making a major investment in further Ultrix development.
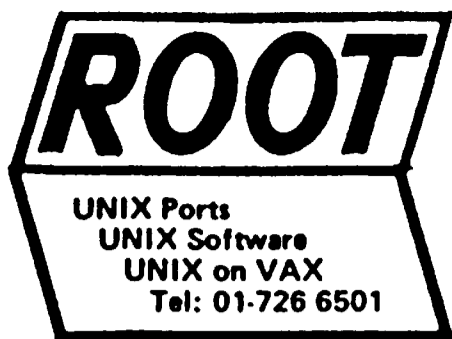
UNIGRAM/X

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BRITISH TELECOM MAKES FULL COMMITMENT TO UNIX, BLEASDALE

Some 18 months after it was revealed that British Telecom would manufacture Bleasdale Computers' Unix machines in what was seen primarily as a means for the phone company to prove its manufacturing skills British Telecom has now put itself fully behind the Bleasdale machines and the Unix operating system with a decision to enter full manufacture, both for internal use and resale to customers. Its Fulcrum manufacturing, has already started taking orders from other divisions, whcih will market the machines with Telecom software and other value-added services. Telecom has been looking at a number of different manufacturers' kit during the last 18 months with a view to taking on a Unix system for its own internal use as well as for external marketing. It will also manufacture for Bleasdale which is now just a design and development company. Sources within the phone company tell us that they expect to sell Bleasdale-based units "in their hundreds" over the next six months and for each of these, Bleasdale will receive royalties. The other main contender for the Telecom deal was a US company, SCI Systems Corp, Huntsville, Alabama, which has a factory in Scotland and had proposed manufacturing for Telecom. However, Telecom decided against the SCI equipment, preferring instead to manufacture for itself - and selling British goods was a priority. It has taken the basic Bleasdale design and produced two models running Unix System V.2; the smaller of the two has 16 user ports and one internal 5.25" Winchester with 53Mb, 86Mb or 144Mb capacity. The larger has more internal disks and 32 user ports. Next generation kit will be based on the 68020 chip, current models use the 68010. The micros are on offer with Ethernet interfaces, which Telecom hopes will help get it into the office automation market. Software from the Martlesham Heath research laboratories is currently under analysis as potential fodder for new markets for the Unix micros. Telecom will market the equipment through its district offices and eventually may put it into its dozen or so retail outlets. Telecom staff already use the Bleasdale machines in sales offices, and a number of engineers are using it for project documentation, about half of units made will be used internally.

CONVERGENT TO BUY TWO UCCEL UNITS FOR $28.5m CASH

Convergent Technologies Inc of San Jose has signed a letter of intent to acquire the Digital Systems Divsion and the Open Systems Inc subsidiary of Uccel Corp, Dallas, Texas for $28.5m cash, Uccel's sixth such disposal in nine months. Digital Systems, in Pensacola, Florida, is a supplier of turnkey business systems to accountants and contractors. Open Systems Inc, Minneapolis, Minnesota, supplied microcomputer accounting systems to small businesses, and has a distribution network including systems integrators, value-added resellers and dealers. The combined revenues for the two businesses in the first half of 1986 were $13.9m, and they employ approximately 225.

FERRANTI's PARTNER INFERENCE OFFERS REASONING TOOL IN C

The most concerted push to take artificial intelligence techniques out of the laboratory and into the field is likely to come with the availability of expert system development tools written in and for general purpose commercial data processing languages rather than in the specialised Lisp or Prolog. Carnegie Group led the way when it announced earlier this year that it was working on C versions of its Knowledge Craft and Language Craft tools, and now Inference Corp, the Los Angeles company whose ART Automated Reasoning Tool is marketed in Europe by Ferranti, has announced that ART release 3.0 will be available in Lisp and non-Lisp versions, the first of which will be in C. Rather than recode the Lisp programs in C, the company has developed an automatic translation technique which enables it to do all the development on ART in Lisp, and then translate the Lisp-based source code into a variety of more commonplace programming languages. That way, it avoids the need to maintain more than one version of the product and ensure their consistency. Although the first non-Lisp version is in C, the company is under contract to NASA to develop an Ada version. In the new re-lease, Inference also claims to have enormously reduced the run-time overhead caused by the need for garbage collection, the freeing up of memory once it has been used. In the C version, ART 3.0 deallocates storage as soon as it is used, so there is no garbage. In the Lisp version, the run-time overheads imposed by garbage collection have been reduced to the point where Inference claims it to be 99% garbage-free. The C version of ART 3.0 will initially run on the DEC VAX and the Sun 3, but versions for the IBM RT Personal and Apollo workstations are planned.

IBM can be a very aggravating company to do business with. It is so powerful and so successful that the market jumps to the conclusion that every major new product will inevitably be a runaway winner, and struggling little companies leap to adopt IBM's latest wunderkind, to interface peripherals to it, write software for it. All too often, too late, they discover that the shiny new toy is looking decidedly battered and has been consigned by IBM to the back of the toy cupboard. The most outstanding examples are the IBM "here it is, see what you can do with it" products. Two products in recent years have been classics of this genre - the Series 1 minicomputer and the 68000-based CS9000 Industrial Computer. So many people had waited for so long for a minicomputer from IBM that Series 1 started with an enormous head of steam. Then they discovered that IBM had no intention of fitting the machine out with a full range of software - that was up to the market, a slim little pair of executives and a few utilities were the only things IBM was prepared to offer - and the mini was soon floundering. But compared with the Industrial Computer, it was a runaway success: anybody who devoted any real effort to developing products around the CS9000 must be very much sadder and wiser today. Perhaps the 3.9" OEM floppy disk drive should be included too. IBM didn't use it in any of its own products, and the wise reaction of the market was "if IBM doesn't use the thing itself, why should be take account of it in our calculations?" Nobody bought it, and IBM killed the product.

IBM flyer

Thus it is not that hard to identify "here it is, see what you can do with it" products from IBM - especially with the advantage of hindsight. But think back to September 1981, and difficult as it may seem to grasp the fact now, the IBM Personal Computer was another of IBM's flyers. The company wasn't at all sure that the machine would be a commercial success at all, and had it known into what the machine would evolve, it would almost certainly have done everything very differently. So an important rule of the game is to recognise that IBM's try-ons will not necessarily turn out to be failures or at best modest successes in IBM terms. There is also another category of IBM product, the hot new item with big hardware and software investment behind it that is intended to take the market by storm, but which as a result of IBM

IBM PLAYS THE "HERE IT IS, SEE WHAT YOU CAN DO WITH IT" GAME WITH THE RT PERSONAL

incompetence and internal rivalries, fails to take off. Such a product is the 8100 distributed processor. IBM made a very substantial investment in 8100 software and fully intended that the machine should be a runaway winner. But it made a whole string of stupid mistakes with the machine. It perceived the need for it too late, and before the developent was under way properly, realised that it also need a remote office systems processor. It was so late that it couldn't afford to wait for the native DPPX operating system to be ready before starting work on DisOSS, instead it implemented that for the existing DPCX operating system from the 3791 that was to be emulated on the 8100. That split the users unnecessarily into two camps instead of moving everyone onto DPPX as quickly as possible.

Haughtily

The second mistake was to make the machine completely 370-incompatible so that instead of being able to develop programs for the 8100 on a 370 under VM/CMS, users were haughtily told that they would have to invest in an otherwise superfluous 8100 at their central site for development, the assumption being that all its mainframe users were so wealthy they wouldn't even notice the extra $150,000 to $200,000 cost ofr this irritation. The third piece of incompetence was simultaneously to make the 4331 an almost as effective - and in some ways better - distributed machine. The fourth was a failure of management: one of the few roles that Series 1 could perform quite effectively running IBM's own software was as a remote processing alternative to the 8100. Intense rivalry between the Data Processing and the General Systems sales forces reached the point where the former would rather see a customer who was definitely not going to buy 8100 go outside the company altogether rather than lose the business to Series 1. So IBM has its share of failures among products that had been groomed for stardom from infancy. All of which brings us on to IBM's current "here it is, see what you can do with it" product, the RT Personal Computer. The RT Personal is fiendishly difficult to read. The message from IBM is "we think that it is a very nice delivery vehicle for Computer-Aided Design and Engineering applications, and not too much else, but if you

can find another use for it, go ahead". Early indications from the US suggest that the market there is largely taking IBM at its word, one piece of evidence being that IBM is saying that sales of the machine are only a little ahead of plan. If the US market had rushed to adopt the machine for business applications, then sales would be well ahead of plan. That however is emphatically not true in the UK. Encouraged in part no doubt by one or two persuasive and committed Unix aficionados within IBM UK, the leading third party resellers of the Personal Computer - companies like Micro Business Systems and United Business Systems - are rushing to fit the RT up with third party Unix business applications and offer it as a general-purpose Unix supermicro. Are they making a big mistake, and will IBM dump on them by not enhancing the machine to the extent that their users will demand in the future? The answer is almost certainly no, because the beauty of Unix is that the applications really are reasonably portable, and resellers will be able to transfer their software and their allegiance to another manufacturer's kit if IBM fails to meet their future needs with the RT. But much bigger questions are raised by the RT, and the machine could be said to be a "here it is, see what you can do with it" resource within IBM as well as externally. Because the architecture of the machine is such that it is effectively a VM workstation - except that the hypervisor is called Virtual Resource Manager rather than VM. And looking from the processor out, the AIX implementation of Unix is simply a guest that happens to be the first to be offered under VRM. And that being the case, it is almost inconceivable that other operating environments will not be offered on versions of the machine in the future.

Go nap on it

The RT is capable of being fitted up as a System 36 SSP and a System 38 CPF engine, there is no reason why it shouldn't be offered as a DOS/VSE engine - except that IBM has a dedicated microprocessor 4300 in the works - and it will be very surprising if someone doesn't put Pick on the RT in short order. The outstanding question is whether IBM will take full advantage of a machine which in many ways looks dangerously hot to handle, or whether it will be left to the market to exploit it. First indications are that if it is left to the market, the machine will turn out to be only a very modest success - but equally it is not likely to cause resellers that decide to go nap on it to lose their shirts.

FPS GETS INTO WORKSTATION MARKET AND HOPES FOR PROFIT NEXT YEAR

Floating Point Systems of Beaverton, Oregon is making a bid for the office automation market with the introduction of a new 'minisupercomputer' series. This is an attempt to plug the hole at the bottom of FPS's range and cash in on the rapid growth rate of the workstation market. This new range named the M64 series comprises two new models the M64/20 and the M64/30 which come as: back-end processors; compute servers - the M64/220 and M64/230; and independent processing models - the M64/320 and M64/330. The front-end interfaces for the 20 and 30 include the VAX Unibus and the MicroVAX Q-Bus, available with VMS and the company says that it is seriously considering making Ultrix available. These independent processing models cost around £115,000. The M64/220 and 230 are called superservers by FPS and the system uses the Sun Microsystems' Sun 3/50s as workstations using Ethernet, TCP/IP and NFS for networking. The M64/220 provides 6MFlops theoretical peak performance and is field upgradeable to the M64/230 at 12MFlops. The Superservers are priced from £125,000 to £200,000. The M64/320 and 330 are designated as Superstations and uses the VAXStation II/GPS. Once again the model 20 is field upgradeable to the 30 and the Superstations cost between £160,000 and £230,000. FPS is for the first time using CMOS and surface mount technologies for this series and has separated the control processor from the arithmetic processor. The control processor used is the ubiquitous Motorola 68020 and the arithmetic processor is a new proprietary processor. FPS has also reduced the number of boards from 19 to 7. The software bundled with the new series includes the System Job Executive operating system, local file system and support for up to 31 users. Ansi Fortran-77, extensions for asynchronous I/0, optimizing compiler, linker and debugger come with the machines as Program Development Software. The entry-level model of the M64 series is the M64/10, a modified version of the M64/20, costing £85,000. Floating Point Systems say that its fiscal third quarter figures due out on August 22nd will not be much to write home about. $2m to $3m losses are expected on sales of $20m to $30m and FPS says that this is partially due to the introduction of the T-Series, the new supercomputer line using the Inmos Transputer. Customers are, according to FPS, so interested in the T-Seies that they are unwilling to buy any of the other top-of-the-range FPS products. The problem is, however, that the T-Series is not yet ready for the commercial market because there is no software available for it and probably will not be for another two years. FPS has announced four T-Series sales and says that a few others have been made but are unannounced and the money will not come in soon enough to make any difference to the third quarter figures. All sales have been into research and academic environments in the US where FPS hopes that software will be developed. FPS has itself invested large sums of money into development for the T-Series and this, it claims, is another reason for the poor figures. FPS is reportedly losing orders to the likes of DEC and Convex but says that the actual instances of this are few and is to do with the non-availablity of the T-Series and the growing competition in the US market. FPS reckons that it has grown up a lot within the last few months and has learnt by its mistakes and anticipates a return to profit next year.

DEC INTRODUCES ITS VAX 8550, 8700

Last week DEC announced its mid-range models in the VAX 8000 line - the VAX 8550 and 8700. The 8550 and 8700 are each rated at around 7 MIPS and are built around the same basic processor, but are packaged differently so that the 8550 is a field upgrade from the 8500, while the 8700 is field-upgradable to the dual processor 8800 that delivers about 70% better performance. The 8700 appears to be the largest uniprocessor now offered by DEC and is described as being for industrial and scientific applications where large memory and fast data transfers are required ssuch as data acquisition, process control, imaging, management information systems, timesharing, and flight simulation applications.
The new VAX line is completed by the 8200 and 8300, and all current VAXen now sport the new VAXBI bus that is a bone of contention with add-on peripheral suppliers; users who want to attach Unibus peripherals will have to add a Unibus adaptor; the 8550 comes with 20Mb main memory, expandable to 80Mb in the future. The 8550 processor has a cycle time of 45 nano seconds with a writeable control store of 16Kword and user accessible control store of 1Kword. The 8550 is intended as a multi-user workstation in interactive office automation, software development, computer-aided design and computer-aided manufacturing applications. The 8700 has 32Mb of main memory expandable to 128Mb. The UK base prices for the pair are £334,200 and £367,000 respectively.
The enhancements to the DEC VAX 8200 and 8300 are replacement of the Unibus with the new VAXBI bus and increased memory capacity.
Both new machines are available 30 days after the date of order.
It's quite remarkable that even when dealing with raw numbers, computer companies have a way of getting themselves into a hopelessly inconsistent mess with their product numbers: having kissed goodbye to the VAX-11/XXX nomenclature when it launched the VAX 8600, DEC is now talking in terms of the VAX 8000 family - which makes perfect sense until you discover that the company has now decided that the VAX 8600 and 8650 belong with the 11/725, 730, 750, 780 and 785 in the first generation. DEC also says that with its new 8550 and 8700, the second generation VAX line is now complete: it consists of the MicroVAX II, 8200, 8300, 8500, 8550, 8700 and 8800 - and there is no VAX 8400 waiting in the wings. DEC even goes further and suggests that the VAX family provides the broadest, most powerful, fully compatible computing environment in the world today.

A rout is taking place in the High Streets of Britain. Every day, it seems, computer stores are closing down. Last month, Entrè Computer Centres' Leeds outlet went into voluntary liquidation. Since then, Interface Network Plc has gone into receivership and First Computer has announced it is closing nine of its 11 stores and converting the remaining two from retail outlets into bases from which direct sales forces can sally forth. Earlier this year, lest we forget, the seven strong Byte Shop chain changed hands for the second time in as many years, and AT Computerworld, the Apricot-Tandy joint retail venture was disbanded. The fevered state of the market is underlined by the welter of other rumours, hotly denied by the companies in question, that there will shortly be changes in ownership in Entrè's three London franchises are up for sale, and that all is not well at the chain's Portsmouth and Croydon franchises. A tight-lipped Granada Business Centres is also the subject of persistent gossip that the company would like to close its stores and retreat to offices in Reading. Entrè and Granada refute the stories. The Croydon Entrè franchise holder says the story is "news to me ... at the moment, we are OK" while Granada insists that people are confusing it with First Computer which is basing its revised activities at nearby Slough.

Dixons

In a sense, it does not matter whether the rumours are correct. They illustrate that those in the Personal Computer retail business, from where all those stories emanate, do not think there is much future left in selling from "behind glass". At the same time, however, the general consumer electronics retailers are increasing their commitment to business computers with Dixons, for instance, reported to have bought a large proportion of the 85,000 plus Amstrad Personalikes that have been pre-sold ahead of launch. The Amstrad PC1512 sums up many of the changes that have taken place in the micro market. It offers low margins - believed to be as low as 6% on the basic £399 model although they improve as the machine is enhanced with a second disk or colour - and will be marketed as

BLOOD IN THE HIGH STREET

AS SPECIALIST COMPUTER

STORES BEAT THE RETREAT

another consumer product, one that can be taken away, plugged in and used. Two years ago, the specialist computer resellers could virtually name their price. Certainly, there was little discounting going on and they could sell software and other services to largely ignorant buyers. Users now have that extra two years' experience, so have a better appreciation of their needs, and know that they can haggle on the price. The mainstream manufacturers, Compaq Computer in particular, say that the bulk of their sales are not to the 85% who don't have computers, but to the second users who want more power, networking and Xenix. More power, networking and Xenix are not the kinds of concepts that you sell from a High Street storefront, nor are they appropri-ate toys for the first time buyer. The High Street, in reality, has never been much of a help to the specialist comput marketeers. Granada, Entrè and First Computer all say that less than 20% of their business comes in off the street. In First Computer's case, the figure was barely 10%. The storefront, however, was one of IBM's original pre-conditions for an authorised Personal dealership. According to Brian Elson, chief executive of First Computer before its restructuring, "IBM has a lot to answer for". IBM of course has converted its UK retail outlets back to their former uses, and is so disenchanted with the whole concept of computer retailing that it has sold its entire US chain of IBM Product Centers to Nynex. Having evolved a survival strategy, the rest of the management at First Computer bar Brian Elson is currently trying to raise the finance to buy a majority stake in the business from its present owner, Gerald Ronson's Heron International Plc. Elson will not be joining his colleagues full-time even if they are successful in their attempt. The former managing director of Scicon says that the shrunken company "will not be able to afford me". Of First Computer's 11 stores only those at Piccadilly and Moorgate in London and Slough were profitable. If the rumours are

true, Entrè which did replace its European chief executive and sack 30% of its staff during a complete restructuring in July, is finding that its 14 remaining franchisees are faring little better, although, to be fair, many have not yet reached the point at which they are expected to break even. Granada refuses to say how it is doing at the moment but when it unveiled a major expansion programme last October it said that if everything went well it would announce further growth this spring. Spring has come and gone and no announcement of new stores has been made. Instead, both the managing and marketing directors of Granada Business Systems have left within the last three months and the company has spent £26m buying third party Computer Field Maintenance from STC. Amazingly, despite the experiences of all those already in the marketplace, there are still those wishing to try their luck in the High Street. Olivetti has a long term strategy to build a European retail computer chain, and has been buying existing outlets and chains in Italy, West Germany and here in the UK - where TABS was its chosen vehicle   - to acquire the basis of a major chain. And the first step in the strategy was to buy 48.8% of Phoenix, Arizona-based franchise operator MicroAge Inc.

Olivetti

The MicroAge shingle is due to be hung outside several of the TABS outlets in the UK, and has announced the official opening of its first UK store, at Salisbury, Wiltshire for August 29 - something like nine months behind the schedule mapped out this time last year. Further franchises at Dundee, and at Rochester in Kent will open in September. Advertising manager Alan Diggory says that "the long-term future for the micro market is a good one". Few would dispute that; what is open to question, is the method of selling into it. MicroAge is looking for existing dealers who want the support of a franchise chain in exchange for £250,000 upfront and 5% of total sales. In an effort to build up quickly, MicroAge has had talks with other chains about partnerships but, so far, nothing has come of them. It is difficult to find people outside MicroAge and, presumably, Olivetti who think that this chain will succeed where the others have failed. Hardly surprising really: it is difficult enough to make a simple profit, let alone the 5% extra needed to cover the royalty whatever services are on offer.

SANTA CRUZ SHIPS ITS WORKALIKES

The Santa Crux Operation, based in the West Coast town of the same name, has started shipping its "workalike" applications. SCO will be treading new ground as a supplier of spreadsheets (the Lotus 1-2-3 lookalike called Professional), and of database software, a dBase-II-alike from Fox Software called Foxbase.

The systems were announced in February of this year, but are only just becoming available to the Unix community at large. Europe is likely to be an important market for SCO, and its progress should be worth watching, if only to prove that it is possible for a company known for its technical expertise to make a success of applications software. According to co-founder of SCO Doug Michaels, such products tend to sell faster in the UK and Europe than in the US, hence his flying visit to the UK to check out distribution outlets. SCO seems relaxed about its change of role, despite the fate of the similar Chariot experiment recently abandoned by Human Computer Resources of Toronto. (HCR decided to return to its traditional techie trade after a much-publicised but disastrous venture into applications development.)

The first release of Professional is designed for SCO Xenix System V operating systems on the IBM PC AT and compatibles, AT&T PC 6300, and Intel 310, though there are plans for other Unix machines including the AT&T 3B2 and DEC's Vax. As well as emulating Lotus 1-2-3 so that Professional can access Lotus files and floppies directly, SCO has added some extra features to the 1-2-3 spreadsheet principle. These include a spreadsheet size of 8192 rows by 256 columns, 356 query fields, menu access to Unix facilities, and programmable command execution via macros. It is also possible to support most terminals with user-configurable menus, messages, key sequences and Help screens.

Michaels is confident that the workalikes will not invite litigation from the products on which they are modelled. Michaels sees his applications as a sincere form of flattery, not a competitive threat. "We are supplying an upgrade path to machines which Lotus Corporation and Ashton Tate don't cater for" he said. "We're making their products more attractive, not competing directly, so we don't anticipate any trouble".

INTEL ANGLES 80486 FOR ARTIFICIAL INTELLIGENCE MARKET

The Big Two of the microprocessor world are now looking well beyond the existing generation of 32-bit chips, and seeking inspiration on what the next major steps should be. Clearly there isn't going to be a big market for parts that simply double the word-length yet again: 64 bits gives double precision floating point in compute-intensive scientific applications, but doesn't buy the user much in the commercial world (although the underlying architecture of IBM's 4381 is 64-bit). Motorola is looking first at higher levels of integration, planning to combine the memory management unit and the mathematics co-processor with the CPU on a single chip. Intel already has memory management on board in the 80286 and 80386, and is looking instead at new areas of application as it fines down the details for what is already being called the 80486. "We are far from mask sets" on the part, the company told **Electronic News,** but acknowledged that it was consulting with a whole string of artificial intelligence software specialist firms to determine their special requirements from a future artificial intelligence engine. The design is therefore being slewed towards efficient execution of Lisp and Prolog under Unix System V as the operating environment of choice. Before it arrives, Intel wants the artificial intelligentsia to embrace the 32-bit 80386, and has commissioned a string of leading companies to support the new part. They include Lucid Inc, Franz Inc and Gold Hill Computers Inc for Lisp, Quintus Inc and Arity Corp for Prolog, and Teknowledge Inc for expert systems. Other parts in the works at Intel include an 80930, which includes multiple parallel processing elements on a single large die, the Gemini development funded by Siemens to breathe new life into the iAPX-432 architecture for object-oriented fault-tolerant processing - which may incorporate the 80930 as well. And there is also the VL82C389 message passing co-processor, developed jointly by Intel with VLSI Technology Inc, a part that is likely to have an important role to play in Intel parallel processing systems.

LACK OF CASH PUTS DAVIN 64-BIT CPU BACK TO EARLY 1987

The inability of the new company to raise the full $3m to $4m of venture capital it was seeking has forced David Methvin's Davin Computer Corp to postpone unveiling of its planned 64-bit processor to early 1987 from the end of this year. The company managed to raise just $1m of venture capital for the project, which is to complete a two-year effort at Methvin's former company, Computer Automation Inc. The company, which has been planning a move to Boulder, Colorado from Irvine, California, is aiming at the top end of DEC VAX and Data General MV market, but is looking to offer substantially better price-performance, primarily in the industrial market. (There is some confusion on the word-length, originally described as 32-bit). Methvin founded Computer Automation, a firm he ran for 17 years before he started Davin.

Minigrams

Very incomplete gossip in the US has **IBM** ceasing manufacture of the RT Personal in Austin, Texas: if true, the move could carry a number of connotations, the most likely being that the line is being cleared for something new, and that the RT will transfer to Boca Raton.

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Promising a CMOS processor to succeed its current EXT line of low-end TTL CPUs within a year or so, **Tandem** has replaced the original EXT with two new models, the 10 and the 25, each offered with either two or four CPUs: the 10 has 2Mb to 8Mb, 15 to 31 input-output slots and is rated at 4.3 to 8.6 transactions per second with an $82,500 base price; the 25 with 16Mb to 64Mb is rated at 11 to 22 transactions per second at from $325,000; each has a new 6105 communications processor.

- o -

Meeting the growing challenge from Japan Inc, **Cray Research** Inc has added two new models to its X-MP family of scientific supercomputers, cut prices on all one and two processor models, and enhanced internal performance of the CPU 12% by winding up the clock. After the price cuts, Cray XMP prices range from $4m to $16m: the X-MP clock has been speeded up to 8.5nS from 9.5nS to achieve the 12% performance improvement and all new Cray X-MPs incorporate the faster clock – prices on Cray X-MP/2 and Cray X-MP/1 systems have breen reduced by up to $1m, 20%, but prices on X-MP/4 systems using ECL bipolar memory are unchanged. The new X-MP/44 has four CPUs sharing a 4Mword ECL memory arranged in 32 interleaved banks and costs $12m. The new $7m X-MP/22 computer system has two identical CPUs sharing 2Mwords of MOS memory arranged in 16 banks.

Motorola Inc will have samples in September of the MC68184 broadband interface chip which creates a broadband modem for the MAP Manufacturing Automation Protocol: running at 10Mbps, the CMOS part imnplements the digital part of the IEEE 802.4 physical layer definition and will cost $40 for 100-up; companion parts are the MC68605 X25 port controller at $69 for 100-up, and the MC68884 token bus controller, which costs $76 for 100-up.

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The CT-68X single board computer from **UNIT** C of Worthing has made its debut. The 68010-based board is the base component of a family of VME-bus products, and comes with a related board which functions as an intelligent communications processor.

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Basic-to-C translation specialist **MS-Associates** of Bourne End has won a contract for its CGEN translator from top Scandinavian business software house Dana Utveckling. Dana has abandoned Data General kit in favour of DEC machines, partly because of the Swedish government line on DEC and Unix.

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Control Data Corp has complemented the existing Cyberplus scalar processor for its Cyber 180/800 family 64-bit scientific mainframes with a 32-bit attached array processor for use with the mid-range and top-end models from the 180/840A to the top-end 990E. The Map-5 array processor attaches to the input-output channels, delivers 100 Mflops at peak, transfers data at 100Mbytes per second, and costs from $415,000 to $455,000; it is ready for immediate delivery to users in the US.

Burroughs is expected to unveil a string of compatibility products for its B25 workstation family that was designed by **Convergent Technologies**: among the offerings are expected to be Convergent's PC Slice hardware and software combination that enables the N-Gen to run PC-DOS applications, and a gateway to **IBM** hosts running the DisOSS Distributed Office Support System, the latter to include DCA-DIA and SNA LU 6.2 emulation.

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Sign of the times at **Motorola Computer Systems**: the company has made so many cuts and consolidations that it has surplus desks, chairs and other office furnishings and equipment valued at $10m, and plans to hold a massive sale to clear it.

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GE Calma of Camberley has announced three new packages for the design of printed circuit boards, for use on **Apollo** and Calma Logic Series workstations. The main BOARD package deals interactively with design, layout, simulation, computer-aided manufacturing, and test development.

- o -

Office applications firm **Redwood International** of St Albans has signed a brand new Paris company as a major distributor of its Uniplex-II office automation software. Top-Log is a new subsidiary of Metrologie SA of Paris, which claims to be France's leading computer maintenance and distribution group with a turnover of 800 million francs. Top-Log has been formed specifically to market and support Unix, Vax VMS and MS-DOS software products, and will be aiming Uinplex at major French coroporations and government installations.

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The newsletter for UNIX systems users

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FAIL-SAFE UNIX: TOLERANT SYSTEMS MOVES TO NS32032 CHIP

A very long time after promising to make the move, Tolerant Systems of San Jose, California has finally moved up to the true 32-bit NS32032 from the 16-bit bus NS32016 in its P-series of fault-tolerant Unix machines. The company's machines are put together from System Building Blocks, each consisting of three of the National Semiconductor microprocessors, and the new line uses the 10MHz version of the 32032. It is claimed to offer 45% better performance at 13% greater cost. The minimum configuration of the new P200 comes with two of the System Building Blocks, each with 4Mb of memory, two 168Mb disks and a tape drive, 24 ports, plus two copies of Tolerant's TX implementation of Unix. It is rated at 8 TP-1 transactions per second, has a 1.5 second average response time and costs $215,000. Base configuration of the P100, rated at 5.5 TP-1 transactions per second and the same 1.5 second response time, costs $190,000. Configurations are expanded by adding System Building Blocks, and the building blocks from the P200 and P100 can be combined.

AI: IBM GIVES 225 RTs TO CARNEGIE MELLON

The RT Personal Computer is of course the mystery scholar's workstation that was the subject of agreements between IBM and Carnegie Mellon University in Pittsburgh, and IBM has extended those agreements to cover a three-year study of artificial intelligence for which IBM will donate to Carnegie Mellon with 225 RT Personals worth $5.5m. They will be used by several hundred university researchers for a variety of individual projects, and many will be networked so that programs and research findings can be shared. University scientists and IBM research and development people will share results and ideas through a 10-person joint committee, and although the results will not be exclusive to IBM, it is likely to market any promising software development under the project in due course. Specific development programme contracts will also be signed by IBM with the university. Dr Schorr, group director of products and technology for IBM's Information Systems and Storage Group said of the pact, "In addition to making the results generally available to the research community, we hope to incorporate significant advances into our product line from System/370 to the Personal Computer".

QUINTUS PROLOG 2.0 FOR SUN, VAX UNDER UNIX

Quintus Computer Systems Inc, Mountain View, California has unveiled the Quintus Prolog 2.0 Development Environment for Sun Microsystems workstations and DEC VAX series under Unix. The new environment features all the facilities offered in Quintus Prolog Release 1.5 as well as an advanced modules system, garbage collection and indexing of dynamic clauses. Garbage collection extends the range of applications which can be implemented in Prolog by automatically reclaiming space used in intermediate computational steps. The Quintus Prolog garbage collector complements pre-existing space optimization facilities. Indexing of dynamic clauses means that asserted code can now be accessed as efficiently as compiled clauses, and this, says Quintus, will mean a significant performance increase for applications which maintain dynamic tables of data. Previously, such tables could only be accessed sequentially; now direct access to a required clause is possible. Quintus Prolog 2.0 will be available in October.

BULL ADDS UNIX MODELS

Bull SA of France has upgraded its two Unix families, the SPS 7, which was designed in one of the national research laboratories, and the SPS 9, licensed from Ridge Computers Inc. The new SPS 7/70 is built around the 32-bit 68020, uses the 68881 floating point co-processor and comes in at the equivalent of $265,000 with 4Mb memory, 56Mb Winchester, 60Mb tape drive and six synchronous lines. It runs the SPIX implementation of Unix System V and the the Unix-derived SPART real-time operating system. The SPS 9 now comes with up to 16Mb memory and 445Mb disk, and the communications support is enhanced.

BALL BACK IN PHILIPS COURT WITH FOUR PHASE MACHINES

Philips Telecommunications and Data Systems has signed an agreement with Motorola through which Philips will have exclusive distribution rights to the 24-bit 4000 and 5000 series. Philips will also have rights to the Vision/32 software which enables a 32-bit Unix-based machine to emulate the 4000 and 5000 environment. Previously Philips had marketed the 4000 and 5000 on a non-exclusive basis as the P7000 and P7300. Philips originally had an agreement with Four Phase Corp – the machine developers – and then once Motorola had acquired the company Philips was restricted to marketing in Italy, France and the Netherlands. In the UK Philips Business Systems will market the systems which will be available at the end of the year. The Vision/32 product will provide Philips with its first Unix toy and a means of allowing existing P7X00 users to change environments whilst maintaining their investments made into applications software for that series.

SVID MADNESS
Geoff Conrad examines System V.3 and deduces that only AT&T could have done it.

Summoning its vast resources the company has astonished observers by snatching a defeat from the very jaws of victory. The whole world and his brother (his sister?) are fighting to pay enormous fees to AT&T for the dubious honour of being allowed to use Unix. But instead of saying "thank you" and laughing all the way to the bank, AT&T employs a whole obfusication of lawyers to make it as difficult and as dangerous as possible for anyone to pay over any money. (What is the collective noun for lawyers? A mafia? an extortion? a confusion? a parasite? a bloodsucking? an august body of upright gentlemen forming one of the pillars of civilised society?) No-one but an American lawyer could come up with the insane scheme that AT&T has adopted for System V.3 — and then add insult to injury by claiming that it is what the customer wants.

V.3 has lots of new features for people to play with and talk about instead of working — Remote File Sharing, Streams, Shared Libraries and the ASSIST system to help you to crash the system in new and exiting ways. And unless you put in your order before last June, V.3 is what you are going to get. But it must be good, because AT&T say it is "technically superior to anything else on the market," and they should know. If things had been left there, everyone would have been reasonably happy, apart from mutterings about the Byzantine pricing structures.

Unfortunately, AT&T relapsed into one of their periodic bouts of meglomania and simumultaneously introduced a clumpsy, insensitive and autocratic attempt to enforce compliance with the System V Interface Definition (SVID). (The SVID defines a common computing enviroment for application programs — any application developed under an operating system conforming to the SVID will run unchanged on any other SVID will run unchanged on any other SVID — compatible machine after a simple, straightforward recompilation.)

Any product that contains V.3 code (even a single line) has to comply with the SVID. And AT&T has helpfully commissioned Unisoft to develop a System V Verification Suite (SVVS) — a battery of test programs that verifies an implementations conforms to the SVID.

Since AT&T wants the whole world to be SVID — compatible — and is going to great lengths to make life very unpleasant for anyone who isn't — it is, of course, making the SVVS freely available for a nominal sum and setting up test centres to help manufactures ensure their implementation is SVID compatible. Not a chance.

The SVVS suite will cost $29,000. And its for your use only. You can't set up a small companies to check that their implementations conform for a reasonable fee. And if you are a porting specialist you cannot use it to check that your ports conform — each of your customers will have top fork out an additional $29 000 and check it themselves.

Insanity. An IBM Dirty Tricks Department (which of course does not exist) could not have come up with a better way of alienating and angering the customer. AT&T (turnover $35 billion) probably checked with a few of its major customers and they all agreed that $29,000 was just petty cash. But when the small manufacturers heard about it they started screaming and pointed out that the cost of the SVVS could add hundreds of dollars to the price of every system they shipped. So AT&T thought about it and added insult to injury by proposing a "gentleman's agreement" with small manufactures: no-one would be forced to buy the SVVS, if they wanted to advertise their product as System V compatible, they only had to write to AT&T first and state that it was compatible. But ... if at any time in the future, possibly after several updates, it was discovered not to conform exactly to the SVID, the machine would have to be withdrawn from the market. In effect, pay $29,000 or play Russian Roulette with your company. No-one that Unigram.X has spoken to within AT&T has been able to give a sensible reason for the policy, but reluctantly confirm it. Someone, somewhere within AT&T, must believe they have a rational reason for the policy, but to everyone else it seems incomprehensible.

REXON BUYS EAGLE's CONCORDE DESIGN
It didn't take long for a buyer for its flagship product to turn up after Eagle Computer Inc decided to file for Chapter VII liquidation.

We hear that multi-user microsystems builder Rexon Inc, the Culver City, California company that is now effectively a subsidiary of Hambrecht & Quist, has already bought the rights to the Eagle Concorde design for $200,000.

Eagle got as far as showing prototypes of the ingenious Concorde at Comdex/Fall last November before it ran out of money, but never got the resources together to put the machine into production.

The Concorde is designed around twin industry standard buses — VMEbus and IBM Personal AT bus, and is designed to support eight to 64 users. An 80286 processor is standard for MS-DOS, with the option of an NS32032 — with which it was shown at Comdex — or an MC68020. Operating systems implemented on the machine are Unix System V, Xenix 5, Pick and MS-DOS.

SOFTGUARD's VM/386 WILL SUPPORT MULTIPLE UNIX, MS-DOS VIRTUAL MACHINES ON 80386

A hypervisor similar to IBM's VM/370 that will support a variety of guest operating systems including Unix and MS-DOS on 80386-based machines is in development at Softguard of Santa Clara, California. The company hopes to have it ready by the second quarter of next year.
Like VM, VM/386 will also run multiple copies of each guest operating system concurrently, so that different versions or releases of MS-DOS and Unix could be running in different windows at the same time. It is also being designed to emulate extended memory systems, and the company reckons it will therefore obviate the need for a multitasking version of MS-DOS that breaks the 640Kb memory barrier. VM/386 should be able to run on most of the forthcoming 80386-based Personalikes, as well as on 80386 accelerator boards for the IBM Personal, XT, and AT. Softguard will offer the product only to manufacturers but expects the end-user price will work out at less than $200.

ICL PICKS RELATIONAL TECHNOLOGY's INGRES AS ITS RELATIONAL STANDARD

ICL has chosen the Ingres relational database management system from Relational Technology Inc, Alameda, California as its standard relational product, and has signed for exclusive worldwide marketing rights to Ingres on its products. It is the first agreement on Ingres with a European computer manufacturer. ICL says that its selection was based on Relational Technology's commitment to international standards and open systems networking, reflected in provision of Structured Query Language interfaces (most other relational products have those these days) and its availability on a wide range of hardware. SQL is to be incorporated into the X/Open Group's list of standards for use in Unix applications. ICL says that it will incorporate Ingres in such a way that it will be seen as a natural extension to its IDMS, Data Dictionary System and QuickBuild development and data management products. Relational databases have led to a rapid advance in the intractable technology of distributed database, and Relational Technology claims that its Ingres/Star is the first commercially available distributed database.

COMPUTERLAND MOVES UPMARKET WITH AT&T 3B2

In an effort to rise a little above the bitter fray in the commodity end of the personal computer market, ComputerLand Corp has signed a purchasing agreement to sell AT&T's 3B2 super-micro computer family. The AT&T 3B2/300 and 3B2/400, which can support up to 25 users and serve as a link between Personals and mainframe computers, are now available to the 830-store ComputerLand network. The 3B2 family will retail for from $12,000 to more than $36,000, depending on configuration. A typical four-user 3B2 is expected to be offered by the franchises at $15,000 to $18,000.

WHITECHAPEL REVIVIVING: SOFTWARE FOR MG-1 WORKATATION

Whitechapel Workstations is the name given to the company formed from the ashes of Whitechapel Computer Works. Whitechapel has started its new career with the introduction of a publishing system ported to the MG-1 by Program Products. PrintMaster is a word processing system and a picture-generator. The MG-1 is Program Products first port into the Unix world and say that the ease of porting was achieved by the close working relationship that the hardware people at Whitechapel had with the software people from Program Products.

CONVERGENT TECHNOLOGIES CUTS WORKFORCE 26%

Convergent Technologies grew into a large company by pioneering the concept of the full-function OEM micro-computer, and enormous contracts from Burroughs, NCR, and latterly AT&T were the foundation for its rapid growth. But after trawling the world adding similar but much smaller contracts with everyone from Plessey and A B Dick to Nokia and Mohawk Data Sciences, many of which were unsuccessful, the company has come to the conclusion that it has saturated the OEM market and needs to diversify into end-user sales. The route it has chosen is by sealing relationships with much smaller companies which make their living out of narrow vertical markets - anything from legal practices to timber yards. Having taken several steps along this route already - it took 40% of Baron Data Systems, acquired Display Data and has just agreed to acquire the vertical market software divisions of Uccel - it has now created a separate organisation, Convergent Small Business Services, to manage the business. The new unit will employ 900 people and have six divisions in seven US states, and the good news is that it will be hiring 100 more sales people and looks for the new unit to be doing $25m a quarter by the end of the year. The bad news is that AT&T has notified Convergent that its requirement for 3Bls and Unix PCs will be dramatically down on the $60m-worth or so it took in the first half, and Convergent has been quick to bite the bullet, firing 500 employees, 26% of the 1,900 total, with some in executive and administrative posts but most in manufacturing. Top officers are also taking a 10% pay cut, and the measures will reduce to $60m from $75m the quarterly business the company needs to do to turn a profit, so that it will definitely be profitable in the fourth quarter.

ZILOG WE32100—BASED SYSTEM 8000 PICKED BY BIS FOR ITS SUPPORT ENVIRONMENT

BIS Applied Systems has ordered £1.5m of AT&T WE32100-based System 8000/32 Unix machines for its BIS/IPSE project support environment installations.

The Zilog 32-bit supermicro will be linked to the client's mainframe and used to run the BIS/IPSE software tools.

BIS chose the Zilog hardware because it was assured of support from Zilog, a low entry level price for the hardware, an extensive hardware range, binary compatibility between models and standard Unix. Systems worth around £500,000 have already been installed by BIS and Zilog.

OLIVETTI CONSIDERS A REDUCTION IN ITS 80% HOLDING IN ACORN

The Unlisted Securities Market quotation for the shares of Acorn Computer Group Plc is little more than an irrelevancy. The shares are so narrowly held that hardly anyone in the City bothers to follow the company, because there is almost no occasion for the shares to be traded. But that could soon change: Olivetti is now understood to be considering reducing its 80% holding, perhaps re-floating as much as 30% of the UK micro manufacturer's equity onto the market by the end of the year.

A firm commitment to a reduction of its stake at Acorn's preliminary results announcement on September 1 was expected, but our sister paper **Technology Research** hears that this will not materialise. Nevertheless, Olivetti is likely to move within the next two to three months, once the giant Italian group is happy that it can put a reasonable gloss on Acorn's prospects – and a fillip is expected with the fiscal 1986 figures.

There are strong signs that Acorn's results for the full year to June 30 will be far better than expected. Acorn is also expected to make a major product launch at the same time, with a new version of the BBC Micro as the most likely candidate.

The Cambridge company has been directing one third of its 1986 expenditure at research and development. Olivetti was known to be primarily attracted to Acorn's development capability when it spent £14.6m on the company during last year in two separate rescue bids.

INFERENCE CORP CLAIMS KEY BENEFITS FOR AUTOMATED REASONING TOOL 3.0 IN C

Expanding on the new C language version of Inference Corp's ART Automated Reasoning Tool programming system for developing expert systems, the Los Angeles company claims that the non-Lisp version of ART 3.0 will enable expert systems much faster. ART 3.0 in C will run on the IBM RT Personal Computer shortly, but the initial versions are for the DEC MicroVAX II and Sun Microsystems Inc Sun 3 with an Apollo Computer implementation due shortly. Alex Jacobson, president and chief executive of Inference says that improved memory management makes ART 3.0 at least 99% garbage free, which means that by changing the way the program manages memory, ART 3.0 speeds up processing and avoids random program halts. Lisp programs usually divide their resources between running the program and freeing up available storage filled with interim data that the program no longer needs – garbage collection. ART 3.0 does not require garbage collection because memory allocation and deallocation has been built into ART 3.0 manually by the ART developers, thereby avoiding the need for Lisp's automatic garbage collection. With the program free to process without garbage collection, performance increases substantially and the arbitrary pauses for garbage collection cease. Thus by giving up one of the development features of Lisp, automatic garbage collection, Inference reckons that it has taken a major step forward in the process of commercializing expert systems.

New pattern-matching structure

ART 3.0 also uses a new pattern matching structure that saves computational time and allows the computer to work much more efficiently, particularly for rule-based processing of frame-based data. ART 3.0 also has a generalized join topology that lets the program join rules in its database both from the left, as is traditional in artificial intelligence reasoning tools, and also from the right, which is claimed to be a first for the artificial intelligentsia. The bothways capability saves computational steps in problem solving. Inference also says that ART 3.0 for the first time combines procedural-based object oriented programming and rule-based programming in a new capability that the company calls multi-methods. The object-oriented system makes it easier to build interfaces and the rule-based system makes those interfaces more flexible. For example, a programmer using multi-methods can define a print function that will print any part of a document on any particular device. Such a program has always been easier to write using an object-oriented system. However, use of the rule-based capability of multi-methods enables programmers to add further devices without rewriting the original program, as would be the case if it were written as a purely object-oriented system. The Lisp version of ART 3.0 is available now on Symbolics, Lisp Machines Inc, Explorer and DEC VAX machines – under VAX-Lisp, and for the Sun-3 workstation under Sun Common Lisp. It costs $65,000 for the first copy and $45,000 for copies two to five. Free upgrades of ART 3.0 will be available to current users of ART 2.0 who have active maintenance contracts. ART 3.0 also includes ART's Studio and Artist graphics capabilities.

THOMSON: MOTOROLA STILL
PLAYS HARD-TO-GET ON 68020

Able to meet all the demand for the top-selling 32-bit 68020 microprocessor from its own resources, Motorola Inc is in no hurry to allow Thomson of France and its Carrollton, Texas Mostek unit in on the action. Its original agreement enable Thomson to start making the part once Motorola had had the market to itself for two years, and that deadline has just expired. But, reports **Electronic News,** Thomson does not yet have the mask sets and database software - for the CPU, 68881 mathematics co-processor and 68851 memory management unit, and Motorola is making unenthusiastic noises about the "parts of equal value" that Thomson is required to supply in return. These are expected to be outside the 68000 family and to include a pair of telecommunications chips. Thomson is still the only agreed second source for the 68020, and is not now likely to be able to get its version of the part into the market before next year at the earliest. Motorola is playing for high stakes, but the game is not without risk. Denied 68020 masks, another 68000 second source, Hitachi, has decided to go it alone and proceed with an upwards-compatible but much more powerful microprocessor that could well start stealing sales from Motorola when it comes to market. The sale by United Technologies of Mostek to Thomson reduced the number of 68000 second sources to three. The other one is Philips-Signetics.

NATSEMI SETS CPU+MMU
COMBINATION FOR NEXT YEAR

Intel has been doing it since the 80286, Motorola is expected to do it with a new 68000 family processor based on the 68020 in a month or so, and National Semiconductor will not be far behind. "It" is combining CPU and memory management unit on the same chip, and **Electronic News** reports that the two parts will be combined in the NS32532, which is due to surface next year.

ICON CELEBRATES END OF FIRST YEAR
WITH MAJOR ORDER

Icon Systems and Software has an agreement worth $72m in retail sales with the LAN Group for its multiple operating system machine. The agreement allows the LAN group to act as distributors, trainers and support for the MPS020-2, announced last September (UX No 43). The LAN group is a distribution organaization for the local area network industry. It was formed by five dealers who considered banding together the best way to increase purchasing power. The companies involved include: Comtec in Roanoke, Virginia; Microserv in Boston, Massachusetts; Tel-Matic Systems in Toledo, Ohio; CPU Corp in Houston, Texas; and Costa Distributing/West in San Francisco, California. The LAN Group says that it chose the MPS020-2 because of its unique technical capability in handling a number of different operating systems and because of the financial stability of Sanyo who manufacture the machine and own 40% of Icon who design and develop the machine. The LAN Group wanted a product of this ilk to get into the Unix market. Terry Green, president of the LAN Group said "these higher level products will allow us to open a relationship with Unix VARS, plus give us a top-performing file-server for our existing MS-DOS, local area network base." Icon has already started shipping to the LAN group and it will provide training for each of the five involved companies. The MPS020-2 is avaialble for around $27,500 with MS-DOS and Unix or MS-DOS and Pick: and the machine now comes with an 80Mb drive as standard. Currently the only way to get an Icon machine is from Icon themselves in the US headquarterd in Orem, Utah but it is currently evaluating potential distributors in Europe - initially looking at Sanyo's own agents. Icon has also recently received another order from Premier Source Computer in Irvine, California which the company thinks will generate retail sales of about $18m.

MICROSOFT REALIZES C DEMAND

Microsoft has released a new version of its C compiler for MS-DOS-based micros. Microsoft claims that this version 4.0 executes twice as fast as the Lattice C compiler Version 3.0. The new version includes: a development toolkit incorporating CodeView - a window based debugger; the Unix System V C Library and supports the propsed ANSI standard. The previous version of Microsoft's C compiler offered three memory models: small, medium and large and Microsoft has now added huge and compact. The huge model allows allows arrays greater than 64K and has 1Mbyte avialble for code and data. The compact model will handle up to 64K of code and 1Mbyte of data. CodeView, the window-based debugger allows programmers to look at both the source and object code whilst the program is being executed. Debugging can be done in source code as well as object code using a MAKE utility for recompilation and to relink program modules automatically once source code changes have been made. Microsoft say that its C compiler is very important to them as C is rapidly becoming the most popular language for applications development. Microsoft also says that it uses the compiler in-house as do Lotus and Ashton-Tate. The compiler costs £345 and if you bought the previous version of the compiler before July 1st 1986 you can have a free upgrade.

Issue Number 91

UNIGRAM/X

Compaq Computer Corp is tipped to win the race to be first to market with an 80386-based IBM Personalike with a September 9 launch expected.

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More blood in the High Street and the people of Croydon in Surrey are well nigh bereft of computer stores - by last Friday both the **First Computer** and the **Entrŕe Computer Centers** stores were boarded up, the Entrŕe franchise holder having called in a receiver during the week after telling us Monday that talk of a receiver was "new to me... ".

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AT&T Co has signed worldwide non-exclusive marketing rights for **Oracle Corp's** relational database manager and its language tools on the 3B, PC6300 and Unix PC computers.

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Perhaps because of the widespread availability of Unix workstations for development of technical applications, the C language is quickly becoming the most popular general purpose programming language with the artificial intelligentsia: **Carnegie Group** and **Inference Corp** have each developed C versions of their expert system development tools and **Aion, Radian** and **Software Architecture & Engineering** are all following suit; **IntelliCorp** does not plan a C version of its Lisp Knowledge Engineering Environment, but the the system does have hooks for procedures and routines written in C.

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Don't look for a dedicated artificial intelligence workstation from **IBM** - the thing exists already in the shape of the RT Personal Computer, and **Quintus** Prolog and **Lucid** Common Lisp are already supported on the RT, while **IntelliCorp's** Knowledge Engineering Environment and **Inference Corp's** Automated Reasoning Tool are either available for the RT or are in development.

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Control Data Corp has been awarded $25m US Navy contract for military computers.

Minigrams

A series of joint working groups are being formed by **Burroughs** and **Sperry** senior management to evaluate product overlaps and decide which products should be dropped following the merger.

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Burroughs Corp duly introduced its Ofisbridge program for the B25 line of Convergent Technologies-designed workstations at $2,300: the program, which also runs on the XE520 Megaframe-without-the-680X0s, enables users at the workstations to exchange text and data files with, and use all the facilities of, **IBM's** DisOSS mainframe office application; the PC Emulation facility for B26s and B28s includes an 80186 co-processor and costs $1,145; used with the BTOS Windows program, which costs from $250, the other two enable users to set up concurrent windows to PC-DOS, BTOS and host DisOSS applications - up to a very unwieldy maximum of 10.

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But sad to say, **Sperry** already seems to be suffering damage from the takeover: the company is one of a small handful of mainstream computer companies that have made a major commitment to artificial intelligence, and 1986 is the year when the technology has really started emerging from the labs and into the market, so that a big showing at last week's AAAI conference and exhibition in Philadelphia would seem essential for any company wanting to stake its claim for a place in the sun; according to **Computer Systems News,** Sperry did indeed have several new products set for unveiling and discussion at the event, but was forced to withdraw by a Burroughs edict that no new products should be announced until the task forces deciding on the shape of the combined Sperroughs product line had reported - an edict which didn't prevent Burroughs announcing several new products on the B25 line.

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Apollo Computer Inc has introduced Turbo versions of the DN570 and DN580 workstations using the 25MHz version of the 68020 to run graphics software up to 2.2 times faster than the original: Turbo DN570 starts at $43,900, the Turbo DN580 - $66,900, Turbo upgrades $12,500.

Convergent Technologies will reportedly have an N-Gen-derived line of workstations using the 32-bit Intel 80386 on the market by the autumn.

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Motorola has picked up the first of a new class of Master Value-Added Reseller for its new 68020-based System 8000 in the shape of **Responsive Computer Systems Inc** of Plano, Texas, and looks for a minimum $3m of business from the new agreement next year: shouldn't be too hard, because Responsive serves a coterie of 1,000 value-added resellers.

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Seven more European universities have joined the academic support programme announced last month by **Olivetti** (UX No 83), these include: the University of Munich; Catholic University of Brussels; Flemish University of Brussels; University of Padova; University of Helsinki; University of Bremen; and the University of Vienna.

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The European Unix User Group has now completed its selection of papers to be presented at the EUUG Fall'86 conference which will be held at the University of Manchester Institute of Science and Technology from 22nd - 25th September 1986 relating to the subject of Distributed Unix Systems: EUUG says that leading Unix personalities from most European countries will be presenting papers and in-depth tutorials will be given on advanced 4.3BSD and System V release 3.0 - costs for delegates to the conference will be £200 + VAT (EUUG members) and £300 + VAT (non-members) and the costs for the tutorials (EUUG members only) will be £100 + VAT - application forms are avaialble from the EUUG secretariat on 0763 73039.

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Correction: Apologies to **Redwood International, Metrologie SA** of Paris will of course be distributing Uniplex-II Plus not just Uniplex-II as we reported last week.

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MS Associates has found that its OGEN Basic to C translator sells like hot cakes at its current price of £345 - reduced in June from £950, initially for a period of three months - so it has decided to hold this promotional price.

1 SEP. 1986   *KBW*

UNIGRAM/X

The newsletter for UNIX systems users

Published in cooperation with the European UNIX ™ systems User Group

TEXAS EXPLORER: 320 MIPS SIGNAL CO-PROCESSOR, UNIX CPU

Texas Instruments is quietly building up what could soon begin to look like an unassailable lead in hardware for artificial intelligence applications, and where companies like Symbolics appear under threat from moves by software developers to convert their Lisp applications into C, Texas has swiftly covered that base and is rapidly extending the specialist capability of its Explorer computer into mainframe-class performance. At the low end, Texas has added a Unix co-processor for the Explorer, using a 16.7MHz 68020 with Unix System V to create the Explorer LX. The machine runs Lisp, C, Fortran and Basic, and with 4Mb main memory, two 182Mb disk drives and either an Ethernet interface or a tape cartridge drive, the Explorer LX costs $73,900; with 8Mb memory and a third disk drive it is $90,400. And for people who already have one of the company's 32-bit Explorer processors, adding the Unix co-processor is $18,500. Deliveries are set for December, and the company is also offering communications software for the Expolorer, with SNA costing $3,000 per processor or $15,000 per site, DECnet at $2,500 or $12,500 for a site licence. Much more significant is another co-processor for the Explorer, as yet unannounced, but unearthed by **Electronics** magazine. Called Odyssey, it is a digital signal processing board featuring four of the company's second generation TMS32020 Harvard Architecture signal processing microprocessors. The 32020 is internal 32-bit with a 16-bit bus, has a 200nS cycle, and performs a 256-point Fast Fourier Transform in 6.9 milliseconds, a 32-bit floating point multiplication in 7.8 microseconds. Three of the four processors on the board execute user applications software, and are fitted with 8K by 16-bits of static RAM program memory and 64K by 16 bits of data memory. The fourth processor, with 16K by 16 bits of program memory, operates as a two-port input-output processor. The four chips on the board can operate in parallel, and the Explorer can be fitted with up to 16 boards via the Explorer's expandable NuBus, at which point, says Texas, it is able to execute 320m instructions per second in Lisp, Forth or assembly language. The NuBus has the effect of making all memory in the system global, and each processor can treat the memory on another processor as an extension of its own. The Odyssey is designed to be programmed either in Forth or assembler, and the combination with the Explorer provides the most convincing solution yet to the problems of speech recognition and comprehension, as well as a variety of other image and pattern recognition and interpretation applications, with the Odyssey doing raw translation of the input into a machine-recognisable form, and the Explorer applying artificial intelligence techniques to interpret the data.

CORVUS EXTENDS IBM AT BIOS FOR MULTITASKING ON SERIES 386

Corvus Systems Inc has announced that ships of its Series 386 line have begun with volume set for September, and also that it was developing an extended BIOS for the 80386-based machines with Award Software Inc, Los Gatos, California; extensions to the IBM AT-compatible BIOS will include resident debug utility to allow software development on the machine itself; additional graphics support; input-output service in protected and virtual 8086 modes; and implementation of the defined but non-implemented multi-tasking and resource management functions of the 80286 AT BIOS, which will use the 80386 virtual mode features to support multitasking of 8086 operating systems - PC-DOS, Unix, CP/M. The Series 386 line, a high-performance AT-compatible workstation, plus 70Mb and 126Mb file servers with 60Mb tape streamers range from around $13,000 for the workstation, to $16,500 and $20,000 for the servers.

UNISHELL - EFFICIENT CODE EXECUTION WRITTEN IN UNIX

The C language is all very well, but there are so many mathematics and data processing functions included in the Unix command set that for many applications, C is not really necessary at all, and programmers can write elegant, easy-to-read "shell scripts" entirely in Unix commands. Problem is that they execute at a snail's pace, because they have to be interpreted line by line by the Unix command interpreter. Developers often write their programs first in Unix shell commands and then convert them manually into C. Now, reports **InformationWeek,** Unipress Software of Edison, New Jersey, has come up with the solution to the problem - at least for users of the AT&T Bourne shell, although not the Berkeley C shell. Its Unishell is a combined translator and compiler that converts programs written in the Unix shell commands into C code and then compiles them. Moreover the C source code produced by Unishell can be manually modified, and can also be merged with pre-existing C code. The paper reports that Unishell was actually written by a couple of people in Seacaucus, New Jersey, who call themselves Concentric Associates and sign larger companies to market their output. Unishell is $395 on low-end micros, $695 on workstations, $995 on low-end VAXes and $2,500 for supermicros. The Unishell source code for any size of machine is offered at $4,995.

HEWLETT-PACKARD MERGES HP3000, 1000 MANUFACTURING

The move to standardise on the new Spectrum RISC processor for all its computer lines has enabled Hewlett-Packard to combine manufacturing of the HP3000 business and HP1000 real-time scientific minis, both in Cupertino, in a new Computer Manufacturing unit. The HP9000 will remain in Fort Collins, Colorado.

WILL THE RT PC TAKE OVER THE WORLD?

Introducing a new architecture to the computer marketplace is never done casually. The cost and effort of transition from one architecture to another must be justified by substantial advantages. It is always tempting to apply advances in technology to improving the performance of existing architectures. Ultimately, however, refinement is subject to the law of diminishing returns. Continuing advancement requires fundamental changes.

Thus begins "IBM RT Personal Computer Technology", a 157-page collection of papers charting the development of IBM's Unix workstation from 1977 to its launch earlier this year. The 6150 - as the RT has been renamed by IBM's Poetry Department for Europe - uses a Reduced Instruction Set Computer (RISC) Architecture which is so flexible and open ended that it could eventually appear in almost any of IBM's product lines. It was developed from the IBM Research "801 Project" which, back in 1975, started the RISC bandwaggon rolling. The 801 was so sucessful that, when the Office Products Division wanted a high performance microprocessor, it tried to put the 801 minicomputer on a single VLSI chip. It did too good a job, even though it ended up with two chips - the ROMP microprocessor and a Memory Management Unit (MMU) - linked by a packet-switched 32-bit channel. The combination was so powerful (it is said to execute at 1.6 to 2.1 MIPS, depending on the instruction mix) other IBM divisions quickly found they had an urgent need for the chip set and staked a claim in its development.

In its present guise the ROMP is strangled by having all its i/o funnelled through a 16-bit AT-compatible bus which gives it instant access to a wide variety of peripherals but does nothing for its performance. The 6150 can run PC-compatible code and an optional PC AT card allows many existing programs to run concurrently with RT programs and to share RT memory, disk files and displays.

However, all the 16-bit standard PC i/o features are kept strictly separate from the 32-bit system components, linked by a single interface. So the 32-bit system could be plugged into a different motherboard (literally, it is on plug-in processor cards) to power a very different system. Also the coprocessors and memory are grossly underutilised. The MMU can address 16 megabytes of memory, but the RT only provides slots for 4 megabytes. And the packet-switched microprocessor channel linking the MMU and ROMP can handle several cooperating MMUs and several processors, although the current 6150 only has provision for one of each. Just as the separate 32-bit processor bus is currently only used for a single floating point accelerator. If all these possibilities were used a VERY powerful machine would emerge. (This is how Hewlett-Packard are able to use the same basic RISC architecture for their whole range from small workstation to massive superminicomputer with over 100 terminals).

The design was driven by the needs of the PL.8 advanced optimising compiler developed for the 801 - the instruction set is basically the compiler's intermediate code - existing VLSI technology, performance and cost. The ROMP has 16 32-bit-on-chip registers for both data and addresses and four instruction prefectch buffers. The MMU can also handle another four simultaneous requests for instructions and two for data, ensuring that the piplined ROMP never has to wait for data or instructions. This system was used because the 801 solution - to have two separate caches delivering a data word and an instruction each clock cycle - was too costly for a microprocessor.

The ROMP has only 118 instructions and usually manages to execte one every cycle. While one instruction is being executed the next is being decoded and the following instructions fetched from memory or buffer. As with other RISC designs, the ROMP instruction set performs all operations on data held in the general registers, the only memory operations allowed are LOAD and STORE. The compiler pipelines the LOAD operations by separating them from the instructions that will use the loaded data by as many cycles as possible. As all the instructions apart from memory references take one cycle, and these only take two, the compiler pipelining can usually ensure that one instruction is executed from every cycle.

Unlike other RISC machines (apart from the Fairchild Clipper Chip Set), the ROMP is partially microprogrammed. It uses ROM for controlling execution and hardwired logic for instruction prefetching memory data requests. However, as the hardwired logic executes in parallel with the instructions, and the ROM is loaded in advance with the data it is to act on, the microprogramming does not slow the processor down as it normally would. **Later we continue with: Is It Still Unix? - IBM's advanced Interactive Executive**

ARTIFICIAL INTELLIGENCE CORP's INTELLECT NOW ON VAX

A version of the Intellect natural language query system from Artificial Intelligence Corp is now out for the VAX with the DEC RdB relational database manager. Intellect is designed to enable novice computer users to query a database in plain English, and is claimed to be up at over 450 IBM sites worldwide. The new Intellect/RdB version has been completely rewritten in C for the VAX under VMS. The UK distributor, Intellect Software, has it running on a MicroVAX II at its Wembley, North London headquarters, and is offering it at introductory prices for 45 days. On top-end 8600 to 8800 CPUs, the introductory price is £25,600; on the 11/750 to 785, 8200 and 8300 the price is £15,200; and on the MicroVAX II it costs £5,200.

ICL, THORN EMI FINALISTS
FOR £10m POST OFFICE PILOT

ICL is back into the running for the £100m UK Post Office counter automation contract. The STC-owned company had appeared to rule itself out last year when it failed to complete the automation of a main and a sub post office and the task was completed by Burroughs, one of three other companies each handling a similar project at other pairs of post offices. But ICL has been shortlisted with Thorn EMI's Software Sciences Ltd for the £10m pilot project, to the exclusion of both Burroughs, bidding Fortronic electronic point-of-sale terminals, and NCR. The much-delayed contract for management of the pilot project is now due to be placed before the end of the year, with the 250 main and sub post offices in the Thames Valley involved in a scheme that is due to come on-line early in 1988. Software Sciences has based its tender around Tandem Computer's NonStop hardware and, according to the Post Office, ICL is bidding the Stratus fault-tolerant line with unspecified electronic point-of-sale terminals.

DATA GENERAL GIVES UP ON ITS DS/7700
WORKSTATION, PUSHES DS/7500...

After protracted problems with the windowing software and the 44Mbps inter-processor bus, Data General Corp has given up on its high-end DS/7700 workstation, announced last November and due for delivery in March, and will supplant it by offering a higher resolution display on the lower-end DS/7500 which was announced at the same time and the company had been offering 7500s as a temporary stop-gap to users who wanted the 7700. The 7700 had been designed to support two 1,280 by 1,024 pixel displays compared with one 1,024 by 800 display on the 7500. In order to get the product moving and to meet increased competition at the low end, Data General has made the 7500 much more attractive, cutting prices up to 44%. The minimum memory on the processor is doubled to 4Mb and the $1,650 Ethernet interface option is now bundled so that a 4Mb CPU with 70Mb disk, 19" 1,024 by 800 mono screen and Ethernet interface is cut by 43.3% to $15,900. When fitted with a 19" colour display of the same resolution, that configuration now costs $25,800, a cut of 30.4%. The company says that it is still evaluating the interprocessor bus.

...FINDS MV/20000 EXCEEDS
SPECIFICATION BY 16%

Data General Corp has found that it does not need to bring in new products in order to match the array of new hardware from DEC — it's new top-end MV/20000 Eclipse is better than the company said it was at announcement. Data General reports that users are finding that they are getting 6.4 MIPS out of the uniprocessor version, some 16% better than the company had promised, while the dual processor MV/20000 II is now rated at 12 MIPS, not 10.

IBM "HAS 26 DESIGNS FOR
DESK-TOP 4300"

A desk-top 4300 rated at around half a MIPS and capable of running the DPPX operating system from the 8100 under VM and targeted squarely at DEC's MicroVAX II is expected from IBM within the next six months. An insider has counted 26 alternative designs for the machine running at different locations within IBM, each based on one or other of three processor designs. One design – the most promising in the context of running 8100 as well as 370 code – is based on the reduced instruction set microprocessor in the RT Personal. The second is based on IBM's proprietary 32-bit 4300 microprocesor, described at conferences but not yet seen in a product. The third carries on the concept of the XT/ and AT/370, each of which uses a pair of Mototorola 68000s, one specially microcoded, and an Intel 8087 maths co-processor. The new version would use a specially microcoded version of the 32-bit 68020 microprocessor.

IBM ADOPTS ESDI INTERFACE
WITH NEW RT DISK

First deliveries are not due until next month, but IBM has replaced the 70Mb 3426 5.25" Winchester announced for the RT Personal Computer with a 6941, with the emerging ESDI Extended Storage Disk Interface; the 3426 had the earlier and more limited Seagate ST506 interface. The new drive is the same $3,995 plus $495 minimum annual maintenance as the one it replaces, but users will also need the 6341 ESDI controller, which handles up to two drives and costs $650. The drive is being made at IBM's Rochester, Minnesota plant, and the welcome adoption by IBM of an emerging industry standard is seen as an indication that it may want to offer the drive on the OEM market later.

HEWLETT-PACKARD ADDS MID-RANGE
16-BIT HP3000 MODEL

While it ramps up production of its Spectrum Precision Architecture models of its HP3000 business computer, and develop new low-end models using the 32-bit RISC processor, Hewlett-Packard Co continues to tinker with the old 16-bit models to ensure that it maximises the potential user base for the new machines. Latest move is a new 3000 Series 52, which is based on the same CPU as the 58, is rated at 0.5 MIPS and is pitched against the IBM System 38 Model 200 and the DEC MicroVAX II. The 52, which is rated at three times a 37, that is 50% better than a 42, comes with 4Mb, 6Mb or 8Mb of memory, up to 3.2Gb disk. It supports up to 92 terminals and costs $45,000 with 4Mb, two channels and MPE V operating software. With 4Mb CPU, console, 132Mb disk and 1,600 bpi tape drive it costs $67,925. An additional 2Mb memory is available for a price of $10,500 and 4Mb costs $18,000. The 3000 Series 52 is available on six weeks' delivery in the US.

SUN MICROSYSTEMS - COVERING ALL THE ANGLES

Scott McNealy, President and co-founder of Sun Microsystems, hates being sucessful because everyone is so sceptical. Despite the cynics Sun Microsystems thinks it will still be around once the competition has died out. It says that it has learnt from the mistakes of other companies, such as Convergent Technologies which it is often likened to. The company reckons that it has sufficient diversification in its product line and is not committed to any one OEM - no customer accounts for more than 6% of Sun's business. It now numbers over 100 OEMs amongst its customers including the recent agreement with ICL. DEC is the company that Sun hold in most regard and has, to a certain extent, modelled themselves upon but says that when the confrontation comes Sun stands a good chance of coming out on top despite the size of the DEC organisation. The adavantage that Sun has is, of course, Unix: customers are now loath to lock themselves into an operating system available from one company and available only on that company's hardware. Sun says that the other major weapon in its armoury is its price/performance ratio but that has to compete with DEC's quantiy of sales and support services. Although at the company's current growth rate - 30% per quarter - another few years should see them up there equalling DEC's numbers, but this is obviously a very dangerous situation, controlling growth of this magnitude cannot be an easy task but the company says that it will be careful not to bite off too much and choke itself.
Sun is also in the favoured position of having AT&T and Motorola smile upon its business. AT&T and Sun went into cohoots to produce the converged System V and 4.2BSD operating system which Sun maintains is more than 4.2 with System V extensions or vice versa but unfortunately we at Unigram.X are still unconvinced. AT&T may not be quite so happy with Sun concerning NFS and RFS but Sun is quite unconcerned by this as about 80 manufacturers have already signed up for NFS which includes most of the big boys with the noteable exception of Apollo which has opted for RFS. Although the systems are supposed to be complementary Sun is of the opinion that company's will go for one or the other and think that NFS will prove most popular because it will run on machines other than Unix-based ones.

Sun says that its engineers and Motorola's work very closely together in processor development. Motorola is not moving fast enough for Sun but Sun says that Motorola has the most advanced products of its kind on the market but Sun is also looking at alternatives in RISC amd parallel processing technologies and has not ruled out producing a processor of its own.
Although Sun says it is more than a workstation manufacturer with the introduction of its new 4 MIPS 3/200 machine and NFS it is still quite happy to be known as the workstation company. It is also hoping for a large slice of the AI workstation market. Scott McNealy, President of Sun, thinks that the general purpose workstation will eventually win over the dedicated AI machines as customers require only a small portion of AI on their systems combined with other facilities. McNealy also does not mind whether C or Common Lisp prove more popular for AI development as he thinks that Sun has "the world's best C development environment and the best price/performance Common Lisp."
So will this $307m company survive to slog it out with the big boys? How long will it take them to overtake the $7bn DEC? Then how long to overtake IBM...?

ICL, OLIVETTI ONLY EUROPEANS IN US STANDARDS BUREAU OSINET TRIAL

Like many IBM announcements, the one last week about the company's part-icipation in the US National Bureau of Standards test of Open Systems Interconnection protocols between different types of computer concealed a lot more than it revealed. It turns out that while IBM is indeed seen as playing a leading role in the move towards the Open Systems standards in the US, the experiment involves over 20 other manu-facturers, including ICL and Olivetti as the only European participants, and DEC, Honey-well, Sperry and AT&T among the US contingent. The X25 networks to be used in the US will be AT&T's Acunet and Wang Laboratories' Wangpac. The Series 1 mini loaned by IBM for the experiment - to be used for storing data on all the types of computer connected on the network - will be interfaced via an IEEE 802.4 broadband token bus from Concord Data Systems. The network will have 25 nodes, and is being des-igned to serve as a test bed enabling companies to check their implemen-tations of all seven layers of the Open Systems Interconnection standard. Only five of the seven are cast in concrete, but even here, imple-mentations often prove less than fully compatible. It is hoped that es-tablishment of the network, due to go live on January 1, although some testing has already started, will accelerate the work to reach firm def-initions for layers six and seven. Where there are different interpret-ations of the standards, those used in demonstrations of Manufacturing Automation Protocol and the TOP office protocol will be used. The Nati-onal Bureau of Standards is quick to sing IBM's praises in the move to-wards common standards: the company was an early member of the Corporat-ion for Open Systems and Dr John Haefner, chief of systems and networking architecture at the National Bureau of Standards declares roundly, "IBM has done more than most to support OSI behind the scenes in the US for the past three years. It lends us people and it has given us hard-ware; I wish every company would behave like that".

CIFER KEEPS FOOT IN UNIX DOOR
WITH T3 WINDOWING TERMINAL

Cifer has developed a windowing terminal that emulates four VDUs concurrently. The Cifer T3 does not rely on a software package to provide windowing facilities - the windows are managed within the VDU and controlled by function keys. The terminal operates via one interface line requiring one port at the host end. A special driver, however, must be written for the terminal as it must understand that it is effectively serving four VDUs. Cifer says that using a Unix system as a host the driver can be written at shell level and is a relatively easy task. Cifer is currently involved in writing a driver that is applicable to every system but that will not be ready for a number of months. The Cifer T3 is available now and around 100 terminals have been sold at a list price of £760. The majority of sales have gone to research departments but Cifer wants the terminal to be accepted as a management tool. The T3 has also found some acceptance amongst data processing managers who need to constantly monitor all the different activities on the system but Cifer will be actively marketing the terminal as an ordinary management tool saying that the company itself is not big enough to do any pioneering. Cifer sees the T3 as an ideal opportunity to stay in the Unix market but it is not seeking to increase its share in the Unix industry but wants to hang onto the bit it has got.

START-UP SPECIALIX WINS RIGHTS TO NINE-
USER 80186 CONTROLLER FOR PERSONAL AT

One of the irritations of the IBM Personal AT is that while the 80286 processor should be able to support several more users that the three allowed by IBM, it is not easy to liberate the power. Now a start-up high tech marketing company, Specialix Systems, has won exclusive rights to an intelligent controller that turns the AT into a nine-user system for just £1,195 plus the cost of eight dumb terminals. The controller, the AT8, was designed and developed by Chase Research Ltd of Mortlake, Surrey. It is built around an 8MHz Intel 80186 processor, has 32Kb of RAM on-board and can support both Xenix 5 and Concurrent DOS. According to Specialix's managing director Les Pilkington, the AT8 causes little or no degradation of the AT's performance. He says that even with nine users running under Xenix, the system is less than 3% slower than a normal single user AT although with two AT8s and 17 users under Xenix, he admits, the AT grinds to a halt. Specialix, based in London's Covent Garden, was started with the help of £100,000 from advertising and marketing company Media Plus International in May. Since then, Specialix has signed Northamber Plc and Lexus Europe as distributors and is currently in negotiations with "three major manufacturers" with a view to having the AT8 made under licence in the US. Pilkington has also had talks with distributors in France, West Germany, Scandanavia, Switzerland, and Australia and New Zealand. He is looking for 10,000 to 15,000 AT8 sales this year - he expects 20% to come from the UK, and looks for further products to market. Chase is now working on "projects based around the Token Ring".

CONVEX POSTPONES INITIAL PUBLIC
OFFERING TO NEXT MONTH OR OCTOBER

The name of Ben Rosen and L J Sevin's Sevin-Rosen Management prominent on a new issue prospectus is always taken as a sign of exceptional quality, but even before all the bad news from Floating Point Systems cast a pall over the minisupercomputer market, the initial public offering from Convex Computer Corp, the Richardson, Texas company that features the designer of Data General's original Eclipse MV machine among its luminaries, was being treated with considerable caution by investors. Sentiment was not helped by the influential **Heard on the Street** column in the **Wall Street Journal** of July 29, which questioned loudly whether at $10 to $12 a share, the stock was not overpriced. "Relative to its revenues and earnings" the price "is outrageous", an anonymous Boston mutual fund (unit trust) manager was quoted as saying. After all, the company had sales of only $7.5m in the quarter to March, and the $10 to $12 price would value the company at $174m to $209m, six to eight times its annual sales of $27m for the year to June 30, and put Convex on an astronomical price-earnings multiple - although it was profitable in the three quarters leading up to June 30, it still made a loss of $127,000 for the fiscal year. The registration statement for the issue was filed in late June, but the criticisms have had only modest effect: the company and the lead underwriter, Goldman Sachs & Co, have decided to postpone the issue until next month or possibly October because of the dull - though fast-recovering - state of the market, but they have not been persuaded to move on the price. Unlike UK new issues, where a firm price is set about seven days before the issue closes, US prospectuses go out with an indicated price range, brokers contact their favoured clients to find out if they are interested and in what price range, the consensus filters back to the lead underwriters, and the issue is finally priced at the last moment, immediately before all the shares are sold.

Adamant

Convex is adamant that it wants something in the $10 to $12 range for the 4.1m shares it is putting out, and hopes to bolster confidence with a statement that it looks for its fourth successive profitable quarter for its current period. In the US, venture start-ups frequently go public with the slimmest of profit records, often as little as one profitable quarter (the most recent) in their short histories. Not a few never manage to pull the trick again either. There are several uncomfortable features about the Convex issue that were highlighted by the Journal piece, not least that there was a fierce little tussle, won by Goldman Sachs, for the right to float the company, and that the investment banker now needs to deliver on behalf of Convex. Another is the amount of venture capital Convex has got through - over $32m in its four-year life. The backers of the venture capital funds are pressing the management to put a value on their investments by taking them public - a value that justifies the amount of cash that has been sunk into them. Convex, which started life as Pasec, and boasts L J Sevin as chairman, with the high priest of high-tech flackery Regis McKenna on its board, builds minisupercomputers that run under a variant of Unix - a market that begins to look decidedly crowded. That price still may not stick.

UNIGRAM/X

AT&T has the $960m processor contract for the US **National Security Agency** wrapped up with models from its 3B family, but doubt is being cast on whether the workstation contract will proceed in its present form: **Electronic News** reports that **DEC, IBM, AT&T, Harris** and **Hewlett-Packard** all decided against putting in a bid for the $200m to $400m contract for up to 4,000 stations implementing the IEEE floating point standard, running Unix System V and offering links to PC-DOS, leaving comparative light-weights **Sun Microsystems** backed by **Massachusetts Computer** and **Burroughs**'s Systems Development Corp; **Iverson Technology Corp** bidding the **IBM** Personal RT; and **Apollo Computer Inc** with backing from **AT&T, Intercon** and **Bendix-Eaton** to slug it out; speculation is that the heavies believe the spec is too demanding and want it redrafted.

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Not only was **Plexus Computers**, with its UK base in Swindon, Wiltshire, the first Unix disciple to offer laser disks (on show in June at the Unix User show), it is also offering a "mirror disk" facility for the security-conscious, available on its larger systems costing £250,00 and upward: the Mirrored Disk feature is a tandem arrangement which protects against drive and controller failure so that when trouble strikes, users can keep going on the unaffected disk without interruption; the feature will be in Unix System 5.2, Release 1.4.

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Wall Street has latched onto a surge of orders at **Hewlett-Packard Co** – up 25% to $1,850m in the company's fiscal third quarter, 10% to $5,290m in the nine months – as a hopeful sign that the computer market is picking up, but it looks very like clutching at straws: Hewlett-Packard is another very special case in that there was enormous pent-up demand for more power from HP3000 users, and there shouldn't be any surprise that now the Spectrum RISC machine is available, they are ordering in large numbers.

Minigrams

Intel reckons it has about 150 companies evaluating the 32-bit 80386 for use in future products – and that number sounds conservative; meantime **Phoenix Technologies** now has 44 members for its Extended Technology Committee that is agreeing to adhere to a single standard for a 32-bit wide amplification of the Personal AT system bus.

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And **Intel Corp** has come out with a terminal controller for Multibus I computers built around an 8MHz 80186 with 128Kb memory: the iSBC 548 concentrates from one to eight asynchronous channels at 9,600 bps upwards, includes firmware for both Intel's RMX real-time operating system and for Xenix, for $1,200.

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Rather more pricey is the **Intel** iSBC 188/56, a stand-alone communications processor built around the little-used 80188: it is usable as eight synchronous or asynchronous channels, uses an 8MHz 80188 with 256Kb RAM and is $3,195.

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Cray Research Inc is looking to ship eight Cray 2 scientific supercomputers next year, up from four scheduled for 1986 delivery, and one of them is going to France: the Groupement pour un Centre de Calcul Vectoriel pour la Recherche consortium of educational establishments and state research organisations will pay $18.9m for a Cray 2 for installation in the first quarter of 1987; Cray also has an $8.9m order from the Max Planck Gesellschaft Institute of Plasma Physics at Garching, Munich for an $8.9m X-MP/24 for delivery next year.

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No surprise, but **AT&T** has confirmed that the merging of its Information Systems and Communications units to create four new divisions will lead to subtantial job losses among the 210,000 employees; AT&T also offered early retirement terms to 4,200 service engineers if they agree to go by October 1.

A new piece of third party software for the **Stratus Computer** fault-tolerant line is a multi-standard viewdata program called SliqTel from **Novus Systems Technology** that includes simultaneous support for up to 99 different language types: an integral Transaction Mapper converts simple viewdata commands for novices into complex mainframe commands; no prices were given.

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Meiko Ltd, the Bristol company formed by **Inmos** alumni to manufacture machines around the Transputer, raised some eyebrows at the **Siggraph 86** conference in Dallas last week when it showed off a 311-Transputer configuration of its Computing Surface, claiming that it was capable of executing up to 3,000 MIPS: the company demonstrated the system with a MicroVAX II as file server, doing ray tracing and achieving a rate of 8.5m ray intersections in 47 seconds.

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Texas Instruments has licensed **Lisp Machine Inc**, Los Angeles, to remarket the Explorer artificial intelligence computer with Lisp's Picon and IKE structured natural language knowledge management software.

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Informix Inc: all those feisty little relational database companies are rushing to market now, and the latest is Informix, which has filed to issue 1.37m shares through Hambrecht & Quist and Smith Barney Harris Upham as joint lead underwriters.

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Convergent Technologies has completed the previously announced acquisition of **Display Data Corp** for shares worth about $50m: Display Data will represent about 16.5% of Convergent's equity.

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Correction: if you bought your C compiler **after** July 1st from **Microsoft** you can have a free upgrade otherwise it costs £120.

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Don't phone us next week if you think UnigramX hasn't arrived – look again – as of next week **Unig-ramX** will be sporting a new look.

unigram·X

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LOYAL SERVER: COMPAQ 80386 BOX WILL RUN UNIX 5.3 WITH MULTIPLE PC-DOS TASKS

The biggest problem facing companies wanting to beat IBM to market with an 80386 machine is how to liberate the performance locked up in the chip without surrendering compatibility with the IBM standard. We hear that the solution chosen by Compaq Computer Corp for its offering, set for launch in October, is to fit the machine, using a BIOS from Phoenix Technologies Ltd, with one of the versions of Unix System V.386 that runs multiple PC-DOS partitions as tasks. Companies known to be planning such versions of Unix System V.3 are Interactive Systems Corp in partnership with Phoenix itself, and Locus Computing Inc, which supplies its similar but less comprehensive Multisystem Merge for the 80286 to AT&T. Compaq is expected initially to offer support for just four users, but the machine is being oriented more as a networked Unix file server than as a stand-alone machine. We also hear that the same implementation of Unix V.386 has been sold to Apollo Computer Inc, which has hitherto majored on the Motorola 68000 family, and that Sun Microsystems is evaluating it.

MIDLAND BANK LISTENS TO THE UNIX TREND

Midland Bank's Sheffield headquarters is on the verge of becoming one of the biggest Unix users in the UK. The bank is spending "between £5 and $6 million" on a massive project to manage and control its telecommunication network more efficiently. It is in the process of implementing two linked Unix systems which will handle the traffic of 14 separate exchanges. The exchanges will be linked via the telecommunications product Orbitel from Luton-based Systems Reliability. The systems do all the change management between exchanges, monitoring data, and voice transmission. They will also manage the directory support, dealing with 30 directories, any of which can be instantly reconfigured without losing track of people and their telephone numbers. Systems Reliability is the prime contractor in what is effectively a huge turnkey project. It won the Midland business on the grounds of functionality and flexibility in the particular hardware/software solution proposed. The chosen hardware is British-built IMP, based on the 68020 Motorola chip. The relational database which will allow online enquiry and changes to telephone data is the top-end systems favourite Informix. Midland's staff say they would not have been able to contemplate such a complex system without Unix, one of the big attractions being the ability to bolt on new additions to the 32-bit IMP kit. The system will manage call logging and directory services, keeping track of as many as 30,000 people, who will be able to keep the same extension number whenever they are physically relocated. Eventually it will provide a huge range of so-called "commander facilities", including voice messaging. It will also provide and report on vital management information. According to the bank it is not just a matter of the tell-tale stuff, more a matter of identifying whether, where and how the network is under-utilised. The project is due to go live in November of this year. Orbitel, the telecommunications product from Systems Reliability which forms the heart of the project, is about to be relaunched under Unix in September. The version used is the 32-bit implementation Orbitel-S.

ATARI "READY WITH 68020 CO-PROCESSOR" FOR ST LINE

Jack Tramiel's Atari Corp is reportedly planning to take its ST line of 68000-based personal computers into the scientific and engineering workstation market with launch this autumn of a plug-in 32-bit 68020 board with maths co-processor, running Unix System V or a variant. The company is also expected to give the ST IBM Personalike capability with a 512Kb 8088 co-processor board expected to come in at $300.

AT&T PREPARES NEW TOP-END 3B SUPERMICRO

AT&T Information Systems' 3B computer line still lacks a convincing top end, the six-year-old 3B20 which is built of bit-slice microprocessors being widely regarded as a very over-priced and creaking antique. Now the company's development effort, code-named Apache, has resurfaced. The machine is expected to be an upwards development of the 3B15, which was announced one year ago. The 3B15 was not really a new machine, being effectively a re-engineering of the 3B5, using a 14MHz version of the newer WE32100 32-bit microprocessor and the WE32016 mathematics co-processor. Since the next generation of the WE32000 – integrating more features with the CPU – is not expected to be ready for some time, the new machine is likely to use the 32100 – perhaps with a faster clock, and is likely to be an attached or dual processor, capable of running AT&T's fault-tolerant implementation of Unix that runs on the 3B20D. The machine is tipped to slot between the 3B15 and 3B20.

TERMINAL DISPLAY SYSTEMS HAS NEW CHARLES RIVER LINE

The new 68000 and 68020-based Universe 200, 400 and 600 UN/System V Unixalike machines from Charles River Data Systems are now available in the UK from Terminal Display Systems Ltd of Blackburn, Lancashire. The Universe 200 is a six-slot VME backplane machine using the 68000, with 1Mb memory, 20Mb Winchester, supporting up to 32 users, and is £6,300. The 400 has either 12.5MHz 68000 or 16.7MHz 68020 and costs from £15,000. The 600 has the same processor options and supports up to 96 users. It takes up to 16Mb memory 3.2Gb disk and starts at £30,000. All support Charles River's UniverseNet, which implements the Manufacturing Automation and Technical Office Protocols, and supports IBM SNA/3270.

Back in 1972, the US motor industry was riding high, and all the shiny late-model cars were being prepared for 1973, each one bigger, brighter, and above all more powerful than its predecessor. Well, why not? That was what the American motorist wanted. Power, perform-ance, ride and let the fuel con-sumption go hang - after all the stuff only cost about 36 cents a gallon (devalued American gallon, that is). Then came the rise and rise of the Organisation of Petro-leum Exporting Countries, and over-night the price of oil soared to undreamed of heights, and suddenly all those late model cars became late in the terminal sense. Gener-al Motors, Ford turned in huge losses, Chrysler had to be bailed out by the US government, and all anyone wanted was nippy little Volkswagens and Fiats that may have needed a can opener to get out of but at least one could afford to say "fill her up" rather than "g-g-give me ten bucksworth of gas bud-dy" and pray it would be enough to get home on. A year or so later, a few perceptive computer journal-ists with a sense of history and a frustration at the fact that fol-lowing the computer industry was like watching a race where everyone already knew who had won and the only interest was in who would come second, started musing on what would be the computer industry equivalent to the oil price hike.

Totally wrong

What might come along that would change all the rules so dramatical-ly that, almost overnight, every-thing that IBM had been doing right would suddenly be turned in on itself and become totally wrong? No clear answers emerged at the time, but the answer is beginning to look pretty clear now, and iron-ically, it is of IBM's own creati-on, nothing other than the innocent little Personal Computer. Strictly speaking, it is not the Personal Computer as is, but the 80386 chip that has to power the next major series of models in the line. And the devastating problem created by the 80386 is that the thing is so darn powerful. The 32-bit chip is rated at a raw processing power of 3.4 MIPS. Suppose we scale that down to just 1 MIPS to take account of the additional functionality built into a mainframe. That still means that a Personal Computer with an 80386 in it gives you a 370/158 or a 3031 on your desktop. There aren't too many people in the IBM mainframe world who don't remember looking on one of those machines with something approaching awe.

THE 80386 TIME BOMB

THAT IS TICKING AWAY UNDER

IBM's PROFITABILITY

But how much can you charge for an 80386 machine? People guess that they will soon settle down into the $6,000 to $8,000 price range. But that implies at least some disk capacity. Take away everything except the memory and the price has to come down to no more than $3,500. Yet it is just the proces-sor and memory that costs you ar-ound $2m when you buy a mainframe. So that even if everything is dras-tically scaled down to take account of the difference in functionality between a mainframe and a desk-top machine, that still means that you will be able to buy the raw per-formance of a $2m mainframe for about $350,000. There is no ques-tion in the next five years of any major user distributing scores of 80386-based Personals throughout the company and closing the data processing department altogether.

Disaster for IBM

But nothing as drastic as that need happen for the 80386 to turn out to be a disaster for IBM on the scale of the oil price hike to General Motors. Because once the addition-al power of the 80386 starts to be harnessed seriously, the load on the data processing department will imperceptively start to fall. Those who have studied the subject for any length of time will remain sceptical, but with the advent of the specialist relational database companies, working distributed database really does show signs of being just around the corner, and a gradual networking of powerful per-sonal computers to database servers typically running Unix threatens to knock a nasty hole in IBM's Infor-mation Centre business. Initially it may well be no more than a re-quirement for only 10 more 3380E disk drives in place of the 20 that had been budgeted for, the money saved going to improve the quality of the work done in the department by getting more staff in to relieve the maintenence and applications backlog. And then, a year or so later, the applications backlog is beginning to ease anyway because the people who were pressing for vital new applications have dropped their requirement, having found out how to solve their problem another way on their Personal Computers. And so next year, the DP department decides that it can get by on the 3090s it has got already, last an-other 12 months without adding more

MIPS. And suddenly, IBM is in deep trouble, because the 80386 has found out its achilles heel. Those top-end mainframes and the disk drives that keep them fed and wat-ered make up only 50% or so of IBM's business. But they make up something nearer 90% of its prof-its. Take away IBM's top end and the company is right down there floundering among the Burroughs and the Honeywells, and DEC is top dog looking down and laughing. And you don't have to slice off IBM's top end business to leave the company floundering: simply reduce its vol-ume there by between 5% and 10% and IBM starts to look like Internati-onal Harvester, which became so embarrassed at the mess in which it found itself that it had to change its name. Is there anything IBM can do to ward off the threat? Its only hope is to neutralise the pow-er of the 80386 by diverting that vast majority of it into executing non-productive software that makes the machine much, much easier and more satisfying to use. And the hard part is going to be coming up with functions that everyone will want. Because if IBM doesn't get that right, the legion of clonemak-ers led by the likes of Compaq Computer will deliver all the raw processing power of the 80386 to the user, giving him much more of what he currently wants, the ability to run more third party software written for the IBM Per-sonal faster and more productively.

Precious wellspring

The scale of the task facing IBM is underlined by the fact that there is not a single highly regarded and widely used Personal Computer pro-gram that is IBM's own. Although IBM will be far from the first company to introduce an 80386 mach-ine, it is in the way of things that the market will be compara-tively subdued until IBM announces its own product. But it is so crucial to the company's future that it gets the 80386 Personal exactly right that the launch is likely to be put off over and over again, and it could be 15 months or more before IBM finally decides it can't afford to wait any longer and must put out whatever it has got. And the biggest irony is that all the noises coming out of IBM sug-gest that the company is devoting the bulk of its development effort on the 80386 machine to dreaming up traps to trip up the clonemakers, comparatively little to finding convincing and irresistible ways of neutralising the power of the microprocessor to protect the prec-ious wellspring of its own profits.

GLOCKENSPIEL C++ TRANSLATOR LAUNCHED FOR PC AND VMS

September 8th should see the arrival of a C++ to C translator aimed at DEC and Personal Copmputer users, from Dublin firm Glockenspiel. The idea of Glockenspiel's designer C++ translator (the initial lower case letter is is deliberate, as in the classiest designer clothes) is that it will enable users to keep their standard C code in tow, alongside all the shining advantages af the much vaunted C++. these include object-oriented programming, along the same lines as the original Smalltalk user-friendly windowing environment, much copied (by Apple and others) since the guys from Sun Microsystems ran away with the idea. C++ doesn't include icons but does provide hooks for such ingenious user interfaces. Author John Carolan, managing director of Glockespiel and the prime mover behind designer C++, describes the language as a "natural evolution from C" which provides the programmer with sopme elegant functions, as well as cleaning up some of C's less endearing features. The advantage of the translator is that users will be able to work with all their familiar C editors, debuggers, and so on without a major upgrade. In effect Carolan has done the same job with C++ as Unix implementors traditionally did with Unix before AT&T took such a paternal interest in the system; cleaned it up, got rid of the bugs, and put some extra embellishments. The designer C++ has been developed to keep entirely compatible with AT&T's own C++. Carolan was fired with enthusiasm for C++ by a Danish colleague, and managed to get the first copy out of Unix Europe last year. he is now ready with a designer C++ version for PCs and VMS users. Other plans include Amdahl, implementations on "20 or 30" various Unix boxes, and, due very soon, an Ultrix/Vax version. Mark Potts' (Rair) distribution conmpany Lifeboat Associates (closed in the UK but going strong elsewhere) is handling the PC version for Glockenspiel in Japan and the US; the price is to be $595. The price on large machines is not yet fixed but Unigram guesses around £1500.

SUCCESS BREEDS VIOLENCE

MS Associates, that small but highly successful firm in Bourne End, Bucks which specialises in translating Basic applications into C, is in the news yet again. This time the publicity (on the front page of Computer Weekly) features not its CGEN products, but unpleasant threats of violence. MS Associates Managing director Keith Maskell has invested in an ex-SAS bodyguard following threats to his personal safety; "I'm not over-reacting, or seeking publicity – it isn't something we wanted generally known" he said. The CW reporter couldn't ignore the presence of a lurking bodyguard when following up a feature story, however, and MS Associates (which has put a few noses out of joint with its flair for publicity) appeared on the front page. The story behind the story is murky, and Maskell will not be drawn, since the police are involved. Industrial espionage looks likely, or perhaps there is a madman around that can't bear to see Basic die.

NO UNIX MARKET FOR NORSK, BUT BRINGS IN SAMSON THE VAXKILLER

One of Norsk Data's strengths is its CAD/CAM offerings but the company says that these will stay under the Sintran III operating system rather than be ported to run under Unix although Unix will continue to be available to run side by side with Sintran. Norsk Data is working on "interchanging the two environments" but Gahnstrom does not see Unix as a major offering except in the Swedish defence market. He agrees that the parallel processing offerings from supermicro makers like Masscomp will have some impact on Norsk's defence simulation business. However, a new product offering from the Matra collaboration will be out soon. The company of Oslo, Norway is now well down the track with a new top-end machine, code-named Samson, to take over from the highly successful ND570, and has the machine pencilled in for launch before the end of the year. The Samson is being designed to deliver between 10 and 15 MIPS according to configuration, so that it should top the performance of the dual processor DEC VAX 8800. The new machine, retaining compatibility with the company's highly-regarded Sintran III operating system, will be built out of CMOS gate arrays being manufactured by LSI Logic. In response to speculation that it is looking for an acquisition to take it into the US market, Norsk Data comments that several of the traditional US minimakers are beginning to run out of steam – and the resources to keep their products at the leading edge of technology. Its preferred course would be to wait until one of them runs into real trouble and then to propose an arrangement whereby Norsk Data would take responsibility for its European customer base and provide a product line for the indigent company to market in the US.

Sparkling Figures

Despite a very sluggish home market, the minimaker has lived up to its reputation, producing another impressive set of interim figures, with pre-tax profits up 51% at the equivalent of £15.2m on turnover up 40% at £102m. The company does not expect such growth to continue indefinitely; president and chief executive officer Rolf Skår says that as it grows Norsk Data will look to expand its business at between 25% and 30% per annum as opposed to the overall 35% to 40% it has enjoyed recently. The UK and France, where Norsk Data has a joint venture with Matra Datasysteme, both produced doubled revenue and the order books are also dramatically ahead of last year. West Germany is 50% ahead of last year and, by the end of the year should be "somewhat better than that". As a result, the Norwegian operation will this year account for less than 50% of the business for the first time. Norsk Data is concentrating on market share, rather than profit, in the UK and Scandinavia to build for the future. The technology transfer agreement with the Electronics Corporation of India Ltd, which is estimated to be worth £3.3m, has not yet contributed to Norsk Data's coffers but Skar and chairman Terje Mikalsen are expecting big things from the deal in a market where IBM is not present. On the downside, the US has been flat. Mikalsen is looking for a marketing partner there and, although he won't reveal who he has talked to already, he says that Prime Computers and Masscomp are definitely not on the list. Norsk Data's impressive figures can't hide the impact that Digital Equipment Corp is having on the mini market so the company's next product is critical.

HONEYWELL SIGNALS THAT IT MAY BE FOR SALE - BUT ONLY ONE PARTNER SEEMS TO FIT

Papers filed by Burroughs with the US Securities & Exchange Commission in connection with its acquisition of Sperry confirm that Sperry and Honeywell got quite close to tying the knot as Sperry's chairman Gerald Probst cast frantically around in a desperate effort to find an alternative to selling out to Burroughs. And the agreement that was nearly sealed would have seen Sperry acquiring Honeywell rather than the other way round. So where should one look for a partner for Honeywell? The company's ties with NEC Corp of Japan and Bull of France are so important that no partner likely to put the nose of either out of joint will be acceptable - and neither would seriously entertain the idea of acquiring Honeywell: its defence interests - particularly in VHSIC circuitry - are sufficiently important that the company is a lot less attractive without them, so if it is to find a life partner, it must be an American. Although the irrepressible Michael Blumenthal's unbounded optimism about and enthusiasm for his acquisition of Sperry is not widely shared, the gravitas of a $10,000m-a-year competitor has to give all the computer companies that now find themselves only half the size of the combined Sperroughs cause for anxiety and a nagging feeling that they need to make acquisitions or merge to come closer in size to the new industry number two. A Honeywell acquisition of Control Data has to be ruled out straight away: CDC is still a substantial player in supercomputers and Honeywell has just agreed to market NEC's alternatives in the US; CDC's Cyber 180s also compete directly with Honeywell's top-end GCOS 8 mainframes from NEC and its own plant in Phoenix. Anyway, Honeywell is cast in the role of acquiree, and CDC is in no shape to acquire anything yet. DEC is doing much too well on its own to want to make a major acquisition - that has never been DEC's style anyway and will not be as long as Ken Olson sticks around. The most obvious computer candidate is NCR Corp. NCR has been doing well enough on its own, but is now dwarfed by Sperroughs and has reason to feel threatened. Sperry was in fact the ideal acquisition candidate for NCR, but the Datoner passed up the opportunity, and perhaps has real reason now to look at both the Minneapolis computer companies again. Control Data is a fairly good fit with NCR - there is little product clash and the companies have been partners on many ventures in the past. But although the worst is over at CDC and the potential for recovery is yet to be fully reflected in the share price, there is little synergy in such a combination. Honeywell, however, represents a very reasonable fit with no serious product clashes. In particular. the withering links with Bull mean that the

clash between NCR's new fault-tolerant 9800 and the Bull DPS 7 is less serious than it would have been had the latter been Honeywell's own product. And the major emphasis on factory automation and control systems at Honeywell represents the possibility of significant opportunities for NCR, particularly in that among its broad portfolio of applications-specific terminals is a well-established line of factory data collection terminals. The fault-tolerant capability of the new 9800 would be a significant plus for Honeywell in the factory automation market, and the two companies are by no means unknown to each other - Honeywell buys personal computers OEM from NCR, has been using the company's NCR 32 chip set in both the US and Italy, and has several agreements with NCR on semiconductors. Although comparatively strong in Japan, NCR has no important links with any Japanese manufacturer, so that an alliance with Honeywell is not likely to disrupt the latter's ties with NEC. Honeywell's DPS 6 minicomputers are increasingly being treated by the company as a resource for its manufacturing, controls and factory automation businesses, while NCR's rampant Tower Unix line is pitched firmly at the commercial market and so there is not a serious conflict there and continuation of both product lines could be fully justified for the medium term. Both companies have a healthy commitment to the Open Systems Interconnection standards and both have full implementations of IBM's SNA; abandonment of its own communications processors for those made by NCR Comten in the medium term would not be a terrible wrench for Honeywell, which still has sufficiently large requirement for the DPS 6 minis that it happily manufactures them in both Billerica and Newhouse, despite the fact that they are also manufactured by Bull in France. So that while NCR-Honeywell is not a marriage made in heaven, it offers the basis of a sound working relationship. The other obvious partner for Honeywell is of course the company that gave birth to its current mainframe line and which held a minority stake in its computer business for about a decade - none other than General Electric. A review of the portfolio of products manufactured by GE shows a glaring hole in the central compartment marked "computers", and while GE might find it a bit embarrassing to reacquire the mainframe business that it sold 16 years ago, everything else within Honeywell represents a splendid fit with businesses that GE has marked out for growth, many of which are on their own rather small to be major players. But GE is embroiled in the rationalisation of its own businesses with those of RCA Corp and scarcely has the management resources to take on Honeywell at the same time, so will probably have to pass on this one. The other companies that have the muscle to move for Honeywell include Rockwell International - but it has its factory base covered by its Allen Bradley acquisition; Martin-Marietta, which looked at Sperry, but is a very long shot for Honeywell; Chrysler, which gives the impression that it has ruled out the idea of anything as big as Honeywell; Ford Motor, not likely to be interested after rejecting Sperry; and Motorola - but it would have to convince sceptical shareholders that it could do better with Honeywell than its abysmal performance with its first computer acquisition Four-Phase Systems. If Honeywell is to be taken out of circulation this time around, Dayton, Ohio seems the place to look.
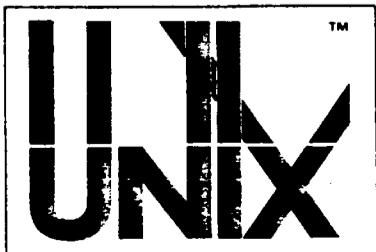
AT&T ENTERS FACTORY MARKET
WITH HARD-HAT PC6300s

AT&T Information Systems is following IBM into the factory automation market with hard hat versions of the Olivetti-build PC6300 Personalike and PC6300 Plus AT-alike. The new models will feature added fans and filters and new protective housings to shield them from the hazards of the factory floor, and are expected to start at $4,200 for the 6300/WS, $5,090 for the 6300 Plus/ WS. The new models will provide a wide variety of mounting options including 19" rack, floor-standing, wall-mounting and table-top configurations. AT&T needs new software to make its mark in a tough market.

CHARLES RIVER GOING FOR A LARGER SLICE
OF THE MARKET WITH STANDARDS

Charles River Data Systems is conforming to standards with its latest release of UniverseNet. This latest release, 3.0, of its local area network software supports the recent enhancements in the Boeing Computer Systems-developed Technical Office Protocol (TOP) and in General Motor's Manufacturing Automation Protocol (MAP). TOP provides for communication between machines from different manufacturers across an Ethernet-type baseband local area network in office-based applications. MAP is used for factory-type LANs based on broadband bus technology and topology. UniverseNet 3.0 must be run with Unos 7.0 - Charles River's version of Unix which has real-time capabailities. The company also says that it has added memory management techniques to improve networking and the software includes new configuration tools to allow users more flexibility in adding and deleting computers from either a TOP or MAP network. The company says that the UniverseNet 3.0 is avaialble for a cost of $1,500. This release is available from Terminal Display Systems but UK prices are unconfirmed.

BURROUGHS TO RAISE CASH

Burroughs Corp has decided it can finance part of the acquisition of Sperry Corp by raising further cash than by issuing the higher value subordinated debentures it had said it would pay, and accordingly the company is making three issues to raise a total of $700m. The offering consists of $200m of 7% two-year extendable notes due 1996 with a new interest rate to be set by the company in two years and redemption at that time at the holder's option, at $100.1% to yield 6.99%; $300m of 8% notes due 1991 offered at $99.5% to yield 8.122%; and $200m of 9.75% sinking fund debentures due 2016 not redeemable for 10 years, at $99.275% to yield 9.83%.

GRAY TO INTERNATIONALISE US
UNIX USER GROUP

Pamela Gray, nee Geisler, is the first European and first woman to be elected as president of the US Unix Users Group. Pamela Gray founded Sphinx Ltd of Maidenhead in 1983 because she saw in Unix an opportunity for a company "to sell software and support services independent of hardware". Pamela Gray's appointment is the continuation of the Group's efforts to internationalise itself and Gray is determined "to turn that international network into a reality". Gray qute rightly points out that whilst the Unix community mutters quite cheerfully about standards there is a tendency for user groups to do their own thing. So the idea is for the group to become the receiving point and distribution point for ideas and information.

DEC COMPLETES $12.75m ACQUISITION
FROM TRILOGY, JOINS MCC

Underlining its commitment to improving its semiconductor packaging and interconnect technology to the point where it can take the performance of its VAX superminis up to that set by IBM's mainframes, Digital Equipment Corp has completed the acquisition of Trilogy Ltd's packaging technology, varying the terms in the process, and also joined the semiconductor packaging technology development project at the Control Data-inspired Microelectronics & Computer Technology Corp co-operative in Austin, Texas. DEC had agreed to pay $10m for non-exclusive rights to the Trilogy technology, but has now increased the sum to $12.75m and taken exclusive rights to all the technologies. Trilogy has to agree to stay out of the chip packaging development business for two years and not come out with products for a further year. DEC is also buting all the associated equipment and will take on some 100 trilogy employees.

DEC CUTS VAX, PDP-11 ADD-ON
MEMORY PRICES

DEC has cut prices on 25 of its VAX and PDP-11 add-on memory boards by between 14% and 70%. A VAX-11/780 subsystem - with controller and 8Mb of memory - is down 58% to $19,000. The 8Mb option on the VAX-11/780 and 11/785 is now $10,000 in single quantities, a 60% reduction from the original price. In the PDP-11 line, 2Mb of memory for the PDP-11/84 is cut 55% to $2,900. DEC cites falls in production and component costs for the reductions.

PERSONAL COMPUTERS: IBM, AMSTRAD,
DEC LAUNCHES THIS WEEK

The silly season is ended, it's Labor Day that marks the end of the American summer next Monday, and the computer industry home and abroad is gearing up for the prime selling season in the run-up to Christmas. While most UK eyes will be on the Amstrad PC1512 family of very low-cost IBM Personalikes set for launch tomorrow - and now expected to include a model featuring a hard disk - across the water, DEC will finally unveil its VAXmate this week, some nine months later than originally planned, and IBM is expected to come up with at least the first part of its answer to the clonemakers, a cut-price 80286 machine dubbed the 286 XT, possibly on Tuesday, so as to upstage launch of Compaq's 80386 machine which is set for September 9 announcement. The 286 XT - no doubt using substantial VLSI circuitry around the 80286 chip, is IBM's weapon to retain the loyalty of its large corporate accounts: it is expected to offer a processor with 512Kb of memory, 20Mb or 30Mb Winchester and 1.2Mb floppy for between $3,400 and $3,900, against a current price of $5,295. The DEC VAXmate, due this week, is an 80286 box capable of running all software written for the IBM Personal AT but is designed primarily for use as a very intelligent terminal to VAXes, and will run a PC All-In-1 subset of DEC's office automation software, and is also expected to provide access to all VAX applications via Microsoft Windows and Ethernet. A Team-Mate file-server version of the MicroVAX II may be launched at the same time. Although the VAXmate represents DEC's second attempt at the personal computer market after its disastrous first foray, the VAXmate will be offered primarily as a major addition to DEC's existing VAX product line rather than a new account box.

Floating Point Systems Inc has reported a third quarter net loss of $2.9m against a profit last time of $3.6m on turnover that declined 37.5% to $20.1m; nine-month net profits fell 65.5% to $3.4m on turnover that fell 9.0% to $81.9m. Net earnings per share fell 67% to $0.40 in the nine months.

– o –

Following its $2.9m third quarter net loss – **Floating Point Systems** is laying off 200 people, 12% of its workforce, and does not expect quick recovery.

– o –

Counterpoint Computers has a $3.5m three-year OEM contract to supply **Docugraphix** for its 68020-based System 19 Platform workstations.

– o –

Intel Corp looks to sell 100,000 of its new 80386 32-bit microprocessor this year, at $300 apiece: the number sold may run into millions in 1987.

– o –

VAX Cobol, **DEC's** implementation of for its VAX line, has received validation from the US government as a High Level Cobol language – and passed "with flying colors" says the company and will enable it to bid on contracts where High Level Cobol is a requirement.

– o –

Despite a monumental year which saw total turnover soar to $7,590m, **DEC** is now down to fourth place in the world ranking of computer companies – or will be once the **Sperroughs** merger is complete to create a company with $10,000m or so annual sales: Sperroughs also ends **Fujitsu's** brief reign at number two behind **IBM** – the Japanese company had unconsolidated sales of $8,414m last year; IBM is of course still way ahead at just over $50,000m; the likelihood is that DEC and Fujitsu will both overtake Sperroughs in short order, with Fujitsu slowly pulling away from DEC – but further consolidations could still change the picture again – if an **NCR-Honeywell** combination were to happen now it would just about pip Sperroughs for the number two spot.

Minigrams

Encore Computer Corp has signed **Korean Computer Co** to market its multiprocessor Unix super-micros in South Korea: sales of $14m over four years are seen.

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Recognition Equipment has signed an OEM agreement with **Convergent Technologies** and will integrate and market Convergent's Mightyframe Unix box and N-Gen workstations with its own software – the agreement presumably follows Recognition Equipment's acquisition of large parts of **Mohawk Data Sciences'** European operations – MDS was already an OEM customer of Convergent Technologies.

– o –

The US **Defence Advanced Research Projects Agency** has given **Bolt Beranek & Newman's** newly-formed BBN Advanced Computers Inc unit $4.8m to develop an 8,000 processor version of its magic Butterfly massively parallel processor: the Butterfly consists of multiple MC68000 family processors, each with 512Kb to 4Mb of memory, programmed in C and front-ended by a **DEC** VAX running under Ultrix.

– o –

Ellis Associates has announced Blaser which provides proportional spacing for Uniplex-II and II Plus users and a version is being prepared for Q-Office: the price for Blaser starts at around £245 and is available for any Unix/Xenix box.

– o –

Micro Design International has announced TAR Tape Archive System which allows Unix and MS-DOS 1/4 inch tape compatability – allowing a user to write files to a tape under Unix and then read those same files under MS-DOS – the user can also write files to an MS-DOS tape and read them under Unix: the system is available now in the US and costs between $995 and $1,095 and the software, TAR, can be bought separately for a price of $275 in single quantities – Micro Design is headquartered in Winter Park, Florida.

Altos Computer Systems has signed an agreement for **Goldstar** to distribute the Altos supermicro computers in Korea under the Goldstar label: the agreement is valued at $5m over a three-year period.

– o –

Bell Atlantic's Sorbus third party maintenance unit is to offer US-wide service for **AT&T's** 6300 Personalikes, with large cities the first target ares: it will offer both on-site on carry-in service and will stock 6300 enhancements.

– o –

Redwood International has made Uniplex II Plus available under Xenix 5 for the IBM PC AT and the RT: Redwood say that it was acting on requests from its dealers who say that their customers want Xenix – Redwood says the reason for this is that people want an operating system that they can use on all their various systems; supermicros or mainframes – other dealers, namely Tandy, say that its not Xenix that people are interested in but the faster chip available with the IBM AT and RT, the price for Uniplex-II Plus on a single user AT system is about £800 – for the RT in an eight user configuration the price is £1,500.

– o –

Relational Database Systems of Menlo Park, California has changed its name to **Informix Corp,** the name of its main product the Informix relational DBMS: the company has also registered for a public offering of about 1.4m shares of common stock – **Altos Computer Systems** will remain the largest shareholder in the renamed company following purchasing 330,000 shares to maintain its equity position.

– o –

The XA8 series of cross-assemblers from Isle of Man-based **Real Time Systems** has had another addition the X8086, which supports the 8086 family and is avaialable: running PC/MS DO: on the IBM PC; Unix and Idris on PDP 11s and 68000-based machines; and VMS and Unix on VAX machines.

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COMPAQ 80386 BOX COMES IN AT £5,400 WITH 40Mb DISK

After all the hype and market expectation surrounding Xenix on the IBM PC AT, the combination has been, relatively speaking, a damp squib which has only recently beguin to show signs of life, with the only notable successes with Xenix on the 286 being from the likes of Altos which have taken a completely different approach. Now we're about to see a second, more cautious round with the far more powerful 80386, with the most significant launch so far being this week's announcement from Compaq, which has recently been making bullish noises about Xenix on its 286 machines. Tuesday's announcement of the 32-bit 80386-based Deskpro 386 was for delivery in the US immediately and in the UK in October. The machine, based on the 16MHz 80386 chip, comes in two versions, the Model 40 with 1Mb CPU, 40Mb Winchester, 1.2Mb floppy and Expanded Memory Manager conforming to the Above Board standard and six slots for $6,500, £5,400 here; and the Model 130, the same except that it has a full-height 130Mb Winchester and only five slots, for $8,800, £7,500 here. Operating sys-tem is MS-DOS 3.1, but Xenix V/386 from Microsoft is promised for the first half of 1987, according to Micro-soft's Bill Gates. A software developer's toolkit for Xenix V is avai-lable immediately for $395, and Xenix should support up to 16 users on the machine, although Compaq was stressing that, like the 286 machines, the Deskpro 386 is primarily expected to go to PC users seeking more power. Gates declined to answer any questions despite a barrage of inquiries about the long-overdue multi-tasking MS-DOS 5.0. The machine is expandable to 14Mb of main mem-ory, including up to 10Mb of high-speed 32-bit "static column" RAM – it's actually dynamic – before you need to start using up slots. Three of the slots are 16/8-bit, three are 8-bit; there is space for four storage devices in the cabinet. Options for the machine an Extended Colour Graphics board for $600, a new 640 by 350 colour monitor putting up 16 colours from a palette of 64 at $800, a dual mode 640 by 350 or 720 by 350 monochrome monitor for $255, and a 40Mb tape back-up unit for $800. Some 20 companies, in-cluding Ansa, Ashton-Tate, AST Research, Borland, Digital Communicat-ions Associates, Iomega, Lotus and MicroPro have tested the machine and affirm that it is compatible with their major products; Compaq also said that it developed the BIOS itself, as in the past. Compaq looks for 10% of its revenue from the new machine in the first year of marketing, rising to 25% by year three.

RAIR UNVEILS ITS 80386-BASED TURBO

Tfb Rair, the former Rair Ltd has claimed the prize for the first British product based on the 32-bit 3 to 4 MIPS 16MHz Intel 80386 processor with its SuperMicro Turbo 386. The machine has 2Mb RAM and 85Mb of hard disk as standard, although both can be doubled, with 80287 maths co-processor, an integral tape streamer back-up and 1Mb floppy drive. In a 4Mb, 170Mb configuration, it can support up to 24 users under Concurrent DOS 386 or BOS and around 12 to 14 users under Unix System V. It is fully compatible with all Rair's current line. The SuperMicro 50/85, Rair's previous top-end machine can be converted to a Turbo at £4,500. The Turbo 386 has an IEEE 488 bus, IBM 3270 and ICL C03 protocols and Ethernet. The base model 16 ports costs £19,000.

DEC SLASHES PRICES ON VAXSTATION II GPX

Meeting price competition from the likes of Apollo Computer and Sun Microsystems with their low-end 32-bit 68020 workstations, DEC has reduced prices on the VAXstation II GPX sharply, so far only in the US. As an example, the new price for the grey-scale version with 19" screen, 3Mb memory, 71Mb disk, 95Mb tape streamer, Ethernet interface and Ultrix or VMS operating system licence, is reduced 24.2% to $25,000.

SANTA CRUZ "PIPS MICROSOFT" WITH XENIX-NET FOR AT

Following the announcement of Microsoft Networks for Xenix at Uniforum earlier this year, the Santa Cruz Operation has apparently pipped Microsoft to the post in shipping first versions of the product. The company says that it is ship-ping the first release of the software, Xenix-Net, for IBM PC AT and compatibles using the IBM PC Network interface card and running SCO's version of Xenix System V – hardly, so far, the world's hottest market, but the product will allow Xenix systems to act as full servers on PC Networks. The first in a series of future releases for Ethernet and IBM's Token Ring are scheduled to start within 60 days, according to the company. Xenix-Net is part of the joint Xenix dev-elopment and marketing agree-ment between Microsoft and Santa Cruz; the third company in the trio is of course Logica. Santa Cruz is quoting $595 list price for single user, $1295 for three-user.

Ms SPHINX TO INTERNATIONALISE US UNIX USER GROUP

Pamela Gray, formerly Geisler, is the first
European and the first woman to be elected as
president of the US Unix Users Group. Pamela
Gray founded Sphinx Ltd of Maidenhead in 1983
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mutters quite cheerfully about standards
there is a tendency for user groups to do
their own thing. So the idea is for the
group to become the receiving point and
distribution point for ideas and information.

SEQUENT STRENGTHENS DATABASE OFFERING WITH DISK SUBSYSTEM

Sequent Computers has strengthened its hand
in the commercial market with a new mass
storage subsystem that speeds disk throughput
and supports more compact high capacity
disks. The new subsystem is claimed to
improve the performance of the Balance multi-
processor Unix machines for applications such
as transaction processing and database
management; the company already offers
Ingres, Informix and Unify and claims to
compete with the likes of DEC and Pyramid,
which has recently been seeing considreable
success for database applications. The
subsystem consists of a dual-channel disk
controller and new compact 264Mb drives; it
interfaces directly to Sequent's system bus
and supports the SMD and SMD-E interfaces.
A Sequent machine can support up to four
controllers, each of which can drive up to
eight disks; claimed Unix file throughput for
a controller with multiple drives is over
2MB/second, and using the new disks the
company says that 8.5 Gb can be contained in
a Balance 21000 with one expansion cabinet.
Availability for the Balance 21000 is
September, for the earlier Balance 8000 is
November. A controller with two 264Mb disks
is £24,000.

MASSCOMP FOR ALVEY SPEECH RESEARCH PROJECT

Masscomp has picked up a £100,000 order from
Plessey Research and Technology for one of
its MC5500 systems for use in the research
for the LD6 large-scale Alvey demonstrator
project to develop a speech input word
processor. The project is aimed at
demonstrating the commercial feasibility of a
speech input WP system by September 1989, and
partners in the development include the
Centre for Speech Technology Research at
Edinburgh University, Imperial College, and
HUSAT, a human factors group associated with
Loughborough University. The Masscomp system
was chosen for its integration of facilities
needed for the development of speech signal
processing; signal input, array processing
and graphics display.

AT&T WALKS AWAY FROM QUOTRON VENTURE AFTER LATTER's ACQUISITION BY CITICORP

Joint ventures involving computer companies in the
financial information services field are not faring
too well, AT&T has decided to terminate its year-
old venture with Quotron Systems of Los Angeles
following the latter's acquisition by CitiCorp.
CitiCorp has been moving so agressively into the
securities business that it is seen as a
threatening rival to the established brokers, and
when the acquisition was announced, the Shearson
Lehman Brothers unit of American Express asked the
AT&T-Quotron venture to stop work on a computer-
based financial information system that was set to
bring it $150m to $200m business over five years.
AT&T and Quotron may work together on future
projects on an ad hoc basis.

ALPHA MICRO UNDER OFFER FROM POINT 4, FOUNDERS

Alpha Microsystems is under fire from two direc-
tions, with southern California neighbour Point 4
Data of Tustin bidding $6 cash a share for up to
49.9% of the equity, and the supermicro
manufacturer's ousted cofounders Richard Wilcox
and Robert Hitchcock planning a proxy fight to gain
control of the board; they were voted out of their
positions of chairman and vice-chairman
but retained their seats; president Richard
Cortese took the additional post of chairman.
Alpha Micro makes 68000 family machines that run
its proprietary Amos operating system and also
support Unix; Pont 4 Data makes Data General
Novalikes that run the Iris operating system. The
offer from privately-held Point 4 will cost it
$9.5m or so, if it is successful, it plans to gain
approval for full acquisition from shareholders
and exchange the remaining shares for subordinated
debentures. It was unaware of the move by the co-
founders, who together control a solid 25.2% of the
equity. Alpha Micro, in Santa Ana, made a net loss
of $3.5m on $48m sales in the year to February.

CHASE MANHATTAN FUNDS "MANAGEMENT BUY-IN" AT MICRO BUSINESS SYSTEMS PLC

The concept of the leveraged management buyout of a
company is well known, but how about a management
buy-in? That is the term coined by the Observer
for a helpful transaction carried out by Chase Man-
hattan Ltd, the London merchant banking arm of the
big New York bank for Micro Business Systems Plc,
which last week recorded interims suggesting that
the company was on the long road back to recovery
The problem, according to the paper, was that after
the £7.8m rights issue was got away safely earlier
this year, co-founder and former managing director
Mike Brookes became impatient to off-load his 5.5m
shares, which would have hit the market like a sack
of flour and left some very angry institutional
investors once the dust had settled. Chase Manhat-
tan agreed to buy most of the 5.5m shares and hold
them until the IBM pair called in to turn the
company around, Stafford Taylor and Owen Williams,
were ready to buy a large number of them under
share incentive schemes maturing in one and two
years. Chase will holding 1m of the shares on its
own account. Micro Business Systems Plc reported a
net loss for the six months to June 30 of £170,000
after a £1.1m extraordinary gain from the sale of
the Technirent subsidiary.

INSIDE THE IBM 6150 RT PC

Part 2; Is it still Unix? – The Advanced Interactive Executive

What is the RT PC going to end up being used for? It was launched as a scientific workstation but in the UK it is finding more uses as an office automation system for small business users. There are reports from inside IBM that it has been re-engineered as a desktop 370 system and strong hints that DEC's VMS operating system (or a lookalike) will be offered as an option. And it already has built into it many of the design features of the underrated System 38, regarded by some as a possible way out for IBM from the 370 cul-de-sac. At the moment however, it is controlled by the Advanced Interactive Executive (AIX), a SVID-compatible Unix version based on System V Release 1 that includes extensions from V.2 and 4.2 BSD. Developed by Interactive Systems Corp., it comes with a licence for eight users and supports four interfaces: a PC-DOS-like extension that allows AIX commands to be entered using DOS syntax, the Bourne Shell, the C Shell, and a "Usability Services" shell that provides a menu for novice users. It also has some of Interactive's communications features (INmail, INnet and File Transfer Program) to link the RT with other Unix or VMS systems running the same software. The hardware is controlled by the Virtual Resource Manager(VRM) that provides a virtual machine interface for AIX kernel. It is a collection of processes,device drivers,virtual memory management, virtual terminal support and runtime routines that insulate the operating system from the hardware.

Humpty Dumpty

The VRM provides the operating system with a set of generic i/o devices, insulating it from the details of specific devices and the management of shared devices. It intercepts the system calls and allocates a specific device from the currently instaled hardware – the operating system does not know what physical devices,disk drives or processors are installed, it is just a request service and the VRM provides it. This means that the hardware can be radically changed without affecting applications or the operating system – it will still show the same face to the world. The VRM has been kept open-ended to allow new devices and functions to be added to the system without affecting applications or the kernel. It also means different operating systems can be used without affecting the hardware. Indeed, a separate operating system could run side by side with Unix on its own virtual terminal. Each application on the RT gets its own virtual terminal to work with, which time-share the real displays and input devices such as keyboard and mouse. The console can support up to 28 parallel terminal sessions at once: these can be separate login sessions, separate terminals opened by command or separate terminals opened by user programs. The operators console (or Windows window) is the first thing displayed when the user logs on and is the base for creating other windows and listing all the current ones. (IBM, unlike everyone else, uses 'window' to mean virtual terminal. As Humpty-Dumpty said, explaining that he controlled words and not vice versa: "A word means what I want it to mean, no more, no less.")

A shell might run in another window, a PC DOS emulation in another and an interface to a 286 co-processor in another. A separate files window holds a full-screen display of the users file system and a Tools window holds a list of commands and applications programs that can be invoked from a panel on the screen. The windows are arranged in a ring and the user can scroll around the ring or access a screen directly by name. The VRM also controls real-time applications and IBM have provided improved interprocess communications and multi-level interrupts in the kernel to allow unix applications to quickly take over when the VRM gets out of its depth.

Logically hidden

The VRM also provides a virtual machine with paged virtual memory for the kernel. The paging support is logically hidden from the kernel, which sees a massive physical memory of 2 to the 40 or one terabyte instead of the 16 megabytes per MMU which is theoretically available. The VRM performs page fault handling and manages the allocation of real memory, paging space and the 4096 virtual storage segments, each of up to 256 megabytes. The effective addresses generated by instructions are 32 bits long, with the high-order 4 bits selecting a segment register and the low-order 28 bits providing a displacement within the segement. The 16 segment registers contain 12-bit segment ids which, together with the low order 28 bits give the 40-bit virtual address. The segment registers are loaded by a virtual machine, which may have access to many different segments either private or shared. Loading the segments registers is part of the context switching operation that gives each virtual machine a time slice of the physical machine. In addition to segments there are two other types of virtual memory objects: pages and bytes. Pages consist of 2048 bytes. A segment can contain from 1 to 131,072 pages and is protected at the page level. The concept of a massive flat file structure come from the System 38 architecture, which would be an obvious choice to emulate on the RT. The AIX kernel occupies segment register 0. Most of the kernel is page-protected, no-access for the user. A few kernel-segment pages used to transfer data from the kernel to a user process are protected read-only for the user. Each user process is allocated three segments. Segment register 1 is used for the user text segment. The text segment is protected read-only for the user and read-write for the kernel (so that the kernel can modify programs being debugged). The user data segment occupies segment register 2, and has read-write access. Segment register 3 holds the user stack. The top of the stack holds the user "u-block", which is protected no-access for the user and read-write for the kernel. The u-block is used by the kernel for process management. The rest of the stack is protected read-write for both the user and kernel. Segment registers 4-13 are used for shared memory segments (which provide a means of sharing data among multiple processes) and for mapped data files. Segment register 14 is used by the VRM for DMA operations and segment register 15 is used to directly address the i/o bus.

JOBS RIDICULES DESK-TOP PUBLISHING AS NON-MARKET, SAYS POSTSCRIPT HAS WON

It is wise to retain reservations about all the hype surrounding the longed-for boom to be generated by a supposedly completely new desk-top publishing market, but Apple co-founder Steve Jobs has gone further and said in no uncertain manner that he thinks that the emperor has no clothes. Jobs made his first public speech in more than a year to over 900 participants at last week's Seybold Desktop Publishing Conference. The thrust of Jobs' speech was that what is now perceived to be a desktop publishing market isn't really any more a market than dedicated word processing, which 10 years ago was predicted by Wang and other companies to be a billion-dollar industry. Today you can get most, if not all, of the functionality of a dedicated word processor on a personal computer running a software program that costs less than $500. Jobs reckoned that most of the "unique" features desktop publishing programs offer, such as what-you-see-is-what-you-get displays, and graphics easily integrated with text in multi-column and multi-page layouts, would become standard features in the general-purpose personal computer over the next five years. "The perception is that desktop publishing is a multibillion dollar market," said Jobs. "The reality is, desktop publishing isn't a market." Noting the $600 fee attendees paid, Jobs called the conference "a $600,000 event to talk about a market that won't be here in two years." It seems inevitable that only a mere handful of companies will make any real money out of the desk-top publishing market and that tens if not hundreds of companies will be disappointed. Jobs reckons he that he has identified one of the winners, and that the desk-top publishing equivalent of 1-2-3 has unstoppable momentum already. That product is Adobe's PostScript page-description language, and Jobs raised more than a few eyebrows in the audience when he insisted that PostScript - which is used in the Apple LaserWriter, has already won out over competing products as a de facto standard. Other panelists were reportedly noticeably irked when Jobs declared roundly, "I think Hewlett-Packard was brain-damaged for endorsing DDL [a competing page-description product from Imagen]. There's too much momentum for PostScript." Steve Jobs now has no connection with Apple Computer.

INTERLEAF ADDS POSTSCRIPT SUPPORT, SCANNER, TYPEFACES

Interleaf Inc, Cambridge, Massachusetts, whose desktop publishing system is marketed on thge likes of Sun and Apollo workstations, is the latest to demonstrate its support for the Postcripts languages, to allow it to drive Postscript printers including the Apple Laserwriter. Other announcements include a low-cost, line-art scanner to complement its present scanner option; and eight new families of Bitstream Inc typefaces to supplement the 10 type faces already standard with the package.

LRT FIRST OEM FOR WHITECHAPEL PUBLISHING PACKAGE

Logic Replacement Technology is the latest to approach desk top publishing with a Unix system, becoming the first OEM to take on the combination of Whitechapel MG-1 workstation with the Printmaster publishing package. Reading based LRT, best known for its Ethernet expertise, is aiming to move into being a value added reseller with the new product. The LRT Document Preparation System includes MG-1 with the Printmaster software from London company Program Products, and comes complete with image scanner and laser printer, from Microtex, based on the ubiquitous Canon mechanism for a total of £24,935. Despite the fact that the rest of the world has taken the Apple Mac to its heart as a route to low cost desk top publishing, LRT hopes to find openings for the additional functionality of the Unix system; it points out that the MG-1 can be hooked up directly to an Ethernet so that text files from other systems can be passed over the network for production on the MG-1, resulting in a lower cost per seat for a networked system. The Whitechapel box also interfaces directly to the laser printer, so that LRT claims there are cost advantages over packages that rely on the Postscript language, which tends to require an extra box just to interface between the workstation and the laser printer. Whitechapel, now Whitechapel Workstations, after its much-publicised financial problems, is said to be quietly working to get an existing backlog of orders out of the door.

ICL, MICROSOFT BACK XEROX INTERPRESS PAGE DESCRIPTION LANGUAGE

ICL wants its share of whatever business is going in the desktop publishing market, and has joined the effort to make the Xerox effort to make its Interpress page and document description language an international standard: as it did with Ethernet, Xerox is laudably making Interpress technology freely available; ICL and Xerox have both already adopted the Office Document Architecture definition from the International Standards Organisation as well as putting their full weight behind the Open Systems Interconnection networking model; on the software front, Xerox has support for Interpress from Microsoft in its Word and Windows.

Corporation for Open Systems (COS) is this week preaching the Open Systems Interconnection (OSI) gospel to the Pacific basin countries, including Japan, South Korea, Taiwan, Hong Kong, Singapore and Australia. And COS, the Washington DC-based, non-profit-making organisation, is being welcomed with open arms by companies involved in OSI. It is the first organised body to bring the might of mammon to the party, and with a 1987 budget of around $13m, it hopes to bring direction to standardisation, which has long been an issue to talk about rather than act on.

Select, test, promote
COS sets out to select, test and promote selected protocols avail- able to link different manufact- urers' machines together worldwide. COS represents the latest white hope for putting the promise of OSI into practice. Its plan is to carry out three processes: protocol selection; layer specification to resolve the ambiguities inherent in turning code into everyday lan- guage; and manufacturer development and testing. COS will provide information services on OSI, including a database on electronic mail, reports, and training and seminars; test products, and the first tender has gone out for conformance-testing systems; and test services, including mediation services and authorisation. And it intends to make friends with open architecture groups, including the European Standards Promotion and Application Group (SPAG) and its Japanese equivalent Promotion of OSI (POSI), users, the press and analysts. Of the $13m budget for 1987, made up almost exclusively of fees paid by members, information services will use up $1.75m and technical services , $4.26m.

Tokyo is the next stop in the COS roadshow, following last week's European drive, which saw the Central Computer & Telecom- munications (CCTA) enrolling as an ordinary member of COS for $25,000. In fact, the story goes that the CCTA enrolled for a special charge of $10,000 because it joined before October 15th. COS also talked to X/Open represen- tatives in Europe – the US X/Open members DEC, Sperry and Hewlett- Packard are already members – the initial discussions were described as "exploratory".

It is the membership fees, not the philosophy behind COS, which is emerging as a stumbling block for some UK and European companies.

CORPORATION FOR OPEN SYSTEMS USES BIG COMPANY CASH TO TURN OSI THEORY INTO PRACTICE

It will not be a problem for the bigger companies like ICL, Siemens and Nixdorf, which are expected to join soon, but for the smaller companies which have and are carrying out much of the fundamental work in OSI products. European Governments have sought to push OSI development both to cut their buying costs and to stimulate local industry, typically composed of much smaller companies than in the US.

There are three categories of membership and the following prices take effect from October 15th: the first is for senior research mem- bers, which costs $200,000 and allows the company to get one of its employees on the executive committee of no more than four interest groups; the second is for ordinary research members, costing $50,000, giving a company one vote to every four votes from senior research members; and the third category is for ordinary members, giving a company one vote to every eight votes from senior research members.

The Yanks are coming
Some European companies involved in OSI are understandably perturbed at the money involved in joining the OSI decision makers. "Here come the glory boys with their big budgets" was one comment. OSI has many of its roots in Europe, although the International Standards Organisation (ISO) is an international company and has a US president. Each side of the Atlantic has tended to specialise in particular areas. Initiatives like Manufacturing Automation Protocol (MAP) and Technical Office Protocol (TOP) have sprung out of the US, and Message Handling Services (MHS) and document architecture seem to be European specialist areas. Some companies are worried that since the US economy is richer than any in Europe, it is very unlikely that many European companies will be able to afford the higher strata membership fees, where decisions will be taken. Europe is where a good deal of the development work has been carried out, with the first fruits now emerging in the form of commercial products like X.400 message handling, which is expected to become the OSI message handling standard.

Much of the work in OSI has been and is being carried out by small companies like LDR Systems Ltd of Aldershot, Hampshire. The company, 20% owned by L M Ericsson 20% owned by Syntec, a wholly-owned subsidiary of the National Coal Board pension fund developed an OSI software kernel called Isonet in 1985, which was claimed to be the first ever full seven layer implementation of the OSI model. Only the first four layers were specified at that time, but the other layers were based on the intercept standards as advised by the Department of Trade and Industry. Isonet represented the first product with both wide are and local area powers, which enabled IBM users to hedge their bets and not use all SNA in their networking. They could handle at least the peripheries of their network with micros and minis runnng Isonet, rather than anyone's proprietary network. The product has been a big success, selling to a number of big customers, including British Telecom, Stratus, Burroughs, Apricot and the National Engineering Laboratory in East Kilbride, Scotland, and most recently the European Space Agency. "Big companies do not always get it right," is managing director of LDR Systems, John Diver's comment, "There is a need within the OSI industry for smaller companies to participate and track new develop- ments. It's a pity that when COS was set up, there was no allowance made for small companies. They could have introduced a way of paying membership fees according to a company's turnover. In that way, everybody could get a piece of the action."

Too expensive
As the situation stands, LDR and many small companies like it, will not be able to afford the minimum $25,000 entry fee into COS. LDR will still be selling their prod- ucts to the big companies, but as an imprtant name in OSI, it will be forced to take a back seat in OSI decision-making. "We will be using free conformance testing services for our products," adds Diver, "Like the one IBM Europe is intro- ducing in October, where applicants will be considered on a first come, first served basis." COS, in con- trast, will be charging for conformance testing, although it emphasises that the charge is designed to cover costs not make money; a test bed with FTAM file transfer and X.400 message handling is due in the first half of 1987.

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Integrated Micro Products of Consett, County Durham, has an Ethernet board, primarily for its own 68020-based IMP-Mentor, but also on offer to OEMs; the company says that it was taken from conception to production in just six weeks.

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The **BIS IPSE** project support environment, recently the subject of an OEM deal with **Zilog,** is now available for the **NCR** Tower at £1,500 per terminal.

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French distributor **Top-Log,** a subsidiary of Metrologie SA, is picking up a few prominent products; following a recent agreement to handle Redwood's Uniplex-II Plus, it has signed to resell the 20/20 spreadsheet from **Access Technology.**

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The **Wollongong Group's** IP/TCP communications package for TCP/IP under VAX VMS has changed name to WIN/VX, UK distributor **GEC Software** tells us, adding that it has now sold 100 copies.

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COSI Inc of Ann Arbor, Michigan has version 3.4 of its Synchrony – Tango in Europe – Unix-to-PCDOS communications software; the new release adds a script language for the PC end allowing functions to be written to assign functions to keys, including the ability to dial up different hosts; script options can be presented on a pop-up menu.

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And for anyone else who has been having trouble following the product's name changes – before Tango it was Communique – the company ran into trademark problems with the Tango name, made doubly frustrating by the fact that according to COSI, the other company using the name since passed on; COSI has since been negotiating to buy the rights to the Tango name.

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Hewlett-Packard Co has induced 1,515 of its US employees to take themselves off the payroll by October 31, under its voluntary-severance and enhanced early-retirement programs that it announced on June 12. Reductions are mainly on manufacturing side.

M i n i g r a m s

IBM has introduced IBM C for System 370, a C software development and support environment that includes a compiler conformant with the emerging ANSI standard as outlined by the X3J11 committee; to cope with the difference between it and Unix C programs, a "bridge" is said to be offered as well. The C runs under VM/CMS, MVS/370 and MVS/XA and is a one time $5,000 or $313 a month; available in US this month.

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Relational Database Systems of Menlo Park, California has changed its name to **Informix Corp** in honour of its Informix relational database manager: the firm has also registered for a public offering of about 1.4m shares of common stock – **Altos Computer Systems** will remain the largest single shareholder in Informix and has avoided diluting its stake by buying 330,000 new shares.

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Philips distributor **Unit-C,** of Worthing, is offering the Philips PG9200 VMEbus Unix system; an entry level system comes in at around £6,000 with 68010 CPU, 0.5Mb memory and 20Mb disk, and runs Root's port of Uniplus+ System V.2. Targetted as a general purpose Unix box, it includes features such as rugged construction with shock-proof mounting for the Winchesters.

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Ing C Olivetti & Co plans to ask shareholders to approve a plan to raise the equivalent of $360m in 10-year bonds, at least some of which will carry warrants to buy additional Olivetti non-convertible savings shares – a class of non-voting preference stock. The initial $250m tranche will come before the end of the year if the issue is approved.

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Underlining the fact that low-cost clones will haunt IBM however far upmarket it seeks to take the Personal Computer, mail order house **PCs Ltd** of Austin, Texas is reportedly promising a 1Mb 80386-based machine for under $5,000 by year-end; it should support up to 100Mb on disk.

Flexible Computer Corp, Dallas, Texas has a contract worth a minimum $10m over two years from **Martin-Marietta** for its Flex 32 Multicomputer parallel processor that offers a choice of standard microprocessors: the Bethesda, Maryland company wants the machines bid on US military contracts.

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Rounding out its line of 316X ASCII displays, **IBM** added the 3162 high capacity 14" green or amber display that is capable of putting up 24 or 28 lines of 80 or 132 columns. It is usable with the IBM Series 1, System 88, Personal Computer including the RT, and costs $645 from next month in the US. A set of emulation cartridges is available – DEC VT220/100/52 costs $50, $60 with protocol conversion utilities; Televideo 925/920/910, ADM 3A and 5, ADDS Viewpoint A2, plus H1500 plus Wyse, also at $50.

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The InterAct 32C and InterPro 32C announced back in July by **Intergraph Corp** are now available in the UK: both workstations use the **Fairchild Semiconductor** Clipper chip-set and have entry-level prices of around $48,000; upgrades from to the new processor for the National Semiconductor 32032-based Interpro 32 and InterAct 32 are available for $12,000.

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Motorola has come up with some raw performance data for the entire 68000 family, using the performance of an 8MHz 68000 as the basic unit, and the company suggests that the 68010 running at 12.5MHz offers 1.7 times the performance, a 12.5MHz 68020 3.5 times, at 16.67MHz 4.75 times, at 20MHz, six times and at 25MHz seven times.

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Latest reseller to emerge for the **IBM 6150** is IBM dealer **Krypton Computers Ltd** of Nottingham, which is converting its time and attendance software to run on the system.

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Shortlands Computing Services of Maidenhead has a new range of accounting packages; the Silver range runs on PC-DOS and several Unix machines including NCR Tower, Altos and Zilog and is designed for organisations with multi-company but single currency requirements; upgrade tools to the Gold multi-currency software are available.

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SANTA CRUZ EYES LONDON OFFICE; XENIX/386 FIRST QUARTER 1987

The Santa Cruz Operation is planning its announcement of Xenix/386 at Unix Expo next month for delivery in the first quarter 1987, following Microsoft's hints at the Compaq launch last week (UX No 94). The company also has preliminary plans to open a European office in London by the end of the year; Sphinx in Maidenhead is the biggest UK distributor of Santa Cruz' Xenix V for the IBM AT and compatibles. Santa Cruz says that the 386 product, which will "for all practical purposes" be the same as the Microsoft product, will "fully support" the 386, taking advantage of paging and 32-bit addressing for 4GB programs. It will be upwards compatible with Xenix V for the 80286 and the initial release will be based on System V.2. Santa Cruz has a track record of getting products out of the door before the corresponding software from Microsoft, but in the meantime, the company says that Xenix/286 for AT-compatibles will run on 80386 machines with the AT bus architecture 3-5 times faster than on the equivalent 80286 machine. And after a painfully slow start, Xenix for the AT has been picking up steadily since the release of Xenix V; Sphinx now reckons it is shipping 100 copies of SCO Xenix System V a month.

PODUSKA's STELLAR DOES A DEAL WITH CONVEX COMPUTER

Stellar Computer Corp, the former Belmont Computer, founded by Apollo Computer founder William Poduska, and now based in Newton, Massachusetts, has signed a technology exchange agreement with Convex Computer Corp in Richardson, Texas. Under the agreement, the minisupercomputer manufacturer will provide Stellar with access to its vectorised hardware designs and language compilers, while Stellar will bring its implementation of Unix System V — Convex currently runs BSD 4.2 — and communications software and systems to the party. The plan is for each company to offer the same operating environment to customers.

"DOZEN" CUSTOMERS GET V.3; SVVS LICENCING MAY BE RELAXED

Around a dozen European customers have received V.3 source licences and software, AT&T Unix Europe marketing manager Ray Sheath claimed last week; the existing European Unix customer base stands at about 150. He also confirmed that AT&T is discussing ways of relaxing the hard-line restrictions on licencing the System V Verification Suite, currently on controlled release; although the SVVS is not compulsory, the initial AT&T stance suggested that all manufacturers would have to pay $29,000 for the privilege of using it to feel sure they were not going to fall foul of AT&T's newly introduced insistence on SVID compatibility for V.3 based products. UEL will not elaborate, but a popular development on SVVS licencing would be to allow it to be offered as a service either by independent bodies or porting houses. Sheath's self-confessed optimistic estimate is to convert half the customer base to V.3 by the end of the year; AT&T's internal estimates predict a 41% average annual growth in the European Unix market over the next five years.

BULL PROMISES UNIX ON HONEYWELL DPS 4000

Bull of France has launched the DPS 4000 compatible 32-bit successor to the DPS 4 small business computer, and is promising System V for the machine in a year. The new machines, developed and built by Honeywell Italia, come in seven models, 4011, 4013, 4019, 4025, 4029 and 4039 with main memory going up to 16Mb and disk capacity up to 8Gb. Operating sys-tems are GCOS 4, and GCOS 4-E on the first three models. Honeywell, whose Unix lineup so far consists of the X-Superteam 68000 micro – also developed by Honeywell Italia – is expected to bring the DPS 4000s to the UK soon.

UNIQ PLANS STREAMLESS VAX SYSTEM V.3 FOR JANUARY

Uniq Digital Technologies, of Batavia, Illinois, the only company we've come across to proclaim its commitment to supporting System V.3 on the DEC VAX range, has set January 1 release for a preliminary release with "everything but streams" – a strange idea, it may seem, but there is as yet little in the way of support from anyone for networks implemented using the mechanism. AT&T's decision to not offer V.3 direct support for anything except the 3B – and to cease support for earlier VAX source versions from next Spring – has left a hole in the market, which Uniq hopes to fill. It plans to be in a position to offer both source to other licenced source sites and binaries, and is currently working on the port for the now-obsolete VAX 8600.

SYSTEMS RELIABILITY SWITCHES TO IMP FOR 32-BIT NETWORK MANAGEMENT

Systems Reliability Plc has now formally launched the Orbi-tel S network management system, using the Integrated Micro Products Unix hardware, that is the subject of that big contract with the Midland Bank (UX No 93). The Orbi-tel has grown considerably since the initial launch of a system 18 months ago based on Plessey Microsystems 68000 Unix machine; Systems Reliability says that it has needed the power of the 68020 to expand the capabilities from basically a cost and services analysis tool to a full operations management machine for configuring and controlling networks. The IMP boards are combined into a VMEbus system with a wide range of enhancements, including a mechanism for speedily flushing buffers and then getting the system back up cleanly in the event of temporary power failures. Systems Reliability has also added audit trail facilities for the Informix dbms used by the system, as well as putting considerable effort into making the system flexible enough to deal with and report on diverse and quirky organisational structures. The system is also claimed to be unusual in that it runs a continuous audit and analysis on recorded calls, instead of leaving processing to be done later in batch mode, so that reports on very large networks can then be compiled in minutes rather than hours. The company has reported first half net profits up 37.3% to £1.1m on turnover up 10.6% to £6.8m.

NETWORK INNOVATIONS $3M CONVERGENT DEAL

Network Innovations Corp, the San Jose company that lives up to its name with one of the more sensible attempts at integrating PCs with Unix systems - providing a Lotus-like interface through which the PC user can browse Unix databases - has signed perhaps its biggest deal to date, worth an estimated $3m with Convergent Technologies. The deal allows Convergent to market a version of Network Innovations' Multiplex for the MiniFrame, MightyFrame and MegaFrame ranges. After the user, protected from having to learn to deal with SQL or other query languages, has selected the required data from Unify, Informix, Ingres or Oracle host databases, Multiplex pulls the data down onto the PC and converts it into a suitable format for direct input into PC packages such as 1-2-3 and dBase. Existing Multiplex OEMs include Altos Computer Systems and Relational Technology.

ABS VAR CALL

ABS Computers, having sold £1m of the C-Horse 800 Unix systems since becoming a Zilog OEM last year, is now looking to sign up its own VARs, largely to act as distributor for resellers too small for Zilog to deal with directly. The C-Horse 800 range, based on the AT&T WE32100 CPU, is topped off Pyramid minis, sold as the 900, of which ABS claims to have sold three; it has retained the Orb and MX small multi-user machines at the low end, staying out of the highly competitive low end Unix market.

NCR PICKS TOWER FOR FIRST INTEGRATED RETAIL SYSTEM

NCR'S Tower is now very much viewed as a strategic product within the company and is finding its way into an increasing number of applications. It has now been chosen as the basis of NCR's first full information management system for the retail trade, providing back office facilities tied to NCR's point of sale terminals, in-store networks and mainframe hosts. The Ultra system allows managers to get transaction details and cashier performance information, which can be consolidated into reports; it also holds details of item prices for price lookup by POS terminals. The Ultra software uses a relational database, either NCR's standard offerings Oracle, or Unify or Informix among a selection of others. The three initial customers for the system - all unnamed and including two major orders according to NCR - have all chosen to use their own existing databases. The Ultra software is also available on PCs for smaller stores. Previous ad-hoc NCR offerings have tended to be based on its I-Series minis, although NCR has previously scored at least one major success with the Tower in the UK retail/distribution area, with over 120 systems installed in John Menzies warehouses and large shops.

£29.95+VAT FOR PCDOS C COMPILER AS ZORLAND SEEKS TO EMULATE BORLAND

One of the most intriguing products to come our way of late is an attempt to emulate the success of the likes of Borland International's Turbo Pascal with an ultra low cost C compiler priced to match the Amstrad PC1512 and the flood of cheap PC clones. The compiler comes from new London company Zorland Ltd and costs just £29.95 plus VAT; distributors signed so far include P&P Micro in Rossendale, Lancs. Zorland director said that 200 of the 300 sales in the first week were directly off a stand taken at the PCW Show; reviews of the product are coming up in a number of PC magazines. Zorland C is claimed to implement the full Kernighan & Richie definition with all Unix V extensions; included is Wordstar compatible screen editor, utilities including "make" and a "Unix like I/O library". The compiler generates standard Intel object format code, uses the MS-DOS linker, includes beginners' C tutorial, supports 8087 and 80287 maths coprocessors and runs on IBM PC/XT/AT and compatibles.

ROOT OFFERS BRU BACKUP SOFTWARE

Root Technical Systems is offering the BRU file backup and verification software. Developed by Engineering Software Tools of Tempe, Arizona, BRU is claimed to replace the existing Tar, cpio, volcopy and dd Unix utilities and in addition to provide a much higher level of data integrity checking. It can be be used to copy to removable cartridge or to a series of floppies or tapes, locally or, for systems with Berkeley networking, over Ethernet. Root offers access to source with binary distribution rights for $5,000; single CPU source licences are $750.

HCR SYSTEM SOFTWARE FOCUS REWARDED
WITH IBM RT C OPTIMISER DEAL

Human Computing Resources, the Toronto software house which has now refocussed its activities on system software, was rewarded with probably its most prestigious contract to date, to develop an optimising module for the C compiler for the IBM 6150. IBM is believed to be due to start shipping the product as standard with each 6150 in the US this month. The global optimiser has been designed to interface with the portable C compiler – basically you take the compiler, split it, insert the optimiser and put it back together, according to HCR President Mike Tilson – and therefore rather goes against the common view that an optimising compiler has to be designed from the ground up. Nevertheless Tilson maintains that the product will "stand up to anyone's", and has the advantage that because it is based on a standard compiler, customers can have more confidence; such a fundamental change as switching compilers normally precipitates a crisis of confidence requiring retesting of everything the compiler has touched. The optimiser technology is also claimed to be portable; it includes such features as a table of costs which can be adjusted for different architectures – memory accesses are extremely expensive compared with register accesses on a RISC, for instance. Other recent HCR developments include doing the Unix port for the ETA 10 Supercomputer from Control Data spinoff ETA Systems, following its hosted Unix port for the existing Cyber mainframes, and the acquisition of UX Software's UX-Basic. UX-Basic appeared to be doing rather well before, apparently, costs rising faster than revenues forced the product into the arms of HCR; Tilson feels that the software has a good future in Europe – Siemens, as well as IBM and AT&T are OEMs, and there are "half a dozen" companies in the UK involved in some way with the product. After a nasty patch largely due to the disastrous Chariot 4GL development, privately owned HCR completed the last stage of $2,150,000 financing in May, with $1.4m revenues for the quarter ending April 86, and said it had turned in the company's "best ever" profits. It has since sold off the Chronicle predecessor to Chariot to Consensys Corp., best known for its ATmini upgrade for adding more users to the IBM AT.

REVITALISED PLEXUS
EMPHASISES
DIRECT SALES, SUPPORT

After a period in the doldrums, Plexus Computers is on target for 50% growth worldwide this year to $30m revenues, claims a bullish John Girdley, vice president International Operations, with UK business from the Swindon European base on target to soar to $6m. Privately owned Plexus, after turning in losses in the first half of 1985, broke even in the third quarter and returned to profitability by the end of the year, he said. The company, with a revamped line, now has 350 systems installed in the UK, he added, with around 65-70 customers, indicating a great deal of repeat business; something like 60% of the total, a fact that is largely attributed to the emphasis on support. Plexus has moved towards direct sales and support, to some extent backing out of the traditional emphasis on OEM box shifting now that the big manufacturers are applying their resources to volume Unix sales through resellers, and over 50% of this year's sales have involved direct, heavy support – compared with perhaps 30% of the total installed base. The nature of support needed has therefore changed from the narrow emphasis on operating system and hardware to everything needed to get an application up and running and keep the customer happy.

Adopts V.3 – but RFS?

Plexus in the US has adopted System V.3 and the company over here says that the basic porting work from AT&T 3B to Plexus' 680X0 range has been done; the product is not expected to be fit for release until March. This raises the sticky question of what to do about AT&T's Remote File Sharing, since Plexus has been shipping the proprietary NOS, that also offers transparent access to remote files, for years. The company estimates that it would take customers no more than a weekend for customers to shift from NOS to RFS, but since RFS in its initial incarnation only supports AT&T's own StarLan (how many people have seen StarLan in the UK?) – Plexus appears to be hanging back until support for standard networks is available and the NFS vs RFS issue becomes clearer. The company recently added TCP/IP Ethernet support for NOS across the complete Plexus range.

RAMTEK TAKES UNIX INTO IMAGING
WITH 68020 PIXEL PLATFORM

The march of Unix into new applications areas continues daily, and the latest to adopt the operating system is Ramtek, whose UK offices are in the splendidly named Farleigh Wallop, near Basingstoke. Ramtek, specialising in graphics and imaging display systems, has moved away from the traditional emphasis on host-based imaging systems with the p^3 Pixel Processing Platform, designed for distributed imaging applications, which combines 68020 CPU running Berkeley 4.3 with highly specialised hardware for rapidly displaying and manipulating the large amounts of data used in imaging applications such as representing weather activity and seismic patterns. Software includes the Image Kernel System, a library of routines for manipulating images that can either be used interactively or embedded into applications programs. Hardware includes optional Ethernet interface, and an optional image pipeline processor using the new NEC 7281 pixel processing chips; there is a facility for bypassing the CPU and delivering data direct from disk to the image processor. The p^3 joins Ramtek's host-dependent 9460 displays and is due to ship in volume towards the end of the year.

NEC READY TO CHALLENGE
INTEL 80386 WITH 32-BIT V60, V70

The Intel suit over the NEC V20 and V30 microprocessors that run code written for the 8088 and 8086 drags on, but whatever the outcome, those chips will soon be history, and the real battleground is going to be at the 32-bit end of the market. And here it looks as if Intel has a real fight on its hands. Apart from the on-board memory manager, the crucial advantage of the 80386 over the 68020 and the NS32332 is that it offers an emulation mode for 8088 and 8086 code, which means that machines using it can be configured to run all software written for the IBM Personal. But NEC Corp can offer exactly the same benefit in its V60 and V70 microprocessors, expected to be formally launched this month, and if reports coming back about the performance of the V20 and V30 are any guide, they may run more efficiently in emulation mode than does the 80386.

Swap a tired old 8086

As an example, our colleagues over at **Technology News of America** reckon there are substantial improvements to be had by easing out that tired old 8088 or 8086 in a PC and plugging in a shiny new NEC V20 or V30; there's no guarantee that it will work on the generality of machines, but they've found that it certainly prolongs the active life of the Olivetti-built AT&T PC6300, which uses a 7.6MHz 8086 and running the Norton computation test routinely outperforms the IBM Personal 1.7 times, but leaps up to 3.4 times when the NEC V30 is given its head. The suggestion is that the performance gains are purely a function of a more efficient instruction set in the V-series chips than in the Intel originals – when you plug in a V20 in place of an 8088, you don't adjust the clock speed or anything else. The 32-bit V60 and V70 chips are also claimed to be the first to integrate basic floating point processing functions with the CPU and memory management unit on a single chip. The V60 has no direct counterpart in the Intel line: it is similar to the National Semiconductor 32016 in that it is a 32-bit internal CPU with a 16-bit bus, so that it can be used with existing 16-bit support chips where in many cases designers who want to get full 32-bit performance from chips like the 80386 have to get applications-specific support parts designed. Both chips will initially be offered with a 16MHz clock, and both have 32 32-bit registers on board, as well as memory manager for 4Gb of demand-paged virtual memory. The V60 is rated at a mere 3.5 MIPS against 6 MIPS for the V70. Prices and availability for the two parts have not been given.

OPTIM COMPUTER GROUP LTD SEEKS TO
RAISE £2m IN PRIVATE PLACING

Optim Computer Group Ltd is seeking to raise £2m by way of a private placing of 11% unsecured convertible loan stock through brokers Northcote & Co. Optim was formed as a management buyout of Monotype Communications computer sales division of the Monotype Group in late 1983, and merged with the UK subsidiary of MCS Inc, later that year taking over the maintenance arm of minimaker Digico Ltd. It markets IBM, Olivetti, Concurrent Computer Unix and MCS Micos systems, and annual turnover is running at some £6m. MCS is a major shareholder in the company, which has since acquired Hoskyns' hotel computer business. The company now specialises in turnkey computer systems for vertical markets, and as well as hotel systems is in industrial controls, retail systems, office automation and field service management.

YLVISAKER QUITS
AS GOULD CHAIRMAN

Flamboyant William Ylvisaker, almost as well known from his forays into the society pages and his entertainment of British Royalty as he is for his achievement in turning Gould Inc from a low-tech metal-bashing conglomerate into a high-tech power-house, has resigned as chairman of the company and cut all his ties. New president James McDonald, appointed in April, is expected to add the post of chairman. Back in 1984, Gould looked poised to capitalise on all the acquisitions made by Ylvisaker, including the SEL minimaker that now is the basis of Gould Computer Systems, but a string of setbacks led by the plunge in the semiconductor market, left the company somewhat bedraggled, and culminated in a charge of $130m in the first quarter of 1986 for cost-overruns on military contracts. The military business is now on the block, and Gould itself looks a prime takeover candidate, with GEC and Siemens heading the list.

OLIVETTI PLANS TO FLOAT
LOGABAX, LOCAL SUBSIDIARY
IN FRANCE

Continuing its strategy of having part-owned local subsidiaries in some major markets, Olivetti plans to merge its French subsidiary with Société Nouvelle Logabax, the company created after Olivetti rescued the old Logabax out of bankruptcy with the help of Bull's then major shareholder St Gobain-Pont à Mousson. Once the merger is complete, Olivetti plans to offer shares in the combined company on the Paris Bourse. Prior to its bankruptcy, Logabax in France played a similar role to that of Acorn in the UK in putting micros into schools, and the French move raises the intriguing possibility that in the medium term, British Olivetti might be merged with Acorn and assume its UK stock exchange quotation. But Acorn has a deal of recovery still to do before that could happen.

For several years, Floating Point Systems made hay by exploiting the gap between superminis and full-blown supercomputers. But within the next year or so, the newly named "minisupercomputer" market promises to become as crowded and cutthroat as the Unix workstation market has become already. And just as Unix is dominating the workstation market, so these machines will mostly be Unix based - companies now need an extremely powerful reason not to use the operating system. Names like Convex, Multiflow, Cydrome - where Prime has an interest - will be competing with processors designed for heavy number crunching applications.

Foolhardy

It's a race to get established, and one of the more promising newcomers is Alliant Computer Systems which after a four year gestation came up with an unusual machine that so far has had a healthy reception. The history of Alliant makes interesting reading; it was formed in 1982 by two long serving Data General staff, Ron Gruner - who at DG headed the Fountainhead project, immortalised in Tracey Kidder's book Soul of a New Machine, that lost the race to develop the first of DG's 32-bit line - and Craig Mundie. Shortly afterwards joined by Rich McAndrew, a ComputerVision Vice-president and also ex-DG, the founders started in what may seem an extremely foolhardy fashion without any set business or product plans. From the basic criteria of seeking a product that was distinctive but still would be able to inherit an existing base, the founders began looking around for academic work that had not yet been exploited but held the potential for commercial application. Within a few months, they had concluded that if there was a way to commercialise parallel processing, they could be on to a winner; a few months later, they had found a promising route in the work of David Kuck, a professor at the university of Illinois. In contrast to much of the work on parallel processing, that starts with the premise that new architectures need new languages and new programming techniques, Kuck was working on ways to use existing Fortran programs to exploit multiple processors. Kuck was brought in as consultant, the company built a business plan round his ideas, and by late 1983 the company had $4.8m in venture funding under its belt. Nevertheless, it was not until September 1985 until the company

THE ALLIANT APPROACH;

PARALLEL PROCESSING

FOR THE MASSES

started shipping, but since then the product has got off to a good start; selling its FX/1 single CPU and FX/8 multiprocessor systems for between $150,000 and $1m, Alliant installed 32 systems worth $15m in the first three - profitable - quarters of shipments, and is though to be heading for a public share offering on the strength of it. The company's systems have also found favour with the two arch-rivals in the workstation business; Apollo Computer is offering the machines as the DSP9000 compute server fopr its Domain line, and has also given Alliant a chance to drastically cut the time taken to get to market worldwide by offering the machines as standalone systems to new customers; a UK launch is thought to be imminent and although the systems are currently linked to Domain systems via Ethernet, full integration into Apollo token ring networks is expected with the next major Domain release. While Apollo is clearly more heavily committed than Sun Microsystems to the Alliant line, the Alliant machines appear to be currently more integrated with systems from Sun Microsystems, with whom it has a joint development and marketing agreement, due to Alliant's adoption of Sun's Network File System.

Crunching

The Alliant systems are built round two types of processors, Computational Elements and Interactive Processors, running the Concentrix Berkeley 4.2-based operating system with demand paging and sharing a global memory via a 72-bit wide, 188MB/sec memory bus. Up to twelve IPs, based on the 68012 variant of the MC68010, each have an additional 512Kb local memory and, share interactive tasks; one is designated the System IP and handles bootstrapping and diagnostics. For the number crunching side of the system, up to eight CEs are linked via a crossbar interconnect with up to four 32KB cache modules interfacing the CEs to the memory bus. Each CE is based on a cluster of 8000-gate CMOS gate arrays, including hardware for floating point and vector operations, virtual memory support and concurrency control for working in parallel. Alliant rates each CE at 11.8 MFLOPS for 64-bit vector floating point operations. That power is no use if you can't get at it, a point graphically

demonstrated by the problems, albeit for a much larger and more ambitious machine, faced by Floating Point Systems with its T-Series of Transputer-based multiprocessors. When the initial euphoria surrounding the T-Series launch had died down, the company was left with the painful reality that there was no software for the machine; that supercomputers spend much of their time running third party Fortran applications, and that the knowledge of how to write software to exploit new architectures simply wasn't widespread enough. The Alliant system is not in the same league as the T-Series, but the company has succeeded in getting a large amount of third party software up and running - although probably not yet particularly efficiently - by leaving the work of exploiting concurrency up to a standard, VAX-compatible Fortran 77 compiler. The Alliant compiler uses the program loop as the basis of optimisation for parallel processing, and can also identify array operations for parallel execution.

DO Loops

Successive iterations of a DO loop, for example, are assigned to different CEs; where subsequent iterations require a value calculated by an earlier iteration, processing is suspended until the value is available. With nested loops, the system will vectorise the inner loop if possible, and process the outer loop concurrently; compiler optimisation is suppressed wherever the compiler considers that incorrect results might be produced. Compiler directives can also be inserted by programmers to further improve performance, and any number of CEs can be assigned to cooperate on a problem while the rest carry on with the remainedr of the system workload. This control and synchronisation could produce a considerable overhead if it relied entirely on software at execution time. Alliant claims that a key advantage is the hardware concurrency control unit associated with each CE, and linked via a separate concurrency control bus. The company gives as an example of the advantages of the parallel approach three problems in computational fluid dynamics comparing Alliant effectiveness against Cray and Fujitsu compilers; in the Baro test, out of a total of 88 loops the Cray compiler transformed 58, the Fujitsu compiler 64; the Alliant compiler, adding parallel optimisation to the vector optimisation of the other two, transformed 83.

unigram·x

After having taken a licence to distribute Sun Microsystems' Network File System a few months back, **Unisoft Corp**, Mountain View, California, majority owned by Root Computers here, is "ready" with NFS for the UniPlus+ versions of System V and V.2, according to **Root Technical Systems** which will offer the product over here. The move will open Network File System up to a host of small manufacturers using UniPlus+, most of which do not have the source licence needed to do the work themselves; Root says it could also work out cheaper than licencing direct from Sun. Root already offers the RootNet Newcastle Connection under Üniplus+.

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The two-way traffic of products be-tween **Olivetti** and its 25% share-holder **AT&T Co** is set to increase. Three years after AT&T and Olivetti agreed to broad-brush collaboration in computers and telecom-munications Olivetti has won approval from the regulatory authorities to make and sell the AT&T System 75 PABX in It-aly. It is still going through the approval process in the UK.

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Do nothing till you hear from us: **Alpha Microsystems** is asking shareholders to delay any action on the $6 a share tender offer from **Point 4 Data Corp** for up to 49.9% of its shares (UX No 94) until Alpha has had a chance to consider the offer.

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Honeywell Inc and **AT&T** are two of the best-placed companies to capitalise on the embryonic market for fitting out "intelligent buildings" – office complexes in which all the information, heating, air conditioning and security services are installed as an integrated system that shares a single set of wiring. The two companies have now decided to create a joint venture to com-bine their skills, with Honey-well providing the control systems and equipment and AT&T providing the telecommunic-ations systems and services and implementing the wiring – pre-sumably based on AT&T's Premises Distribution System.

M i n i g r a m s

The biggest Unix contract in his-tory, AFCAC 251, plans for which surfaced last year (UX No 39), handled by the **US Air Force** and requiring Unix-based office automation systems for installation worldwide on behalf of the Navy, Army and Defense Logistics Agency as well as the Air Force, will move from the Request For Information to the Request For Proposals stage in a few weeks: the contract is for 20,000 systems, has a potential value of $10,000m, and bids have to be in by January; the award is ex-pected to be made in a year's time.

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To put that contract in perspec-tive, The US **Department of Defense** and forces are spending some $7,500m a year on general purpose computers.

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Sanderson Computers Ltd of Sheffield, the European master distributor for **C Itoh's** line of 68000 family of machines that run Pick, RM/COS, Xenix and other operating systems, is looking for distributors right across Europe – in Scandinavia, Benelux, Iberia, France, Italy, Austria and West Germany.

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Two mild disappointments on **ETA Systems's** new Cyber 205-compatible ETA-10 scientific supercomputer: **Electronic News** reports that the machine is a couple of months late and that first deliveries won't be made until December – and that the machine should strictly be renamed the ETA-7.5 because the **Honeywell** CMOS arrays are not switching quite as fast as expected so that peak performance will come out at nearer 7.5Gflops than the target 10Gflops; based in Minneapolis-St Paul, ETA is still 90%-owned by **Control Data Corp**, the company having failed to find the outside backers it wanted.

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Following an earlier agreement with **Sperry UK**, Australian Cobol specialist **Austec** has now landed a deal with Sperry in Belgium; the main attraction was the compatibility of Austec's ACE with Data General Cobol, aiding Sperry's efforts to attract the minimaker's VAR base.

We hear that **IBM** salesmen have been approaching not only Unix resellers but also **DEC** OEMs – not, currently, having an easy time of it, what with DEC's discount cutting – and asking them if by any chance they are one of those DEC resellers who use or are interested in Unix; if so, how would they like to switch to using this nice little box called the 6150?

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Hitachi is expected to follow **Amd-ahl** and **Fujitsu** by introducing an implementation of Unix System V for its IBM-compatible mainframes with-in the next few months, and to push it through its resellers, which include **National Advanced Syst-ems, Nixdorf, Olivetti** and **BASF.**

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DEC, which claims to have 180 software developers working on Ultrix in the US – about the same as for VMS – says that it is putting $17.6m into development of the operating system this year.

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Of more immediate interest, another 10 Ultrix technical staff will be added by the end of the year to the "3-5" at DEC Park in Reading currently, with a £1m budget.

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Version 2 of Ultrix-32, thought to be due around March next year, will complete support for the 8000 series of Vaxen, as well as including the first release of **Sun Microsystems'** Network File System.

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Corvus Systems says that **Santa Cruz Operation** will use the new Corvus 80386 machine for development of Xenix V, in a move that should guarantee early availability of Xenix for Corvus.

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The SVVS licencing restrictions, which **AT&T** is considering relaxing (see front page) remain a relative-ly minor point among the other implications of V.3, although irritating enough to have caused a chorus of boos from the market; presumably AT&T, if it does shift from its original position, is hoping that customers will be so relieved to see any concessions that they will swallow some of the other, more onerous restrictions.

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COUNTERPOINT AIMS FOR MULTI-USE UNIX PRICE LEADERSHIP

Counterpoint Computers Inc, the San Jose, California start-up formed by Convergent Technologies alumnus Pauline Alker and backed by AT&T, British & Commonwealth Shipping and Kyocera, has moved to correct the widespread impression that it is a specialist workstation manufacturer by duly bringing out that line of 68020-based multi-user Unix systems foreshadowed two weeks ago. Typical Unix implementations with Berkeley connections already in the market are based on BSD 4.2 with System V extensions, but by being a latecomer, Counterpoint has been able to start with System V 2.2 in its C-Xix multiprocessor implementation, and add 4.2 extensions - and support for Ethernet. The new System 19K is designed to be expanded from a single-user system with one 68020 processor, right up to a six processor system capable of looking after 56 simultaneous users. An entry-level CPS-830-6 comes with one 68020, 2Mb to 5Mb memory, 100Mb disk and 1Mb floppy and six ports; the entry price is set at under $10,000 but it is not clear exactly what that includes. The basic system has slots for adding five more processors, five 10-port terminal processors, 600Mb of disk and bit-mapped graphics terminals. The company says that a typical configuration designed to handle 36 users, with 400Mb on disk and a 60Mb tape drive, is $40,000.

MS-DOS 386 "18 MONTHS AWAY": UNIX TO RULE 80386 WORLD

Reports from the US suggest that Microsoft is still 18 months away from introducing a version of MS-DOS designed to make full use of the 32-bit 80386 microprocessor - and if they prove true, it is likely that Unix will have an unstoppable head of steam behind it by the time the Microsoft operating system arrives. A whole string of companies are close to announcement of versions of Unix System V that are designed to run multiple MS-DOS applications as tasks, and software developers who want to offer programs that make use of the full performance of the 80386 will be loth to wait for the Microsoft offering - and the only viable alternative open to them will be to write the applications to run under Unix.

WHITECHAPEL LAUNCHES FALCON WORKSTATION LINE

Whitechapel Workstations Ltd, based in London's East End, is bringing out a new line of Unix workstations, aimed at specific vertical markets. The new machines are based on the company's existing MG-1 mono and CG-1 colour stations that use the NS32016 microprocessor, and go under the Falcon name. They run under Whitechapel's 42-nix implementation of BSD 4.2 Unix with Oriel Window Management System. The Falcons come in three versions, the Fileless Station, the Applications Station and the Fileserver, all of which can be Ethernetworked together and communicate using Sun Microsystems' Network File System. New divisions for OEM Sales, and Systems, have been formed, the latter's first product being that new desktop publishing system.

ICL, SEVEN OTHER EUROPEANS PLAN COMMUNIBILITY GROUP

Having successfully established a framework - X-Open - for ensuring compatibility of Unix applications across their various product lines, Europe's Big Six - ICL, Bull, Siemens, Nixdorf, Olivetti and Philips - have developed a taste for such intercompany bodies, and will reportedly announce formation of another such group on October 2, this time to ensure communications compatibility between their various product lines. Two others not involved in X-Open, Thomson of France and the Stet Italian telecommunications holding company, are the other founders of the new body, which has a mission to ensure members' computer, office and telecommunications kit really do work together.

IBM ENHANCES, SLASHES PRICES

In an unprecedented acknowledgement that it got the RT Personal Computer completely wrong, IBM has slashed prices 20% to 32% on the family and greatly expanded memory and disk support, only six months after first deliveries were made. The AIX implementation of Unix System V now supports 16 users, up from eight, and also includes full SNA support and the ability to link to Ethernet, previewed at the Unix User 'Show here a few months ago. A new Model 15 of the 6151 desk-top version offers main memory doubled to 2Mb and disk capacity doubled to 75Mb, and will be available in the US in October for $10,050. Main memory on all models is now expandable to a maximum of 8Mb with a new 4Mb board costing $4,300, and a $1,080 SCSI adaptor, due next March, supports the recently-announced 9332 disk drive so that maximum disk capacity is now 5.6Gb. A new floating point accelerator board improves performance three-fold and costs $1,995 from March. A System 370 host interface adaptor enables the RT to be linked to a 370-type CPU via the 588 graphics controller and to transfer data at up to 2Mbits per second; it costs $1,795 from second quarter 1987. The 6151-10 is cut 32.% to $7,900, and the AUX Unix operating system is cut 32.5% to $2,295. The 6151-20 is cut 20.4% to $11,900; the floorstanding 6150-25 and 25A are cut 21.7% to $14,050 and 19.9% to $15,620 respectively. A new VS Pascal compiler is $1,000, and there is a 1.1 release of the Virtual Resource Manager that allows memory partitioning and improves windowing at $895.

ARETE HITS EUROPE - ACROSS THE CHANNEL WITH SAGEM

The Arete Systems Corp Series 1000 multi-processor Unix systems have been available Europe for some time now - but only in Sperry colours. But now Arete has signed its first European distributor - for the French market only at present. The chosen partner is long-established Sagem of Paris.

UNIX DEVELOPERS MOVING INTO THE VAX MARKET

For most developers of Unix products, their next target is PCDOS where appropriate, but increasingly developers are then looking to the VAX as their next step; Informix Inc, the erstwhile Relational Database Systems, is working on a VMS version of its relational database, for instance. Now Network Innovations, the Cupertino, California developer of the Multiplex DOS-to-Unix communications software, has made its first step outside the Unix environment with a version of Multiplex for VAX/VMS systems. The product presents PC users with a Lotus-like interface through which they can browse data from RMS, Datatrieve or table from DEC's Rdb relational database; when the appropriate data have been selected Multiplex pulls the data down to the PC in the appropriate format for use by packages such as Lotus 1-2-3. The product announcement coincided with DEC's launch of the 80286 AT-compatible VAXmate, and fits with DEC's focus on the VAXmate as an intelligent workstation to VAXen. Multiplex for VAX ships in November, and costs from $2,000 for MicroVAX to $6,000 for 11/780, rising further with the new 8000 line. Network Innovations' only European distributor so far is Oriane in France. Existing Multiplex OEMs include Convergent Technologies, Altos, NCR, Plexus and the company has a joint marketing agreement with Pyramid.

TRILOGY's ELXSI LAUNCHES ITS VAX/VMS-COMPATIBLE ENVIRONMENT

Trilogy Ltd's Elxsi Corp has released the operating environment promised last year that emulates key features of DEC's VAX/VMS operating system. Called EMS, the environment is built on Elxsi's Embos operating system, and includes the EMS/ECL implementation of DEC's Digital Command Language interpreter, the VAX job control language; EMS/ERT, which implements key VMS utilities and run-time library functions including an emulation of the VMS interactive text editor. It also offers a new version of the Elxsi Fortran compiler and the EDMS database management system based on DEC's DMS. Elxsi has taken a licence to the Community communications package from Technology Concepts Inc, and is adapting it so that the Elxsi 64-bit System 6400 multiprocessor can be configured as a DECnet Phase IV end node on Ethernet. The company's aim is to offer VAX users a top-end processor with much better price-performance than an equivalent VAXcluster would provide, and a familiar user interface to scientific applications. There is no intention to provide full VAX compatibility — the 6400 does not implement the VAX instruction set — but Elxsi hopes that the ability to add much higher performance to a network of VAXes will generate big business. Embos also supports both Unix System V and BSD 4.2, enabling Unix and adapted VMS applications to be run concurrently. The EMS/ECL command language and EMS/ERT utilities cost $20,000, or $12,500 apiece when they are bought separately, and the text editor is $2,500.

IBM TO MARKET TETRA's TETRAPLAN ON RT PERSONAL

IBM may be determinedly pitching the RT Personal Unix box exclusively at the computer-aided design and engineering market in the US — with the odd sideways glance at delivery of artificial intelligence applications, but there are no such inhib-itions in Europe.
A key reason for this is that the lower down IBM's product line you go, the less suc-cessful its kit is in Europe, so that there while there are almost as many 308X and 3090 mainframes in the rest of the world as in the US, there are probably three or four times as many System 36s in the US as there are in the rest of the world.
Thus IBM Europe is much less uncomfortable than its US par-ent about pushing the RT as a business computer, and has now agreed to market the Tetraplan Business and Accounting Suite, which is des-igned to run under Unix, on the RT.
Tetra Business Systems Ltd of High Wycombe, Buckinghamshire, says that the contract covers both the multi-user version and multiple Personal Computer versions where the RT is used as a file server.
The agreement with Tetra covers sales both through IBM's direct sales force and through the various RT Personal dealers.

BUYING SPREE: TELEVIDEO TAKES MICROPORT STAKE, MAKES AGREED BID FOR ALPHA MICRO

Trading at around the break-even mark it may be, but Televideo Systems Inc has $70m in the bank, and seems to want to convert it into assets as quickly as poss-ible. The Sunnyvale, California maker of IBM Personalikes and display terminals is plunging into the low-end Unix system software market by buying a subs-tantial minority stake in Microport Systems, and has emerged as a potential white knight to rescue Alpha Microsystems from that bid from Point 4 Data Corp.
Microport Systems, now based in Scotts Valley, Calif-ornia is the company formed by Chuck Hickey and his team at Digital Research after the latter abandoned his project to develop Unix System V/286 for Intel.
The company is doing substantial business with its System V/AT implementation of Unix for the IBM Pers-onal AT — it claims to have been selling 1,000 copies a month at $159 a shot since April.
It was looking for cash to complete development of a Unix for the 80386 that will run multiple MS-DOS tasks, and also to expand sales and marketing, when Televideo arrived on the scene, saying it wanted "to benefit from Mic-roport's Unix technology".
As for Alpha Micro, its board unanimously recommended shareholders to reject the Point 4 Data offer of $6 a share cash for 49.9% of its shares, with $5.50 of subordinated notes for the balance. Instead it recommends acceptance of a $8 a share bid from Televideo made up of $4 in cash and $4 in Televideo shares. Alpha Micro would be op-erated as a subsidiary under its present management.

ALTOS JUMPING UPMARKET:
INTRODUCES NEW TOP-END XENIX SYSTEM

Altos Computer Systems is planning another big leap upmarket with a multi-CPU system taking it up to the 100-terminal league "within a year", according to Altos UK managing director Archie Thomas. Meanwhile the company has announced a new top end system in its mainstream Xenix range, the 3086, claimed to be able to shoehorn no less than 32 users onto a 12.5MHz 80286 CPU; Altos 68020 machine, the 3068, continues. Also announced in the UK was the desktop 686. The 3086 costs from £32,450, and includes 4MB memory, expandable to 8MB, ESDI 170MB disk, 1.6MB floppy, 60MB tape streamer and terminal. Altos has also brought in a new multi-drop communications subsystem for reducing terminal wiring problems; a single cable plugs into an RS422 port on the 3086 and multiplexers at intervals along the cable support clusters of terminals. The 686 is from £4,650 with 7.5MHz 80286, Xenix, 512Kb RAM expandable to 2.5Mb, 25Mb or 50Mb disk expandable to 130Mb, six ports, 1.6Mb floppy and terminal. Thomas claimed 80% growth in the UK for Altos in the year ending June 30 to revenues "at end user prices" – pretty meaningless since Altos relies on third party distribution – of £25m; the company has about 250 dealers and is shipping 100 systems a month, he added. Altos is attempting to raise its profile, starting TV advertising last weekend, and has the Altos solutions show in London coming up next month, where it plans to announce a desktop publishing system.

XENIX – THE STABLE OPTION

Centre-File, the Natwest computing subsidiary and bureau, has opted for Xenix against networked PCs for delivering multi-user accounting systems, becoming an Altos reseller and due to install its first systems in the next couple of weeks. The micro products division specialising in supplying accounting systems for small businesses, set up just over a year ago, has been mulling over the idea of selling Altos machines to supplement the PC-based solutions it has installed with 175 customers with Multisoft accounting software. In the past it has suggested networked PCS , using the Orchid PC Network, for multi user installations, but says that while it "wholeheartedly endorses" networked PCs for other applications, it has found problems for the accounting application – notably handling the I/O demands on the system – and considers the Xenix approach top be far more "stable". Other options considered briefly were Olivetti, Molecular and North Star multi-user systems; as an IBM dealer, Centre-File looked more closely at the IBM 6150 but emerged unconvinced about whether IBM intends it to be a technical workstation or a machine for running business applications – it also, obviously, lacked the breadth of product range of Altos. The other option was to extend the PC ATX with AST boards to add serial ports – after looking around, the company found little evidence of others trying that approach and decided against being a "pioneer".

WOLLONGONG DEMONSTRATES TCP/IP
FOR SYSTEM V.3

With System V.3, Streams and Remtote File Sharing, AT&T has introduced a new architecture for distributed Unix systems; the problem so far has been that it is just that – an architecture rather than ready-made implementations supporting existing networks, with the exception of AT&T's own StarLan. But support for the de facto Unix standard for networking software, TCP/IP, appears to be just around the corner; the Wollongong Group, contracted by AT&T to supply TCP/IP networking software for System V.3 on the 3B range, demonstrated TCP/IP under V.3 at the US Federal Computer Conference last month. Wollongong retains the rights to offer the software to other manufacturers. It says that a considerable amount of work was needed to rewrite its existing TCP/IP software to use streams; the V.3 version uses AT&T's Transport Provider Interface to Streams, and also supports at the physical network end the 802.2 interface to ISO layer 2, to maintain independence from network hardware. Applications access the TCP/IP software via the V.3 Transport Level Interface, and Wollongong has also included a sockets interface on top of that to allow existing software that uses the Berkeley networking features to continue to run – Wollongong, knowing that TLI was on the way, says that it included a TLI interface as well as sockets with its earlier V.2 version. Wollongong now has a wide range of TCP/IP implementations for everything from PC-DOS to Crays, and besides Ethernet supports diverse networks including Network Systems Corp's Hyperchannel; it recently adopted the Wollongong Integrated Network, WIN, generic name for its products. It is already moving to working on OSI networking – the US Government recently said it was formulating a policy of buying only OSI conformant products – but in the meantime TCP/IP remains unchallenged, and Wollongong is part of a group of 60-odd vendors participating in a series of workshops, the most recent of which was in Monterrey a couple of weeks ago, aimed at defining enhancements and extensions to TCP/IP networks. With some funding from the US Defence Advanced Research Projects Agency, areas being examined include domain naming, subnetwork routing, and performance enhancements; TCP/IP was developed for and runs the enormous Arpanet research network.

ORACLE CORP CLIMBS ABOARD SPERRY's US
ARMY UNIX GRAVY TRAIN

Oracle Corp has now been confirmed as the database software supplier for the US Army's Minis programme. Sperry Corp's Federal Systems Division received the prime contract to supply up to 1,800 of its 6000/80 Unix supermicros that it buys OEM from Arete, for the office automation programme – ironically in fierce and bitter competition with Burroughs' Systems Development Corp. Oracle has been an OEM supplier to Sperry for two years, and Sperry has been proposing and marketing Oracle products on its Unix computers since 1985. The Minis contract is the largest Sperry deal thus far including Oracle as the database of choice, and could turn out to be worth anything from $2.5m to $6m to Oracle under terms of the contract with Sperry. Among the other software suppliers under the contract is Quadratron for its Q-office office automation package.

SIGMEX AIMS TO RISE ABOVE THE CROWD

In common with a number of computer graphics companies, Sigmex International Plc, Horsham, Sussex, has had its heels bitten in the last 12 months since the arrival on the market of a generation of smaller, cheaper microcomputer workstations with the power of their mini-based predecessors. Before these hit the scene, the typical graphics system was a configuration of screen and terminal hosted by, at least, a minicomputer.

However, cheaper and more powerful micros have changed the picture, and users are happy to run a network of supermicros driving their CAD/CAM and CAE applications. Machines like the RT from IBM, the MicroVAX II from DEC and the new low-price workstations from Sun and Apollo have all undermined the market. Sigmex hopes to ride the storm by keeping its kit above the fray at the top end of the performance range. In a parallel with the US general purpose data processing market, heavy buying in 1985 has left many users with more resources than they need and this, claims the company, left demand at the end of 1985 and in the first half of 1986 extremely weak, leaving Sigmex with slow sales of its standard products hitting the performance for its first year as a public company.

Overseas trade

Chairman John Massey says that the way ahead now for Sigmex is to await the revival of demand in the market which he feels is inevitable, and at the same time continue evolutionary development of Sigmex products. Meanwhile, the two big defence contracts, and, it hopes, others like it, will keep things ticking over, generating £3.5m revenue for each of the next two years. Those two contracts were responsible for most of the £400,000 systems division development costs incurred over the year and will only show a

UNIX UNDER VME NOW OUT ON FIELD TRIALS

ICL, which last week filled out its Series 39 range with three new models: the 39/20, 39/50 and 39/60, says that the long-promised Unix under VME, for the Series 39 only, is out on field trials. ICL has System V.1 running but general release is not expected until an upgrade to System V.2 is completed at the end of next summer.

Users will be able to run multiple Unix virtual machines under VME. Mainframe marketing manager at ICL, Derek Sayers, described Unix under VME as a "checklist item" – "got Unix?" "Yup" – but that no-one is likely to buy a Series 39 simply for Unix, even though Unix users will be able to make use of the CAFS Content Addressable File Store hardware file search facility on the newly padded out Series 39.

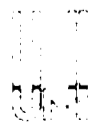## BIS DOES ROUNDS OF CITY HOUSES WITH A VIEW TO FLOTATION

Business Intelligence Services Ltd, the South London-based information services and marketing group which is attracting considerable interest in the City, is understood to be in heated talks with merchant bankers and other parties in preparation for a public flotation of its shares.

In the year ending March of this year, BIS made £4.2m pre-tax on sales of £47m and is predicted to do £60m sales this year with similar margins. It is obliged to create a market for its shares in some form before next September; and its options options include joining the full list, probably by reverse takeover, or a sell out to one of the major players.

return this year. The company will continue to spend 10% of sales revenue on research and development and is currently working on a parallel processor-based architecture using a proprietary chip design using large gate arrays. That product can be expected to appear within the next 24 months and will be targetted at highly specialised niches – Massey gives cartography as an example. Further efforts are being made to reduce overheads, and Massey reports that his team are involved in a continual and concentrated process of value engineering. Massey identifies the UK subsidiary as the weakest and suffering from the highest margin pressures and sluggish demand. Overseas trade has grown by 40% and stands at a healthy 46% of turnover. The prospects for Sigmex look mixed. On the one hand, standard products sales have proven vulnerable to the changes the market is presently undergoing, and yet Sigmex seems confident that the worst is now rover and that sales will steadily pick up again over the next year or so. But there seems to be little to support the idea that that will happen and it's just as likely that Sigmex' base business will contract further in the coming months. On the other hand, there is a guaranteed £7m revenue to come from the two new contracts.

DEC EXTENDS FREE ONE-YEAR WARRANTY TO ENTIRE PRODUCT LINE
Passing the benefit of improved reliability on to its end-users, OEM customers and distributors, DEC has extended the free one-year on-site guarantee that includes parts and labour from the top-end VAX 8000 line to its entire product line - and claims that it is the first company in the business to offer what is effectively one year's free maintenance on its full line. System software compliancy warranty is also extended cto one year from the previous three months. On-site maintenance is confined to equipment installed by DEC. For DEC equipment installed by third parties, the warranty is on a return-to-factory basis. The new terms will take effect from Monday, and the company reckons that they will reduce the effective cost of ownership of its equipment by as much as 8%.

MOTOROLA PREVIEWS 8 MIPS 68030 WITH ON-BOARD MEMORY MANAGER, TWO CACHES
Motorola has duly announced the MC68030 enhanced version of the 32-bit 68020 microprocessor, and, as expected, the part includes on-chip paged memory manager; however the new maths co-processor is a separate chip, and it looks as if we'll have to wait for the 68040 for that to be integrated with the CPU. First silicon on the 68030 is set for March, and Motorola rates the 20MHz 1.2 micron CMOS part at about 8 MIPS, twice the performance of the 68020 and "nearly double" that of the DEC VAX 8600. As well as the on-chip memory manager - based on the 68851 chip, the part implements Harvard Architecture, pioneered in Texas Instruments' TMS320 digital signal processor, in which there are separate data and instruction buses - indeed there are two 32-bit address and two 32-bit data buses for a total bus bandwidth of 80 Mbytes per second. The 68030 also has separate 256 byte caches for data and for instructions, and by bringing the memory manager on-chip, the time for translation of virtual into real addresses can be hidden during cache access. The part is fully upwards-compatible with the 68020. Motorola has also announced the 68882 floating point co-processor, an enhanced version of the 68881 that offers two to four times the performance.

AT&T PREPARES JAPANESE VALUE-ADDED NETWORK JOINT VENTURE FOR NOVEMBER
AT&T Communications is putting the final touches to a joint value added network service venture in Japan, which is due to begin operations in November. AT&T ended its highly ambitious Advanced Information Services Net/1000 network service project in January 1986, but AT&T director of global information movement and management and foreign-based networks Michael Williams says that the new network business has nothing to do with Net/1000. It will be aimed at the worldwide market for value-added services, and although it will start in Japan, AT&T says that it is talking to potential partners worldwide. The highway will be a packet switched network, offering enhanced services, including electronic mail and time-sharing. It will have a Japanese president. AT&T will be the largest shareholder and will have 18 Japanese partners including Bank of Japan, international record carrier Kokusai Denshin Denwa, Fujitsu, Hitachi, Nippon Life Insurance Company and minor shareholders Nissan and Sony. There are over 150 companies preparing to contest the value-added services market in Japan, including small and specialised companies and Williams estimates that the market there will be worth around $50m annually.

IDEAS NEED PROVING? CAMBRIDGE VENTURE, 3i TEAM TO OFFER SEEDCORN FINANCE
Many would-be entrepreneurs find that venture capital companies can be little better than banks - they throw money at you when you don't desperately need it, but at the crucial points where outside finance is vital, they suddenly remember an urgent appointment in Karachi and promise to get back to you next year. And so where venture capitalists have come to regard the irritatingly-named mezzanine round of financing as the most rewarding - the principals have proved they can run a company, have a saleable product and have so much time, effort and resources tied up in the business that they are not going to walk away from it, when it comes to finding quite small amounts of money to move an idea on from ground zero to the point where it can be presented as a serious option, hardly anyone wants to know. Seedcorn finance, it's called, and Cambridge Venture Management Ltd, based in the Cambridge Science Park, has teamed up with 3i, Investors In Industry, the big venture capital group owned by the UK clearing banks, to offer seedcorn finance. The thinking behind the venture is that 3i has the cash, Cambridge has the specialist expertise capable of recognising an idea that just could fly. The aim of the collaboration is to provide the cash needed to develop a prototype, conduct feasibility studies and market surveys, and prepare a business plan. Each partner takes a minority stake in the venture, and while 3i naturally hopes that when the time comes to put the product into production, it will get first refusal on putting up the real money, there is no obligation on the entrepreneur to go to 3i for first round finance.

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Volkswagen AG and **Olivetti SpA** have formally completed the transaction under which Olivetti pays $73.5m for 98.5% of the **Triumph-Adler AG** office systems and equipment business, and the German automaker pays $291m for a 5% stake in Olivetti.

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National Semiconductor Corp will close its chip plants in the US and Europe for a total of 14 working days between now and the end of the year, in addition to the seven paid holidays during the period. Combined shutdown and paid holidays will include six days in October, and the weeks of Thanksgiving, Christmas and New Year: the plant shutdowns affect only semiconductor and corporate staffs, approximately 8,400 people; the affected plants are in California, Arizona, Utah, Texas, Connecticut, and Scotland.

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Nippon Univac Kaisha Ltd has introduced a new VLSI implementation of the 1100/70 CPU in 30,000 gate CMOS for 60% lower power consumption and smaller footprint the Japanese Sperry affiliate calls the machine, which runs OS 1100, the Series 2200; it is launched only in Japan.

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It is unlikely to keep pace with the Motorola 68030, due at about the same time but **Fairchild Semiconductor** plans to start shipping a 40MHz version of its Clipper 32-bit chip set early in 1987: the Cupertino, California company rates the present 33MHz version of the set – which unlike the **Motorola** part includes floating point circuitry – at 5 MIPS and says the faster version should do up to 6.5 MIPS. Motorola rates the initial 20MHz 68030 at some 8 MIPS.

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Sphinx Ltd is sponsoring a series of seminars to be given by Tom Cull, founder of consultancy the Westville Group and formerly president of **Interactive Systems Corp**; the seminars are on 24th October in London, the 27th in Paris and 29th in Munich and cost is £195+VAT.

M i n i g r a m s

NEC Electronics says that it expects to have samples of the first of its Unix microprocessors, the V60, in the UK next month; the V60 is 32-bit internal, 16-bit external, production quantities are due around six months later, and Unix System V should be ready around the end of this year. Samples of the full 32-bit V70 are due next summer.

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Compass Peripheral Systems, selling DEC-compatible hardware as well as the **Sequent** and **Parallel** Unix systems, is the latest taker for the DEC Basic-Plus version of **MS Associates** CGEN Basic-to-C translator; prices start at £15,000 for a binary version, with source version also available. The deal is estimated to be worth £500,000 in the first year.

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Compass Peripheral Systems has picked up an order worth close to £200,000 for one of the big Sequent Balance 21000 Unix machines to support an interactive service for students at Strathclyde University; the other bidders are understood to have included DEC.

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Compass is also looking with keen interest at **Root's** Unix versions of the Hoskyns MAS applications, and the Unitecs CICS emulator; the Sequent machines that it distributes are one of the few Unix boxes around that have the power to compete with IBM 4300s and up. Unix CAD workstation manufacturer **Cadnetix**, based in Swindon over here, has an ECL circuit routing facility for its CDX 5000 stations as well as the CDX 75000 special purpose Route Engine.

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Olivetti has picked up another University sale for the AT&T 3B2; the 3B2/400D, supplied by **Unilink Computer Services** to the **University of Bath** will be used as a System Tutor for teaching applications of computing, running Interactive Training Systems' UTAC software, and will be linked to 12 M24 PC-compatibles by 3BNet and the PC Interface software.

In recognition that the agreed acquisition of the company by **Televideo Systems** is likely to be consummated, **Point 4 Data Corp** will not proceed with its $6 a share cash tender offer for up to 49% of the shares of **Alpha Microsystems**.

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Xylogics International Ltd, of Slough, has its first communications product in the UK, the 780 VMEbus communications controller for System V or BSD4.2 Unix systems; the 80186-based controller uses 512Kb RAM to hold an emulation of the Unix TTY software; it can support 16 lines at 9600 baud or 8 lines at 19.2Kbaud and is $2,495.

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Silicon Graphics, making Unix workstations with extremely powerful graphics capabilities, has turned in a 93% increase in revenues for fiscal year ending June 30 1986, up to $41.5m from $21.5m in 1985.

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Isle of Man software house **Real Time Systems** has version 1.6 of XZ80, one of the XA80 range of cross-assemblers, for Z80 and 64180 processors; hosts include PC/MSDOS, Idris and Unix on PDP-11 and VMS and Unix on VAX.

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Australian Cobol specialist **Austec** has picked up another healthy deal for its ACE Cobol environment, from **NCR** for worldwide distribution on the Tower and NCR PC ranges.

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The eagerly anticipated "Modular Mac" from **Apple Computer Inc** is believed to have slipped again and is not now expected before March – but the machine sounds like something of a humdinger: **Infoworld** is going for 32-bit 68020 processor with memory management unit, 1Mb expandable to 8Mb all on the motherboard, and six slots, although one will be needed for the display; target price is between $4,000 and $8,000 and the machine is expected to be pitched at the bottom of the engineering workstation market.

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AT&T has given details of the terms of its redundancy package for managers but hasn't said how many of its 330,000 employees it wants to shed: the package, which could be offered to as many as 25,000 people, gives one year's salary for 20 years of service, with 5% less for each year under 20 spent with AT&T.

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NINE-MONTH DELAY FOR KEY HEWLETT-PACKARD 930 SPECTRUM

Hewlett-Packard Co's computer operations have been struck a devastating blow with the news that the most commercially crucial of the three Spectrum RISC models announced so far, the HP3000 Model 930, will be about nine months late. The 930 was to have been shipped in the fourth quarter of this year, but has been held back until the middle of next year because "additional tuning" is required to the input-output software. The company stresses that the snag is confined to the input-output sub-system and does not involve the system architecture; it also says that the first scientific processor to use the Spectrum Precision Architecture, the HP9000 Model 840, and the larger HP3000, the 950, are on schedule; the HP3000/950 is due to ship in the second quarter of next year. The company says the setback will not have much impact on 1986 figures – but its fiscal year ends next month, so that is not too surprising; the effect on fiscal 1987 figures is likely to be severe as Hewlett-Packard has staked its whole future on its Precision Architecture range. The 930 is the most crucial of the three models because many users in its large HP3000 user base have been impatiently awaiting more power, and their logical move would have been to the 930 rather than the 950.

HONEYWELL PLUNGES INTO UNIX WITH 68020 MODELS IN THE US

Honeywell has plunged into the Unix market in the US with three machines based on the 68000 family – and although the bottom model uses the 68010 chip, it appears from the specification to be a different machine from the 68010+68000 Unix box developed by Honeywell Italia and sold here as the X-Superteam. The US line, developed in-house, is called the XPS 100 family, consisting of the 68010-based X10, the 68020-based X20 and the dual processor X40. Honeywell is aiming the machines primarily at the value-added reseller market, and a key selling point is its own utility to enable resellers to develop their own screen interfaces for users who are unfamiliar with Unix. The machines run under Unix System V.2, and the Unify relational database and Uniplex II Plus and Applix Inc's Alis office automation suites are available. Communications support includes asynchronous, bisynchronous, SNA and X25 wide area, and Ethernet local area networking. The Multibus I-based X10 comes with 412Kb to 6.5Mb, 4Kb cache option and up to 120Mb disk, 60Mb tape streamer and support for 16 users; available now, it costs $7,475 with 512Kb, 720Kb floppy and 45Mb Winchester. The VMEbus-based X20 comes with 2Mb to 10Mb memory, up to 435Mb disk, tape, and support for 32 users, with 16Kb cache option; base price with 2Mb CPU and 72Mb disk is $16,580 from the fourth quarter. The X40 doubles up everything in the X20, supporting up to 64 users, and starts at $41,630 with two 2Mb processors, and 145Mb disk, from the first quarter of 1987. Unix, C and the interface writer is included in all cases. Honeywell also introduced two ASCII displays, the HDS 1, compatible with the ADDS line, and the HDS 3, compatible with DEC's VT52, VT100 and VT220. It says that Ultimate Corp, a major customer for DPS 6 minis for its Pick machines, has ordered $10m-worth of the new Unix machines.

NCR CUTS TOWER PRICES IN US BY UP TO 33%

NCR Corp has set substantial price reductions on the entire line of its top-selling Tower Unix microcomputers in the US, ranging from 7% on the 68020-based Tower 32 up to 33% on all add-on memory. The Tower vies with Altos and Convergent in general purpose Unix systems in most major markets. The Mini-Tower, based on the 68010, is cut an average of 20% with the base system with 1Mb memory, 25Mb disk, eight ports and Unix now $5,260. The 68010-based Tower XP falls an average 17%, with a 1Mb CPU, 46Mb disk, 1Mb floppy, 45Mb cartridge tape and eight ports falling to $13,675. The top-end 32-bit 68020-based Tower 32 is cut more modestly by an average 7%, with a 2Mb CPU, 85Mb disk, 45Mb cartridge, 1.2Mb floppy, one printer and eight user ports and Unix falling to $23,470. The reductions are in part down to big cuts on memory prices: add-on memory for the machines is cut 33% to $1,000 per megabyte. The input-output controllers are also reduced, by 14% to $1,500, and Winchester disk drives for the Towers are cut by between 11% and 18%. The 46Mb drive now costs $2,500 and the 140Mb drive is reduced to $5,500. NCR UK is reviewing prices and will set new ones at the end of October.

APOLLO ENHANCES DOMAIN

This week saw the eventual launch of Apollo Computer's DSP9000 in the UK (Ux No 84) and announced enhancements to its bottom-end 32-bit Domain Series 3000 Personal Workstation product line. Enhancements have been made to graphics, memory, and mass storage as well as the promised IBM AT-alike capability. (Details on page 2)

ICL IN A QUANDRY OVER UNIX/VME

After nearly three years' work, ICL has got Unix up and running on its Series 39
mainframes - but it doesn't seem to know what to do with it. The System V
implementation, which conforms to the X-Open European standard, has been embedded within
VME users rather than just another extra service for them, and it seems unable to decide
whether it will justify the expense and effort to promote it as such. It has already
funded a major development effort to intergrate it with its flagship operating system.
The work was done by a team from the Bath software engineering house Praxis in
collaboration with a team from ICL. Most of the Kernel- including the process controls,
device drivers and system calls handling - was re-coded into S3, the VME systems
programming language to ease the integration of the operating systems. (To ensure
compatibilitywith System V and X-Open was maintained, all the minor buggs in the kernel
had to be translated as well because someone, somewhere, is bound to havewritten
applications to take advantage of the peculiar behavior of the bugs.)

The file server, however, was kept in C,
mainly because parts of it have become so
complex with ad hoc additions over the years
that it would be almost impossible to unravel
all of its functions, let alone translate
them into another language without losing or
changing some of them. Each Unix user has
his or her own virtual VME machine, with all
the users on the Unix service accessing a VME
file server which holds the Unix database.
The file store can be on one machine and the
users on the other machines accessing the
files transparently across X-25 networks.
Standard VME files can be accessed by naming
them as a Unix device and manipulated by
standard Unix commands.

As it is offered as a standard VME service,
several Unix systems can run at the same time
on a machine with no communications between
them, which makes security easier. And all
the features of the "grown up" operating
system - including performance monotoring and
control, backup and recovery - can be used
with the Unix service.

Also, because Unix was designed for small
machines, it fits into a single VME segment,
which speeds up access, and most of the time
everything fits into the cache with the data
in a stack, so it is very, very fast.
Several members of the Praxis and ICL
development teams have worked with VME for
over 10 years, enabling them to use it very
efficiently. This has reportedly led to the
implementation substantially outperforming
ICL's specifications.
Then the first implementation went out to
field trial last Febuary and has been used by
the development teams for the past two years.
The two teams are currently working to
upgrade the C compiler (adding an optimising
pass and source code debugging) and Release 2
is expected next year.
But ICL stll does not seem to know what to do with
it - the project started out as a minor additional
service to VME customers, but it has turned out to
be a very good general development environment for
VME. But if ICL wants to market it as that, it
will have to retrain all its mainframe support
teams which could further delay its introduction.

APOLLO ENHANCES BEST-SELLING DN3000 PERSONAL WORKSTATION LINE

Apollo of Chelmsford, Massachusetts claims
that the new memory and disk enhancements on
the DN3000 combine to provide improved
performance of up to 50%. The announcement
also includes support for Ethernet and a new
ESDI - Extended Small Disk Interface. Maximum
main memory is doubled to 8Mb and there are
new 155Mb and 348Mb Winchesters. A 19"
colour display option has been added as an
alternative to the existing 15" colour and
19" monochrome monitors: the new monitor
gives 60Hz non-interlaced, 1024 by 800 pixels
and four colour planes. A new Serial-Parallel
Expansion Board for the AT bus, included in
the 3000, has been added so that users can
attach off-the-shelf, high-speed serial
peripherals Centronics parallel
communications. The Domain/PCC - a new IBM PC
AT co-processor, enables users to run DOS
applications and Unix-based Domain
applications concurrently on the same Series
3000 workstation. Unmodified PC-DOS
applications can communicate directly with
input/output devices attached to the Series
3000 AT-compatible peripherals bus.
Prices for the new versions will be about
£2,000 up on equivalent existing models.
All enhanced models are available now in the
UK. Apollo says that in less than seven
months it has shipped more than 6,000
Personal Workstations to customers worldwide.
Apollo Computer (UK) has sold about 600 of
the workstaions and delivered about 300 since
February of this year. Apollo expects to
report sales for the third quarter, which
has just ended, in excess of $100 million for
the first time in the company's history.

CONVERGENT SEES THIRD QUARTER LOSS

Convergent Technologies reports that the
outlook has deteriorated significantly in the
past six weeks, with orders from new
customers failing to offset the decline in
deliveries to AT&T. As a result, the company
will make an unspecified loss in the third
quarter to September on lower sales.

TEXAS USES THE EXPLORER TO GIVE CUSTOMERS UNIX OPPORTUNITIES

Texas Instruments has joined the 32-bit Unix machine fray with last week's launch of the System 1500 the first member of the new Series 1000 range. According to the company the System 1500 was developed because of customer demand for increased capacity for multi-user operations. The company claims support for 128 users achieved using: NuBus, around which the company's artificial intelligence machine is based - the Explorer; and allowing up to five 68020 processors to be installed in the chassis. Both the chassis and bus design were developed from the Explorer. Each processor board uses 256K DRAM chips and surface mount technology to provide 2Mb on-board memory; an add-on memory borad can increase this to 4Mb for each processor board. Each proceesor plugs in directly into the 32-bit NuBus, allowing the processors to share the system load. The NuBus has a 37.5Mb per second transfer ratewith 100 nanosecond clock speed. Texas Instruments also bowed to customer demand by putting System V.2 on the 1500 although Texas Instruments has dressed it up, not to be the odd man out, by putting an interface shell around it and adding a few text editing and mangement facilities of its own. Texas Instruments is definitely going all out to keep its existing customers happy as it has also put features of its own proprietary operating systems, DX10 and DNOS, into its version of Unix System V. Another feature, that Texas Instruments hopes will bring in more value added resellers, is support for Micro Focus level II Cobol. Applications written in Micro Focus Cobol Level II, VS Cobol or TI Cobol System V can be run on Texas Instruments' minis and micros. The Cobol System V programming language provides a compatible Cobol environment between the System 1500 and Texas Instruments' Xenix-based Business-Pro computer. Texas Instruments do not expect to make a major killing in this area but is hoping to attract a few VARS but feels that it must have some offering in this increasingly popular market even if they are only minnows. Deliveries for the System 1500 will start in the fourth quarter of 1986 and prices will start at around £63,000.

IBM INTEL SEMI-CUSTOM TIE?

Pointing to the direction that IBM is likely to take in the next generation of Personal Computers, IBM and Intel are expected to sign a technology exchange agreement on standard cell semi-custom circuitry based on the 8086 family. This move would enable IBM to combine the 80386 CPU with proprietary on-chip circuitry.

AMDAHL BEATS IBM TO THE 4.5MBYTE-PER-SECOND CHANNEL

Amdahl Corp has raised the ante in the IBM-compatible mainframe market by anticipating IBM in breaking the 3Mbytes-per-second barrier for data streaming channels. The company is now offering 4.5Mbyte-per-second channels on all its 580 series IBMulators - but users will need its own Fujitsu-sourced 6680 controllers and 6380 drives to take advantage of the faster channel rate. While the improvement in data rate is 50%, not all the benefit can be gained in practice, but Amdahl claims that the upgrade improves overall input-output service times by 32%, and is supported by Amdahl's UTS/580 implementation of Unix System V as well as by all 370 and 370XA operating systems. The upgrade is not exactly pricey - $25,000 per four channel group, plus $20,000 to upgrade the 6680 controller. First deliveries are set for the second quarter of next year. Amdahl's competition in this area may be Hitachi Ltd; current reports suggest that the Japanese company, which builds the machines marketed by National Advanced Systems, BASF, Olivetti, Nixdorf and Fee, is testing hardware to transfer data at 6Mbytes per second.

HONEYWELL CONFIRMS PLANS TO CEDE COMPUTERS TO NEC, BULL

Honeywell yesterday confirmed that it is in negotiations with its two computer partners, NEC and Bull for a restructuring of its computer business, which represents about 30% of its $6,000m-plus annual turnover. The statement is extremely vague, but Honeywell says that it will continue its involvement in the computer business, so the likely outcome is something along the lines we suggested early last week - an arrangement where Honeywell puts its US computer business into a joint venture with NEC, while Bull takes over the Italian, and perhaps the UK, subsidiaries. Honeywell will major on its industrial and commercial and residential controls businesses, aerospace and defence arms.

INFORMIX GOES PUBLIC - SHARES UP ON FIRST DAY'S TRADING

Informix Corp, the Menlo Park, California company formerly called Relational Database Systems, has gone public, getting 969,000 new shares away at $7.50 apiece. The company also sold some 300,000 at the same price to existing investor Altos Computer Systems to enable it to avoid diluting its position. The holders of the company sold 410,000. The shares finished the first day's trading up 12.5 cents. The lead underwriter for the issue was Hambrecht & Quist Inc.

DATA GENERAL SYSTEMS HOUSE CASHING IN ON UNIX MARKET

Datavision has won its first contract from KDG Computers for its latest release of Universe Basic. The contract is for 50 licences to run on the Python from General Robotics and is worth between £50,000 and £100,000. Universe Basic is a side line for the company as its main interest is as a Data General Systems House.

Although the company intends to maintain its substantial interest in the DG market its sees Unix as becoming increasingly more important and wants a slice of the action. Universe Basic was launched a year ago but Datavision gave it a low marketing profile as improvements and amendments were yet to be made, despite this Gould bought a number of licences, but now the company reckons it has got a product superior to both CGen and TBasic – its competitors. The company bases its claims of superiority to its competitors on the fact that Universe Basic is both an interpretor and translator whilst the other two are either on or the other.

Datavision intends to make money amongst the number of DEC's Basic–Plus users that are limited to PDP 11 hardware. Datavision claims that Universe Basic will allow programs written in DEC's Basic–Plus to run on any system. The inspiration behind this move was Austec's ACE Cobol which allows Cobol applications programs to be moved to Unix-based machines from non-Unix Data General machines, for example.

The company has its head office in Blackpool and is funded by Datavision Ltd of the Isle of Man. The company has around 30 employees split between Blackpool and its recently opened office in Fetter Lane, London. As well as being a Data General systems house Datavision is also involved in financial software; last year the company won the rights to be sole licensee of the Options Group (TOG) service in the City of London. The TOG service is a set of analytical tools to support people involved in the exchange-traded and OTC markets.

NOVELL, HYUNDAI, SANTA CLARA TEAM ON DISKLESS PERSONALIKE

Novell Inc, Orem, Utah, Hyundai Electronics, South Korea and Santa Clara Systems Inc intend to co-develop an 8088-based diskless Personal Computer workstation for local area networks to come in at under $600. **Communi-cationsWeek** reports thet local area network software specialist Novell will develop software for the product, to be called PC Terminal, and also do a proprietary PROM for it to provide all the support necessary to link it to an Ethernet or Datapoint's ARCnet. Santa Clara Systems will develop the hardware, which will come with full 640Kb RAM, and Hyundai will manufacture the machine at its personal computer plant in South Korea. A prototype of the terminal is expected to be shown at the Las Vegas Comdex Fall '86 show in November, and Novell will offer it through its distributors while Hyundai will put it out under a private label deal. One of Novell's leading competitors, 3Com Corp of Mountain View, California, is reportedly also working on a diskless workstation.

METACOMCO HOPING TO SQUEEZE IN BETWEEN MS-DOS AND UNIX WITH TRIPOS

Last week Metacomco announced its latest version of the Tripos operating system modestly acknowledging that it will not knock Unix off its pedestal but hoping for some crumbs of business. The latest release of Tripos is for 32-bit computers and is immediately available on the Motorla 68000-based systems. The company, which made its name developing the operating system for the Commodore Amiga – called AmigaDOS, is aiming Tripos at the smaller machines market for areas such as process control. Tripos is a small operating system and can almost fit into ROM. It is a real-time mult-tasking operating system with an hierarchial file and directory structure and a device-independent I/O – all familiar Unix traits. Tripos also has a Unix-compatible C compiler. Metacomco thinks that Tripos fills the gap between MS-DOS and Unix and says that a number of people that chose Unix because they thought they ought to, it being the flavour of the month, may find that Tripos is more suitable for their embedded applications. Tripos is sold to OEMs and costs £5,000 for 50 licences.

ARTIFICIAL INTELLIGENCE: SYMBOLICS, INTELLICORP WARN OF LOSSES

A nasty slump in the market for artificial intelligence hardware and software has hit both Symbolics Inc and IntelliCorp, and each warns of substantial fiscal first quarter losses, likely to be followed by further losses in the second quarter – but each expects to return to profitability in 1987.

DEC "SETS 2 MIPS SINGLE-BOARD MICROVAX FOR NOVEMBER"

DEC's answer to the low-end 32-bit Apollo and Sun workstations is expected out in early November according to **Computer Systems News.** The new processor is expected in the machines that have been dubbed VAXstar and Team Mate, the former being an engineering workstation, the latter a one-to-four-user supermicro, both built around the same 2 MIPS single board computer. The board is expected to pack processor, 2Mb or 4Mb of memory, floating point co-processor, video and disk controllers and four ports, and the new machines will be less expandable than the existing MicroVAX II and VAXstation II to prevent self-impact – and although the processor is said to be more powerful than the present MicroVAX II, the new models will be significantly cheaper. The VAXstar is expected to offer 2Mb memory, 19" monochrome screen and 44Mb disk for under $10,000 against $16,995 base price for the VAXstation II; the Team Mate is expected to come in the same cabinet as the VAXmate AT-alike, and to be offered as a file and compute server on DEC's low-cost thin-wire Ethernet. It will support one to four users, and disk options will be 1.2Mb floppy and two half-height or one full-height internal Winchester. Disk options will be a 44Mb half-height RD44 which is not yet firmly sourced, let alone announced, the existing 71Mb drive, and an RD54, which was announced last week. The RD54 is the full-height thin-film drive believed to be coming from Maxtor, which costs $7,900, or $9,740 with controller.

OTHERS HURRY MULTI-USER MS-DOS/386s
AS MICROSOFT DAWDLES

Microsoft Corp seems in no hurry at all to bring out a liberated version of MS-DOS for machines built around the Intel 80386 - but a whole string of small US software companies are preparing their own versions for late this year and early next. **Software Link Inc** in Atlanta, Georgia is wor-king on PC/MOS 386, a multi-tasking, multi-user version of PC-DOS for the 80386 that is being designed to handle inter-task communications through the NetBIOS protocol, to implement file and record locking, printer spooling and nested batch files, and is expected to be able to support between 15 and 30 users on an 80386 machine like the Compaq Deskpro 386. Planned for delivery in February, it will cost under $600, and will be available in multi-tasking multi-user, single-tasking multi-user, and multi-tasking single-user versions. Corvus Systems is working with **Award Software**, Los Gatos, California to create an environment for multi-tasking of PC-DOS and Unix tasks on 386 machines. And most intriguing of all is perhaps the VM-386 in development at **Softguard Systems Inc**, of Santa Clara, California, which is modelled on IBM's VM/370, claimed to be able to support multiple PC-DOS and Unix virtual machines on an 80386 machine and is promised for second quarter next year with an indicated end-user price under $200 - and is also endorsed by Corvus. Meantime Microsoft is being extremely coy about its own plans, and al-though some of its European customers have been showing off a multi-tasking MS-DOS 4.0 at Sicob in Paris, this version does not break the 640Kb memory limit of the current releases, runs only existing MS-DOS 3.2 applications in foreground while native 4.0 applications run in background, and is not expected to be marketed in the US because it does not have IBM's endorsement - it appears that the majority of major resellers of Per-sonal Computers in the US are not prepared to offer anything new until Big Mother says that it's all right to go ahead. MS-DOS 4.0 is due to be available in Europe in the fourth quarter of the year.

dBASE GURU JOINS MIGENT
TO DEVELOP 80386 DATABASE ENGINE

Wayne Ratliff, described as the principal creator of Ashton-Tate's dBase II and III database programs, has joined Migent Inc, of Incline Village, Nevada to develop a database "engine" designed to exploit the power of the new 80386 microcomputers expected to appear en masse next year. The software is also expected to run on standard Personals, XTs and ATs and under both MS-DOS and Unix System V. Migent plans to sell the core of the program - code-named Emerald Bay - to developers and value-added resellers to enable them to write custom applications for 80386 systems, and aims to have it ready by next spring. Ratliff's idea of a database engine is that the program should include its own language that developers can use to customise applications. Migent is headed by another Ashton-Tate alumnus, Carl Gritzmacher, and Robert Byers, co-author of dBase Programmer's Utilities is also working on the project. The current Migent line consists fo bought-in software products, including the Ability integrated applications program, 35mm Express and Overhead Express, and In-House Accountant. It is also ready with what it claims will be the smallest commercially available 1200bps modem, the Migent Pocket Modem, a 2.5" by 2.5" board that plugs into the serial port on a Personal.

ADDS LAUNCHES NCR TOWER-BASED
PICK BOXES AS MENTOR 6000

NCR's Hauppauge, New York-based Applied Digital Data Systems Inc has not waited for the outcome of its little legal contretemps with Pick Systems over its rights to the new Pick Open Architecture release, but has gone ahead and launched the machines on which it plans to run the new release. The ADDS Mentor 6000 line is based on the NCR Tower/32 32-bit supermicro built around the 68020 chip, to which ADDS has added its own port controllers and distributed terminal subsystem. The line comes in three upgradeable models. The Model 4 starts at $37,000 for a 2Mb processor, 140Mb disk, 45Mb quarter inch cartridge tape, 16 serial and four parallel ports and an ADDS 2020 as the console display. The Model 6 comes in at $80,000 with 2Mb memory, integrated 140Mb 5.25" disk, two 344Mb 9" disk drives, half inch 3,200 bpi tape drive and quarter inch cartridge, 112 serial and four parallel ports and the 2020. Both can have main memory expanded to 8Mb. The Model 8, designed to support a daunting 160 users, starts at $120,000 and comes with 16Mb memory, eight 516Mb 9" disk drives, three half inch tape drives, a quarter inch tape, 160 serial and four parallel ports and the console. The machines have also been announced by ADDS' UK and European distributor, Electronic Data Processing Plc of Sheffield.
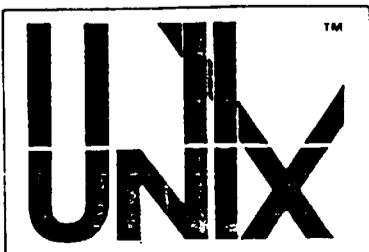
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IBM has confirmed that, as we suspected, the new XT 286 version of the Personal Computer has a motherboard that uses more gate array technology to reduce the component count – but that is about the only thing about it that is new: IBM is believed to have over $1,000m in Personal Computer inventory (so much for Just In Time) in the form of disks and boards and cabinets and so forth, and some observers reckon that the XT 286 is designed primarily to bring that parts mountain down and that it is likely to be a fairly short-life machine.

– o –

The specification of the **IBM** XT 286 is reckoned to have been finely judged to prevent cannibalisation of sales of the higher-priced AT machines – but people **Electronic News** spoke too reckon that IBM will fail in its aim, and that the machine will take sales from both the AT and the 8088-based XT.

– o –

AT&T is putting the former **Teletype** plant in Skokie, Illinois up for sale, and will either do a leaseback deal on it to house the 1,000 3B computer research and development people who remain there, or else find new premises in the region.

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Hitachi is expected to follow **Amdahl** and **Fujitsu** by introducing an implementation of Unix System V for its **IBM**-compatible mainframes within the next few months, and to push it through its resellers; **National Advanced Systems, Nixdorf, Olivetti** and **BASF**.

– o –

Systems Designers Plc now has a multi-lingual version of its Envisage expert system shell for other Western European markets: it runs on the **DEC** VAX under VMS and Ultrix, and a planned run-time for **IBM** PC.

Minigrams

DEC, which now claims to have 180 software developers working on its Ultrix Unixalike in the US – about the same as for VMS – says that it is putting $17.6m into development of the operating system this year.

– o –

Of more immediate interest, another 10 Ultrix technical staff will be added by the end of the year to the "three to five" at **DEC** Park in Reading currently, with a £1m budget.

– o –

National Semiconductor Corp has agreed joint production of VLSI circuits with **Minebea's NMB Semiconductor Co** in Japan.

– o –

Also ready with announcements is **Convergent Technologies,** several of them cosmetic, notably a renaming right through the product line: Unix System V.3 is expected on what we shall presumably no longer be calling the 'frames, and also possible are a new 80386-based N-Gen and an N-Gen implementation of Unix that can run MS-DOS as a task.

– o –

Burroughs France is bending over backwards to get its entry-level departmental mainframes into **IBM** accounts by introducing a rental scheme: users will be able to rent the A2 to the A5 processors, saving them around 25% over a three year period; the company already successfully markets the clustered workstations its gets OEM and also builds under licence from **Convergent Technologies** into the IBM market.

– o –

Apollo Computer Inc has announced support for the relational database engines built by Britton Lee Inc, Los Gatos, California on the Domain local network system that its uses to support its DN workstations.

The boss of the new **Honeywell-NEC Supercomputers Inc** marketing joint venture in Burlington, Massachusetts turns out to be the former **ComputerVision Corp** president, James Berrett.

– o –

Motorola couldn't bring itself to put a price on the new 68030 microprocessor here, but was less fastidious in the US, where it said that samples would be $350 apiece, but that in volume in 1988, parts in the 16MHz to 20MHz range should be down to $150 to $200.

– o –

Concurrent Computer Corp, Holmdel, New Jersey has a $10m contract for its 32-bit superminis from the **People's Republic of China,** for oilfield processing applications.

– o –

Over the last two weeks **Racal-Redac** has laid off 11 members of staff in the US involved in manufacturing and support. The company says that this is not reflected in the UK as this is part of the phase out of an old 16-bit workstation line – the Maxi PCB design workstation.

– o –

Ibix – a little known Unix-based accounting package from **BLK Business Services** is holding its own against the opposition having Sperry as an OEM and having, this week, won an order from **MRB International** worth around £100,000 for a tailored system using Ibix.

– o –

Polygen of Waltham, Massachusetts has signed a VAR agreement for the Unix-version of its Hydra design package for drug and biochemical researchers with **Silicon Graphics** to run on Silicon Graphics' three-dimensional workstations – no value has been put on the agreement: Polygen evaluated the equivalent offerings from IBM, Apollo Computer and others before deciding on Silicon.

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X/OPEN ADOPTS HP SCHEME FOR INTERNATIONAL UNIX; PORTING/TESTING, TRAINING CENTRES PLANNED

Despite all the discussion about internationalising Unix, standard versions have yet to appear with support for European or other language character sets. In line with its pragmatic stance of only adopting implemented products as standards, the X/Open group has decided to wait no longer and adopt the scheme devised by its newest member, Hewlett-Packard. HP's native language support system, implemented in its HP-UX version of Unix, will be the basis of the X/Open interfaces for handling European language character sets, X/Open chairman Geoff Morris said at the Uniforum Unix exhibition in Stockholm on Tuesday. The key feature needed is a clean 8-bit path right through the kernel and utilities; previous versions of Unix based on the Ascii 7-bit character set have tended to use the eighth bit for their own purposes. The scheme adopted, due to be published with the next version of the X/Open definition around the end of the year, is open-ended and could be extended for 16-bit codes to support, for instance, Japanese character sets; X/Open is already discussing with unnamed Japanese manufacturers the possibility of them joining. Due for November announcement are a porting/testing centre, for ensuring the conformance of both operating systems and applications to the standard, and training/support centres, which the group will probably appoint selected third parties to handle.

SUN PLANS PORTABLE, ADAPTABLE WINDOWING SOFTWARE

Following the widespread success of its Network File System, Sun Microsystems is hoping to repeat the process in the area of window management software with the Sun NeWS Network extensible Window System. So far, a variety of proprietary windowing systems have been proliferating in the absence of a standard from AT&T. Because of this, and because Sun feels it is unlikely that one user interface will ever satisfy all requirements from the scientific to the business market, NeWS is a technology designed not only to be portable but also to be a framework for building emulations of established window systems that appear to both the user and applications to be what they are already used to. NeWS uses Adobe's PostScript page description programming language, already a near standard for laser printer output, which is said to be flexible enough to allow NeWS to accomodate different character sets and keyboard layouts for different languages, and despite being designed for printers is said to allow different shaped windows if so required. Sun will be licencing the technology in the same way as NFS at $25,000 plus royalties for source, aiming to ship the first release around March 1987; it will of course be first implementing a version to replace its current SunView system, but it is suggested that others could include the MIT-developed X-Windows, Carnegie Mellon University's Andrew used for the IBM RT PC, and even MS-Windows and Gem. As suggested by its name, Sun NeWS can also be used over networks including Ethernet; low cost micros like the Atari 520ST or even BBC micros are being considered as windowing terminals to be supported with larger machines acting as "servers" to run the applications; running NeWS in the terminal is claimed to minimise the network traffic.

ACE CLAIMS FIRST X/OPEN COMPATIBLE UNIX

Dutch company Associated Computer Experts unveiled what it is claiming to be the first fully X/Open compatible version of Unix in Stockholm this week. The software is based on System V.2 with a considerable amount of work put into increasing performance and reliability; apart from fixing "hundreds" of bugs in the AT&T code, ACE says that increased reliability comes from features like kernel consistency checking; other features include improved disk cache flushing and memory allocation. The software has been ported to the Philips P9000 and PG9000 Motorola-based systems, and ACE is looking to have ported the system to around ten machines by the end of the year, including most of the X/Open members machines that use Motorola microprocessor CPUs. ACE has a line of compilers including Fortran-77, Pascal, Cobol and C and offers them for the system.

WANG SIGNS CO-OPERATIVE PACTS WITH APOLLO, SUN

Wang Laboratories of Lowell, Massachusetts reckons that engineers, scientists and finance specialists need office automation just as much as commercial users, and has signed with Sun Microsystems and Apollo Computer to the flagship Wang Office software on its mainstream VS minicomputers to Apollo and Sun engineering workstations for customers who buy the pitch. The integrated systems will be marketed independently by the sales forces of each of the three companies.

THOMSON GETS £450,000 FINANCING PACKAGE; NEW TOOLS, ICL DEAL

Thomson Computers, the York based software house, last week accompanied new product launches in its Sea Change range of Unix and DOS development tools with news of funding and the appointment of a chairman to oversee expansion. The second round of funding, arranged by the Arthur Young High Technology Group, includes £250,000 from the United Bank of Kuwait, £116,000 in grants administered by the NCC and £80,000 bank credit. The founders have handed over a further substantial proportion of the equity as a result; under a complex arrangement UBK will get "not less than 40%". Anthony Chandor, the new chairman, has already featured in such prominent positions as chairing the DTI-sponsored software exporters group and Aregon International. The funding will be used to fund development of distribution channels outside the UK for current Sea Change product and those under development, which include Sea Which, still under wraps but cliamed to allow end users to build their own office automation systems "by specifying the information flow within the organisation". The extensions to the range announced last week are Sea Change Designer Tools for End Users, and a set of accounting applications designed to be tailored using the Sea Change tools; Thomson claims its approach is unique in the extent to which software can be cusomised to user requirements. ICL has firmed up its early interest in the software with an endorsement of the product for marketing through its distribution channels for the Clan; ICL specialist software house and distributor Control-C will be handling Sea Change. Control-C has already ported its BSTAM-compatible file transfer software and an ICL PC link to the Clan 3. There are a mere 40-50 Clans installed in the UK, according to ICL.

ASHTON-TATE, NETWORK INNOVATIONS SET MICRO-TO-UNIX, VMS LINKS

Ashton-Tate Inc's efforts to be friends with everybody who can help its products into large corporate accounts are by no means confined to its UK pact with mainframe database vendor Cincom, and in the US, the company is joining forces with Network Innovations Inc to marry several of its products to the Cupertino, California company's Multiplex networking software. Mul-tiplex provides Personal Computer users with a Lotus 1-2-3-like interface into databases running on Unix and VAX/VMS minis and supermicros (UX No 95). One Personal can link to both Unix and VMS CPUs, and Asht-on-Tate wants its users to be able to browse the contents of databases such as Informix, Oracle, Ingres and Unify, import data to their Personals and manipulate it using the Torrance company's Multimate word processing, Framework spreadsheet or dBase database programs, and has agreed to joint sales and co-operative development with Network Innovations.

COMPUTER CONSOLES HERALDS RETURN TO PROFITS AFTER 18 MONTHS OF LOSSES

Unix and directory enquiry automation systems specialist Computer Consoles Inc, now based in Waltham, Massachusetts, expects to report a $1m profit for its third quarter just ended, marking an end to six straight quarters of losses. The company, now under the leadership of former Wang luminary, John Cunningham, has also sharply boosted business, and expects turnover to be up 34% at $34m; it reported a $4.2m loss for last year's third quarter. Cunnigham attributes the return to profits primarily to extensive cost-cutting measures at the company.

ENCORE TO DEVELOP MASSIVELY PARALLEL MULTIMAX FOR DARPA

Encore Computer Corp, which despite the galaxy of industry superstars who attended its birth has been teetering on the brink of extinction of late, has bounced back with a high-visibility development contract at the leading edge of computer technology. The $10.7m three-year contract - placed by the US Defense Advanced Research Projects Agency, is to develop its basic Multimax parallel processing architecture to create a prototype that can execute 1,000 MIPS - 1 GIPS. The contract also covers advanced software and staged delivery of interim advances in the system architecture. The advanced technology parallel computer will use the Encore Multimax shared-memory multiprocessor systems as building blocks, making the contract rather good news for National Semiconductor as well, since the Multimax machines use Series 32000 microprocessors. It will also apply new concepts in hierarchical cache memory. The Wellesley Hills, Massachusetts company hopes that its efforts will will spur the work being done in the computer science research community to develop multiprocessor operating systems, languages, and parallel algorithms for use in robotics, speech recognition, vision understanding, signal processing and simulation and part of the DARPA's Strategic Computing Program. Carnegie-Mellon University, Pittsburgh, an early customer for the Multimax, will participate with Encore in the project.

ENTREE GIVES UP ON UK, SELLS OUT TO AMBITIOUS COMBRO

With three of its 15 franchisees - Holborn, Croydon and Leeds - having gone bust in the past couple of months, Entrée Computer Centers has had enough of the UK and has agreed to sell out to Combro Ltd of Stockport, Greater Manchester for an undisclosed sum. Combro, an IBM Personal distributor that also majors on the Olivetti line, is the middleman between IBM and 200 of its UK dealers, and has seen turnover soar to £20m in the year to June from just £6m in the year to June 1985, and is looking to grow to £30m this year before Entrée is taken into account. It plans to retain the Entrée name and the only changes it plans to make to the 12 surviving franchises are cutting the royalty they pay on turnover to 6% from 8%, and adding the Olivetti line. Entrée has also been selling the Altos line - nine franchises are now committed to the machines, selling one each a month and increasing, according to Altos which says that it expects the agreement to remain unchanged. Combro wants to grow the chain to 20 stores in two years.

WHITECHAPEL MARKETING EFFORT REWARDED WITH NEW DISTRIBUTORS

Whitechapel Workstations is apparently beginning to reap the fruits of an agressive marketing policy pursued since the refinancing after its financial problems came to a head a few months back (UX No 86). The company claims to have tightened up on the previous lack of financial, management and marketing control, and one result is that it has landed an order worth around £500,000 from Radan Computational Limited of Bath, Avon. The order is for 50 MG-1 Whitechapel workstations which Radan will sell into the CAD/CAM market. Radan have been selling Whitechapel Workstations for the last year with its own software and its customers include GEC, Avon Rubber, Stannah Lifts and National Engineering Laboratorories. Agressively going after new distributors is another part of the reformed Whitechapel marketing strategy and last week it announced three. Cadtronic, based in Cologne, west Germany, will handle the German franchise; Inelco of Belgium will look after Belgium and Luxembourg; and Lausanne-based Electrographic will be selling into the Swiss market. The three distributors, that have experience in CAD systems, graphics systems and electronic publishing systems respectively, will be selling to both OEMs and end-users. Whitechapel already has distributors in Norway, Sweden, France, Spain and Portugal but is still looking for more. Whitechapel will continue to address its traditional marketplace of CAD/CAM but its prime market now will be electronic publishing, where it has picked up its first UK distributor, Logic Replacement Technology, for its hardware coupled with the Printmaster software from London based Program Products. The company does not intend to move out of the workstation market for the forseeable future but stresses that the term workstation already encompasses a number of different areas and is likely to address more in the future and adds that Whitechapel will keep abreast.

IBM ADDS TETRA PACK FOR 6150 AS UK PRICES CUT

In a bid to improve the image of the IBM 6150 IBM's direct sales force and 6150 dealers will be selling the Tetraplan Business Package and the CAEDS CAD/CAM application package. This is in addition to the actual machine enhancements and price cuts announced two weeks ago (UX No 96). The modules in Tetraplan include: nominal ledger; sales ledger; purchase ledger; order entry; invoicing and sales analysis; purcahse order processing; stock control; job costing; payroll; bill of material; fixed assets; and a report writer. Each module is available from IBM at a cost of £1,249 each, available now. CAEDS allows engineers to build 3D solid computer models of a new design for visualisation, mass property calculations and interference checking. The model will be put onto a host computer for finite element analysis and the results seen on the 6150. No prices are available for CAEDS on the 6150 but it will be available some time before Christmas.

CONVERGENT TECHNOLOGIES RECASTS ITS FRAME LINE, RECHRISTENS IT THE S SERIES

Convergent Technologies Inc, San Jose, has duly recast its Frame family of networked Unix supermicros, adding new models and escaping from the complications of having diffrenet names for each machine by simply renaming the line the S series . Bottom of the line is the S/50, the machine that Convergent developed for AT&T. When the phone company found that sales of the machine - as the Unix PC and 3B1 - were going much less well than it had forecast, it agreed to allow Convergent to market it to other customers. The S/50 is the 3B1 multi-user incarnatoin, with 10MHz 68010, with 2Mb memory, 80Mb disk, and support for up to five users. The S/120 and the S/220 replace the Miniframe and support 12 and 22 users respectively. The machinesa are driven by a 12.5MHz 68020 and come with up to 5Mb memory and up to 140Mb on disk for the 120, with additional disk support on the 220. The Mightyframe is now the S/320, with the same processor as the 120 and 220, but memory going up to 16Mb, disk to 4Gb, and different packaging so that it can provide up to 14 VMEbus slots. As the number implies, it supports up to 32 users. The Megaframe is replaced with a very high-speed single-processor machine and a new multi-processor. The S/640 uses the new 25MHz 68020 with 16Mb memory, up to 4Gb on disk, and support for up to 64 users. The S/1280 is a new version of the current Megaframe with up to four 16.67MHz 68020 CPUs which in maximum configuration has 24Mb of main memory, 6Gb on disk, and support for up to 64 users. The machines all run Convergent's CTIX implementation of Unix System V with BSD 4.2 extensions - System V.3 is promised for first quarter 1987, and Convergent also introduced WGS/Office, which is designed to enable resellers to integrate their own proprietary applications with a core suite of the essential office functions - word processing, spreadsheet, electronic mail and electronic desk-top utilities. Convergent is also offering Unify Corp's Unify relational database, and Network Innovation Corp's Multiplex PC for supporting personal computers as terminals and storing MS-DOS data in the Unix database. Convergent did not give OEM prices, but suggested that the end user price on the S/50 would be $6,000 to $14,000; the S/120 $10,000 to $20,000; the S/220 $14,000 to $22,000; the S/320 $16,000 to $270,000; and the S/640 $30,000 to $350,000, with the S/1280 going up towards the half million dollar mark. The S/120 and S/640 are set for first quarter 1987, the other models are available now.

INFORMIX FOR PC NETWORKS

While majoring on Unix, Informix Software Inc, the former Relational Database Systems, is also backing the alternative for low end multi user systems; in the US it has announced versions of its Informix database for PC networks. Initial support will be for IBM token ring, PC Net, StarLan, Novell, 3Com and Ungermann-Bass.

As a nation we seem to have almost given up any serious pretence at manufacturing computers (unless you count assembling chips and pieces from Japan, the US and the Far East in a South Korean factory results in a box worthy of a "Made in England" label.) However, one of the great myths that we use to boost our battered egos when it is pointed out that almost every island in the Pacific bigger than Sark or one of the Scilly Isles seems to have a bigger computer mnaufacturing base than the UK, is that we are preeminent in the field of software.

Everyone knows, we state authoritatively, that the UK produces the best software in the world.

But if we try to look at this sacred dogma objectively (admittedly a difficult task, especially during this week of the Satchi & Satchi Party Conference), what do we find?

These Sceptered Isles

Can you think of a single piece of UK software that anyone outside these Sceptered Isles actually uses? Where is the British operating system more popular than Unix or MS-DOS? And the spreadsheet / word processor standard on the personal computer?

We just don't have the market base or marketing skills for high volume products. And no international markets for minis and mainframes. And very little will to get out there and create new markets: at the begionning of this decade we had a one to two year lead over the rest of the world in Ada compiler technology and a vast potential captive market in NATO, the Ministry of Defence and the US Department of Defence.The first UK compiler (from York University) was validated a few weeks ago, three years after the first US validations. UK investors were just not prepared to provide money for long term development — they want their money back and profits flowing with one to two years.

The one major area left to us is in high quality bespoke software for specific niche markets.

We don't have much money.
We don't have much will (except for a very few notable exceptions).

QUALITY BESPOKE

SOFTWARE – THE

LAST NICHE LEFT

FOR THE UK?

But we do have the men.
The UK has unrivalled expertise in the software engineering techniques and formal methods needed to produce high quality software.

And down in Bath, one company has shown it can be profitable as well: Praxis Systems, in its third year, increased its revenues by 75% from £1.1 million to £1.9 million (with an order backlog of £1.5 million) and its staff to 73. This year staff should grow to over 100 and revenues to £3.1 million.

It has achieved this by what most people would regard as an obsessional attention to detail and a belief that software development can and should be made an exact engineering discipline.

As chairman Martyn Thomas modestly puts it: "Quality is our business. Our objective is to become the foremost UK supplier of high quality computer systems."

British Standard

The company has spent two years and £200,000 setting up an internal quality control system to monitor and control the software developemnt process. In June Praxis became the first independent software house to pass a British Standards Institute audit and gain registration under BS5750 for its work.

Some of the established techniques currently in use in the company include Structured Analysis, SSADM, SADT, JSP and Data Analysis.

Mathematical specification and verification techniques such as VDM and Z are also used, since these methods are now applicable in a wide range of areas, particularly in the field of safety-critical software.

The company also uses exotic formal techniques such as a Requirements Modelling Language to describe roles in the project lifecycle and formal grammars for describing data structures and defining languages.

Thomas divides most computer systems as either highly-

critical or safety critical. The latter, such as air traffic control and industrial plant control systems "demand computer systems whose reliability and accuracy is not only beyond question, but can be shown to be by the use of full formal proofs."

Their use in safety critical systems was also reccommended in a 1986 report by ACARD, part of the UK government Cabinet Office.

However, at the moment this is a very expensive operation. But by using a combination of formal and semi-formal techniques and development methods, the appropriate level of quality can be assured, Thomas claims.

Brave Claims

"For most applicatioons this will not involve full mathematical formalism from specification to implementation; but the use of rigorour methods where appropriate, and the same reviews and quality assurance procedures, enable us to deliverr the required quality with confidence."

As well as working with ICL to implement Unix as a VME service on the Series 39 mainframes (**Unigram No 97**) Praxis is also working with STL on an Integratred Project Support Environment (IPSE) for the Alvey programme. It is modelling the software development process using a formal diagramming language which is then transfered into a formal Requirements Modelling Language with a mathematical basis in first order logics.

Pick your IPSE

Several classes of IPSE are being developed under Alvey, ranging from short-term developments using existing tools to long-term ones requiring a re-examination of the whole way the software development process works.

The formal model will be used to describe the various IPSEs and new ways of developing formal models of the process will be investigated.

Praxis is also marketing ELLA, a system for designing VLSI chips that gives hardware engineers access to techniques analagous to those used by software engineers. It is the result of seven years development at the Royal Signals & Radar Establishment.

RELATIONAL TECHNOLOGY, ORACLE MAKE FIRST STEPS INTO DISTRIBUTED DATABASE
AS CULLINET JOINS THE RELATIONAL BANDWAGON

While in the Unix world, the relational database system has been the standard since business software started appearing in volume, with products like Informix and Unify dominating the market, to much of the outside world the relational system is still an alien beast, mistrusted and regarded as likely to eat up inordinate amounts of machine power. But the growing acceptance of relational databases has been highlighted by a flurry of announcements from vendors Relational Technology and Oracle, while that struggling giant of the mainframe world, Cullinet, has also showed its hand which includes plans for a Unix based relational system. Relational Technology Inc, based in London over here, claimed to have pulled in no less than £7m in sales in its first full year in the UK and wheeled out Release 5.0 of Ingres for VAX/VMS, Unix and IBM VM/CMS. 5.0 is basically a performance release rather than adding new functionality, providing claimed improvements over Release 4.0 of 30-40% for complex queries and 50% for transaction processing applications. The specific areas enhanced include b-tree indexing, automatic read-ahead on large files, buffer management, and a REPEAT addition to the SQL syntax which identifies and speeds up subsequent execution of often repeated SQL queries. RTI is committed to producing annual performance gains of 40%, and says that Ingres is now being considered for transaction intensive applications. In addition, the company has had its first UK order for Ingres/Star, the distributed Ingres, at bankers Charterhouse Japhet which eventually plans to link around 70 VAX sites. It claims that the first installation worldwide, at a Boeing facility the US, was made three months ago. Rival vendor Oracle, meanwhile, made its distributed database pitch last week with SQL*Star, the components of which are a version of Oracle designed for distributed environments, SQL*Net support for different networks and the SQL*Connect gateway to other SQL-compatible databases such as IBM's DB2. Oracle says that SQL*Star, which has already been installed at one unnamed client, is available for DEC VAX/VMS over DECnet or async lines, to be followed by IBM mainframe versions by the end of the year, and DOS and Unix versions next year. Forthcoming communications support includes IBM 3270 by the end of 1986, followed by TCP/IP, SNA LU6.2 and MAP next year. SQL*Connect uses the SQL query language as a bridge to other systems; Oracle is talking about links to SQL/DS by the end of the year, with DB2, VSAM and IMS links completing the connection to the IBM environment next year. It hardly needs saying that distributed database technology is still in its infancy; while RTI, with a history of research into distributed databases under its belt, can perhaps claim to be ahead in its long term plans, both vendors are making fairly similar claims for current products. Queries can be handled transparently no matter where the data is; but for transactions updating tables, the target nodes must be specified. The problems are horrendous; not only is there the task of working out the most efficient way to handle queries that access data from several nodes, but there is the problem of consistency; providing a full two-phase commit for a system where transactions could involve several nodes distributed round the country. RTI says that Ingres developer Mike Stonebreaker has come up with a scheme for distributed two phase commit that it is aiming to get out in 1987; Oracle says that it is working on the problem.

Meanwhile Cullinet, the vendor of the IDMS mainframe database that has not been having a happy time of late, announced the strategy that it hopes will take it back into growth, following its acquisition of San Jose developer Esvel. The Esvel offering, which has already been used by Hewlett-Packard as the basis of its own relational developments, will form Cullinet's approach for taking it outside the IBM environment. The product already runs under VMS, Ultrix and PC-DOS, but Cullinet will wait until it has ported over the development tools surrounding its IDMS mainframe database before a full release. The company has also signed with Learmonth and Burchett Management Systems to integrate the LBMS PC-based design tools with its own software. And SQL support is promised for mainframe IDMS with Release 10.2.

PCS ADDS 68020 MULTIUSER SYSTEMS, WORKSTATIONS

Having been taken under the wing of the giant Mannesmann industrial group PCS can now afford to add workstations to its product range. The 9000 multi-user system series comprises four new models, three using the 16.7MHz 68020 and the fourth using a 10MHz 68010. Models 4,3 and 2 use the 68881 floating point processor and is supplied with 4Mb of memory as standard, upgradeable to 16Mb for the Model 4. The Model 4 has the fastest clock speed and the company claims 2.5 MIPS: Model 2 and 3 have slower clock speeds and reduced memory expansion capabilities. The workstation range is also called the 9000 and comprises four models all using the 68020, giving 1.1, 1.5 or 2.5 MIPS performance. The 2.5 MIPS machine is available with colour or monochrome screen the others only with monochrome. All the machines run under Munix the Munich-based company's port of Unix System V.2. Mannesmann's acquisition of PCS is a continuation of its intention to move from the heavy engineering market into high technology and PCS itself is seen as means of getting into the increasingly popular Unix market. To date PCS says that the only real changes that have ocurred through being acquired is in the physical move of its offices from Newbury to Mannesmann's offices in Slough and the ability to sell through the Mannesmann Kienzle channel. Model 1 of the multi-user system costs £13,900; Model 2 £14,900; Model 3 £17,100; and Model 4 £20,500. The workstations start at £9,860 for Model 2; Model 3 is £11,900; monochrome Model 4 costs £15,300 and the colour version is available for £23,700.

unigram·x

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

ICL has quietly set up an Applications Search and Porting Centre in Washington, DC, to attract software developers to move software to ICL hardware, particularly the Clan range; it notes that it can offer the expertise that many US companies still lack in tailoring their software for international markets.

– o –

IBM's introduction of the XT 286 AT-that-thinks-it's-an-XT has predictably stirred up the market, and **AT&T's** response is to slash prices on the **Olivetti**-built 80286-based PC6300 Plus by 24% to 30%, so that the machine now costs from $3,025 to $3,775 according to configuration. The phone company is believed to be selling a lot more of the older 8086-based PC6300 (which bodes well for Amstrad's 8086-based PC1512) than it is of the AT-alike box, and observers say the move is in part designed to clear inventory. Dealers are also to be offered incentives to sell more AT&T products such StarLan with the machine.

– o –

AT&T Information Systems opened up further on its future support for the MAP industrial communications protocols, outlining its plans fibre optic MAP compatible communications at the recent MAP/TOP users group metting in Ann Arbor, Michigan. AT&T will collaborate with Concord Data Systems, Marlboro, Massachusetts, to incorporate AT&T's fibre optic modem and expertise with Concord's MAP-compatible hardware and software. Fibre optics are not currently covered by the MAP specifications. Also at the meeting, DEC said it was close to completing Unibus and Q-bus interfaces to MAP networks.

– o –

The TX series has been launched by Rexon Computers – a Xenix System V-based family using the Intel 80286 microprocessor – four models are included in the series, three desk top versions; RX105, RX205 and the RX305; and one console model – the RX405: each has a standard configuration of 1Mb main memory, eight serial and four parallel ports, 1.2Mb of 5.25" floppy and 60Mb .25" cartridge streaming tape drive, the RX105 is available for £9,860 and the RX405 for £18,660.

Minigrams

Apollo Computer Inc has a $20m two-year agreement to supply **Boeing Computer Services** with Apollo workstations for software development, computer-aided design and manufacture, electronic design automation, technical office support and artificial intelligence, and internal development of a new generation of Boeing design tools; the planemaker has been an Apollo user since 1983.

– o –

Praxial Conseil SA of Paris has Xenix System 5 from **Logica** for the 80286-based **Bull** Micral microcomputer, and says it is the only Xenix 5 implemention available in France.

– o –

A special edition of the Triple X has been produced by **Torch Computers** for **Cambridge University** and is called the Torch Granta – it is part of a long-term project to introduce a large number of workstations to researchers and students to give Torch a large presence in the educational market.

– o –

Micro Design International of Winter Park, Florida, has announced the TAR Tape Archive System, which provides quarter inch tape compatibility between Unix and MS-DOS files, enabling a user to write files to a tape under Unix and then read those same files under MS-DOS – or vice versa: the complete system is available now in the US and costs between $995 and $1,095 and the tape archive software, TAR, can be bought separately for $275 in unit quantities.

– o –

Hospital Corporation of America has continued its relationship with **NCR**, started in 1983, by giving the company a $45.2m contract to supply its Unix-based Tower 32 computers for SNA communications between corporate headquarters and local hospitals .

– o –

Traditional Pick vendor, **IN2 Groupe Intertechnique** of France, has based its IN1200 series real-time signal analysis system on **National Semiconductor's** Series 32000 running a derivative of Unix which Natsemi claims is a real-time, multi-user /multi-tasking operating system.

Despite the swathe of US price cuts on its existing Tower machines (UX No 97) **NCR** has by no means finished reorientating the top-selling Unix supermicro line: the midwesterner is reportedly preparing a revamped low-end model for the line and reconfiguration of the existing ones for the end of the month.

– o –

The **US Naval Weapons Centre** has awarded a contract to **Flexible Computer Corporation** for a 16-computer Flex/32 system which Flexible thinks will be worth $700,000: the Navy may expand the system to 30-computer Flex/32.

– o –

Flexible has has also attracted **Burtek,** a subsidiary of French company **Thomson CSF** in Tulsa, Arizona, with a $5m OEM agreement; Burtek wants the machines to build into the simulators it supplies to the military, commercial airlines and other industries.

– o –

Apollo's Domain System now has a Modula-2 language system, available from **Djavheri Brothers** of Foster City, California for a price of $495.

– o –

Alpha Microsystems, which has agreement to be acquired by **Televideo,** has reported a second quarter net loss of $257,000, down from a restated loss last time of $556,000, on turnover that declined 6.8% to $11.6m; half-year net loss was $555,000, down from a restated loss last time of $1.4m.

– o –

Undeterred by IBM's adoption of **Tetra Business Systems** business software for the 6150, **Systems Union** has added its SunBusiness order entry, invoicing and stock control and SunTrend financial modelling software to the already available SunAccounts; the software has been evaluated by IBM at its Warwick porting centre.

– o –

Altos Computer Systems has duly announced the promised desktop publishing system at its Computer Solutions show, which runs till the end of the week at the Novotel, Hammersmith; the AOM Deskset Publisher is based on the Altos Office Manager software and runs on the Xenix range from the 686 up; a system starts from under £10,000 including laser printer.

Registered at the Post Office as a Newspaper.

London, Week Ending October 18 1986   **Number 99**

NCR JOINS 68020 MARKET PRICE-CUTTING WITH LOW-END TOWER

NCR Corp has duly announced its promised low-end model in the Tower 32 line of 68020-based Unix supermicros, and added a 68881 floating point co-processor option for the machines. The new Tower 32/400 is designed to support up to 16 users and slots in below the original model, which supports up to 48 users and is now renamed the 32/600. Both models conservatively use the 16.67MHz version of the 32-bit 68020. Base US price for the 32/400 is $15,000, rising to $54,800 fully configured. It is rated at twice the performance of the Tower XP, and three times that of the MiniTower, both of which are 68010-based. With the 68881 co-processor and using the AIM Suite II benchmark from AIM Technology Inc, the Tower 32s have been demonstrated to do sums 12 to 15 times faster than without, depending on whether the function is add, multiply or divide. A 32/400 with 68881, 2Mb memory, 85Mb disk, 45Mb tape streamer, 1.2Mb floppy, one parallel and eight serial ports and Unix V costs $25,740.

VMARK TALKS TO NCR ABOUT UNIVERSE UNIX+PICK ON TOWER...

VMark Computer Inc, the Natick, Massachusetts company that has declared a truce with Pick Systems Inc over its UniVerse implementation of the Pick operating system as a task under Unix, is negotiating with NCR to become a master value-added reseller of the Tower line of Motorola-based Unix supermicros. According to **Computer Systems News**, VMark claims that the combination of UniVerse and the Tower will create the price-performance leader in its sector, which includes the AT&T 3B, Convergent Technologies' S-Series and Pyramid Technology's 9Xx lines. More controversially, VMark claims that UniVerse will actually outperform native Pick on the NCR Tower by at least 10%, a suggestion that NCR's own Applied Digital Data Systems will be quick to contradict – ADDS has just implemented native Pick on the Tower. If the claim does stand up, it will presumably be because Unix calls operate faster than Pick calls.

...AND APPROACHES IBM TO PUT IT ONTO THE RT PERSONAL

VMark is also reportedly negotiating with IBM for rights to remarket the RT Personal Unix box with an implementation of UniVerse under the AIX implementation of Unix System V that comes with the RT. Despite its enthusiastic endorsement in Europe of the RT as a business computer – it doesn't have any large System 36 base to protect this side of the water – IBM is still firmly insisting that the RT is only for scientific and engineering applications in the US. VMark says that it will only sign for the RT if IBM starts making encouraging noises about the RT as a business computer: without IBM's commitment behind the concept, marketing the box to commercial customers would be too much of an uphill task.

UNIX MAKES MARK WITH UK GOVERNMENT AS OLIVETTI LANDS CCTA

The UK government's Central Computer and Telecommunications Agency has joined the international stampede of public bodies to Unix by awarding British Olivetti its £1.5m contract for a distributed processing network, based on M24 IBM-compatible personal computers, the 3B Unix supermicros it sells in Europe for AT&T, and local processors linked by Ungermann Bass Net/One local area networking software. Olivetti is 25%-owned by AT&T. The network will be used to link the CCTA's Norwich and London offices and is the first of this scale to be used within central government, according to the CCTA. The government agency is particulary interested in the new system being able to provide security and conformance to Open Systems Interconnection standards, including its X400-compatible Interdepartmental Electronic Mail, IDEM. Implementation begins in Norwich with deliveries running from November to March 1987. The beaten finalists were ICL and GM's Electronic Data Systems. EDS won't say what it bid for the contract, but it is likely to have been IBM kit.

HITACHI TO RIDE UNIX INTO US MARKET UNDER ITS OWN NAME

Taking advantage of the growing acceptance for, and portability of, Unix, Hitachi is set to follow NEC and Fujitsu into the US computer market under its own name – and manufacture them at its disk drive plant in Norman, Oklahoma. The Japanese electrical and electronic giant, whose IBMulators are already sold in the US by National Advanced Systems, already builds a 68000 family OEM Pick and Unix machine sold by C Itoh's CIE Electronics, and is likely to kick off its US offerings with a 68020 machine before graduating to its own forthcoming H-series of microprocessors, which will be code-compatible with the Motorola 68000.

SUN PACT WITH GE ON GRAPHICON

Sun Microsystems and General Electric are negotiating a joint marketing agreement for Sun's 68020-based workstations tied to the hot new Graphicon graphics processor developed by GE. Tying the Sun stations to the Graphicon chip set, one of the most powerful on offer, will enable the pair to offer high performance three dimensional graphics.

WORD PERFECT TO PERFECT VAX, 370 VERSIONS

Underlining the extent to which the DEC VAX/VMS environment is now regarded by software developers as having market parity with IBM's 370 environment, Word Perfect Corp of Orem, Utah, is planning versions of the 4.1 release of its MS-DOS word processing package for both – and the DEC version will be out first. The company will introduce the VAX/VMS version in January or February and offer it for $5,000 to $14,000 according to the CPU on which it is to run. A group has been formed to develop the 370 version, but that is something like a year away – and is likely to be preceded by a second DEC version, for the Ultrix Unix environment, as well as file conversion between Word Perfect and DEC's All-In-1.

SPERRY SET WITH FIRST 2200 CPUs, DISTRIBUTED SOFTWARE...

The Sperry division of Burroughs Corp last week unveiled the first four
mod-els in a new 2200 mainframe line - the new number signifying nothing
more serious than that with the top-end 1100/90, the company ran out of
1100 numbers. The announcement also includes the first fruits of a new
communications software strategy to tie its own disparate lines together
- and link to IBM 370s. The new 2200/200 machines are built from a six
chip 1.25 micron CMOS re-implementation of the 1100/70 CPU developed at
the company's Eagan, Minnesota Semiconductor Operations, and come in the
usual one, two, three and four processor configurations - and Sperry
stresses that unlike the new IBM 9370s, they will be delivered before
the end of the year. Main memory goes to 12Mwords of 36 bits on the
four-CPU 204 model, and two processors fit into a single cabinet. The
2200s also represent Sperry's first step towards fault-tolerance with a
redundant instruction processor to shadow the working one and take over
in the event of failure. Each of the maximum two cabinets also takes up
to 48 515Mb disk drives. The move towards computing-for-gonzos has not
passed Sperry by, and there is a new menu-driven operator interface for
1100 OS called Shield which enables non-specialists to run a 2200 from a
Sperry Personal Computer. Programmable line controllers are offered as
an alternative to the DCP communications processors to support small
networks, and Hyperchannel and Interprocessor Channel Coupler options
are offered for local connection of multiple 2200s or of a 2200 to other
Sperry or alien machines. There is a new relational RDMS 1100 to comp-
lement the Codasyl DMS 1100. A 2200/201 with 1Mword of memory, 960Mb on
disk, 300 lpm printer and communications will come in at about $200,000.
The new Distributed Systems Services suite of programs is based on IBM's
Document Interchange Architecture and is designed to enable text, data
and file interchange between 1100 mainframes, the new 2200 "midframes",
the Series 5000 and 7000 Unix machines and Sperry or IBM Personal Compu-
ters. The first release of the new Sperry network architecture includes
program-to-program communication, remote file transfer, job scheduling
and remote initiation of transaction processing, with file format con-
version between Unix, MS-DOS and 1100 System Data Format. The plan - as
first outlined in 1983 - is to add a bridge to IBM's DisOSS office syst-
em via SNA Logical Unit 6.2 protocols and Document Content Architecture.

...MAPPER IN C, NEW UNIX, SYSTEM 80, DCP MODELS

Sperry is also taking the opportunity to rejuvenate all its other main
hardware lines, and, perhaps most valuable of all, extended its Mapper
applications generator into the Unix environment with a Mapper C version
written in C; the company regards Mapper as a key selling point for its
own hardware, so is presently selling Mapper C only with its own Unix
machines. There is a new 68020 model in the Series 5000 Unix machines
from the NCR Tower line, the Model 30, which is believed to be the up-
coming low-end 32-bit Tower as yet unannounced by NCR. There is also a
low-end 7000/30 version of the Power machine Sperry buys OEM from Compu-
ter Consoles, a new DCP/15 communications processor that slots between
the low-end DPC/10A and the DCP/20. The 15 offers twice the main memory
- 2Mb - as the 10A, and support for up to 52 synchronous or asynchronous
lines against 26 on the 10A. It has integrated floppy, 20Mb Winchester
and is designed for 19" racking; it comes with a new DCP/OS operating
system and is set for the first quarter 1987.

MICRO TECHNOLOGY LIFTS ITSELF INTO TOWERS

The latest comapny to follow the trend of extricating itself from the
overcrowded micro market is Micro Technology Group. It started life
back in 1982 as a company selling CP/M machines and producing software
for them, in 1983 it became an IBM PC dealer and a Compaq dealer in 1984
and shifted itself into the world of Xenix. Micro Technology has now
decided that "the time is right to enter the broader Unix market" and to
this end has become a dealer for the NCR Tower Series and a 6150 dealer-
(or RT dealer - depending which side of the Atlantic you come from).
Micro Technology say that it held back from commiting to Unix earlier
because it was not convinced until recently that there would be suffi-
cient development of business application packages for the system. NCR
was chosen from a group that included Altos because it had the best
support service. Micro Technology will be selling the NCR Tower at an
entry-level price of around £7,500 and expects to make about £.25m with
the series "in a good year". The Tunbridge Wells-based company is in
discussion with Sphinx to produce a catalogue of general business and
vertical market application packages.

TALK DIBOL DUTCH AND MOVE TO UNIX

There has been an unprecedented
flow of tools designed to assist
the DEC base in moving to Unix, and
the latest to join the fray is a
Unix compiler for DEC's Dibol busi-
ness programming language from
Dutch company Minihouse Internatio-
nal. Dixbol made its UK debut at
the DEC User Show at the Barbican
this week, and is being handled
over here by Reading based Data-
ware, a six year old company that
started life as a systems integra-
tor for Perkin-Elmer hardware.
Minihouse, based in Gouda, Holland,
is a ten year old, 200-strong DEC
systems house, which is now making
a move towards Unix and saw a Unix
based Dibol compiler as a means of
moving its own software over as
well as a potential product.
Although there are other Unix Dibol
products - Software Ireland's Uni-
bol being the most notable example
- Minihouse preferred to develop
its own, to maintain tighter con-
trol over the product and with a
view to marketing it eventually; it
also pointed out that when the
development was started, there were
fewer other products around. The
result includes Dibol-83 compatible
compiler, with features designed to
ease moving from DEC's CTS-300
environment, run-time system,
linker and DEC DDT-compatible
debugger. Additional features
include interfaces to C-ISAM and
Oracle. Future enhancements are
likely to include a version
compatible with the emerging ANSI
Dibol standard - Minihouse will
not, however be tracking the Dibol-
85 implemented for the VMS and RSX
operating systems which it regards
as an interim product en route to
the ANSI standard. Minihouse is
also moving into building Unix
hardware based on the NatSemi ICM
modules, built round the 32000
series microprocessors and running
the Genix version of System V.2.
Dixbol has been around over a year
in Holland; prices for the Genix
version are $3,330 for a develop-
ment system, $220 apiece for a
minimum of five run-time systems.
The common interest in NatSemi
brought Minihouse into contact with
Dataware, which was demonstrating
an ICM-based system with the 32016
processor running Genix and Thomas
Thomason's CADP graphics system.
Six year old Dataware is also
making its first foray into the
Unix market with the system; it is
seeking resellers as well as end
users for the product and will be
moving up to the much more powerful
32332 CPU with System V.3.

The unprecedented move by the Swedish Government and Department of Defence to adopt Unix as a purchasing standard has proved successful; it is going into its second stage still waving the Unix banner. Financial pressure has forced them, however, to rationalise its purchasing strategy and the two bodies have now jointly specified what the next round of equipment should include – opening the doors once again to all manufacturers offering Unix. Over the last year and a half the two bodies have, despite their commitment to Unix, purchased its computer equipment independently but the first joint preliminary specification issued within the last two weeks has put the dollar sign into a lot of manufacturers eyes and brought forward a lot of speculation. Vendors will now be wading through the reportedly weighty tomes and selecting their offerings. These products and comments that manufacturers make will form the basis of the final specification due out before Christmas. The final products will be approved during the early part of next year and implementation of the second stage of the Government's and Defence's computer installations will begin after the spring of 1987. The specifications include: Unix System V.2; communication facilities including Ethernet and TCP/IP; 32-bit machines with virtual memory; standard bus interfaces such as the SCSI; and Uniplex is the one specified software package. All the purchasing and approval for both bodies will now be done through the Statskontoret, who are the government consulting agency, and were responsible at the last round of purchasing for evaluating Unix machines solely for the Government. This time last year (UX No 52) the Government selected Zilog System 8000, the Cromemco CS300 and CS400, the Luxor ABC9000 – developed by Data Industrier AB, and the Sun

VENDORS SEE NEW OPENINGS

AS SWEDISH GOVERNMENT

AND DoD RETHINK SECOND

PURCHASING PHASE

Microsystems workstations sold by Ericsson in Sweden. Philips was chosen as the prime contractor for the Department of Defence and subcontracted to NCR for its Tower range and Digital Equipment for the DEC VAX. Carl Lamm, distributors for Zilog in Sweden, claims that it received 75% of all the orders placed on behalf of the government. On the Defence front NCR reckons it secured 70% of the Department of Defence's orders. NCR is also rather pleased at the merging of the purchasing bodies as the Defence's second round of buying was due at Christmas so NCR hope that the delay will mean that its contract is renewed for a further half year. Cromemco and Digital were not as forthcoming with their figures but Digital did say that it considers its sales to the Defence in terms of prestige rather than revenue. The Swedish machine, Luxor ABC9000, has not been successful in order terms since Nokia of Finland acquired the rights to the machine. Most of the companies exhibiting at last week's Scandinavian Unix exhibition will be jockeying for a position on this list of approved products – software and hardware. Sperry, which did not show at all during the last round because it was not then established in Sweden, is confident for its 5000 family. Sperry will, however, have to combat its more firmly entrenched European competitors such as Ericsson and Philips. The general feeling at the show amongst the manufacturers exhibiting is that two or three vendors will be chosen as main contractors which will then sub-contract. Philips is a hot favourite as it is currently

the prime contractor for the Defence and has a solid knowledge of the Swedish Defence Materials Administration System which is a project intended to last for at least ten years. The bulk of software for the government has been channelled through Statskonsult Programvaruhuset (PVAB) which is a software house and distributor. PVAB bundles other company's packages together with its own software into six categories: KIS – office information systems; BUS – an economic system designed specifically for the Swedish government; COS – communications software developed by Yeti Communications of Switzerland; PAS – payroll system; DUS – fourth generation languages including Prolog and incorporating the applications generator package. Today, from Australian bbj; and SUS – system development tools such as C++. All of these categories are used by the government. Currently KIS and BUS are only used by the government but KIS will be released as a system to the general Swedish market next summer. Although the Swedish move has undergone change due to the pressure on the government to curb its spending it is maintaining its adoption of Unix depsite its earlier problems of getting sufficient and varied software. The growing poularity and awareness of Unix was reflected in the number of exhibitors at this years show, 65 compared to last years 40, and attendance passing the 1985 figure of 4,500 after the second day. Ericsson is hoping to convince the Swedish Government to adopt the X/Open standards as its own which would constitute yet another first for the Swedish Government. Of particular interest to the Swedes was last week's X/Open announcement (UX No 98) that it would be adopting Hewlett-Packard's native language support system which will support European language character sets.

No doubt more by accident than design, Dr Gene Amdahl is poised to do what he did at Amdahl Corp all over again – set the price-performance standard at the top end of the processor line. But this time around it will be not for IBM but for DEC VAX users. His Trilogy Ltd company set out to repeat the Amdahl Corp trick all over again, but the leap in chip packaging technology conceived by Dr Amdahl proved to great to achieve in practice within the timescale required to take on the Sierra line, and had to be abandoned. That left Trilogy with a lot of expensive design and fabrication hardware and software, a not inconsiderable pile of unspent cash – $42m –left over from the fortune raised for the IBMulator development project – and no products. To have liquidated at that point would have been too feeble: the principals would never have been able to raise cash for a new venture after what would have been described as the Trilogy fiasco – so instead the company looked around for an entrée into another business that would tax the skills of the founders and had potential for rich rewards.

Gnomic company

And it lighted upon a gnomic company with an unusual pedigree – investment from the giant Indian Tata conglomerate by way of a joint venture in Singapore, an extremely interesting 64-bit multi-processor mini-supercomputer – and a cash deficiency that was becoming critical. It looked the ideal investment for Trilogy's remaining cash. Whether or not that will prove the case, only time will tell – but with its new operating software, Elxsi has a challenging and unique sales argument. Where IBM has had to make its operating software freely available to people prepared to pay for it under vraious anti-trust settlements over the years, the DEC processor products have all been so hedged around by patents and coyrights that no-one has ever seriously challenged the Maynarder with plug-compatible processors. Indeed the only ones that have surface are illegitimate copies in the Comecon countries and in India. Elxsi has no intention of putting its head into the lion's mouth by trying to do an Amdahl

IBM OUT OF REACH, SO DR GENE, ELXSI SEEK TO PULL THE AMDAHL TRICK ON DEC

on DEC. Instead, as we first reported last December, the company has incorporated VAX/VMS compatibility at the operating system though not the instruction set level into its proprietary Embos operating environment, which also supports both Unix System V and 4.2 BSD. Now out, and called EMS it shares a kernel, file system and database with Embos, but the EMS and Embos user interfaces are kept separate, allowing all four operating systems to run simultaneously on separate virtual machines. Besides changes in the murkey depths of Embos, EMS includes four software packages: ECL, which emulates the Digital Command Language, DCL, interpreter; ERT, which provides the VMS system services and run-time library; CLXCI, an editor which is compatible with the VMS EDT editor (Elxsi already has a Fortran compiler that is VMS-compatible); and Community, a package that emulates the DECnet Phase IV end node and allows Elxsi 6400 users to communicate with VAXen over an Ethernet-DECnet link.

Pipes and filters

Embos is a message-orientated operating system built up from multiple processes networked together and automatically load-balanced over the available processors. As everything, right down to tables and control structures, is a separate process with a standard, well-defined interface, it is easy to add new functions. Like Unix, it has powerful interprocess communications with features similar to standard output, pipes and filters. Like the Unix shell, virtually all the command interface does is to make requests to operating system processes, building up a required function by stringing together these basic building blocks. The EMS command language interpreter works in exactly the same way: to execute the VMS DCL the designers used the same building blocks as EMBOS and had to add relatively few operating system processes to handle the syntax and semantics of the individual VMS commands. The command interpreter supports VMS-style

parameter specification and handling (including prompting and defaults) and allows command names, qualifiers and key words to be truncated according to DCL rules. ECL also handles all the complex VMS-style file names (version IDs, wild card characters and default-device, default-directory, and foreign-file specifications) and supports logical names, including the creation, deletion, and display of names and the process, job, group, and system scoping of them. Most of this support was integrated into the Embos file structure to improve performance, which gives the added benefit that EMS files are accesible from Embos and vice versa. The designers had to implement all the DCL commands faithfully, because most major VMS applications have a command file containing DCL commands as an integral part of the application, so that if any of the DCL command file functions had been omitted from ECL, the Elxsi machine would not have been able to run most of the popular existing application packages. (These functions include batch execution, use of defined parameters and qualifiers, and their nesting of command procedures to an arbitrary depth.) However, VMS command files and programs would still not run on the Elxsi machine unless it supported the same run-time routines and system services – procedures to support everything from asynchronous input-output and interprocess communication to simple time and date string manipulation. The ERT run-time interface contains hundreds of routines for specialised tasks.

Ingres extended

Once again it takes advantage of the fact that Embos was built on the VMS model – the EMS run-time library either calls an Embos run-time routine that does the same thing as the VMS run-time routine or, if an appropriate one is not available, directly accesses the same lower-level system facilities that the Embos routines use. The EMS text editor, CLXCI, is a complete implementation of DEC's EDT. And the Embos implementation of the Ingres relational database manager, EDMS, has been extended to conform to the VAX/VMS version. Dr Amdahl no doubt sees taking on DEC as second best to beating IBM at its own game, but with DEC on the up-and-up and IBM under a rapidly darkening cloud, he could well find that, by default, he is going after the more challenging target after all.

COBOL KING AUSTEC MAY REINCORPORATE IN US
Austec International Pty, the Melbourne,
Australia company with the revolutionary Ace
tools that provides complete portability of
applications written in any popular dialect
of Cobol is considering re-incorporating in
the US to get away from the onerous
Australian tax system, and to give it greater
visibility in its key market. If it does not
reincorporate, it is planning a US Over-The-
Counter flotation by the middle of next year,
and is also considering a UK quote for its
shares, which are currently listed in Sydney
and traded in New York in the form of
American Depository Receipts. It has
retained Hoare Govett of London to advise it
on reincorporation and on moving up to the US
NASDAQ electronic market. Austec is looking
for $2.5m in profits for its first half to
December 1986 on turnover of $6m - up from
just $258,000 pre-tax on $2.6m for the whole
of last year, and is forecasting a $13m to
$14m pre-tax for the full financial year to
June 1987 on turnover of around $20m. "We're
in a big dilemma," says executive chairman
and founder of the company Leslie McNeill.
"Australia needs its high-tech industry but
with corporate tax now at 49%, and taking
into account our responsibility to give
shareholders maximum return, we may have to
go to the US to achieve that. In Australia
we are seeing a repeat of the welfare state
in the UK of the 1960s and 1970s. There was
inevitably at that time a brain drain from
the UK to the US where tax levels were lower,
and the same thing will happen in Australia."
The company is now stonger in the US than it
is in Australia, with some 30% of its US
revenues coming from the US government, the
other 70% coming from US manufacturers.
Company executive chairman Leslie McNeill
says it is now in negotiations with the US
Department of Defence and the Ada Joint
Programs Office to implement an Ada version
of Acebridge "in relation to Pentagon is-
sues." The company is also selling licences
of the AceBridge system to NASA through
Lockheed, which is prime contractor, for its
space shuttle program, due for reactivation
in 1988. Existing, obsolete Honeywell 66/80
mainframes, running GCOS III and the IDS
database is being linked to new equipment
being brought in, including DEC VAXen and
Apollo computers into a single network.
AceBridge is running on the 66/80 to turn it
and the IDS product into a database server.
Austec has signed up manufacturers ICL,
Systime and High Level Hardware to sell the
system in Europe. This adds to the list
which includes Olivetti, NCR and Sperry. The
company is trying to get its name better
known in Europe since it sells its products
through resellers. Around 25% of Austec's
overall revenues come from Europe and Austec
has its sights set on Japan and the Far East
as its next market. It is in neg-otiations
with a Japanese manufacturer for Ace, but
there are still problems because the Japanese
want the source code, which Austec does not
provide.

**ETHERNET SUPPORT, NEW 9347 TAPE DRIVE,
VSE/IS ARE MAIN SURPRISES ON IBM 9370**
The most thoroughly leaked announcement in IBM's
recent history left few surprises for the big day
as IBM announced the - no, not 9300 but 9370 line
last week the company is reactivating the old 370
tag in the new machines. The company has
completely altered the economics for its mainframe
users by bringing in variable software pricing
according to processor size, and perhaps the big-
gest point we didn't pick up was that the 9370
communications controller includes Ethernet as well
as IBM Token Ring among its range of protocols,
further confusing IBM's local area networking stra-
tegy. The new processors - 9372/20, 9375/40 and
60, and 9377/90, offer about double the price-
performance of the 4361, and are designed to be
mounted in the same 19" racks that were introduced
with the new 9332 and 9335 disk drives. There is
also a new 9347 tape unit for the 9370s with its
own integral controller which uses standard 1,600
bpi 10" autoload reels. Input-output devices are
attached by plug-in disk, tape, terminal or commu-
nications controllers. There are four types of
communications controllers: the ASCII Subsystem
supports a wide range of asynchronous devices in-
cluding the Personal Computer; the Local Area Net-
work Subsystem includes IBM Token Ring and Ethernet
interfaces and the Telecommunications Subsystem
includes SNA/SDLC, X25, async and bi-sync. The
9373/20 comes with 4Mb, 8Mb and 16Mb memory and
takes up to four input-output controllers with the
processor in a three foot high 19" rack; the con-
trollers can include any four from one or two disk,
one or two workstation and one or two communica-
tions controllers. There is also a 370 block
multiplexer channel for attaching non-9370 de-
vices. With 4Mb main memory, 368Mb disk, 9347 tape
and support for six to 32 workstations is £47,786,
with first UK ships in July. The 9375 and the 9377
each have 8Mb or 16Mb memory; the 9375 has 17 card
slots, but the Model 60 offers twice the power of
the 40, implying that it is about 2 MIPS rather
than the 1.3 MIPS we suggested yesterday. The 60
and the 9377/90 both run MVS/SP 1.3.5; the others
run only preconfigured VM/IS, DOS/VSE and Unix.
The only other hardware price given was for a
configured 9377/90 with 8Mb, four communications
lines, two 370 channels and support for 96 worksta-
tions: it costs £355,127, with first UK deliveries
set for October 1987.

SALE OF FAIRCHILD ON THE CARDS AT
SCHLUMBERGER, ANALYSTS SAY
Appointment of Euan Baird to succeed Michel Villaud
as chairman of Schlumberger Ltd heralds more stren-
uous cost-cutting measures which could well include
the sale of the troublesome Fairchild Semiconductor
subsidiary, analysts say. The plan at the giant
oil industry services company had been to wait un-
til Fairchild is restored to profitability before
seeking a buyer for it, but sale could now come as
soon as this autumn. Fairchild Semiconductor, for-
merly Fairchild Camera & Instrument, went into de-
cline soon after Schlumberger acquired it, and has
always been an also-ran in the standard component
stakes. Its hottest microprocessor property right
now is the Clipper chip set, developed after bat-
tles with Data General wrecked any chance of succ-
ess in the 16-bit market with its Microflame chip.

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NEW STANDARDS CONFORMANCE COMPANY — SPAG

Formation of a joint standards conformance testing company which has been established in Brussels by eight members of Standards Promotion and Application Group, SPAG, with $2m in funds has now been formally announced. The SPAG members are ICL, Bull, Nixdorf, Olivetti, Philips, Siemens, STET and Thomson, which have equal shares in the new organisation. It is called SPAG Services SA and will test that products conform to standards defined by European standardisation agencies CenCenelec and CEPT, which incorporate ISO and CCITT, and to profiles defined by SPAG where standards do not exist. The service follows in the footsteps of one started this month by IBM in La Gaude, France but the difference is that manufacturers will have to pay for the SPAG service. IBM claims it charges only for the cost of connection to the IBM facility and for implementation of the test responder on users' own kit. SPAG Services is chaired by Executive Director of Siemens Dr Herbert Donner and is ready to accept further member shareholders in the future.

PICK SYSTEMS HOPES TO STEAL A MARCH ON RIVALS

Although you can already kick the tyres on 80386 machines from Corvus and Compaq, there is as yet no operating software available designed specifically for the new Intel 32-bit chip. But Pick Systems Inc in Irvine, California is promising to beat all its MS-DOS and Unix rivals with a version of the Pick operating system for 80386 machines — "The day you can buy a Deskpro 286 you can buy a version of Pick to run on it," says founder and chief Dick Pick. He explains that since Pick is written in a universal assembly language, marrying it to any new computer hardware is a simple matter of setting up tables that define the characteristics of the machine, reassembling the system and writing the object code for the target machine. There are as yet no price or delivery details for Pick 386, and the first version does not make full use of the 32-bit bus of the 80386 — but it will "within a week" of the company getting hold of an 80386 computer.

Minigrams

Cray Research Inc has a giant $42m contract from the **US Ballistic Research Laboratory** for an X-MP/48 worth $19m and a Cray 2, $23m.

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Informix Software Inc, Menlo Park, California, says that its Informix 4GL applications generator is now available on **DEC** VAXen under VMS 4.4 and above: it is designed for use with the company's Informix SQL implementation of IBM's Structured Query Language, and is priced at from $3,700 to $45,000.

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Autodesk Inc has introduced AutoCAD 2.5 for the **Apollo** Domain Series 3000 68020-based workstation: it operates identically with the version of the drafting and design program for the Personal and costs $2,750.

– o –

Polygen of Waltham, Massachusetts has signed a Value-Added Reseller agreement for the Unix-version of its Hydra design package for drug and biochemical researchers with **Silicon Graphics Inc** to run on Silicon Graphics' three-dimensional workstations – no value has been put on the agreement: Polygen evaluated the equivalent offerings from IBM, Apollo Computer and others before deciding on Silicon Graphics.

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DEC's new products typically take a month or six longer in gestation than expected these days, and launch of the new bottom-end Micro-VAX (III?)-based machines code-named Teammate and VAXstar has been put back to December 2 from next month according to **Computer Systems News:** however the paper expects the early November date to be filled with a low-end alternative to the VAXcluster to allow transparent disk sharing of engineering workstations, with links running at the Ethernet speed of 10Mbps against the 70Mbps of grown-up VAXcluster.

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DEC has reiterated and confirmed that it will be creating just under 1,000 new jobs around the UK by the end of its current financial year, which runs through to June 87.

Burroughs Corp, now including **Sperry**, wants to cut its 120,000-strong combined workforce by about 8%, which means that 9,600 jobs will go by the end of the year: people aged 55 or over with 15 years service with either company are being offered voluntary retirement terms and have until November 17 to make up their minds.

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Compaq Computer Corp brings its new 70Mb model of the 80386-based Deskpro 386 to the UK today at £6,000, accompanying the new box with price cuts averaging 9% across the range apart from the Portable, Plus and Deskpro 386, with the Deskpro 286 models falling 14%: also new is availability of the Enhanced Colour Graphics board and screen across the full range at 495 for the board, £550 for the 13" screen; and a new 20Mb hard disk version of the 8MHz Deskpro 286 with 640Kb memory, 1.2Mb floppy and screen for £3,295.

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Texas Instruments has agreed joint marketing with **Omron Terminals (UK) Ltd** of complete point-of-sale systems in the UK, combining Omron's electronic cash registers with Texas Instruments' Professional Computer under Xenix or its Business Systems series under a specially-configured version of the proprietary Texas DX10 operating system.

– o –

NCR Corp has enhanced the communications capability of its Tower line of Unix supermicros in an **IBM** SNA environment with the addition of two new programs, Logical Unit Type 1 Printer Emulation and Logical Unit Type 3 Emulation: both enable IBM users to send files to Towers for printing, and operate with programs such as the previously announced SNA PU Type 2 program that emulates an SNA cluster controller; they cost $150 apiece.

– o –

Ramtek Corp has reported a fourth quarter net loss of $741,000, down from a loss last time of $2.5m, on turnover down 39.9% at $5.6m; net loss for the year to June 30 was $3.5m, struck after a $7.4m gain from sale of assets, up from a loss last time of $2.1m, on turnover that fell 29.8% to $30.9m.

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ICL PLUNGES INTO US MARKET WITH CLAN...

ICL's nineteenth attempt to make its mark in the US market is to be spearheaded by the company's Clan line of Unix micros and minis that come from Datamedia Corp and Computer Consoles Inc. The UK company unveiled the line for the US at the Unix Expo show in New York City yesterday, and revealed that it will be targeting large US corporations with a program called Sales Force that is designed to enable sales people to take an Epson portable computer - with an ICL badge on it, on the road, and to enter sales details into any model of the Clan line from the portable at the end of the day. ICL will also go after value-added resellers with the Clan line, which consists of four models in the US, the 68010-based DS3 and the 68020-based DS4, both from Datamedia and the latter not yet announced in the UK, and the Computer Con-sole's bit-slice mini-based DS5, 6 and 7. Base price for the DS3 with 1Mb, 40Mb disk, 20Mb tape and sup-port for six users is $14,500, rising to $300,000 for a 128-user DS7. ICL has put together a portfolio of 680 Unix applications for marketing worldwide. It now has 550 staff in the US, with 35 to 40 on Unix.

...AS DATAMEDIA LOSES FIGHT WITH UNIVERSAL COMPUTERS

The long-running legal battle over the agreement under which Datamedia Corp breached terms of the exclusive UK distributorship with Univer-sal Computers (Systems) Ltd and of-fered ICL an OEM and manufacturing agreement on its Pick and Unix box-es has been settled in Universal's favour, and the London SE company has been awarded over $2m damages by a New Jersey US district court. The award includes a punitive ele-ment, and UCL is now seeking its costs, and interest on the award, and may seek further UK redress.

LOCUS HAS MERGE SOFTWARE FOR UNIX PLUS MS-DOS

Locus Computing Corporation has launched Merge 386 at New York's Unix Expo this week, a product which allows concurrent Unix and MS-DOS. This is implemented on the Intel 80386. Microport of Menlo Park California has combined Merge 286 with Unix System V and has the system out on beta test sites. The system will be available for general release during the first quarter of 1986 and will cost $199. Locus has also introduced LX-Windows a graphics-based DOS/Unix windowing system that provides overlapping windows and subwindows for any machines running Unix System V. LX-Windows is based on MIT's X-Windows which was written for the 4.3 BSD environment. LX-Windows is expected to be released during the first half of 1987.Locus intends to enhance X-Windows by providing support for both DOS and Unix using Merge 386. Locus, of Santa Monica, California, also intends to add MS-Windows extensions so that DOS programs written to run in the MS-Windows environment can be supported by LX-Windows.

RYAN-McFARLAND CLAIMS LEAD IN UNIX COBOL RACE

Ryan-McFarland Corporation is claiming that it has the first ANSI 85 Cobol for Unix-based 68000 machines. This is one of the first Cobols to conform to Ansi 85, although Tandem announced its own Cobol (not for Unix machines) earlier this month. This represents something of a lead over arch-rival Microfocus, which has always placed emphasis on proving and announcing conformance as soon as possible, and which is really understood to offer the de facto Cobol standard for Unix machines. NCR, Altos, Counterpoint Computers and Unisoft have agreed to market RM/Cobol-85 with their own products. Bulk shipments are planned for December 1986. Ryan-McFarland claims that this Cobol compiles programs twice as fast as earlier RM/Cobols and executes up to five times faster. This is in part due to the structured programming capabilities and the addition of data and key compression features. No prices available yet.

OPTIM TAKES REST OF DIGICO

The Optim Computer Group has this week acquired the remains of Digico Ltd. In November 1983 Optim acquired the hardware maintenance division of Digico, shortly after which, January 1984, Digico called in the receiver. Optim tried to buy the bankrupt company but its bid fell through and Digico was snapped up by Centreway Industries plc. On the surface it appears that Digico has little to offer but Optim want the company because it will then hold some lucrative contracts for both hardware and software maintenance. Customers of the original Digico group had until now split support for Digico's mini computers. Digico now has a software support division and sells a 68000-based Unix machine called Regal which came from Hawk Microcomputers - a company also bought buy Centreway and merged with Digico. Centreway, a shoes and ships and sealing conglomerate, is based in Birmingham. Optim was formed as a management buyout of Monotype Communications computer sales division of the Monotype group in 1983 and merged with the UK subsidiary of MCS Inc. The $20m US publi corporation, MCS Inc, is a majority shareholder in the Optim Group. The private placing of 11% unsecured convertible loan stock that Optim was seeking to raise a month ago for £2m is still going through.

INFORMATION BUILDERS NOW SHIPPING FOCUS FOR UNIX

Information Builders has announced the production release of its FOCUS fourth generation language and database management system for Unix-based machines. Bulk shipping will begin in November. Focus for Unix machines currently only runs on AT&T's 3B series and costs between $2,895 and $44,000.

NIXDORF TAKES TARGON FOR RETAIL MARKET

In the first serious statement since the launch of the Targon Unix line of how the machines will fit into the strategy for its prime vertical markets, Nixdorf last week launched Targon for the retail trade at the EFTPOS 86 exhibition. A similar effort in the banking market seems likely in the not too distant future. The company claims considerable success in the UK retail sector since it entered the market in November 1983; offering networked branch level systems based on the proprietary 8860 machine with specialised peripherals including EPOS terminals, it has sold into major chains that include Currys, Dixons and Laura Ashley. The 8860 being well established with a large investment from Nixdorf in continued development for the machines, the company will offer Targon systems for regional and head office applications rather than at branch level, allowing Nixdorf to offer a wider range than was previously possible. Exactly what the offerings will consist of remains somewhat hazy; Paul Taylor, UK manager of the Targon Systems Group, outlined two likely approaches. The retail market, he pointed out, is becoming increasingly competitive, volatile and sophisticated. At regional and head office level this generates a need for decision support systems that are flexible enough to deal with rapid change, and so Nixdorf will be pushing the Targon range with relational databases for decision support. The company has its own relational system that has already been converted to run under Unix; it also has a close relationship with Oracle. The big Targon/35, based on the Pyramid minis, seems a likely candidate. The second potential area is in software development, where again the flexibility is required to cope with a situation that may constantly require the intorduction of new product lines or attempts on new markets. Noting that the retail trade is characterised by its frequent mergers and takeovers, Taylor advanced the interesting theory that companies faced with the problem of having to merge their DP operations may provide an opening for Unix as a common base for software development. Nixdorf's support group includes expertise in producing conversion tools for such situations. The UK's 80-strong retail division will be trained in handling the Targon line, which will also include the Targon/32 fault-tolerant machine originally derived from a development by the now deceased US startup Auragen, and the Targon/31 single processor machine based on the same architecture; a production version of the /31 using the 68020 is expected around the end of November. The specialist Targon group itself consists of 12 people.

PICK SYSTEMS SPINOUT TARGETS FAULT-TOLERANT MACHINES WITH UNIX

Ever-On already has an implementation of the Pick operating system that runs under Tandem Computers' Guardian fault-tolerant operating system, but two former Pick Systems employees – working out of Pick Systems' Ir-vine, California offices – have formed Concurrent Operating Systems Technologies Inc, which will initially specialise in doing implementat-ions of the Pick operating system on fault-tolerant machines. According to **Computer Systems News**, the company's first commission is likely to come from 68000-based fault-tolerant systems builder Sequoia Systems Inc in Marlboro, Massachusetts – which apparently wants the Pick implementation to run concurrent with Unix.

C INTO P DOES GO – USING KNOWLEDGE CtoP

Knowledge Software has made the unprecedented move of producing a software tool to convert C code into Pascal. CtoP was produced in response to a demand from a customer which had a contract to rewrite, in Pascal, a suite of C programs. This unnamed Pascal house had so much trouble deciphering the C code that it approached Knowledge Software for help. The quotation that Knowledge Software produced for doing the job itself was too expensive so the company asked if some tool could be written to help in the process. CtoP is written in Pascal and currently runs only under MS-DOS but a port to Unix is being considered and according to Knowledge Software will be straightforward to accomplish. CtoP will handle Unix System V compatible C source code as input and the company claims that between 70% and 90% of the original source code is converted without need for human intervention. Although three or four Pascal to C converters exist this, to the best of our knowledge, is the only C to Pascal conversion tool. Knowledge Software does not consider that this tool will be in great demand but hopes it might produce a few orders. A tool to convert C code to Modula-2 code is also under discussion and another project in the pipeline is developing tools to convert Fortan code designed for serial machines to run on the increasingly popular parallel variety.

PPL SELLS TROUBLED CANADIAN SUBSIDIARY

PPL Plc, the former Packaged Programs Ltd, which came to the Unlisted Securities Market in February and disappointed with poor interims after a failed entry into the US through Canada, is now closing the sale of its loss-making Canadian subsidiary. The Blackfriars Road, London company hopes to an-nounce the move when it releases its final results later this month. For the six months to March 31, PPL made a £274,000 pre-tax loss largely as a result of the Canadian business. PPL will continue to sell into the US through the consultancy, taking royalties. Second half losses in Canada will be written off as a loss on discontinued operations.

WORDPLEX ON BETTER TALKING TERMS TO IBM – SCHEDULES XENIX FOR 1987

Wordplex Plc yesterday unveiled a family of software products that links any of its Gemini office automation systems with IBM Personals or compatibles, offering bi-directional transfer of information, documents and data: the Wordplex Connection includes Wordlink 8000 for connecting the Series 8000 system to Personals; the company's WordText word processing pack; WordLink Gemini for the S90 stand- alone word processor; WordConvert to convert files created under WordText or MS-DOS into Gemini files and vice versa; and Organiser, a menu of all the Connection files plus the option for three non-Wordplex files; prices start at £300 per node, with WordLink at £295 (and ready now), WordText £395, Gemini £295, WordConvert £95 and the Organiser only £50 and all the products will be available by the end of this year; to follow this up, Wordplex is expected to come out with Xenix for the Z8000-based Series 8000 early next year.

BENCHMARK GETS FURTHER INVESTMENT AFTER PHICOM PULLS OUT

Following the decision of Phicom plc to pull out of the graphics market, its £250,000 investment for 20% of UK startup Unix and graphics engine manufacturer benchMark Technologies has been sold to an unnamed investor which has made a further £400,000 available to the company. And in a related deal with a "multinational company with UK connections", benchMark has signed a licencing arrangement guaranteeing it a further £850,000 over the next 18 months - assuming it comes up with the goods in the form of products currently under development. Phicom's interest in benchMark centred round its subsidiary Trend Communications, which is benchMark OEM and was the subject of a recent management buyout. benchMark, which acts as a development house selling only through OEMs, has two existing products in the proprietary GIP Graphics Image Processor and the benchMark 32 "CPU-independent" Unix boardset, which combines 32-bit microprocessors with an 80186 that runs a real time executive and can both support MS-DOS and be assigned to handle I/O. Pushing the benchMark 32 upmarket, the company is planning a version that incorporates the 33MHz Clipper chip from Fairchild Semiconductor. Faster versions of the GIP are also in the works, and the company is working on a "very high bandwidth communications subsystem" for transmitting images - sending 5Mb image data in less than 15ms is the order of performance needed. With the GIP and the communications subsystem benchMark is taking on imaging markets where the graphics requirements are different from CAD/CAM systems, requiring the rapid display and manipulation of very large volumes of data for systems in areas such as seismic analysis or medical imaging. Because of these requirements, vendors have been slower to move to workstations, still relying on host based systems. benchMark's one major OEM for the GIP is Sperry, which also signed a rather more publicised deal with Pixar, the company which hit the headlines after an investment by Apple founder Steve Jobs and one that benchMark sees as a chief competitor. benchMark currently has 16 staff, 12 of which are engaged in research and development, and is looking to double that total in the near future. It claims 31 customers including a number in the CAD/CAM area.

GOULD TO RESTORE MIPS SUPREMACY WITH 8-CPU MINIS

The breakneck pace at which DEC has been winding up the MIPS war with its new top-end VAXes, and the en-thusiastic efforts of the pack snapping at its heels have left the traditional performance leader in the minicomputer MIPS stakes, Gould Computer Systems, looking a little jaded. Now, however, the Fort Lau-derdale, Florida minimaker that ad-heres more closely to IBM's main-frame concepts than any of the oth-ers, is seeking to restore its pos-ition by taking another leaf out of IBM's book. Last time around it borrowed the Attached Processor concept from IBM to derive about 9 MIPS from its top-end ECL processor, this time around it is planning to follow IBM with a full multipro-cessor version of its MPX-32 opera-ting system that will reportedly run over up to eight CPUs - a new ECL implementation that will come on five boards and share memory. Expected in November, the line is also said to support a real-time implementation of Unix, and a vector optimiser option on some models.

PROGRAM USER INTERFACES ARE COPYRIGHT - US COURT RULES

The user interface of a program is subject to US copyright law, a US district court has ruled.

The landmark decision, which could have far-reaching implications for com-panies that want to bring out work-alike programs to compete with lea-ding products like 1-2-3 and Word-star, was delivered in a lawsuit brought by Broderbund Software Inc of San Rafael, California and Pixellite Software against Unison World Inc. The court ruled that the audio-visual displays or user interface of a non-video-game program can be copyrighted under the Federal Copyright Act. The ruling also said that programmers commit copyright infringement if they copy the look, sequence and structure of an already existing program. Bro-derbund and Pixellite, developers of The Print Shop, brought the suit against Unison, which markets a si-milar program under the name Printmaster.

Broderbund claimed Unison had copied the menus, visual displays and general structure and or-ganisation of The Print Shop. Unison had argued that there was no protection for these aspects of a program unless it was a video game.

In a less definite decision, the third circuit court of appeal in Atlanta ruled that copyright "may" extend beyond the code to the organisation, structure and sequence.

MEDIA WINCHESTER SETS SYSTEM V/AT SYSTEM FOR COMDEX/FALL

A company called Media Winchester, location unknown, has adopted the new Microport Systems Inc System V/AT implementation of Unix by Digital Res-earch spinout Microport Systems Inc for a 10MHz 80286 box it plans to launch at Comdex/Fall in Las Vegas next month. Called Nexus, the AT-alike sets aside a partition on the disk for running MS-DOS, and System V/AT can read MS-DOS files. Designed as an open-the-box-and-go system, the $4,895 Nexus includes 4Mb main memory, 86Mb Winchester and 1.2Mb floppy that can also read, write to and format 360Kb floppy disks; the processor can be slowed to 6MHz for clock-sensitive programs.

The Nexus also includes internal 1,200bps autodial autoanswer modem, two serial and two parallel ports for attaching printers or an additional user ter-minal, monochrome graphics adaptor and black-on-white monitor. System V/AT, which is extended with interfaces to AT-compatible peripherals, a feature to speed up disk accesses by adding extra buffers where feasible, and protect files against crashes, plus a package of heavily-used Berkeley extensions, comes pre-configured and installed on the machine.

Prepare to get wet.
The US Department of Defence is
delicately dipping its toes into
the murky Unix waters again, and
will doubtless cause a tidal wave.
The last time the DoD interfered
with everyone's favourite operating
system and recast it in its own
image, Unix was a lean, mean system
that could be run on a 32 Kbyte
PDP-11. By the time the Joy-boys
at Berkeley had finished improving
it for the DoD the result - 4.3bsd
- occupied about 2 Mbytes of
locked-down physical memory,
contained 300-400 Kbytes of code
and used over 100 system calls,
with hundreds more as options. In
the sacred name of speed and
efficiency, everything got dumped
in the kernel. It started with
paging support, TCP/IP, fast file
access and support for
interprocess communication, and
ended up with networking, sockets
and Sun Microsystem's kitchen sink.
Gone was the "small and simple"
design philosophy, ease of
modification and the rapid addition
of new features (4.3bsd was
released THREE YEARS after 4.2bsd).
Unix (AT&T is nearly as bad) is
gradually metamorphosing into a
fossilised, monolithic behemoth,
looking more and more like a
dinosaur and just about as
adaptable - in short it is starting
to look like just another massive,
commercial operating system. But
now, more than ever, there is a
need to make quick changes to the
kernel, particularly with the way
that new, advanced, high-speed
networks and a new generation of
multi-processor machines are
appearing. So DARPA (the Defence
Advanced Research Projects Agency -
one of the Pentagon's funding
channels) has stepped in to fund
the development of a multi-
processor network operating system
kernel called Mach at Carnegie
Mellon University. Binary-
compatible with the current 4.3bsd
release, it will provide support
for large-scale multi-processors,
networks of small-scale multi-
processors and individual
workstations. Streams, sockets
fast file access, networking -
everything has been banished from
the kernel in a return to the
original Unix philosophy. The CMU
developers have rebuilt the kernel,
keeping it small and simple, as a
small set of object-orientated-
style primitive functions. These
are then used to build user-state
processes to provide all the Unix
utilities, tools and services,
including those which currently can
only be integrated into Unix by

CARNEGIE MELLON U.
RECASTS UNIX
IN BASIC MOLD

adding code to the kernel. Mach
also supports a virtual memory
implementation with large virtual
address spaces, copy-on-write
virtual copy operations, copy-on-
write and read/write memory sharing
between tasks and memory mapped
files. (In Mach terminology a **task**
is an execution environment in
which threads may run.) As the
basic unit of resource allocation,
a task includes a virtual address
space and protected access to
system resources - such as
processors, port capabilities and
virtual memory. the Unix notion of
a **process** is represented in Mach by
a task that has a single thread of
control. A **thread** is the basic
unit of cpu utilisation. All
threads within a task share access
to all task resources, allowing
parallel execution of the task. A
port is a communication channel - a
logical queue for messages
protected by the kernel. As the
reference objects of Mach design,
ports are used in much the same way
that object references are used in
object-orientated systems. **Send**
and **receive** are the fundamental
primitive operations on ports. A
message is a typed collection of
data objects used in communication
between threads. Messages may be
of any size and may contain
pointers and typed capabilities for
ports. In short the CMU developers
chose to take what is essentially
an object-orientated approach, then
devised an ideal environment to
support it. Support for multi-
threading is vital to effective
object-orientated programming,
which basically involves a lot of
processes executing simultaneously
(or appearing to) and talking to
each other, rather than a single
stream or thread of procedures
executing in sequence. This
enables the programmer to describe
each module's behavior and define
how it interacts with other modules
or threads, with Mach distributing
the threads over the different
processors and handling the message
passing via the ports. The load is
automatically balanced across any
configuration or network of
processors transparently to the
user. And this applies not just to
user programs but, much more
importantly, to everything from the
screen reader and page formatter to
the network manager, virtual
memory, database manager and
communications that are doing the
balancing.

Mach also includes an interface
definition language and compiler
for specifying remote procedure
call interfaces between tasks
written in C, Pascal, Ada and
Common Lisp. Called MatchMaker, it
is also used to define interprocess
interfaces, including the one to
the Mach kernel. MatchMaker
interfaces can perform runtime
type-checking and provide
sufficient information in messages
for network communication servers
to perform the routine data-type
conversions and data realignment
operations required for exchanges
between machines of different
architectural types. Integrated
with the virtual memory is an
interprocess communication facility
extensible across network
boundaries, capable of transfering
data up to the size of an address
space via copy-on-write techniques.
To cope with the many different
virtual memory management schemes
in use on different machines, a set
of machine-independent data
structures and algorithms have been
developed, separate from both the
machine-dependent ones and those of
the backing stores. The machine-
independent section maintains
address maps, share maps (special
address maps that describe a region
of memory shared between tasks) and
virtual machine objects specifying
resident pages and where to find
non-resident ones. The machine-
dependent sections maintain page
tables and is accessed via a simple
page validate/invalidate/protect
interface. It has no knowledge of
the machine-independent data
structures. Also, the machine-
dependent sections can have
different page sizes, as can the
backing stores, which are converted
to a single machine-independent
page format. Network
communications are handled not by
the kernel, but by user-level tasks
called **network servers**. These act
as local representatives for tasks
on other nodes, forwarding messages
to remote receivers transparently
to the user. The network servers
handle access rights to the ports,
send on messages to other nodes in
the network, maintain a map of all
the ports on the network and can
encrypt the messages for secure
communications. They also handle
type-checking and data-type
conversion and realignment for
different machine architectures.
Mach is being developed from CMU's
Accent operating system, which
already demonstrates substantial
performance gains over Unix. The
developers hope for similar gains
from Mach when work is completed.

AUSTEC DEMONSTRATES ITS PORTABLE COBOL FACILITIES ON ICL, SYSTIME, ORION KIT

Austec International Pty, the Melbourne, Australia company with the Ace Cobol portability aids, accompanied news of its plans to re-incorporate in the US with demonstrations of the product. Ace consists of the AceBridge Cobol-to-Unix interpreter and communications system used with the AceCobol compiler; the AceGen applications generator; and the AceMenu security option. AceBridge is perhaps the most impressive part of the package. The company demonstrated a 'virtual computer' network over Ethernet using the products. The Ace suite converts different dialects of Cobol to a common standard, and provides transparent conversion between incompatible machines, so that an NCR Cobol 74 application can be picked up from one machine, recompiled and run on an incompatible one on the network, drawing Cobol files from any of the machines on the network. ICL is using Ace under Unix on its Clan 3 machine, Systime on its Generation II and III range of S-Series multi-user computer systems running Unix and High Level Hardware again under its BSD 4.2 Unix on its Orion range of bit-slice superminis, which it is hoping to drive into the commercial market. Austec has not seen Open Systems Interconnection as a big issue so far, but ICL at least is concerned that, as future layer 7 standards emerge, Ace will fit into its future Open Systems Interconnection commitments. AceBridge Networking, including the run-time Cobol program costs around $500, $1,200 for 16 users and $2,500 for 64 users. The Cobol compiler starts at $1,100, rising to $1,500 for 16 users, $3,500 for 64 users.

HITACHI ADDS DETAILS ON ITS 68020-ALIKE

Hitachi has provided a few more de-tails on the design of its forth-coming H32 32-bit microprocessor - but failed to mention what it has said in the past, and we understand to be the case, that the part is upwards-compatible with the Motorola 68000 family which it second sources up to the 68010. The H32, first described here two years ago, integrates 319,000 transistors, and is in 1.3 micron CMOS except where NMOS is required for performance. An intriguing feature of the provisional design was a large but unquantified on-chip cache: Hitachi has now gone some way to quantifying it by revealing that it is in fact three separate parallel access caches - a 512 byte associative cache for code, a 64 byte one for stack predictions, and an unquantified one for for branch predictions. The part has 110 basic instructions and an enormous 180K-bit ROM for high level instructions - down from 250K-bits in the preliminary design. Hitachi is being rather more conservative with the clock on the first incarnation - due out at the end of the year - it has set it at 20MHz where it had been talking in terms of 40MHz. The H32 has the usual 32-bit bus, is rated at 100nS register-to-register, and has 4Gb virtual address space. Hitachi is going ahead with it because Motorola has given it no indication that it will grant second source rights for the 68020 or 68030 - a decision the US company is likely to regret. The other two parts in the family are the H8 and H16, which are pre-sumably 8- and 16-bit bus versions of the H32. Hitachi also promises an artificial intelligence-oriented list co-processor for the H32 chip.

STRATUS ANSWERS TANDEM EXTs WITH LOW-END FT250, XA480

Stratus Computer Inc has answered Tandem Computers' new low-end EXT-10 and 25 fault-tolerant machines with two new models of its own; the Marlboro, Massachusetts company has also introduced its own dual portable removable disk drive. The new FT250 comes with duplexed 4Mb memory boards that take up four slots against six for its predecessors, and two of the new disk drives, tape, communications controllers, 20-slot chassis and VOS operating system for £81,890 in the UK. The machine is rated at five transactions per second using the ET-1 benchmark. The XA420 is rated at 10 ET-1 transactions per second, and has 8Mb of duplexed memory and the same peripheral complement as the FT250 for £181,882. The new D201 user-serviceable portable self-checking disk drive, designed and integrated by Stratus, consists of a portable metal carrier containing an 8" 151Mb drive. Up to eight carriers fit into one expansion cabinet, and an eight drive unit costs £87,234, the four drive unit is £52,754, and a two drive expansion pack is £20,288.

SANTA CRUZ OPTS FOR HP 80286 VECTA, ANNOUNCES 386 TOOLKIT

The Santa Cruz Operation has made SCO Xenix System V available for the HP Vectra PC. The HP Vecta is an 80286-based machine from Hewlett-Packard. The company also chose the Unix Expo to launch Xenix 386 Toolkit as it expects a large demand for 386 applications development. The Toolkit allows developers to write native 386 code using the current addition of SCO Xenix, for 286 machines. It allows programs to take advantage of 386 features; such as 4Gb virtual address space, virtual memory management and demand paging. The 386 toolkit costs $395 and is only available from the Santa Cruz, California-based company.

MILWAUKEE FIRM BLAZES 9600 BAUD TRAIL

SST Data of Milwaukee, Wisconsin, has introduced Handshake Blazer which transmits ASCII or binary files over standard dial-up telephone lines using a modem from a company called Telebit. The company claims that the system is operating at speeds of up to 9600bps with complete end to end error checking. It is currently only available on Fortune machines but SST hope to port it to the AT&T 3B range before Christmas. The company says that the system contains all UUCP utilities but is far more easier, efficient and cheaper to use. The software costs $695 per copy.

UNIXSYS HAS AT UNIX V FOR UK

Unixsys UK Ltd will be launching within the next few weeks a full implementation of Unix System V for the 80286-based AT, following the same move by Unixsys in France a month ago. The port was originally done by Microport in the US. A run-time licence will be available for the AT and clones for £350. A three user source licence will be avaialble for £700 and an upgradeable to an eight user system which costs £850.

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RELATIONAL TECHNOLOGY EXTRICATES ITSELF FROM OEM DEALS

Growing fast and finding increasing acceptance among corporate users of its Ingres database, Relational Technology has been quietly extricating itself from the exclusive OEM deals it was formerly so keen to sign with Unix manufacturers. The new arrangements will allow RTI to offer Unix versions alongside VAX and IBM versions to large users; increasingly important with multrinationals considering standardisation, and with RTI's plans for distributed database systems well advanced. RTI also has a PC version of Ingres on the way. The company says that the renegotiation of OEM deals is almost completed; it claims that the transition has been relatively painless, being largely a mattter of waiting until existing arrangements have run their course. It emphasises that the Unix manufacturers will still be able to sell Ingres. Negotiations for the "primary low-end" OEMs, AT&T and Sun Microsystems, are said to be either complete or near complete. RTI originally released a cut down version of Ingres for 68000 Unix machines, which RTI now admits was a mistake; since then, the company has been faced with the problem that OEM's support may not have been up to scratch, as well as having new versions released by OEMs at different times. Bob Cramer, who has been handling the OEM side in the US, said that "We have learnt through our trials and tribulations in the OEM market that the product is most successful where we have a degree of control" – particularly over how it is supported and when new releases are available. RTI itself has not been entirely without blame in keeping different versions of the software in step; it says that the three major lines – VMS, IBM and Unix – will be synchronised with the latest Release 5.0, which adds performance rather than functionality. While 5.0 will superseded Release 4.0 for VMS, Release 3.0 has until now been the current release both for some Unix versions and the directly sold IBM versions.

Company Results

NCR Corp has reported third quarter net profits up 2.4% at $73.4m on turnover that rose 13.5% to $1,180m; net profit for the year so far was up 11.3% at $202.5m on turnover that rose 14.1% to $3,310m. Net earnings per share rose 4% to $0.75 in the quarter, 13% to $2.05 in the nine months.

AT&T Co has reported third quarter net profits up 41.0% at $533m after net gains of $116m from lower pension fund contributions and other non-recurring gains of $68m, partly offset by restructuring charges of $27m, on turnover down 2.7% at $8,427m; nine month net rose 24.4% to $1,480m on turnover up 0.1% at $25,560m. Net per share rose 45% to $0.48 in the quarter, 26% to $1.32 in the three quarters.

Burroughs Corp saw third quarter net profits up 64.3% at $52.9m on turnover up 127.2% at $2,633m; nine-month net rose 9.2% to $145.1m on turnover up 43.5% at $5,106.6m. Net per share rose 30% to $1.03 in the quarter, 2% to $3.00 in the nine months. The 1986 figures include those of Sperry Corp.

Digital Equipment Corp has reported first quarter net up 152.5% at $182.6m on turnover up 25.9% to $2,040m. Net per share rose 128% to $1.37.

Apollo Computer Inc reported third quarter net pro-its of $2.5m against a loss last time of $18.4m on turnover up 81.8% at $100.4m; nine-month net profits were $4.0m against a loss last time of $2.2m on turnover up 20.8% at $270.8m. Net per share was $0.07 in the quarter, $0.12 in the nine months.

Minigrams

Arete Systems Corp has signed **Computer Place Services Pty Ltd**, Singapore, to distribute Arete's multiprocessor Unix machines under a three-year agreement set at $15m; the pact is the company's second for the Pacific Basin: in July, Arete announced an agreement with Marubeni International Electronics Corp for distribution in Japan.

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Having gained a Nowegian distributor Torch Computer has now moved on into Sweden and was touting for business at the recent Stockholm Unix show: the company said that it had had a considerable degree of interset but would not name names.

– o –

After a year of giving the IBM 6150 a low-profile in Sweden IBM Svenska is now beginning an agressive marketing campaign having now got a Swedish keyboard.

– o –

Carl Lamm Systems of Solna, Sweden have dropped its distributorship of Whitechapel Workstation machines because it was dubious of the company but not the technology, it says it may take them on again in about a year if the company sorts itself out: Carl Lamm is also seeking to expand by acquisitions and is expecting to have some intersting announcements to make over the next month.

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Enea Data, one of the first companies to become involved in Unix in Sweden, was conspicuous by its absence at the recent Stockholm show, but, according to the company, this was because the normal Enea Data show organiser was away doing National Service.

– o –

Next years Stockholm Unix Show will be on the 4th to 6th of November.

AT&T EYES VME/MULTIBUS OPTION FOR 3Bs

AT&T may offer an industry-standard bus – either VMEbus or Multibus II – as an option for its 3B Unix mini and microcomputeh adds performance rather than functionality. While 5.0 will superseded Release 4.0 for VMS, Release 3.0 has until now bee, inhibiting add-on vendors; a standard bus would offer support of signal and other co-processors.

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FORTUNE SYSTEMS UNVEILS ITS 68020 FORMULA

Fortune Systems Corp, Belmont, California, yesterday unveiled its long- gestating 68020-based Formula top-end machine that slots in above the original 68000-based 32:16. The company accompanied the launch with the news that 10 US dealers had signed up for $40m of the new machines. The machine presently runs the For:Pro implementation of the old Unix v7 with Berkeley extensions; it uses the 16.5MHz version of the 68020 and comes with up to 64Mb of main memory and 1Gb of disk - and can be fitted with up to 80 RS232 ports. With 1Mb CPU, 70Mb Winchester and 60Mb tape drive - the machine costs $21,900. Fortune is particularly pursuing Basic Four and Qantel resellers, and supports QIC Basic, Business Basic and UX Basic and Micro Focus Level II Cobol ET on the machine to facilitate migration of applications to the Formula. Fortune claims a total of 55,000 users of its existing boxes.

IBM ENTERS DESKTOP PUBLISHING WITH INTERLEAF ON RT

IBM's big product for the Unix Expo in New York was an $8,200 one-time licence RT Publishing Software pacakage from Interleaf Inc, Cambridge, Massachusetts. The program, for the RT Personal under IBM's AIX implementation of Unix, supports business graphics, line art drawing, integration of text and graphics, and windowing, and is designed to produce camera-ready copy on an appropriate output device. It includes text and formatting functions and the ability to size, rotate and annotate computer-aided drawings created on the RT, an IBM host or on some other computer systems. It can import text from IBM's Displaywrite III and Document Composition Facility, includes spell-checker, multi-column page make-up and automatic generation of table of contents. It is described as compatible with and complementary to Interleaf's Workstation Publishing Software, and will be available in the US in December.

COUNTERPOINT 19K TO BE MADE BY TEXTRON UNIT

Taking a leaf out of IBM's book and not falling into the trap that ensnared her alma mater Convergent Technologies, Pauline Alker has deceided that her new company, Counterpoint Computer will not be making any big investment in manufacturing at its San Jose, California base. The company has signed the Huntsville, Alabama-based Avco Electronics division of Textron Inc to manufacture its System 19 workstations and System 19K multi-user systems under a $6m two-year contract. And for those who are saying they thought that major investor Kyocera Corp was to manufacture the 68020-based machines - true enough, but only when sales of the Counterpoint boxes in the Far East reach a level to justify the cost.

CONVERGENT GOES BACK TO HEWLETT FOR PRESIDENT

Convergent Technologies chief Paul Ely has tapped yet another of his former colleagues at Hewlett-Packard in a further effort to strengthen management at Convergent. He has brought in Cyril Yansouni, who spent almost 20 years with Hewlett-Packard, ending up as vice president and general manager of the Personal Computer Group, to take over from him as president; Ely will remain chairman and chief executive. Yansouni will be in charge of Convergent's core computing manufacturing and OEM marketing operations while Ely will devote most of his time to the new Small Business Services operation. Convergent has acquired or taken large stakes in four turnkey system integrators addressing vertical markets, and Ely wants to concentrate on building up the business. Convergent simultaneously announced a third quarter loss of $25.7m against a profit last time of $3.9m, on turnover that fell 53% to $117.4m. A big shortfall in OEM sales to AT&T is the main contributor to the crash.

SOFTSEL GOES FOR HARD SELL WITH AT&T 3B, PC6300

Software distributor Softsel Inc of Inglewood, California, is tired of seeing all the big bucks go to the hardware vendors, and has decided to market its own. It will offer the AT&T PC6300 and 6300 Plus XT and AT- alikes, the Unix PC, and in due course, the 3B1 multi-user version of it, and also the 3B2 boxes.

MAI BASIC FOUR PICKS 68020 FOR MID-RANGE BOSS/IX SYSTEM

MAI Basic Four Inc, Tustin, California, has introduced a mid-range MAI 3000 machine to slot between its 68010-based 2000 and the top-end multi- processor bit-slice machine. The 3000 effectively replaces the bit-slice MPx 7010 minicomputer and uses the 68020 microprocessor. The current line is standardised on the company's new BOSS/IX marriage of its own Business Operating System Software and Unix, and the new machine was coming under competitive pressure from top-end Unix machines from the likes of NCR and Altos. The 3000 supports up to 34 users, and comes in at a base price of $25,000 against $38,000 for MPx 7010; an upgrade kit for the 2000 costs $14,000. The machine takes up to three 120Mb disk drives, 45Mb quarter and 45Mb half inch tape drives, and also offers 44Mb and 71Mb disk options. It includes synchronous IBM 2780-3780 and X25 packet-switching communications. First US deliveries of the MAI 3000 are planned for December.

FORTUNE SYSTEMS SELLS GERMAN ARM

Struggling Unix systems pioneer Fortune Systems Corp, Belmont, California, has sold its West German subsidiary, Fortune Systems GmbH to a company, MCC Marketing Consultant Corp, controlled by its general manager Wilhelm Schmidt. MCC will become the master distributor in Germany and Austria, and will offer shares to Fortune Systems dealers. The new company looks to do $4m with Fortune next year; it appears that no cash changed hands in the deal.

FIRST UNIX SYSTEM V.3 SIGHTING

Motorola Information Systems has signed up a distributer for its first home built Motorola product, the 8000 series of supermicros. Hi-tek will be adding ethernet capabilities to the 8000 and communications interfaces for the mainframes; ICL, IBM, and DEC. Hi-Tek says that it has a number of sales in the pipeline, "fairly major orders", which will be announced early next year. Hi-Tek has committed itself to selling £500,00 worth of computers, a minimum of 15 or 20 machines, during the first year. The Motorola Series 8000, built around the 68020, will use Motorola's own version of Unix - V68. Motorola was demonstrating what it considers to be the first commercially available port of Unix System V.3 at the recent Unix Expo in New York. V.3 is now available with V68 in the US but the Motorola Information Systems base in the UK will be doing its own inhouse alpha tests and beta test sites before it is released early next year.

REDIFFUSION DESIGNER TURNS TO FAULT TOLERANCE

Another contender for the fault tolerant crown is a new company from New Jersey in the US called Witcom Computer Corporation. The company offfers up to 16 processors using the 68010 or 68020 at the base price of $12,000 going up to $30,000. Unix System V.2 is used and Witcom claim Multibus compatibility. Multibus is used for input/output operations only and Witcom provides its own proprietary memory bus. Each processor has up to 7Mb of memory and according to Witcom the system has a clock speed of 10MHz for the 68010 version and 12.5MHz for the 68020. Emmanuel Wittels, Witcom's president and designer, says that the system remains operational in the event of component failure, switching terminals and processes from one processes and sharing them amongst the unaffected processors. The company was set up in January 1985 and this is its first product although Wittels is no stranger to the game having designed the Rediffusion machines in the UK. In February Witcom shipped one system to the Stevens Institute of Technology which is also involved in a $250,000 patnership funded by the State of New Jersey. The company is currently looking for distributors.

"25% OF ALL COMPUTERS WILL BE UNIX" - CULL

"Unix-based systems will never achieve more than a third of computer sales" is the bad news from Tom Cull, president of a California-based consulting group - Westville. Cull made this pronouncement at a Unix industry seminar held in London earlier this week - sponsored by Sphinx of Maidenhead, Berks. The good news offered was that there is a high possibility that 25% of all computer shipments in the 1990s will be Unix based. Cull estimates that 600,000 Unix Systems will have been installed by end of this year and that over a third of this figure will have been installed during 1986. Cull former president of Interactive Systems Corporation, at the same time stated that the period of "embarassingly unrealistic" forecasts for the growth of Unix is at an end.

SAMNA AIMS AT PUBLISHERS, SCIENTISTS; SETS BIG EUROPEAN EXPANSION PLAN

The new versions of Samna Corp's word processing package, Samna Word IV, which costs £550, and its text retrieval document processor with built-in spreadsheet, Samna+ Plus IV, £650 add more than 60 features that are not found in either Word III or Plus. The most important of the innovations are the ability to integrate text with graphics produced by Samna's Decision Graphics; the introduction of forms processing for both pre-printed and plain paper; a revision-marking feature that allows documents to be updated and printed with the new text high-lighted; multiple columning; and an extended character set which allows customers to design their own fonts provided that an Extended Graphics Adaptor card is being used and a Hewlett Packard LaserJet is available. Support for IBM's Document Content Architecture is both revisable and final form is also included, but, perhaps the most impressive feature is a "semi-intelligent" algorithm which automatically moves brackets and symbols to maintain mathematical forms during the entering and editing of equations. These can incorporate Greek and mathematical characters. The developments open up the burgeoning page layout market and the scientific and engineering environments to Samna but the company is also looking on the continent to attack the corporate typing pools which were, until very recently, considered the preserve of the dedicated word processor manufacturers such as AES and Wordplex.

South Bank House

It is no coincidence then that former AES Director, Charlie Hall, and ex-Wordplex chief executive, Harry Mallinson, are in charge of international machines running under Unix and MS-DOS to sell Samna's wares directly. The Atlanta, Georgia company already has an impressive list of US vendors, headed by IBM - it is the only word processing package sold by Big Blue for the RT 6150 - DEC, to whose customers the scientific and mathematical funtions will especially appeal, Texas Instruments, NCR, Hewlett-Packard and AT&T, which has funded a Unix implementation on the 3Bs. In the UK, IBM and Ferranti have taken the product and Olivetti and NCR are in discussions. The next products to be releases will no doubt be networked versions of Word IV and Plus IV. Hall sees a growing market for such products - networked versions currently make up 20% of sales. Interestingly, these have all been in the MS-DOS environment - Samna Word III Network runs under PC-NET, Taurus Icon and Tapestry and Novell networks - but Hall does not think it will be long before the Unix version begins to gather momentum. Mallinson, meanwhile is forecasting big things for Samna in the UK. His target is to triple revenue, currently a little under £500,000, within the next 12 months and, to do so, will increase the number of Samna dealers, especially in the North, and will expand the firm's direct mail and advertising campaigns. One interesting parallel for those who doubt Samna's intentions in the UK, its headquarters share a name with IBM's London office - South Bank House.

THE INTEL 80386: THE BLIND AND HALT GIANT KILLER

Its underware is still vapourware; its performance is mediocre; the opposition has been shipping silicon for up to two years, shutting it out of a whole generation of prestige 32-bit high-performance products; the only existing system software blindfolds and strangles itself, refusing to take advantage of any of the 32-bit features the developers spent years trying to squeeze onto the chip. Microsoft won't be "liberating the power" of the "tremendously exciting" hardware with a specific DOS until the end of 1987; and even the third Party 'hypervisors' and generic Unix and Xenix ports are still only promises for early next year. Despite a list of liabilities as long as your arm that ought to assure it a future to rival the De Lorean sports car or the Ford Edsel, everyone is fighting to put it in their boxes or port their software to it with indecent haste.

It is, of course, the Intel 80386; and it has one thing going for it that far outweighs all these disadvantages: its pedigree.

Its grandsire was the Intel 8088, to be found lurking inside 10 million IBM Personal Computers, clones and look-alikes; its sire was the 80286, the heart of all those IBM PC-ATs and their innumerable clones. Everyone seems to assume that when the third generation of Personal Computers is launches with the magic initials "IBM" on the outside, the 386 will be sitting pretty inside - forgetting , perhaps, that IBM has raised the art of locking-in its customers to the level of pure poetry. Intel has had to use up a lot of the silicon real estate on both the 80286 and the 80386 to maintain upward compatibility; and the 386 will run PC-DOS and Xenix programs (a list that must include a significant proportion of all the programs ever written) at an "awsome" speed without moving out of first gear. But all the rival 32-bit parts have muscle and mips to spare as well, so what's so special about the 386 anyway? It's been a vapourchip for so long that only a last-minute sprint allowed Zilog to claim the honours for its Z80,000 as the last major 32-bit microprocessor to reach the market. Intel first seriously announced the chip two years ago, and a year later made a lot of noise launching everything but the silicon and software in a massive campaign to distract users from the 32-bit chips that were starting to become readily available. Since then the 386 seemed to get lost in the noise made by the 286 clones. Until last month, that is, when Compaq launched its 386 box with all the quiet restraint of a combined Cup Final and Royal Wedding.

In a recent issue of her Release newsletter from New York, Esther Dyson speculates about the likely effect the 386 will have on the industry: The Compaq machine will sell like hot cakes for a few months to people who must have the latest machine, even though it can only run existing programs. Even when the hypervisors arrive in the New Year - Locus Computing with Merge, Softguard with VM/386, Hurricane Systems with MOS, and Interactive Systems and Phoenix Software with VP/IX - they will only run the old versions 2.x and 3.x of DOS concurrently with Unix.

Vestigial Interstitial Tasks

When proper operating systems are available (Interactive Systems should have its generic 386 port of System V.3 on the market by the end of the year) individual programs will be able to directly address up to 4 gigabytes of memory - on the 286 the limit was at best 16 megabytes. And the code-segment size on the 286 was a miserly 64K (clever programmers get round this, but with horrendous penalties in complexity and execution speed), while the 386 imposes no limits. But even more important is the hardware support for context-switching, which speeds up and simplifies multi-tasking. The 8088 and 80286 require complex software to store the system status each time it shifts from executing one task to another - changing contex takes far longer than the time alloted to each task. The 386 stores the status in eight sets of registers and has only to read a different set of registers to change context. This allows not just a quantitive improvement in multi-tasking but also a qualitative change, according to Dyson. Under program control it is now possible to perform the so-called "interstitial tasks" in the background without reference to the user. These can range from housekeeping, data pre-fetching and validation, and load-balancing over a network to the simple word-processing spelling checker or repagination. All this is standard mainframe technology, but it is the first time that the secret subtleties of the computer department have filtered down to the micro world. (Some of the more exotic, thoroughbred chips powering some of the Rolls-Royce workstations have had the technology for a while, but they are nearly as rare as mainframes.) While some of these techniques may find their way onto some of the other 32 bit chips, few users will find them a novelty. But when the millions of PC users realise the hidden power of the techniques now available to them, some very interesting software may emerge.

NIXDORF COMPUTER UK SEES BIG OPPORTUNITIES IN BUILDING SOCIETY BANG

With the Midland Bank already a committed Nixdorf customer, the company is hoping to capitalise on the other financial Bang in the Building Societies, and Nixdorf Computer Ltd, the UK arm of the German parent has announced a range of new products aimed at the financial and banking arena. The Building Societies Bill becomes law in January 1987 and will deregulate the Societies in much the same way that the Big Bang has done to City stockbroking. From the New Year Building Societies will be able to make unsecured loans, and diversify their business away from mere mortgage broking. Nixdorf is aiming to build on its £25m UK business from the financial sector at the rate of 30% a year-at present £10m of that total comes from building societies such as the Anglia and the Alliance and Leicester. Nixdorf's three year deal with the Midland Bank has so far resulted in £30m of business for banking terminals -back office, counter and Automatic Teller Machines. Nixdorf's offices in Sheffield, South Yorkshire deal solely with banks and building societies -most of the big societies and many of the banks have their computer department in the North. Nixdorf's new products, already announced in Germany, includes an Automatic Teller Safe for cashier use, dispensing foreign currency and travellers cheques as well as home banknotes. The CSC100, already tested in Germany,is a sophisticated customer-operated video cassette player-cum-microcomputer that provides property information and pictures, share prices and purchasing facilities and loan details. Nixdorf has a pilot scheme with the Midland Bank in Milton Keynes, Buckinghamshire with 30 automatic teller machines, and is 75% of the way to installing 250 more UK-wide for the same bank, in a deal worth £4m. All told Nixdorf has 7,000 terminals at Midland premises, and anticipates follow-on orders worth around £10m a year. The Anglia has 40 through-the-wall tellers from Nixdorf, although the impact of the new legislation will be to bring customers back into branches rather than leave them out in the cold, as Nixdorf's Financial Manager, Nigel Howarth, says "through-the-wall machines have reached saturation in the UK- banks and building societies have got to get customers back in their branches."

CRAY RESEARCH CUTS BACK ON SHIPMENTS "TO MANAGE GROWTH RATE BETTER"

It sounds a dangerous thing to do when all three Japanese manufacturers - NEC, Fujitsu and Hitachi - are breathing down its neck and ready to buy market share with low low prices, but Cray Research Inc has decided to moderate a little its previously-announced delivery schedule. The move is understood to have been instigated to achieve better management of the company's rapid growth rate. This year, it now says that it expects to ship 36 new machines and 11 used ones, against a previously planned schedule of 40 new and six-used - that's actually one more installation but the mix will bring in less revenue. And for 1987, it now plans to install 45 new machines and 11 used ones, against a previously-planned 48 to 52 new ones. The Chippewa Falls, Minnesota company is also maximising revenue by selling more of its machines outright and putting fewer out on lease or rental - outright sales will be 70% this year, rising to perhaps 80% next.

COMPANY RESULTS

Sun Microsystems Inc. saw first quarter net profit up 570% at $6.7m on turnover up 171.8% to $91.6m. Net earnings per share rose 500% to $0.24.

Intergraph Corp. saw third quarter net profits down 14.0% at $15.5m on turnover up 14.9% at $151.0m; net profit for the year so far was up 3.6% at $50.8m on turnover that rose 20.9% to $448.3m. Net earnings per share, down 12.5% to $0.28 in the quarter, was flat at $0.91 in the nine months.

Gould Inc has rreported second quarter net profits down 73% at $4.3m against a period that included a gain from discontinued operations of $300,000, on turnover down 1.2% at $227.4m; at the nine month mark Gould made a net loss of $106.4m after a loss from discontinued operations of $135.5m, down from a loss last time of $110.6m, $8.4m of it from discontinued operations, on sales off 1.2% at $681.4m. Net per share fell 72% to $0.10 in the quarter.

Convergent Technologies Inc has reported a third quarter net loss of $25.7m against a profit lastr time of $3.8m, on turnover down 44.8% at $64.7m; net loss for the year so far was $28.3m against a profit last time of $6.9m, on turnover that fell 32.9% to $228.4m. The 1986 figures include the results of Open Systems Inc, acquired on July 31, and the 1985 figures are restated to reflect acquisition of Display Data Corp from 1985.

Compaq Computer Corp has reported third quarter net profits up 39.0% at $8.7m on turnover up 12.0% at $147.2m; net profit for the nine months was up 60.8% at $26.7m on turnover that rose 26.1% to $438.4m. Net earnings per share rose 33% to $0.28 in the quarter, 46% to $0.85 in the nine months.

Informix Corp has reported a third quarter net profits up 104.4% at $728,000 on turnover up 105% at $5.7m; net profit for the year so far was up 168.5% at 1.5m on turnover that rose 121.0% to $14.5m. Net earnings per share rose 83% to $0.11 in the quarter, 140% to $0.24 in the nine months.

Cray Research Inc has reported third quarter net up 36.8% at $26.1m on turnover up 37.3% at $146.6m; nine-month net rose 59.6% to $101.5m on turnover up 55.2% at $458.5m. Net per share rose 32% to $83 in the quarter, 54% to $3.24in the nine months.

Corvus Systems Inc has reported a first quarter net loss of $3.9m, up form a loss last time of $931,000 which included $379,000 from discontinued operations, on turnover that rose 4.4% to $12.4m.

Northern Telecom Ltd saw third quarter net profits up 1.7% at $59.4m on turnover up 3.5% at $1,030m; nine-months net fell 15.4% to $160.7m on turnover down 1% at $3.070m. Net per share rose 2% to $0,51 on the quarter, but fell 16% to $1.38 in the nine months. Comparisons are with restated 1985 figures.

FUJITSU'S 32-BIT CHIP WILL BE HITACHI'S H32

One of the best-kept semiconductor secrets of the decade is out: the proprietary 32-bit microprocessor expected from Fujitsu Ltd will not be an original part, but the Hitachi H32. The Hitachi part is understood to be upwards-compatible with the Motorola 68020, and the agreement by Fujitsu to join forces on developing it into a family of CPUs and peripherals restores a Japanese partnership on IBM-compatible mainframes that was alive in the mid-1970s, but has since been strained beyond breaking point. The agreement ensures that Japan's contenders for the market will be Hitachi's 68000-like H32 and NEC's 8086-compatible V70 part.

NOW CHIPS & TECHNOLOGIES OFFERS SINGLE CHIP IBM EGA

The latest step in Chip and Technologies Inc's determined campaign to make life easier and cheaper for IBM Personalike makers is to cram the circuitry of its four-chip Extended Graphics Adaptor set onto a single chip. The Milpitas, California company which claims that its Enhanced Graphics Chipset is installed in more than 90% of all extended Graphics Adaptor-compatable boards, now offers the 82C435 Enhanced Graphics Controller, and the 82A436 Bus Interface, which together enable an EGA board to be configured with just 15 chips, including 256Kb of display memory. The 82C435 EGC is claimed to be 100% EGA-compatible and offer full backward compatibility to CGA, Hercules and IBM Monochrome modes, as well as recognisingwhich mode is required by any particular application. It offers 640 by 480 pixel resolution and supports eight colour planes. Chips also claims that systems built using the 82C435 offer improved CPU access to display memory, doubling the performance over IBM's EGA without any software changes. The state of the 82C435 is readable to simply programming of window and multitasking applications - a feature implemented to support MicroSoft's Windows. Chips and Technologies is developing drivers for MS Windows to use the high resolution of the 82C435. No prices or delivery were given.

ACQUISITIVE TELEVIDEO JILTS AVAILABLE ALPHA MICRO

Televideo Systems is still looking for acquisitions, and Alpha Microsystems still wants to be acquired by the right company - but the marriage between the two is off. The new board of directors of Televideo voted at its first meeting to cancel the proposed acquisition of Alpha Micro for $8 a share in cash and Televideo shares. The new directors could not see any commercial logic in a display terminal and IBM Personalike manufacturer taking on board a company that specialised in 68000 family machines running its proprietary operating system, with a sideways glance at Unix. Apart from its founder, chairman and chief executive Philip Hwang, Televideo's entire board has changed, and now consists of Hwang, with business consultant Imsong Lee, and the company's executive vice-president of operations Akiva Dar; the post of president is vacant. Alpha Micro, Santa Ana, California says that while it will still look to be acquired, it remains financially strong, with over $2m in the bank.

SCHLUMBERGER AGREES TO SELL 80% OF FAIRCHILD TO FUJITSU

Schlumberger Ltd has found a buyer for its troubled Fairchild semiconductor chip business in the shape of Fujitsu Ltd of Japan; Fujitsu has signed a letter of intent to merge the Cupertino, California business with its own Fujitsu Microelectronics Inc in San Diego, and with some of its European chip operations, taking an 80% stake in the combined company. The agreement is contingent on Schlumberger getting US regulatory approvals a far from foregone conclusion in the context of a major US semiconductor manufacturer; both Fujitsu and Fairchild are strong in ECL, which might raise anti-trust considerations, and a substantial part of Fairchild's business is with US military contractors. It would also be the first time that a Japanese company has taken control of a major US high-tech business, although Fujitsu has consistently been much more willing to buy US companies than have any of its Japanese rivals: it already has about 47% of Amdahl Corp. Under the agreement, Fujitsu would pay an undisclosed sum that appears to be under $200m for the interest of its buying from Schlumberger, which will retain 20%, but has also agreed to invest heavily in the new company. Fairchild had sales of $492m last year, and Fujitsu's total chip sales were $1,020m. Fairchild chief Donald Brooks, a Texas Instruments alumnus, is nominated to head the new operation. The merged company would be among the top five chipmakers worldwide, but Fairchild, which employs 11,000 has been a major financial drain on Schlumberger. The oilfield services concern paid about $425m for it a decade or so ago, but last year wrote off $250m of goodwill from the acquisition and took $106m in charges for restructuring and closures. It has just reported a third quarter loss of $41.9m on sales down 17% at $1,290m, with Fairchild a contributor to the losses. An intriguing issue on the product front will be the future of the 32-bit Fairchild Clipper chip set. Fujitsu has been developing its own microprocessor family, but the Clipper is much further down the track, and Fujitsu may reconsider its microprocessor strategy if the acquisition is approved.

WEITEK UNVEILS ACCEL LINE

While Chips and Technologies strives to cut the cost of doing IBM Personalikes, Weitek Corp in Sunnyvale, California is dedicated to making thingseasy for designers who want to put a Cray on every desk-top. Latest offering is the Weitek Accel family, consisting of high-speed VLSI CMOS arithmetic chips, software and a development system. The chips, designed to run the new Accel software, run at 5 MIPS and 5 Mflops, with burst rates of 12.5 MIPS and 25 MFLOPS. The Accel 8000 is a 32-bit CPU for two-dimensional graphics and simulation, where the Accel 8032 is designed for signal processing and three-dimensional graphics. The 64-bit 8064 is for engineering programs. The 100-up prices are $600, $1,000 and $1,500.

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Minigrams

Fujitsu will follow NEC and **Hitachi** with its own 32-bit microprocessor by year end: the company is an official second source for the 8086, 1986 and 286, so the 20MHz 6 MIPS Unix-optimised part is likely to be upwards-compatible with the 80286.

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Hewlett-Packard Co has announced a second compiler in which implementers can write system software for its new Spectrum RISC architecture HP3000/900 machines: the company's new compiler joins Pascal/XL.

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Demand from resellers who going elsewhere for a Unix box that slots in below the 128-user Business System 1500, has persuaded **Texas Instruments** to design a low-end 68020-based Business System 1100 - for launch sometime this month: **Burroughs** recently announced price-performance improvements of up to 100% on its XE500 line of BTOS and Unix systems with a new 68020 processor.

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It will come as no surprise to subscribers who have been with us for any length of time that the major Japanese manufacturers are enthusiastically adopting Unix as a machine independent operating environment that can make their mainframes marketable outside Japan without treading on IBM's toes: **Fujitsu** has been playing with Amdahl's Unix implementation for about three years and has now announced Unix on the M380 IBMulator, **Hitachi** is expected to follow suit shortly, and, more interestingly, **NEC** has announced its A-UX implementation for its big Acos mainframes; this will be the first Unix in the Honeywell mainframe world, although it is not clear whether it is only on the 36-bit Honeywell DPS 8 or the 32-bit DPS 7 models or versions for both architectures.

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ICL is the first UK computer manufacturer to join the **Corporation for Open Systems**, following the **Central Computer and Telecommunications Agency** in September: ICL says it actually applied to join the Corporation before it opened its arms to European and Japanese companies, but was turned down.

Filling in a few details on that potentially far reaching US district court decision that the user interface of a program is subject to copyright, the defendant, **Unison World Inc,** is seeking a quick appeal hearing on the case before damages are awarded; the decision was brought by Judge William Orrick in San Fransisco and the background is that The Print Shop program from plantiff **Broderbund Software,** San Rafael, California originally ran only on Apple machines, Unison wanted to licence rights to do a version for the IBM Personal, talks broke down, Broderbund went ahead and did an IBM version of The Print Shop with the help of co-plaintiff Pixellite and Unison did "its own" version.

- o -

NCR Corp has landed a healthy $20m two year order from **E F Hutton** for 10,000 of a new workstation, the 3390, aimed at claims and order processing, credit control and similar interactive transaction applications; the station is built around a 10 MHz 80286 and costs from $1,694 to $2,789; it is presumably based on the 80286 version of the N-Gen station from NCR's long standing supplier Convergent Technologies, but that is unconfirmed.

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Lloyd Turner, president and chief executive of struggling **Floating Point Systems** has resigned suddenly but will continue to consult for the Beaverton, Oregon maker of minisupercomputers: the company's general counsel and a co-founder, Milton Smith, will become chairman and chief executive on a temporary basis; fourth quarter losses are expected to be worse than the $3.9m net deficit in the third quater.

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ICL has quietly set up an Applications Search and Porting Centre in Washington DC, to attract software developers to move software to ICL hardware, particularly the Clan range: it notes that it can offer the expertise that many US companies still lack in tailoring their software for international markets.

AT&T Information Systems opened up further on its future support for the MAP manufacturing automation protocol, outlining its plan fibre optic MAP-compatible communications at the recent MAP/TOP users group meeting in Ann Arbor, Michegan: AT&T will collaborate with Concord Data Systems Marlboro, Massachusetts, to incorporate AT&T's fibre optic modem and expertise with Concord's MAP-compatible hardware and software; fibre optics are not currently covered by the MAP specifications; at the same meeting, DEC said it was close to completing Unibus and Q-bus interfaces to MAP.

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National Semiconductor Corp has reached an out of court settlement of its suit against Linear Technology Inc, a company founded in 1981 by former NatSemi employees: the suit alleged that the team walked out with National Semiconductor trade secrets on analogue circuits; terms of the settlement were not disclosed, but they call for arbitration of any future disputes between the two firms.

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Struggling Mountain View, California Unix supermini maker **Pyramid Technology's** UK subsidiary has slashed 15 and 25% respectively off its 98xe - down to £118,750 - and 98x - now £208,430 - packaged systems and is extending the warranty on these RISC-based systems from the present 90 days to one year.

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SST Data of Milwaukee, Wisconsin, has introduced Handshake Blazer which transmits ASCII or binary files over standard dial-up telephone lines using a modem from **Telebit**: the company claims that the system operates at speeds of up to 9.6Kbps with complete end-to end error checking, nd contains all UUCP utilities, but it is far more easier, efficient and cheaper to use; costing $695 per copy, it is currently only available on **Fortune** machines but SST hopes to have it on the AT&T 3B range by Christmas.

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AT&T GIVES OLIVETTI BIGGER ROLE; WON'T HIKE STAKE BEFORE 1990

AT&T Co and Ing C Olivetti SpA have signed a new 10-year collaboration agreement which gives the Italian company full control over design and manufacturing for all AT&T IBM Personalikes - but AT&T has decided not to exercise its option to increase its holding in Olivetti to 40% from the present 23.5% in March 1988. The agreement on IBM Personalikes is a considerable benefit for Olivetti, because it removes several uncertainties. AT&T had been considering building some models of the PC6300 line in the US, and it also designed the PC6300 Plus AT-alike that Olivetti manufactures. Olivetti now has design responsibility for the entire line, which will enable it to plan and co-ordinate models more effici-ently. AT&T now says that it will definitely not increase its stake in Olivetti, acquired at the end of 1983, before 1990. The announcement came from Olivetti chief Carlo de Benedetti; he also noted that Vittorio Cassoni, head of Olivetti America and in charge of the collaboration with AT&T, had been appointed vice-president for the AT&T Data Systems division.

...BUT COUNTERPOINT, OMNICAD AT RISK IN AT&T RETREAT

A whole string of agreements made by AT&T Computer - now Data - Syst-ems with small companies are likely to be cancelled following the re-drawing of AT&T's relationship with Olivetti and the new arrangement is widely seen in the US as the first major step by AT&T to a near-total disengagement from the computer business in favour of Olivetti. Where in Italy, Olivetti is stressing only that it will de-sign and manufacture AT&T's personal computers, AT&T is talking in terms of all workstations, and ack-nowledges that its agreements to sell specialist engineering and publishing workstations with Omnicad, Rochester, New York, and Coun-terpoint Computer Corp, San Jose, are now in doubt. The agreement under which Convergent Technologies supplies the Unix PC is unlikely to be renewed when it runs out at the end of the year. AT&T is currently stressing that Vittorio Cassoni's move over to head the newly-named AT&T Data Systems means that he will become an AT&T employee, but he is widely being seen as Olivetti's man on the inside. AT&T candidly admits that its entry into the computer business has been lit-tle short of disastrous, and obser-vers reckon that operating losses will top the billion dollar mark this year. Under the new agreement with Olivetti, AT&T will continue to develop the 3B computer line, but the machines are still regarded as hopelessly overpriced and under-powered, and AT&T's new strategy will be to sell them primarily as part of integrated telecommunicat-ions and networking systems. Does this mark the end of AT&T's computer adventure? One AT&T manager is sure that it does. "We're getting out and Olivetti is taking over the computer business and that's it," he told the **Wall Street Journal.**

RC COMPUTER DESIGNING FAULT-TOLERANT UNIX RISC

RC Computer, the Copenhagen, Denmark computer manufacturer in which ITT Corp is a major shareholder, is working on a fault-tolerant Reduced Instruction Set Computer to appear as the RC9000. The new machine will be offered with Tolerant Syst-ems' ·TX fault-tolerant implementat-ion of Unix, which is designed for intensive transaction processing applications. The agreement has enabled Tolerant, of San Jose, Cal-ifornia to pull the initial public offering of shares it announced in July; it has cancelled the offer because market sentiment was negative, and instead won $6m of equity financing from its origi-nal venture backers, and gets $4.5m in software licence fees and prepaid royalties from RC, making up the $10.5m it had been seeking.

COMPUTER CONSOLES SETS OFF DOWN RISC ROUTE FOR TOP END

Currently using the 68000 family at the low end of its Unix computer line and a 32-bit Am2901 bit-slice processor at the high end, Computer Consoles Inc is resorting to Reduced Instruction Set Computer archi-tecture for its next top-end machine. The Waltham, Massachusetts company is doing the design work in Irvine, California, implementing the processor in CMOS under a $10m development programme. First pro-totypes of the machine are report-edly already being tested by GTE Corp in Phoenix, Arizona, but first products from the project are not expected for a year or so.

WHERE NEXT TO TURN? RAVAGED AT&T REACTIVATES JAPAN VALUE-ADDED NETWORK VENTURE

AT&T's attempts to diversify into the computer systems and services businesses have turned into just as much a disaster as most of us were forecasting back in 1983, and after moving to turn its US computer business into what is widely being seen there as little more than an American front for Olivetti, the company is trying to get back closer to its roots. The biggest single computer-related project in gestation when the company signed its anti-trust settlement with the Justice Department was the wildly ambitious and extremely long-gestating Advanced Information System Net/1000, which was to have been a value-added network service with so much embedded computer power that all data conversion would be handled by the network, and any kind of terminal hooked onto it would be able to talk to any other. No longer would users have to implement irritating protocols like X25 and HDLC, the network would be all-knowing and all powerful. Unfortunately for AT&T, by the time the thing was up and running, the drift towards machine independent communications standards had become a stampede, and users weren't prepared to pay for expensive conversion services they didn't need. Net 1000 died in January. AT&T's tragedy is that its ineffectual efforts to get into the computer business with the ill-conceived and vastly over-priced 3B machines has turned into just as much of a disaster, and is forecast to cost the company $1,000m in losses this year alone.

Cause to chortle at Armonk

Its plans to enter the merchant semiconductor market coincided with the biggest depression the industry had ever seen, and it is known to have won just two customers for its WE32100 microprocessors, Zilog Systems and NoHalt Computers. Only its core long-distance telephone business and its telecommunications equipment manufacturing business stand between AT&T and Queer Street. But as the company struggles to retrench and get back on its feet, two inescapable conclusions have been reached. The first is that if it is to pursue synergy between tele-comunications and computing, it has to start from the telecommunications end that it knows and progress towards computers; it cannot build a computer company from ground zero and then try and bring the two together. The second is that without a major presence on the world market, it has no prospects of sustained growth: indeed deregulation in the US means that almost by definition, its long-distance telephone business there cannot grow as fast as the market as a whole – the likes of US Sprint and MCI Communications, still hungrily if expensively buying market share, will see to that. The folks at Armonk would indeed have cause to chortle were they not wrapped up with some rather intractable problems of their own right now.

The recognition that its future has to lie with telephony and data communications and the fact that Japan has the greatest potential for telecommunications growth of any market in the world have persuaded AT&T that despite the fact that there is now no Net 1000 to take into Japan, it must some-how secure itself a major presence there. Accord-ingly, the company has gone back to its erstwhile partners – including Fujitsu, Hitachi, Nippon Life and Industrial Bank and reactivated the plan for a major value added network service in Japan. As a first step, the consortium, in which AT&T holds 50%, for which it has contributed $12m, is building a simple X25 packet-switched network. The network is due to begin offering service in the first quarter of next year, and AT&T will be hoping that by turning it into a small but viable success.

WITH £2m IN THE BANK, RADIUS SETS UP ONE – OR TWO – IMMINENT ACQUISITIONS

The UK's largest value added reseller of Texas Instruments computers, Radius Plc of Hull, is now mustering its resources to snap up one, or even two, private companies before its fiscal year end on November 30. Radius is keen to expand its product base, taking it further up the business and accounting scale and diversifying its existing applications range. The company has around £2m cash in the bank and will consider whether or not to raise further money via a vendor placing in the next few weeks. This expansion comes at a time when Radius is expecting a resurgence in hardware based system sales next year as users upgrade their old propri-etory Texas architecture hardware to the 68020-based System 1100 and 1500 Unix machines computers introduced over the past three months. Unlisted Securities Market newcomer Radius looks cheap at only 93p which, on expected pre-tax profits for the current year of around £1.4m compared with £990,000 last time, would give per share earnings of 10.6 pence on a notional 35% tax, and put .1h 6 the shares on an undemanding multiple of 8.7.

HONEYWELL BRINGS DPS4 PLUS TO UK MARKET

Honeywell Informat-ion Systems Ltd has brought in the radically new DPS 4000 busi-ness computers from Honeywell Italia, per-versely calling them DPS 4 Plus here. The new machines feature a new bus and greater flexibility in mixing and matching the build-ing block function proces-sors that make up DPS4. Unix is promised for next year. The Plus models come with from 2Mb to 5Mb of main memory and from six to 122 communications lines. Base price is £26,000 for a six user system. Also out are a new 340Mb disk drive and a 100Mb tape drive that can be used in both start-stop and streaming modes.

JAROGATE SPRITE GETS 80386

Jarogate Ltd of Surbiton, Surrey, has joined the 80386 lists with an eight- to 32-user 16MHz Sprite 386 under Xenix at £15,000 to £42,500, and a single-user PC-DOS AT-compat-ible version of the box at £4,250.

OLIVETTI-THOMSON-ACORN PICK OS-9
FOR EURO SCHOOLS CPU...

The Unix-like OS-9 real-time operating system is the surprise choice of operating environment for the European Education Standard Microcomputer being defined jointly by Thomson of France, Olivetti of Italy and its 80%-owned UK affiliate Acorn Computers Plc - much to the delight of The Soft Centre of Luton, Bedfordshire, which distributes OS-9 over here. The choice is a very substantial boost for Unix, because it means that the next generation of European school children will enter the labour market familiar with a Unix-like environment. OS-9, which comes from Microware Systems Corp of Des Moines, Iowa, was originally implemented on the 8-bit Motorola 6809 microprocessor and has now been migrated up to the 68000, which will be the basis of the schools computer, expected to come to market next year. OS-9/68000 has already been adopted by Philips and Sony as the environment for the Compact Disk Interactive standard they are promoting. The Soft Shop lists as selling points for OS-9 that it is modular, generally requiring less memory than other operating systems, it can be implemented in ROM for many applications, and that it is a real-time multi-user, multi-tasking operating system. Languages offered are Basic, Pascal, Fortran and C. For those who want to get to grips with OS-9 ahead of the introduction of the schools box, it is available on the Atari 520STM and 1040STF 68000-based home CPUs.

...AS JAPAN's BIG SIX MICROMAKERS
AGREE TO ADOPT TRON

Six of Japan's leading manufacturers of personal computers - NEC, Toshiba, Fujitsu, Matsushita, Mitsubishi and Oki have agreed to standardise on Tron - The Real-time Operating Nucleus - for their microcomputers. Tron was developed at the University of Tokyo, originally for robot control and switching systems. The only machine-independent operating system to emerge from Japan so far, Tron is one of the environments for which the forthcoming 32-bit Hitachi-Fujitsu H32 microprocessor is being optimised, the other being Unix. NEC has had an implementation for its V20 and V30 microprocessors for a couple of years now. The six companies party to the agreement share some 75% of the local market.

CD, WICAT BREAK UP PLATO VENTURE

Squabbling over the future strategy of their Plato/Wicat Systems Co joint venture to market educational software based on the CDC Plato system has caused Control Data and Wicat Systems Inc, Orem, Utah, to disband the joint venture.

COMPAQ SETS UP IN SINGAPORE

Compaq Computer Corp has long stood out as the one major specialist microcomputer manufacturer without an off-shore plant, but the US-Japan semiconductor accord has turned out to be the last straw that broke the camel's back. In order to get around high chip prices in the US market following the accord, the Houston, Texas company will establish a plant in Singapore to buy parts and do circuit board stuffing, with output going to Houston for final assembly and test. The decision has been made "to overcome some of the problems which our government has caused us by signing the pact," the company's vice-president for marketing Michael Swavely told the **Financial Times.** Compaq will employ about 200 people in Singapore, but stresses it does not plan any cuts in the US. However, those 200 jobs would clearly otherwise have been created at home.

CONVEX LAUNCHES NEW BOTTOM,
TOP-END MODELS IN THE UK

Convex Computer Corp of Richardson, Texas yesterday unveiled the new top and bottom end models in its C-1 64-bit scientific mini-supercomputers from its Guildford, Surrey UK base. At the bottom end, the company has added the C-1 XL, which comes with 16Mb to 64Mb of main memory at a base price of $350,000, £299,000 in the UK. At the top end, the C-1 XP comes with from one to four processors and uses surface-mounted 1M-bit memory chips to take storage to an enormous 1Gb maximum and starts at $475,000 in the US. Both machines support the company's Extended Supercomputing Architecture, which allows Convex processors to be linked together over an 80M-bit per second fibre-optic or co-ax token ring local area network with up to 240 nodes that can be up to 1.6 miles apart. The machines feature a Cray-like architecture and now support DCL commands for VAX compatibility.

NOW PICK PICKS ON PICK-FOR-
TANDEM DEVELOPER EVER-ON

It sometimes appears that were Pick Systems Inc, Irvine, California, to devote as much time and resources to developing its operating system as it does to litigation, the product would sweep the world. Latest company to suffer the wrath of Pick is Ever-On Corp of Houston, Texas, the company which offers a version of Pick to run under Tandem Computer's Guardian fault-tolerant operating system. Pick Systems is seeking to prevent the unlicensed marketing and distribution of the Ever-On product, and the suit asks for associated damages, charging the defendants with breach of contract, misappropriation of trade secrets, conspiracy, and unfair competition.

ACE-UNIX : ONE OF THE ACE FIRSTS

After ten man years of effort Associated Computer Experts produced its enhanced version of AT&T's Unix System V Release 2. Ace-Unix was launched at the Uniforum Unix Exhibition in Stockholm last month (UX No 98) and was heralded as the world's first X/Open system. The roots of Ace-Unix lie in a Version 7 implementation which has been extended to meet the X/Open standards. Ace has been selling a version of Ace-Unix since 1981 and the company claims a user-base of several thousand. Ace says that its aim in further developing Ace-Unix over the last year has been to create a highly reliable and portable system that is as efficient as possible resulting in a number of test and validation suites which are based on current available standrds such as SVID, X/Open and various ANSI standards. Managing Director, Martijn de Lange, says that where possible, Ace-Unix strictly adheres to the standards laid out in the X/Open 'Guide to Portability', which is designed to provide a common applications environment - by 'where possible' de Lange means where the standards have been defined as the 'Portability Guide' is incomplete. ACE is a technical consultant to the X/Open group, along with London-based Instruction Set. In the course of developing this operating system ACE says that it has fixed "over 300 bugs in the original Bell Laboratories code". The Dutch company claims that reliability has been improved by adding consistency checks throughout the kernel so that the system is continually monitored for correct operation. The company claims that by simply rewriting much of the original Unix code in a clear and correct style both reliability and portability have been improved. The kernel language assembly code has been rewritten in C. Ace claims that it has increased efficiency by improved process switching and process management; over 20% more efficient user memory allocation; improved disk caching; intelligent disk-cahe buffer binding; and rewriting parts of many utilities. Ace-Unix supports COFF (Common Object File Format) which ACE has extended to allow a process to have any number of sections, which in turn can have any number of attributes. This version of COFF has been used to implement shared memory, shared code for libraries, caching of shared code and demand segmentation. Ace claims that it has improved many of the utilities and cites as examples ps and make. Ps lists current processes and Ace has added an option that allows processes to be displayed in an hierarchial manner. Make is used to keep a set of programs current - it ensures that programs dependent on others to run are modified if one of that set is updated: Ace says that it has improved this facility so that it takes up to 50% less time on large numbers of files. Ace has also added a number of tools to the existing ones; batch - allows large or non-urgent jobs to be queued for sequential execution; doc is a sub-system that supports the maintenance of documentation - documents can be kept in a number of files and complexity levels may be marked allowing different levels to be printed; fsclean rearranges disk layout to provide high-speed file access through file ordering and file contiguity; and tree lists directories in a compact and indented fashion, using highlighting and underlining to identify directories and executable files. Development tools added include mix which adds source code as comments to the assembly language version of the source. Associated Computer Experts are based in Amsterdam in the Netherlands and specialise in systems software, operating systems design and development, compiler construction, consultancy services and Unix porting. As well as producing the world's first X/Open system ACE claims that it produced the world's first porting of Unix to the Motorola 68000, its Expert Fortran 77 compiler is, according to the company, the world's first validated F77 compiler for the MC68000 and ACE claims its Expert C compiler Ace has developed a family of compilers, called the ACE Expert Compilers, for different languages, different target machines and different host/development environments. All of ACE's compilers share one common code generator, developed by ACE, and the different languages are implemented as 'front-ends' for this code generator - so that you can have a C front-end for your development system, and a code generator for each of the machines you want your application to run on. ACE currently has front-ends for C, Pascal, F77, Cobol, Modula-2 and ACE is currently developing a front-end for Ada. The Expert Compilers running under Ace-Unixsupport the IEEE standard in software and hardware using the National Semiconductor floating point chip or the Motorola 68881. Currently code generators are available for VAX, Gould, MC680x0, and the Norsk Data 500 target machines. The PDP 11 family of processors from DEC are also supported by ACE but the company say that this will be abandoned in the future. ACE is also in the process of developing a code generator for the National Semiconductor processors and is expected before the end of this year. The twenty-five man company is now involving itself with expert systems and developing code compiler generators.

WEITEK ACCEL CHIP FAMILY LAYS DOWN GAUNTLET TO MINISUPERCOMPUTER MAKERS

Weitek Corp, Sunnyvale, California, last month upped the stakes in the high-perform- ance arithmetic microprocessor stakes with the introduction of its new generation Accel family of two 32- and one 64-bit VLSI parts, software and development system.

Aimed at manufacturers looking for very high- speed arithmetic processing capabilities, but without the resources to devote to costly custom development - or the time - the Accel processors are made in CMOS for low power consumption, and are designed to be driven by the new Accel software. Weitek claims that the processors are capable of sustained 5 MIPS, five times faster than that hoary old yardstick, the DEC VAX-11/780, and 5 Mflops. Burst speeds are claimed to be as high as 12.5 MIPS and 25 Mflops. The two 32-bit parts are the Accel 8000, designed for two-dimensional graphics and simulation; and the Accel 8032, for digital signal processing and three-dimensional graphics. The 64-bit Accel 8064 is designed to enable scientific and engineering programs traditionally run on mainframes and minis to be transferred down to supermicros. The Accel software consists of three components. High-level language compilers accept existing Fortran, C or Pascal programs, and are designed to help improve development time by enabling system designers write in a high-level language rather than having to resort to the machine code that has traditionally been required for very fast applications. The second part of the Accel software is a program designed to provide the speed needed for maths- intensive applications. Called the Parallelising Instruction Scheduler, it rearranges the software flow to take advantage of the inherent parallel architecture of the Accel processors. The schedu- ler is claimed to improve the performance of the compiler-generated software by up to 200%, partial- ly offsetting the speed disadvantage of compiled against machine code. The software suite is com- pleted by a set of development tools that make it easier for implementers to hand-write the few program routines that are speed-critical.

Xenix operating system

In addition to the software tool set, Weitek will offer the Math Advantage, a scientific subroutine library developed for supercomputers by Quantita- tive Technology Corp, Beaverton, Oregon. The Math Advantage is a library of more than 200 subroutines that will be customised to run on the Accel hard- ware. The Accel Development System also introduced is designed to provide complete software develop- ment support for Accel software and hardware des- igns. It consists of two circuit boards that plug into an IBM Personal AT running under the Xenix operating system. Designed to enable developers to do the software in parallel with hardware devel- opment, it can also be used as a low-cost evaluat- ion system to measure the capabilities of the Wei- tek CPUs and software. The Accel processors and software have been undergoing early evaluation over the past six months at Pixar, Evans and Sutherland, Raster Technologies and Jet Propulsion Laborator- ies. The Accel 8000 and 8032 processors, and C and Fortran compilers are in early evaluation and will be available in volume in January 1987, with the 8064 processor and Pascal compiler following in the second quarter of 1987. Processor prices are res- pectively $600, $1,000 and $1,500 for 100 or more.

MICRO FOCUS OFFERS JSB's FAST COBOL REPORT GENERATOR

With the aid of funding from the UK Department of Trade and Industry, JSB Computer Systems has produced a Cobol langauge report generator, Co- Writer, which will now be marketed under the Micro Focus banner. JSB is a Cobol-based systems house that was losing money through continually tailoring reports for each of its customers, so it came up with the money spinning idea of producing a report writing tool to take the toil out of this activity. The company approached the government for funding and was granted an undisclosed amount on the proviso that JSB engaged a partner to market and support the product: Micro Focus was the obvious choice because the product was not only written in Level II Cobol, but was also designed to be used with it. JSB and Mico Focus formed Co-Writer Systems Ltd in January 1985 to develop the two products - Co-Writer Report and Co-Writer System Builder. The two companies claim that Co-Writer allows application users to create and immediately execute new reports from data held in Micro Focus Cobol files. The main difference between Co-Writer and any other similar product is that it can read Micro Focus file structures directly and so does not need to convert them, and does not require any compilation routines: JSB claims the feature to be unique. Micro Focus will be aiming the product primarily at applications development houses and at departmental users: it considers that this is another bullet in its gun when it comes to beat- ing off the attack from other Cobol developers, such as Austec. Co-Writer is currently available only for machines running PC-DOS, and operates only in conjunction with Micro Focus Level II Cobol, Professional Cobol or Sourcewriter. JSB is currently working on a version for Unix, which it expects to have available in the middle of next year, after it has sorted out the differences in screen handling re-quired for Unix systems. The Co-Writer System Builder, for use by application developers, is £1,495 and the Co-Writer Report, which enables the end user to access data and to create reports, costs £495.

MIGENT HITS UK WITH 5,000 SALES OF ABILITY

Migent International, the overseas subsidiary of Migent Inc - the micro database company formed by Ashton-Tate alumni has arrived in Europe with a bang, claiming that its low-cost multi-function package Ability outsold all other Personal Computer software products in the UK during September, the month of its launch. Ability includes word pro- cessing, spreadsheet, database, graphics and presentation and currently sells for £69.95, a price which will rise to £99.95 after Christmas. According to subsidiary president David Patrick, Lotus 1-2-3 took seven months to reach the sales total - 5,000 - that Ability achieved last month. But database is what Migent is really all about, and the designer of Ashton-Tate's dBase II, Wayne Ratliff is currently working on a database engine for 80386-based micros. Patrick says the product will "leapfrog dBase and Ashton-Tate by a generation" but it will be closely related to dBase: "we are not trying to reinvent the wheel". The database engine, code-named Emerald Bay, will "be true multi-user, have a new structure and have file and record-locking". Migent is also looking beyond MS-DOS and will shortly announce a deal with "a major US Unix manufacturer".

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The Reagan administration is predictably unhappy at the idea of one of the two major US manufacturers of bipolar gate arrays, **Fairchild Semiconductor**, coming under control of **Fujitsu** of Japan, and is studying whether it should impose a veto on Schlumberger going ahead with the sale of an 80% stake in the unit: Options include a complete embargo on the agreement, or some kind of formula that would keep the military side of Fairchild in 100% American control and prevent Fujitsu from acquiring its technology.

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DEC has signed to use **Valid Logic Systems Inc**'s computer-aided engineering tools at its facilities worldwide under a contract worth up to $4m: the programs will run on DEC's VAXstation II series of en-gineering workstations, and the contract includes ValidGED for schematic capture, as well as compilers, packagers and interfaces.

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MIPS Computer Systems, Fremont, California, has signed for rights to implement the Verdix Ada Development System on its RISC machines with Verdix Corp of Chantilly, Virginia: MIPS will implement VADS through its proprietary optimizing compiler system and the agreement, worth up to $2m over two years, will add another high-level language to the ones already offered by MIPS for its R2000 Series of products, which is rated at up to 10 MIPS sustained performance.

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Integrated Micro Products will be supplying **MARI** with £400,000 worth of 68000-based range of VME boards which will be incorporated into MARI's new Tyneware System 20 machine to be assembled at its new factory in Tyneside.

M i n i g r a m s

Redwood International has signed a contract with **Quartz Ltd** who now have the rights to distribute and support Uniplex-II Plus in the UK.

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And **Redwood** has signed a distribution agreement with Italian company **ESA** to distribute Uniplex II Plus throughout Italy – Redwood estimates the conttract to be worth £100,000 in the first year: ESA is translating Uniplex II Plus and the manuals into Italian.

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Yet another GIP has been added to the **benchMark Technologies** range – the GIP–C, which is intended to give systems integrators the facilities to configure GIPs for a wide range of applications: GIP–C acts as a co-processor and is avaialable with video options.

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Sequent Computer and **Root** have signed a $1.2m software collaboration agreement, which involves Root making IBM mainframe software available under a Unix environment: Root will port the Hoskyns MAS software to the Sequent Balance 2100 machine.

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Kalamazoo has recently signed its first **Altos** dealer to distribute Appgen – **Computer Answers Ltd** of Slough.

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Specialised Systems Consultants of Seattle, Washington has announced Anzac, a record management system which allows Unix users to define screens for two record types and then perform online data entry and access functions on the data: Anzac is available in the US from SSC for $150.

At the recent Unix Expo show held in New York **Productivity Products International** announced new releases of its two products Objective-C and Vici – Objective-C is a tool that allows reusable software components to be produced and this has been made faster and more efficient in the latest release: Vici is the interpreter for Objective-C and the company says that this has been made more convenient to use – improved functionality; faster start-up; a command history; and easier to combine with an application.

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The Ingres relational database system from **RDS** has now been ported to the Orion superminicomputer from **High Level Hardware** which has been standardised on by Alvey.

– o –

Root has launched a Unix-based networking system which transmits data via the RS232 interface and is based on the B–Net software – Root's version of TCP/IP: previously B–Net has only been available with Ethernet but Root reckons that this demanded too great an investment in hardware on some users behalf – the new man in charge of communications at Root is Nick Armitage who has risen from the systems programmer ranks at Root.

– o –

Apollo Computer Inc and **3Com** have signed a $4m two-year agreement enabling Apollo to integrate 3Com's 802.3-compatible Etherlink Plus controllers in a bridge product which will link multiple Apollo Domain series 3000 workstations: Apollo claims to have done $700m in sales since entering the engineer-ing/scientific workstation market and 3Com says it has over 120,000 network connections worldwide.

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CONVERGENT BOUNCES BACK WITH 80386 N-GEN RUNNING XENIX/MS-DOS UNDER CTOS/VM

Restoring its well-deserved early reputation for rapid innovation after a very lean period, Convergent Technologies has come up not only with a 16MHz 80386-based version of the N-Gen but, more importantly, a new version of its CTOS operating system, CTOS/VM for it. CTOS/VM is claimed to run multiple CTOS, Xenix and MS-DOS tasks concurrently on the 80386. The new N-Gen is designed to slave multiple intelligent processors off a master, and in that configuration supports three to 20 users. The master vesion comes with 1Mb to 4Mb of main memory, two RS232, one parallel and one RS422 ports, the last running at up to 1.8Mbps. It includes 16Kb cache, and is claimed to offer twice the performance of the 80286- based N-Gen, four to five times the performance of the 8MHz IBM Personal AT. An 80287 maths co-processor running at 10MHz is optional. A master with 1Mb CPU, 120Mb disk, and 60Mb tape streamer is $10,000 in large OEM quantities. The slave with 1Mb memory is $5,000 in large OEM quantities, and both are available this quarter, with volume in January. Existing N-Gens can be upgraded by a processor swap out. Also new from Convergent is a diskless AT work- station which the company calls the Network PC. The AT-compatible product includes an 8MHz 80286, 512Kb, floppy disk controller and Extended Graphics Adaptor on the motherboard at $1,500 in large OEM quantities. The company also announced two new networking products: Clusternet allow N-Gens to share data, files and communications facilities with the IBM Personal family, and Telecluster is a PABX- or Centrex-driven networking product licenced from David Systems that supports communications between Convergent products at speeds between 307Kbps and 1.8Mbps. A telecluster hub that attaches to the PABX or Centrex system includes 12 lines and comes in at $3,000.

XEROX BOWS TO INDUSTRY STANDARDS WITH 2285 UNIX STATION

After trying none too successfully to win big business for its proprietary Star workstation in the engineering market - it had most of the attractive features that designers wanted but was much too expensive - Xerox Corp has gone back to the drawing board with its new 2285 station and followed industry standards. The new workstation dumps the proprietary architecture and the operating system of the Xerox Professional Mechanical System for the Motorola 68020 and Unix. Although based on the 68020 rather than the Xerox Alto processor, the workstation is designed to be a recognisable child of the Xerox Palo Alto Research Center, featuring as multiple windows, pop-up menus, graphic icons and single-keystroke commands. The 2285 can communicate with non- engineering users over Ethernet, is described as compatible with the Xerox 6085 Starlet professional workstation, and can be teamed with a desktop publishing system or a mainframe. It can be used either as a stand-alone workstation, or linked to other 2285s via Ethernet for database and other resource-sharing; the X NS and TCP/IP communications protocols. The 2285 comes with 19", 1,000-line mono or colour graphics display and uses Xerox PRO CAD as its primary software, and enables a design engineer or drafter to work on multiple drawings concurrently, work on a detail while keeping the entire drawing in view, or focus on dimensional detail. Prices start at $20,000.

FOR SPERROUGHS, READ UNISYS

Unisys is the magic word everyone was waiting for at the beginning of the week: it is the new name for the combined Burroughs-Sperry company, and is intended to denote the concept of United Information Systems. Brainchild of Lee Manchin of Burroughs' Atlanta office, the name was one of 31,000 submitted, and Mr Manchin is $5,000 better off as a result. Revelation of the name ends months of speculation - a favourite within the company was Basis for Burroughs And Sperry Information Systems - and honours two strands in the new firm - both originating with Sperry. Unisys recalls the historic Univac name, and also hints at the thrust into Unix systems pioneered by Sperry and followed by Burroughs.

SUN SEEKS VECTOR ARCHITECT

Sun Microsystems of Mountain View, says gnomically that it is seeking a vector processing software architect to undertake advanced research - but not product development - for the Unix workstation manufacturer.

PRIME's RISC STATION HITS HARDWARE, SOFTWARE SNAGS

Prime Computer Inc, Natick, Massachusetts, was due to introduce its high performance CAD/CAM workstation, based on the Reduced Instruction Set Computer chips developed by MIPS computer Inc, and the Silicon Graphics Geometry Engine. But the project has run into both hardware and software snags, and is not now expected to be announced before the first quater of next year. The company says that on the software front the New Product Base three dimensional solids modelling software is not yet ready, and on the hardware front, it wanted a specific performance from the workstation and has not yet achieved it.

Convex Computer, one of the star-studded start-ups formed in the early eighties to develop and produce "affordable supercomputers", is now shipping two second-generation Craylings and a multiple processor network architecture.

Like the original C1, the new XL and XP machines are based on the 64-bit Cray architecture with its integrated vector processing, pipelining, caching and chaining which together support simultaneous scalar and vector processing.

The top-of-the-line XP is modelled on the Cray XMP, and like that machine is available in one, two or four-processor configurations. Each processor has up to 1 gigabyte of physical memory (built up from one-megabit chips) and a 4 gigabyte virtual address space. The processor is implemented in high density CMOS gate arrays from Fujitsu, packing 20,000 gates per chip.

All the Convex processors can be linked into the Convex Extended Supercomputing Architecture (CXS), with the hardware and software allowing up to 240 machines to tranparently share files and disk storage while supporting dynamic load balancing, job distribution and automatic recovery. It is based on a 80 megabit/second data path implemented in either coaxial cable or fibre optic technology. The Convex machines can also link into existing networks: the HYPERchannel for high- speed links to supercomputers; Ethernet TCP/IP communications protocol networks (all the machines run under an extended version of Berkeley 4.2bsd Unix), which gives a link to Vax machines running under both VMS and Ultrix; the DECnet protocol; and, jointly with Sun Microsystems, it is implementing Sun's Network File System to allow users to transparently access files across networks of both Unix and non-Unix machines.

This, the company claims, allows the machines to be used in four different ways: as a standalone machine with terminals and workstations, as a network server providing extra power for workstations, minis and superminis; as a link between a network and a

THE CRAYLINGS

- GIVING CONVEX ITS FIRST

PROFITABLE YEAR?

supercomputer, providing intermediate power for applications too large for a supermini yet still not needing the power of a supercomputer; and finally "breaking new barriers in supercomputing" as a building block within an Extended Supercomputing Architecture system.

The operating system is based on Berkeley 4.2bsd Unix with a number of extentions to take advantage of the hardware: striping across multiple disks for added memory throughput; asynchronous i/o with a channel-based interface to multiple intelligent i/o processors, a four gigabyte virtual address space, a vectorised run-time system, support for hardware-based rings of software access protection and multistream batch processing. Convex have vectorising and optimising compilers for Fortran 77, C and Ada which improve performance by replacing a whole series of scalar machine language instructions with fewer, more powerful vector instructions that manipulate up to 128 operands in a single instruction. The compilers perform data flow analyis on loops to produce vectorised code automatically, for all numeric types and reorder the code to take advantage of the multiple processing units within the processors. They also provide 64-bit extentions and date types. A source-level debugger allows break-points to be defined by statement number and line by line stepping through the source code. Although the front-ends are different, the excecutable format, vectoriser/optimiser, code generator and run-time environment are common across the three languages. This allows modules compiled separately in the three languages to be combined in a single language and programs in any of the languages to call modules written in on of the others. The compilers accept code written for other machines (the Fortran 77 has Vax/VMS extensions) allowing the user access to existing

applications. There is also an optional Vax/VMS-compatible software environment called Covue which emulates the VMS DCL commands and environment. The hardware consists of multiple specialised processors operating asynchronously and linked by multiple high-speed 64-bit buses with up to five intelligent i/o subsystems. The specialised processors include:

* Address and Scalar Unit that can execute multiple scalar operations in parallel, including floating point operation on the XP.

* Address Translation Unit maps logical address into physical memory, arbitrates bus access, performs data alignment and checks memory access rights. It maintains a 1024-entry page table cache to accelerate address translations. The data alignment is needed because the machine operates on everything from single byte characters to 64-bit floating pint operands and it needs to efficiently execute code developed for 32-bit minicomputers.

* Two independent, pipelined Vector Processing Units including high-speed vector accumulators. Three independent units can either act independently or be chained together. Each has its own microprogram control store and input queues, allowing multiple instruction to be decoded and despatched without waiting for their operands. It gives a peak operating speed of 60 million operations per second.

Each channel control unit has a Motorola 68000 with its own memory and operating system to process interrupts and operate device drivers. A specialised Multibus processor contains up to 80 device controllers and a 32K cache.

The entry-level XI costs under $350,000 while the top-of-the-line XP costs over $1 million, still well below the price of a Cray yet enough to make 1986 the first profitable year for Convex.

ICL TOUTING FOR UNIX
SOFTWARE HOUSES' GOODS

The Software Industry Development Centre of ICL is hoping for lots of Unix-based software houses to pass through its doors within the next few months. The centre, based in Slough, has mailed 750 software houses whose products are used in conjunction with Unix and have so far received 150 replies of which 40 companies have agreed to port its software to the ICL Clan and Sun workstations. According to ICL the 'departmental user' is its prime target for the products that come out of the SIDC as this user is not concerned with general or personal computing and his main concern is that there is enough useful software for his line of business. Tim Jenkin, Strategy Manager for Unix at ICL UK, thinks that "the advantages of being able to provide the same solution, unchanged, regardless of the label on the hardware will also be translated into quality improvements in software". This then is the SIDC goal, along with getting software onto the ICL hardware so that users will buy the things. ICL believes that the way to achive all this is through Unix and the standards put forward by the X/Open Group, of which ICL is a member and boasts the chairman.

MISUNDERSTANDING CONCERNING THE V.3.0
RULES OF CONDUCT

No AT&T has not changed its mind concerning the licensing rules of the latest release of System V.3.0, anyone who thought it had - was mistaken says AT&T. Rumours have been circulating concerning the emphasis that AT&T had placed on adherence to the System V Interface Definition, manufacturers misunderstood if they thought that it was mandatory to implement all of V.3 in order to conform to the SVID and avoid the wrath of AT&T. According to an AT&T spokesman the rules concerning adherence to the SVID are and always have been fairly relaxed so that you can port V.3 without streams and RFS, for example, and add facilities of your own and it may still be considered to conform to the SVID. AT&T Unix Europe say that the rules have been relaxed in that you can continue to sell your own versions of Unix and AT&T will take no action if your product does not conform to the SVID, but this period of grace will only last until June 1988, then the SVID must be observed.

SEQUENT ADDS SOFTWARE FROM
SYSTEMS & SOFTWARE

Sequent has entered a marketing with Systems & Software to add software to the limited but growing (UX No 102) Sequent Balance software catalogue. Systems & Software's REXSystem 86 C Cross Compiler will now be available on the Sequent Balance range of parallel computers. The pacakge, according to Sequent, will allow programmers to perform hardware independent software debugging and testing early on in development. It is intended for programs written for Intel's 8086, 8087, 80186 and 80286. The details of the agreement have not been disclosed but REXSystem is available from Systems & Software of Costa Mesa, California, for $6,750.

THE TORCH TOASTER STYLE
VME DEVELOPMENT SYSTEM

This week Torch Computer has announced a new VME development system in response to a demand from one of its customers. The X19PC has an industry standard 19" rack mountable with a nine-slot J1 VME backplane expandable to 13 slots. The system is intended for development or testing. Torch's unnamed customer has received two systems and is using them to test other suppliers equipment in the communications field and will be launching its own product as a result of this early next year. Torch envisages a great deal of interest in this product espescially in industries such as machine tool control, robotics and physical sensoring as it allows users greater flexibility in testing parameters because different VME boards can be slotted in as "easily as putting a piece of bread into the toaster". The X19PC is available in two forms; the X19PC20 and the X19PC40. For £8,000 the X19PC20 comes with J1 VME backplane, 68010 processor, 1Mb RAM, 20Mb Winchester hard disc, 720K floppy, three serial ports, keyboard, mouse, single-user Unix System V licence and Torch OpenTop interface. The X19PC40 has the same basic configuration as the X19PC20 but with 40Mb Winchester.

LANIER CONNECTS BEYOND
ITS OWN WORD PROCESSOR

The Lanier Business Systems Division of Harris Corp announced last week that it had added hardware boards to its Concept 6000 file server to allow it to connect to personal computers from third-party vendors such as IBM. Previously the Concept 6000 could only be networked with Lanier word processing systems, now using these new hardware boards and and software you can attach up to eight personal computers, according to a company spokesman. Lanier says that the major features of this upgrade, the Concept 6300, include: a direct streaming tape drive option; support for up to 28 nodes; support for Xenix 3.0 and MS-DOS. The kit is available now and a 6300 upgrade kit for the 6000 costs $695.

SOFTWARE FOR THE RT PC
FROM DATA LANGUAGE

Data Language Corp of Billerica, Massachusetts has produced an IBM RT version of its Progress program development package. The company claims that now applications written using Progress can be ported to Unix, Xenix, Ultrix and MS-DOS environments. Progress is intended for developers of high-volume transaction processing applications. The package includes a fourth generation programming language and a relational database management system, both developed by Data Language. The new RT version is available from Data Language and costs $4,450. The company added that more than 240 applications have been developed using Progress.

DEC LAUNCHES ETHERNET-BASED
VAXCLUSTER FOR MICROVAX II

Digital Equipment Corp yesterday duly
announced the low-end VAXcluster system for
the MicroVAX II and VAXstation II that runs
at the 10Mbps of Ethernet rather than the
70Mbps of full VAXcluster. The
company also announced a new diskless
VAXstation II/GPX, and added new MicroVAX II
configurations in the US. The new Local Area
VAXcluster enables up to 13 VAXstations and
MicroVAX IIs connected by Ethernet to operate
as a single system, running a single copy of
VMS held on a server node that can be any
MicroVAX with RA disk drives - apart from the
11/730 and 11/725. The software supports
batch and print queues and transparent file-
sharing, with data shared at the record
level. Several Local Area VAXclusters can
share an Ethernet. The software will be
available next month at $1,000 on a
VAXstation to $9,500 on a VAX 8800 - $1,000
and $9,500 in the US. The new diskless
VAXstation II/GPX comes with four-plane, 16-
colour or eight-plane 256 colour graphics co-
processor, 5Mb MicroVAX II CPU, 19" colour
screen and Ethernet interface for £17,590 and
£21,590 respectively - $19,900 and $23,900 in
the US. No details were available of the new
MicroVAX II configurations, which cost
$19,900 to $94,855. New software announced
in the UK includes VAX Source Code Analyser
and VAX Language Sensitive Editor, which
enable programmers to analyse a full software
system rather than only separate components
using the new multi-language, multi-window,
screen-oriented editor; and a new 3.0
release of VAX Basic; no prices were given.
DEC is likely to win a round of applause from New
York credit rating agency Moody's Investors' Serv-
ices, which thinks the company's strong liquidity
and low debt may justify an uprating on $313m of
its long-term debt, now rated AA-2.

DEC RAIDING PARTIES
TARGET WANG, HEWLETT-PACKARD BASES

Now that it has a full set of assault weapons to
wean IBM System 34 and 370 users off their existing
systems, Digital Equipment Corp has been looking
for other vulnerable bases to raid, and reckons
that the Wang VS and OIS and the Hewlett-Packard
HP3000 customer bases are both vulnerable. It has
therefore mailed 10,000 US users, telling them that
it is putting together a series of conversion aids.
It has a exchange facility for transferring docu-
ments between OIS and its own All-In-1 office soft-
ware on the VAX, and is nearly ready with Wang VS
Cobol to VAX Cobol conversion aids. In the case of
Hewlett-Packard, it has determined that many users
of the HP3000 already have VAXes as well; Hewlett-
Packard's unfortunate problems with its new Spect-
rum Reduced Instruction Set Computer make its
users particularly suggestible to the VAXen lure.

PYRAMID TO USE ATLAS
TO TAP THE ADA MINE

Pyramid Technology has just announced it has
signed a technology licensing agreement with
Verdix Corp of Chantilly, Va. under which
Pyramid will develop a proprietary version of
the Verdix Ada Development System (VADS) for
its super minicomputer systems using Verdix
source code. Pyramid Technology also
announced that ATLAS-90 (Abbreviated Test
Language for all Systems), a product of
LEXICO Enterprises Inc based in Silver
Spring, Md. The company says that ATLAS-90
will be available for all Pyramid Technology
systems.
ATLAS is an IEEE high-level programming
language specification for describing test
procedures that control microcomputer-based
automatic test equipment. Pyramid Technology
plans to market its version of VADS to the
defense and aerospace industries as well as
educational communities. Ada is currently the
required programming language for mission-
critical computer applications used by the
U.S. Department of Defense and the North
Atlantic Treaty Organisation. Pyramid thinks
that the agreement with Verdix means that
defense contractors and others developing Ada
applications can now use the Unix software
development environment that Pyramid's own
superminis use for developing software in Ada
under the Unix operating system. VADS
consists of an Ada compiler, screen-oriented
debugger, program library utilities, run-time
system and a set of programming tools.
Pyramid Technology will market ATLAS-90 to
companies that use automatic test equipment
for use in such industries as aerospace and
defense. According to Pyramid ATLAS-90 is a
compact, table-driven ATLAS compilation
system that develops programs that can be
rapidly executed on target test equipment.

DIGITAL RESEARCH SHAKES UP
US OPERATIONS

In Monterey at Digital Research headquarters
amongst a number of changes that took place
the team that was working on adapting the GEM
Graphics Environment Manager for Unix was
disbanded. Founder Gary Kildall also
returned as president and chief executive, and his
immediate predecessor, John Rowley, reassigned to a
staff post. Rowley becoems senior staff executive
responsible for third party sales and marketing,
and the reorganisation, which also saw 20 of the
270 employees being made redundant, was made to
maximise the potential for a turnround of the North
American operations. Other changes include a
realignment into three business units - a graphics
unit for GEM and GEM applications; a flexible
automation unit for operating systems; and the new
Interconnexions subsidiary developing networking
and native operating software for the 80386.

VLSI TECHNOLOGY EXPERT SYSTEM WILL BE "THE 1-2-3 OF CHIP DESIGN"

Design Assistant, an expert system software program introduced by VLSI Technology Inc, San Jose, California, is claimed by the company to be the 1-2-3 of the semiconductor design industry. Design Assistant is a program created to help the design engineer to evaluate partitioning alternatives, and to estimate chip size, power consumption and packaging alternatives. It offers systems designers the ability to ask "what if" analyses for chip design, "much as 1-2-3 does for financial analysis", says the company, helping designers make quickly decisions that hitherto have had to be made by lengthy analysis. "We've not seen anything like this in the market today," says Douglas Fairbairn, VLSI's vice president of design technology. "A large selection of IC implementation methodologies are available to designers for all or part of their designs: gate arrays, standard cells, silicon compilers, fixed magacells and handcrafted layout. These methodologies involve different tradeoffs in terms of design time, cost per die, cost of the package, power dissipation and so forth. Designs can be entered into the Design Assistant as generalized block diagrams. To facilitate system conception and help document the various design alternatives, the block diagrams are entered in graphical form with data flow indica ted with arrows." Data describing the system blocks can be entered as gate count, a list of TTL parts, a captured netlist or physical artwork. Accuracy of the design estimates improves with the accuracy of the design details. The initial release of the Design Assistant will be available in VLSI's design centers in December 1986. It will be offered on the DEC VAX and Micro-VAX, and on Apollo, Elxsi, Ridge, HP 9000 Series 320 and Sun computers as an integrated part of VLSI's IC design system in second quarter 1987. It will add $25,000 to the price of the VLSI IC design software, which ranges from $20,000 to $140,000.

OLIVETTI ANNOUNCES FLOAT OF FRENCH UNIT

Ing C Olivetti SpA chief Carlo de Benedetti yesterday gave formal notification of his plans to float the French subsidiary, Olivetti-Logabax SA, on the Paris Bourse. A modest 10% of the equity is being offered, but the move will go some way to laying to rest the French tragedy of Logabax, by returning a part of it to French ownership. Logabax was the white hope of the independent French computer industry in the late 1970s, but over-enthusiastic government pushes for expansion of the local computer industry led to the company entering into a disastrous Plan de Croissance that made substantial government aid conditional on extremely ambitious employment, export and overall sales targets being met. It ended in tears - and receivership - in 1981, and Olivetti and St Gobain teamed to rescue the business from the receiver. And, again underlining the catholicity of his business interests, de Benedetti also announced he would take a 25% stake in the Yves St Laurent Paris fashion house.

MULTIFLOW COMPUTER PROMISES REVOLUTIONARY SCIENTIFIC COMPUTER

Multiflow Computer Inc, Branford, Connecticut will be launching what it promises will be a revolutionary new concept in scientific computing next year. The company says that its product will be completely different to any of the current offerings from Alliant or Convex and, it claims, will give a better price-performance ratio. Multiflow is not giving a lot away at the moment - saving it all for the big launch day, also undisclosed, but it is using proprietary hardware and software: Very Long Instruction Word hardware and Trace Schedule Compilers. The company claims that whilst Alliant, Convex and Floating Point Systems can produce very high speeds for numerical computations other aspects of scientific computing have been neglected, such as inputoutput operations and memory retrieval - this is where Multiflow's 64-bit system will differ. The company has been in existence since 1984 and has yet to produce its first product. The three founders of Multiflow are all computer scientists from Yale, a University not reknowned for its computing excellence. It has also poached Prime Computer's marketing vice president, Robert Smith, to act as vice president of sales and marketing. Finance for the company is from venture capital and Multiflow has received $17m after two rounds of funding.

SOUTH PACIFIC AND WINDOWS FOR INFORMIX

Last week Informix Corp released new versions of its Informix SQL and Informix 4GL products. The most interesting feature is the addition of windows to Informix 4GL, but both products have had data clustering, auto indexing and query optimisation added. The new versions will be available in December for Unix users but VMS and DOS users will have to wait for the first quarter of 1987. Prices for Informix 4GL start at around $995 and SQL costs about £795 but upgrades for current license holders are available under the terms of their maintenance agreements.
Having already got distributors in: New Zealand, Mitsui Computers; Taiwan, Multitech; and Japan, Ascii Corp; Informix has extended its field in the South Pacific with the addition of Rakon Computers in Australia. Rakon will supply all Informix products in Australia.
Although Motorola offers database management systems from Unify and Oracle on its machines customer demand has, according to Informix, forced Motorola to add Informix relational database management products. The products available for Motorola users include: C-ISAM; File-It; Informix SQL; Informix ESQL/C and Informix 4GL.

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Cray Research has an order for a supercomputer from CERN, the Centre for European Research into Nucleonics near Geneva in Switzerland - its first there by our reckoning: the Cray X-MP/48 worth $18m is due to be installed at the end of 1987.

- o -

One of the largest general purpose mainframes in Europe is going into the SNCF French National Railways computer centre in Lyon - and it's not IBM compatible: it's the fault tolerant T configuration of the four processor DPS 90/94 NEC Honeywell - compatible machine with 64Mb memory and 56Gb disk, and it is to talk to a Bull DPS 6/950 mini at each of 50 marshalling yards.

- o -

The version of the Texas Instruments Explorer artificial intelligence machine with 68020-based Unix co-processor, launched back in August in the US has now been announced in the UK and will be available here in January: the price for the system that the company says will do serious AI and Unix development is £69,000 for which you get 4Mb main memory, two 140Mb disk, local suppport, and 68020 CPU with 2Mb of on board memory.

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Computer Consoles Inc has added two compact models in its Power Unix minicomputer line: the 632S6 is rated 5 MIPS and starts at $90,000 the 632SX is claimed to do 8 MIPS and comes in at $100,000

- o -

Intel expects to have delivered 75,000 to 100,000 80286s by the end of the year - and to get another half million of them away in 1987.

- o -

National Semiconductor is to cut its 30,000 worldwide workforce by 500 people, 2%, the cuts to be made at all levels.

Minigrams

Wyse cut its WY60 ASCII display 14% to $600, adding ANSI support.

- o -

Ryan McFarland Inc, Rollling Hills Estate, California, is beta testing versions of its RM/Cobol 85 and RM/Fortran designed to be run under Xenix System V on the Intel 80386: the new compilers, which exploit the extra memory space of the 386, are expected in March.

- o -

Hot on the heels of its $10m three year pact in Belgium Celerity Computing of San Diego, California has won an agreement for marketing of its NCR 32-based Unix machines in Japan under a $9m contract with Tokyo Electron Ltd: Tokyo Electron, an electronics company with 1985 sales of $1,000m, has been granted exclusive rights to market the Celerity line throughout Japan, and also has rights to sell the machines on to local OEM customers and value added resellers.

- o -

Slightly later than Motorola's claim (UX No 101) National Semiconductor is now claiming that it is the first microprocessor supplier of System V Release 3: Natsemi is making it available on its series 32000 family.

- o -

Oracle UK has won a £120,000 with Laing Homes for the Oracle Relational database management system and Oracle's SQL*Graph and SQL*Forms - 4GL software development tools: Oracle say that the contract was won against competetion from RTI, Software AG, Cincom and DEC - Laing will be using Oracle to develop its sales stock control and estimating systems which will run on clustered DEC VAX 11-785 machines.

Radio Shack, a division of the Tandy Corporation, has signed an agreement to distribute the SCO Professional - a Lotus 1-2-3 lookalike - from the Santa Cruz Operation: Radio Shack will be selling the product to its Tandy 3000 users and other AT-compatible users.

- o -

"Migrating Software to the Unix Environment" will be the first in a series of half-day seminars organised by the /usr/group/UK it will look at mechanisms for migrating existing sottwarefrom PCs, minis and mainframe to Unix systems: the sessions will be held on the 25 November in London and on 2 December in Manchester for more information phone /usr/group/UK on 0727 36003.

- o -

Northern Telecom is another computer manufacturer to see the opportunities in training them young - it will be getting into the education market with the Vienna Advanced Office Computer systems, selling them at a 35% discount.

- o -

Microport Systems of Scotts Valley, California announced at Comdex this week a new driver package for Unix System V Release 3 which will allow it to run 386 PC-AT class machines: the company will begin shipping the 386 AT Interface Package to OEM customers in December - prices for the system including source code start at around $10,000.

- o -

The Wollongong Group has announced has introduced a new WINS interface that provides support for Sun Microsystems' Network File System and uses the TCP/IP protocols as an enhancement to its WINS (Wollongong Integrated Networking Solutions) family for DEC VAX/VMS and MicroVAX/VMS-compatible systems.

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PYRAMID IMPROVES RISC ARCHITECTURE TO EVOLVE 9000 LINE

Pyramid Technology Inc, Mountain View, California yesterday extended its line of reduced instruction set computer Unix minicomputers upwards with the first two models in a new 9000 series. The new machines - called the 9810 and 9820 - feature a new proprietary TTL processor and improved memory management unit that supports up 128Mb of real memory against a previous maximum of 32Mb. The 9810 is described as comparable in raw processor power to the multi-processor 98mx machines, but an improved three-rather than two-stage pipeline, additional cache memory, and an improved arithmetic accelerator are claimed to double effective through- put. The company says that the new architecture supports a theoretical ly unlimited number of processors, although the initial incarnations are a simple single and dual processor configurations. The machines run under the company's existing OSx implementation of Unix, which enables the machine to assume the personality of either Berkeley BSD 4.2 or System V - or for partitions in each variant to run concurrently. Pyra mid claims that in terms of the DEC VAX 8800, the 9820 offers three times better price-performance. In the UK, a 9810 with 16Mb of main memory, 16 RS232 ports, 470Mb Win chester, half inch tape streamer, console, Ethernet controller and OSx licence costs £175,956. The 9820 with 16Mb dual processor CPU, 32 user ports, 470Mb disk and tape streamer is £263,956. First deliv eries are set for first quarter 1987 over here. Existing machines can be field-upgraded by means of a processor swap-out; users can re tain their chassis, memory, front-end processors and peripherals.

BULL SETS NEW DPS 6 MINI MODELS, TAKES PLUNGE INTO COMMERCIAL UNIX WITH 68020

A new implementation of the DPS 6 minicomputer and the first serious plunge into the general purpose Unix systems market have been announced by Bull SA of France. The company is coming with new DPS 6E models of the minicomputer line, no tably the DPS 6/950ES, developed in France and speci fically targeted at office automation. Included is the first Unix machine in Bull's Questar line of commercial microcomputers and terminals. The Questar 700, due to be available in July, is a 32-user mach ine built around the 32-bit Motorola 68020 and runn ing Bull's SPIX V variant of Unix System V. It will be configured with 8Mb memory, 1.2Mb floppy, one to three 70Mb Winchesters, a 60Mb streaming tape drive, and up to five com munications processors. The major announcement also included the latest model in Bull's SPS 7 line of 68000 family scientific and engineering Unix systems, which also run under the SPIX implementation of System V, and slot in be low the SPS 9, based on the Ridge Computers RISC. The upcoming SPS 7/300 model in the Bull SA line of engineering-orient ed Unix machines will be built around multiple 32-bit Mo tor ola 68020s - second sourced by Thomson in France. The SPS 7 was derived from the SM90 system, dev eloped at the CNET French national telecommunications research labora tory. The SPS 7s use an ingenious bus architecture that supports mul tiple 68000 family processors, each with up to 24Kb of local RAM or EPROM memory as well as access to up to 16Mb of common memory. The machine also uses 8080 and 8086 chips to handle the peripherals, and each can have up to 512Kb of local exchange memory.

WANG ALMOST READY WITH UNIX FOR VS LINE

First promised at the beginning of 1983, the implementation of Unix for Wang La boratories' VS line of business computers is now set for launch sometime before year-end. A key reason for the delay is that Wang swap ped horses in mid-stream, and having commissioned Wollongong Group to do the work, changed its mind and decided to give it to the gran'daddy of Unix system implementers, Interactive Systems Corp in Santa Monica, Califor nia. Few details are available yet, but the In/IX implementation will reportedly run under the VS operating system, thus pro viding Unix users with access to the com munications and VS network facilities.

MICROSOFT BUYS UNIX V.3 LICENCE

Microsoft Corp, Redmond, Washington has bought a developer's licence to Unix System V.3 to bring its Xenix V.386 for the 80386 up to V.3 level by mid-1987. Xenix V.286 will also be raised to the V.3 specification.

PRIME "FORMS ENTRY SYSTEMS UNIX GROUP"

Prime Computer Inc has discovered a method to resolve the interrupt problem within Unix that has hitherto required a communications processor to provide effici ent service to a large number of users, according to Computer Systems News. Prime ain't saying anything about its plans at present, but the US weekly reckons that the company's new Entry-Level Systems Business Group is working on a multi-user Unix system that will come in at an extremely cheap $12,000 to $15,000 - but support 60 or more con current users. The Natick, Mas sachusetts company is expected to launch the system, running Unix System V, in the first half of next year. Its only present Unix offering is Primix, an implemen- tation by Human Computing Resources Inc of Toronto, that runs as a task under Primos.

DISAPPOINTING COMPEC '86

If ever proof is needed that the computer industry is in a state of turmoil, Compec 86 supplied it. Outside the data communications arena, precious little new product was on display last week, and the quality and imagination of presentation was way down even on last year's tepid show. Looking down from the balcony into the main body of the Grand Hall, the stands that sprang to notice were not those of the large players - though DEC and Hewlett- Packard had taken as much space as anyone - but those of the small to medium publicly- quoted UK companies such as CPU Computers Plc - sporting its nifty new peripherals logo - Pericom Plc and Case Group Plc. The result was, and no disrespect to CPU and the others, that one felt one was looking at an overflow area for a major show rather than at its epicentre, and it is difficult to believe that many of the exhibitors will be returning next year, especially with marketing budgets becoming tighter. Certainly, on the first morning the show seemed rather empty and it was difficult to single out any stand as the centre of attention, although Epson and Vic- tor Technologies appeared to be busy. With IBM absent, one might have expected Bur- roughs - sorry, Unisys - to make a splash but, des- pite the new name in large bright red let- ters, the company's stand was strangely anony- mous and tucked away in a corner upstairs. One bargain we did spot was the Turbo XT, an IBM XT compatible from Bristol Micro Traders with eight expansion slots costing just #349. Otherwise, there is little to excite and journalists, who normally seem to spend Com- pec trying to avoid the torrent of press confer- ences, were this time looking at each other as if to say "there must be something going on you haven't told me about". Despite the gloom, some are making the effort:

Brook Street Computers announced that it had received ord- ers worth £145,000 for its Motorola Series 8400 32-bit mini, announced at the European Unix User Show held at Olym- pia earlier this year. The South East London based com- pany also chose Compec to show off its recently completed range of Unity Software. Unity comprises sales; purchase and nominal ledgers; fixed assets; invoicing/stock control; and payroll modules. Modules cost between £250 and £500 for single user and £900 and £1,800 for 16 plus users.

Little known Dage Systems of Aylesbury, Bucks was demonstrating a product that uses VME-bus hardware, Uniplus+ operating system encased in a PC-like shell. This Unix16 system designed by a company called Microsys is a 16-bit computer with a 68010 processor.

Jarogate Ltd and Ajwad, both based on the southern fringes of London are showing off 80386-based products at Com- pec 86. Jarogate yesterday demonstrated its eight to 32-user Sprite 386 which its claims is "by far and away the fastest 32-bit 386 machine on the market". The Sprite 386 runs under Digital Research's DOS/XM and under Xenix V. It comes with AT-compatible 360Kb/1.2Mb floppy and a choice of 20, 40, 80 and 150Mb Winches- ter disks. An 80Mb system with 2Mb RAM and integral tape streamer costs £14,995 with a single-user 386 PC, with switchable 16/20MHz processor, 20Mb hard disk, 1Mb RAM and DOS windows at £4,250. So far, Ajwad has only a speed card us- ing the 80386. It fits in AT- compatibles and is claimed to quadruple the speed. Ajwad claims that its 80386 personal computer, to be launched this year "will undoubtedly make us number one in the UK".

Spider Systems was looking forward to another exhibition at Compec, CIMAP in December at the National Exhibition Centre in Birmingham. According to the Department of Trade and Industry CIMAP will be the the world's largest demonstration of manufacturing technology linked using MAP and TOP protocols and Spider will be installing the TOP IEE 802.3 baseband network. Spider did, however, chose Compec to announce that it had developed a TCP/IP module which is compatible with the streams architecture of Unix System V.3. In introducing System V.3 AT&T omitted TCP/IP, one of the most widespread networking protocols. The Edinburgh-based Unix and networking specialist's TCP/IP software supports the V.3 transport level interface as well as a BSD socket interface which allows existing net- working software to continue to operate. Dr Colin Scott, Software Development Manager, said that "the dominant position of TCP/IP in Unix networking means that V.3 must offer TCP/IP to be fully accepted by today's users.

HITACHI TURNS TO INTERACTIVE SYSTEMS FOR ITS MAINFRAME UNIX

Hitachi Ltd has duly announced Unix System V for its IBM-compatible mainframes - running under its implem en-tation of the VM operating system. Instead of re inventing the wheel, it took the shortest route open and went to Interactive Systems Corp of Santa Monica, California, which had done the whole thing once - for IBM. The name, though, is all Hitachi's own - the company calls it HI-UX-M-BS (shouldn't it be -VS?). The implementation adds 16Mb process memory support, automatic start-up and shut-down, and the Berkeley C- shell. Hitachi reckons that it will sell one copy of HI-UX with every 10 mainframes it sells over the next 10 years, but insists that the operating system is not being proposed as a general data processing environ ment: it believes that users should run it alongside the VOS implementation of MVS, and that it should be used only for software development, engineering appli cations and office automation. It costs $620 a month.

APOLLO OFFERS IBM 5080 EMULATION ON ITS DOMAINS

Apollo Computer Inc claims to have the industry's first fully inte grated workstation-to-IBM mainframe graphics link. Called the Domain 5080 Emulator, the product enables users to run workstation-based design and manufacturing applicat ions concurrently with IBM main frame-based applications on the same workstation. The new product includes hardware and software to emulate IBM's 5080 graphics display terminal; no price or delivery was given. In another joint announce ment, Apollo also said that it and Evans and Sutherland Computer Sys tems Corp had a new mechanical com puter-aided engineering program for Apollo's colour graphics stations. Evans and Sutherland's Romulus-D advanced solids modelling package enables engineers to design and document complete assemblies on Ap ollo kit. Apollo also has a memo randum of understanding with Boeing Computer Services for joint market ing of Boeing's new Axxyz integrat ed design and analysis software.

CD UNVEILS CAD/CAM CYBER WORKSTATION

Control Data Corp yesterday took the plunge into Unix with introduction of the Cyber 910-300 CAD/CAM integ rated graphics workstation. Designed for use with the CDC ICEM Integrated Computer-aided Engineering and Manufacturing system, the 910-300 includes large local memory, high-speed interactive real time graph ics, distributed processing, Ethernet communications and and VME bus. It integrates applications process or, graphics processor, communicat ions and peripheral support and op erating software in a single unit. The dedicated graphics processors handle transformation and geometry acceleration, operating in parallel to do more than 110,000 transforma tions per second for three-dimensi onal objects, more than 130,000 transformations per second for two- dimensional objects. Available now with Patran II graphics software, the station starts at some $40,000 range. ICEM software is set for mid-1987 at $49,000 with station.

NEC PURSUES APOLLO, SUN WITH DUAL 68020 WORKSTATION

NEC Information Systems, Boxboro, Massachusetts has made little impact in the US with its Astra System 36-type - but not compatible - business computers, and its personal computers have hardly set the market alight. Nevertheless, with characteristic Japanese persistence, the company is trying again, this time taking on the market leaders in the engineering workstation market, Apollo Computer and Sun Microsystems.

Cheap

Its first of fering is notable for the fact that nearly everything seems to be bigger than in the offerings of its target competitors - 20" colour screen where most companies offer 19", two 68020s rather than one, albeit ones clocked at the conservative 16MHz - except the price, which is deliber ately pitched about 10% lower than the cheapest comparable offering from the competition. NEC has jumped in with an IBM 5080 graphics terminal compatibility option from Day One - Apollo claimed to be the first to offer this feature when it announced it last week following its invest ment last year in 5080-compatible specialist Spectragraphics - initially by way of a separate adaptor from CGX Corp of Acton, Massa chusetts. NEC has signed an agreement with CGX under which it will im plement a plug-in 5080-compatible board set for next summer. The NEC EWS-E workstation has 4Mb 68020 CPU, 68881 floating point co-processor, second 68020 to do window management, VME bus and support for full moti on video as well as 5080 emulation. With 20" 1,280 by 1,024 colour screen, 72Mb Winchester, Unix System V.2, Ethernet interface, TCP/IP and Sun Net-work File System communications, it costs $32,200. Main memory can be expanded to 32Mb. In the middle of next year, NEC plans to flesh out the range with a low-end work-station and a file server.

Aggressive

The Japanese company told Computer Syst ems News that it was aiming for large companies - "like Wang Labor atories", which makes it sound as if there is a deal in the offing there - and value-added resellers, and will offer "very aggressive" reseller discounts, with favoured customers be-ing ones prepared to commit to purchases of at least $5m a year. By that means, it aims to become number three to IBM and DEC in workstations in the US by 1990.

DEC OFFERS VAX DEC/MAP
TO INTEGRATE MANUFACTURING SUPPORT

DEC has announced an integrated set of networking products based on its own DNA/MAP Digital Networking Architecture Manufacturing Automation Protocol, which conforms to version 2.1 of the Open Systems Interconnec reference model. Called VAX DEC/MAP, the product consists of a suite of four applications layer interfaces and network utilities, a communicat ions controller and cables. The four applications interfaces cover File Transfer and Management, Common Application Service Elements, Manufact uring Messaging Format Standard and an interface at the transport layer of the Open Systems model. When linked to a MAP Token Interface Module, manufactured by Concord Communications Inc and available in the UK from Dacom Systems, the software provides a physical connection between the VAX-11 and VAX 8000 series and a multivendor MAP network. Network man agement features the MAP Control Program and Directory Services/Chart Services Agent, so that other vendors' kit in the MAP network can be monitored. The VAX DEC/MAP can run in parallel on VAX systems using the same broadband cable as a standard DECnet, so that the system can be run in parallel with existing DECnet applications without the need for them or the network to be altered. The product, aimed at the automot ive, aerospace, heavy equipment, food processing and chemicals in dustries, is being announced worldwide and costs £12,500 to £17,000, from the end of the year.

BACK TO BASICS: FLOATING
POINT DOWNPLAYS T-SERIES

After the excitement of that major order for its CLUT Colour Look-Up Table chips comes a cold douche for Thorn EMI's Inmos International with news that Float ing Point Systems, under its new management, is returning to basics and cutting back on development of the revolutionary Transputer-based T-series of parallel processors. Floating Point has decided that it will have to cut back on hardware and software development on the T- series, and at this stage in the game offer it only to research shops and colleges, instead of try ing to win sales for it in live, commercial applications. The comp any will be stressing its original product, the line of 38-bit array processors, but faces a tough time even here, because most of those are attached to either IBM or DEC machines, and IBM now has its own solution to the problem on its large mainframes, and an offering from DEC is also expected. The company also faces competition from the host of thrusting young compan ies like Convex Computer, offering mini-Crays, and although it is con sidering bringing in a stand-alone 64-bit machine, it is not yet con vinced that the market will last.

NATIONAL SEMICONDUCTOR READY WITH 20MHz
32332; SAMPLES 32382 MEMORY MANAGER

Still gamely chasing after Motorola with its 68020, National Semiconductor has souped up its second-generation 32-bit NS32332 micro processor with a 20MHz clock, boosting per formance some 33% over the 16MHz version al ready available. The company is pitching the new version of the part primarily at the real-time processing market, and is hoping that it will strengthen the success it is beginning to achieve in the laser printer market, where several manufacturers are look ing at a switch from the MC68000 to the NS32000 as the basis of the processors that come integrated into the printers. Other applications where NatSemi is looking for design wins with the fast version of the NS32332 include factory automation and robot ics and aerospace and military applications. The key benefit claimed for the part is the instruction set, which NatSemi claims is better optimised than most for developing the compact code required for embedded ROM-based applications. The company also claims the part has read-write access time advantages that mean that designers can get away with continuing to use comparatively slow and cheap memory chips even when they switch to the fast version of the chip. NatSemi is also sampling a key companion part for the NS32332 - the NS32382 second generation memory management unit. Compared with the original NS32082 part, the data path is expanded to 32 bits for faster page table access and there are new dedicated physical address lines. The new part also features full 32- bit addressing for 4Gb virtual address range compared with 16Mb for the 32082. Page size is increased to 4Kb from 512 bytes, and an associative translation buffer allows on-the-fly address trans lation. The initial version is clocked at 15MHz.

BOLT BERANEK PLANS PACKET
SWITCH PLANT IN SCOTLAND

BBN Communications, the data commu nications equipment arm of Bolt Beranek & Newman Inc of Cambridge, Massachusetts, is coming to the UK in a big way with a factory in Liv ingston, Scotland. The new 25,000 square foot factory is due to open for business in July next year, and will manufacture the packet switch es and related products required for building private wide-area X25 networks, turning up the heat on companies like Sesa SA of France, and Telematics International Inc. Output is to be marketed throughout the European Economic Community. The plant, which represents an investment of £1m, will initially employ 30 to 50 people, and is the company's first manufacturing plant outside its home town of Cambridge.

DULL NINE MONTH STATEMENT FROM ERICSSON

L M Ericsson released a rather incomplete set of figures for the nine months to September 30 yester- day, showing net earnings per share down 49% at 63 cents on sales for the period up 1% at the equival- ent of $3,144m. At the pre-tax level, profits fell 27% to $53.2m; orders booked during the first nine months of 1986 were a disappointing 2.3% down at $3,269m. More hopefully, the company says that operating results, after depreciation, improved significantly during the third quarter of 1986, but noted that continuing high development costs for Ericsson's products in the US are now fully charged against Ericsson's consolidated results, following its purchase of Atlantic Richfield's 50% in their US joint venture. As a result of this, plus higher net financial expenses due to an increase in inven- tories in Mexico, meant that the company only managed to reduce the loss for the quarter to $13.5m from $19.7m in the same period of 1985.

DATA GENERAL MAY HAVE TO WRITE DOWN HOLDING IN BANKRUPT DAMA

Dama Telecommunications Corp, Rockville, Maryland has filed for Chapter XI bankruptcy protection - and Data General Corp says it may have to write down its investment in the company - $5.4m for an 11.5% stake, plus $20m in loans and guarantee of another $4m of loans made to the company. Data General made the investment in the digital fibre optic, satellite and microwave data and speech communications services company last January and details of its plans began to emerge in August. Data General says it still likes Dama's technology, adding hopefully that the reorganisation will strengthen Dama financially.

NEW ISSUES

Alliant Computer Systems Corp, building 64-bit mul- tiprocessors in Acton, Massachusetts, is planning to go public with an initial offering of 1.5m shares: 1.2m of the shares will be sold in the US through Morgan Stanley & Co; the balance will be sold overseas by Morgan Stanley International.

Sun Microsystems Inc has filed to issue another 4m shares to add to the 27.2m it already has outstand- ing, and says it wants the cash - an indicated $75m or so after expenses at the current $19 price - for working capital and to broaden its capital base. The company went public in March at $16.

LOGITEK COMES TO THE HEAD OF THE NEW ISSUES QUEUE: SETS FLOAT FOR NEXT MONTH

The first week in December should see the flotation of Manchester-based micro distributor Logitek Plc which will come to the Stock Market armed with forecasts for a full 50% rise in pre-tax profits for the current year - to March 31 1987 - to £1.05m. Logitek distributes mainly US-made kit to UK dealers, some to OEM customers (Wyse terminals to British Olivetti), and some directly to corpor- ate users. The main product lines come from Altos, for multi-user micros; 3-Com, for networking on Ethernet; Wyse, for display ter- minals; and Genicom, for printer products. With a flotation orchestrat- ed by brokers Henry Cooke Lumsden and mer- chant bankers Barclays de Zoete Wedd, Logitek hopes to raise a total of £2.8m, of which £900,000 will go straight into working capital, the rest going to previous stakeholders. Managing director Jim Pick- up says the money will leave Logitek with a clear balance sheet and will allow the company to win a number of large accounts. "Many large custo- mers prefer to buy from a public company," he said, "and we hope to be able to pick some of these up now." Pickup says what distinguishes his business from the other distribu- tors is its product range, but more importantly, its attention to technical ser- vices, and describes a growing and impor- tant range of back-up for customers including field mainten- ance, training, technical advisory services, in- stallation and quality assurance. He says that although he does not deal with the low-end, high volume Personals he carries some anyway from Wyse: "We only use them as terminals on a network, how- ever, we do see the strategic importance of handl- ing Personals because they are the most common form of computer equipment sold." Logitek turned in pre- tax profits of £700,000 on turnover of £7.3m last year, up from £502,000 on £5.6m for fiscal 1985, and the company is confidently forecasting that pre-tax for the current year will top £1.05m.

COMPANY RESULTS

Ultimate Corp has reported second quarter net profits down 10.3% at $3.0m on turnover up 25.5% at $42.9m; mid-term net fell 10.2% to $5.3m on turnover up 31.5% at $79.6m. Net per share fell 22% to $0.31 in the quarter, 19% to $0.56 in the half.

Concurrent Computer Corp has reported first quarter net profits down 53.6% at $1.1m on turnover down 14.2% to $54.2m. Net per share fell 60% to $0.10.

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Olivetti claims that it has added 12 new value added resellers in the last three months and adds that this brings the total number of VARs for the 3B range to 79: the new additions include **Millstream Systems** of Godalming, Surrey; **Sympac** of Shifna, Shropshire; **Amtek Computer Systems** of West Bromwich.

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Multisoft and **Altos** are entering a joint marketing campaign which will cost the two companies £30,000 over the next year and will promote Multisoft software packages running on Altos machines: Multisoft is also celebrating the fact that it now has 700 sites running its Unix-based accountancy software, the majority on Altos machines.

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Stratus Computer , the transacation processing minimaker, has added **Minx Software** to its Stratus Applications Resource programme to supply Unix-based manufacturing and financial control packages on the Stratus Continuous Processing machines.

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One objection to the growing demand for standards comes from the recently appointed **Alpha Micro** president of sales and marketing, Thomas Anthony , who came from Altos: Anthony is concerned that price will be the only form of competition with the adoption, say, of Unix as the de facto standard which will then lead to poor product support and then dissatisfied customers.

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Specialized Systems Consultants of Seattle Washington has announced a binary version of its package, devps, that allows Unix users to use troff to communicate with printers that run PostScript from **Adobe Systems** such as the Apple LaserWriter and QMS printers: the new version will be available for **AT&T 3B2s, IBM PC/ATs** running Microport V/AT, Sun workstations, Hewlett Packard 9000s and Plexus machines for a price of $295.

Minigrams

The Wollongong Group has now added a new software option to its WINS family which allows connection between VAX/MicroVax systems and Proteon Inc's local area network, ProNET, via Wollongong's version of TCP/IP protocols: the ProNET software is available now from Palo Alto, California-based Wollongong at a cost of $1,000 for WIN/uVX and $2,500 for WIN/VX.

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Little cheer from the **US Semiconductor Industry Association** , which reports that the book-to-bill ratio for the three months to October improved, but only to 0.98, still below the magic 1.0 mark, from 0.93 in the three months to September.

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Encore Computer Corp is still a very long way from fulfilling the high hopes with which it was founded as a company of all the talents, but there are signs of improvement: the Marlboro, Massachusetts company says that the loss for the quarter to the end of October is likely to be $2m, down from $7.9m last time - but on sales of only $2.7m or so.

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Commodore International Ltd has appointed Clive Smith general manager of the new Commodore product and market development group, formed to assume responsibility for product management, third party developer support and market analysis: the new group will centralise functions previously carried out largely within the marketing companies, the idea being to get a better handle on world markets for the company's three disparate product lines; the Z-Machine Z8000-based Unix box, only ever announced in Europe, appears to have vanished from the catalogue, which now consists of the 6502- based 64-type boxes, the IBM Personalikes - and the Amiga.

Pyramid Technology Inc , Mountain View, California has a new chairman, president and chief executive, replacing David Crockett: he is Richard Lussier , who had been chief execut- ive of Verticon since 1984 and before that was executive vice- president of Masstor Systems.

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In a timely move, following the announcement that the OS- 9/68000 operating system has been chosen for the educational computer being developed jointly by **Olivetti, Thomson** and **Acorn ,The Soft Shop** , of Luton, Bedfordshire has announced a version of 8- bit OS-9 specially written for the Tandy Color Computer 3: the new version adds windows, menu graphics and dialogue boxes, and is available from Tandy for 128Kb and 512Kb versions of the Color Computer 3.

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While **Tandem Computers** is moving to extend its fault-tolerant offerings downwards, **Stratus Computer Inc** , Marlboro, Massachusetts, is prepar- ing a new top-end machine, presuma- bly to use 32-bit Motorola 68020s.

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Unisys Corp - Burroughs and Sperry for those who missed the announcement - is spending $16m in just six weeks to get its name established and recognised worldwide: Young & Rubicam Inc handles the business.

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Does he know something the rest of us don't? Omaha, Nebraska investor Warren Buffet, who had been sitting on 10% of Burroughs - now Unisys - in the form of convertibles, has now reduced his stake to just 3.1%.

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With millions glued to their TV sets in two major markets, the UK and Australia, as the First Test runs its dramatic course at the Gabba in Brizzie isn't **Unisys Corp** rather wasting that $16m or so it is spending over the next five weeks to get its new name established when the cricket scorecards routinely come up on the screen with the Burroughs name?

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AT&T ANNOUNCES 1 MICRON CMOS WE32200 THREE-CHIP SET

AT&T Co yesterday made it clear that it doesn't intend to be written off in the merchant semiconductor business by announcing the third iteration of its WE32000 32-bit microprocessor family. The company says that the new WE32200 is built in CMOS to challenging 1 micron design rules, and that the central processing unit and the mathematics co-processor each pack more than 400,000 transistors. Compared with the 32100, the 32200 CPU adds 32 32-bit registers to support high level language execution, such as Unix, speeding operation of the functions most frequently used by process-oriented languages. It has a new on-chip instruction cache claimed to achieve a hit rate in excess of 98%. It also adds a block fetch capability, and the initial version will be clocked at 24MHz, although AT&T hopes to drive it at 30MHz shortly. The WE32100 is available in 18MHz, 14MHz and 10MHz versions. The WE32206 mathematics co-processor adds trignometical functions - sine and cosine - to the 32106. The third part in the set is a combined memory management unit and cache memory, and several can be ganged together to increase data cache size and improve hit rate. The data cache is 4Kb and has a hit rate of 85%, which improves to over 90% when four are used together to create a 16Kb cache. The memory management unit also adds a new arbitrary byte alignment feature and new dynamic bus sizing, as well as a new addressing mode for array accesses. AT&T claims that processors built around the set will offer "twice the speed" of any current competing microprocessor, and that it will outperform the DEC VAX-11/780 20-fold; specific figures it offers are "5 to 8 MIPS" and 3.0m to 3.5m Whetstones per second. Samples are due in the second quarter of 1987, with volume "later in the year". The 100-up prices are $500 for the CPU, $550 for the cache+memory management unit, and $425 for the maths co-processor.

CASH CRISIS HITS FLEXIBLE

Flexible Computer Corp, the Dallas, Texas company manufacturing the high-performance OEM Flex/32 Unix processors, mainly around NS32000 chips and offering mix-and-match building block board options - has run into a nasty cash crisis, after saying earlier this year (UX No 66) that it was pleased with with the revenues that the Flex/32 was bringing after a year of sales. The company says that it is in default on some loan covenants, and has recognised some revenue too early so that it will have to restate its 1985 and 1986 figures downwards. It says it needs additional finance to meet a severe working capital shortage - and is by no means certain it will be able to find it.

REXON OFFERS 80386 BOX WITH SUPPORT FOR 128 USERS

Although the majority of companies building machines around the 32-bit Intel 80386 are pitching for the CPU-per-desktop market, there is no particular reason why the chip should be used primarily in configurations where there is at present no software that can exploit a fraction of its capability, and one company that recognises the fact is Rexon Business Machines Inc, Culver City, California. Rexon, now under entirely new management from San Francisco venture capital outfit Hambrecht & Quist under Q T Wiles as chairman, has introduced an 80386 machine that is designed to support up to 128 users. The top-end Summit model is actually dripping with chips, because each cluster of eight users is supported by its own 80286-based front-end processor, while the menial disk input-output work is seconded to a Motorola 68010. The machine is also a depot of industry-standard buses, with the main highway being a 12-slot 32-bit VME bus, while another 80286 ties the system to a 12-slot 16-bit AT-compatible bus. The machine includes 200Mb disk storage, and 60Mb or 120Mb streaming tape drive from sister company Wangtek. Operating systems offered are Rexon's Recap Business Basic-compatible environment, Xenix System V or Pick. The company has not yet priced the system, which is due to ship in the first quarter 1987. The company is also taking its boxes into turnkey systems, the first offering being for the automobile parts and wholesaler market.

SEQUOIA PLANS PICK SUPPORT
UNDER ITS FAULT-TOLERANT UNIX

Sequioa Systems Inc, making fault-tolerant Unix multiprocessors in Marlboro, Massachusetts has given newly-formed Pick Systems spin-out Concurrent Operating Systems Technology its first commission. It has asked the Newport Beach, California start-up to do an implementation of the Pick operating system to run under its highly modified fault-tolerant Topix Unixalike on its tightly-coupled FT100 multiprocessor machines. The FT100 is a high-throughput machine designed to support 100 to 200 users. The fault-tolerant capability will not extend to the Pick, and Sequoia insists that it will be quite different from the Universe Pick under Unix implementation developed by VMark in Natick, Massachusetts in that Universe is an emulation written in C, where its own version will be native Pick, but system calls to the Pick Monitor will be intercepted by the Unix kernel. Sequoia believes that this will result in more efficient execution of Pick applications. It will also be based on the Open Architecture release of Pick, and is due to be available for beta test in first quarter and to users in second quarter 1987.

DEC MOVES TO AVOID CROSS-CHANNEL
CONFLICT WITH RESELLERS

Digital Equipment Corp is notorious for upsetting its resellers, but the Maynard minimaker is making a big effort to minimise conflict in the US by setting clear demarcation lines. According to Computer Systems News the company will identify by name all the large corporate accounts that it wants to address with its direct sales force, which will be asked to steer clear of others: if a potential customer is not on the DEC list, resellers of DEC equipment may regard it as fair game. DEC's chosen direct accounts will primarily be in aerospace, banking and insurance, energy, telecommunications, health care, mechanical and electrical design, and manufacturing. The company says that while just 30% of its direct sales force is currently engaged on seeking business from such large accounts, the proportion will swing to 70% by June 1987. The company has also met such a stream of protest over its decision to ban the transfer of software licences to new users of second-hand equipment that it has delayed implementation of the switch, due to take effect on January 1, until March 1, to give customers "more time to analyse the effect on their organisations". The company has been persuaded to drop its other controversial measure, that would have required users to pay anew for software when moving from one class of VAX to a higher one.

IBM OFFERS HIGH-END COLOUR
PLOTTER FOR RT WITH 5080

IBM has unveiled a high-end multi-pen colour plotter in the US, designed for use with the CADAM computer-aided design software on the Personal RT with the 5080 graphics display subsystem. The 6184 plotter costs $5,400 plus a minimum $180 a year for maintenance on it.

ON-CHIP FP UNIT MAKES INMOS T800
"FASTEST" MICROPROCESSOR

Taking co-founder Iann Barron's dream of creating a full-function, high-performance 32-bit computer on a single chip a couple of leaps further forward, Inmos International has added a floating point processor and enhanced graphics support to the T414 Transputer to create the T800, and claims that its new Transputer is "the world's fastest microprocessor". Pin-for-pin compatible with the original 32-bit T414, the T800 adds a full 64-bit floating point processor to the 32-bit arithmetic logic unit, adds three additional instructions to speed graphics applications, and upgrades each of the four input-output links - which can be used to link to four other Transputers - to 20Mbits per second for a combined aggregate data rate of 9.2Mbytes per second - 2.3Mbytes per second per link; unidirectional burst data rate is 1.7Mbytes per second per link. The T800 has the same 4Kbytes of fast static RAM on board as the T414, and the part supports a linear address space of 4Gbytes (the Transputer is not a virtual device). Off-chip memory is treated as an extension of on-chip memory; the latter is not a large cache but the first 4Kb of main memory. The initial version of the part is clocked at a racey 20MHz, but a 30MHz version is planned for late 1987. Inmos justifies its claim that the T800 is the fastest microprocessor around with benchmarks which suggest that the 20MHz version executes 4M Whetstones per second against 2.22M for the 33MHz Fairchild Clipper, 1M for the AT&T 32100, 755K for the 16MHz 68020 with 12MHz 68881, 728K for the 15MHz NS32332 with 32081, 663K for the Inmos T414 at 20MHz, and 300K for the Intel 80286 with 80287 at 8MHz. The additional graphics instructions increase the speed of operation of block transfers of two dimensional arrays of bytes by adding support for contiguous block moves. The Thorn EMI subsidiary rates the T414 at 1.5Mflops in single precision, 1.1M-flops double precision. The 30MHz version should achieve 2.25Mflops single precision. The part, fabricated in 1.5 micro CMOS, dissipates under 1W at sustained peak performance, will come in an 84-pin grid array and is set for sampling in the second quarter of next year at $500 - £348.21 - for 100-up. A 17MHz version will be $410 - £290.18, and a version of the latter operating in the MilSpec temperature range is also planned.

BLEASDALE GOING SOLO WITH LATE 68020 ARRIVAL

Bleasdale Computer Systems finally announced its 68020 machine last week incorporating its first home-developed CPU. The company's former CPU board supplier, Cambridge-based Tadpole Technology, now only supplies the memory management unit. Bleasdale says that its reasons for going alone include manufacturing/quality control and reduced purchase costs. The Lutterworth, Leicestershire-based company is claiming price reductions of a third as a result. Tadpole founder, George Gray, meanwhile suggested that Bleasdale was retaining 68010 architecture for compatibility and this meant Tadpole's 68020 system design that uses the Motorola paged memory management unit for performance was unsuitable. The Bleasdale Tadpole tie-up happened earlier this year when Tadpole signed an agreement with British Telecom Fulcrum at the European Unix User Show (UX No 80). BT Fulcrum signed to integrate the Tadpole's board level products into a Bleasdale-developed Unix box. The agreements between both Tadpole and BT Fulcrum and Bleasdale and BT Fulcrum still stand but BT's manufacturing for Bleasdale now involves shipping "empty caracasses", said John Sharplin, BT Fulcrum Marketing Manager. The new Bleasdale range uses the same names as previous Bleasdale offerings: at the low- end the Centurion; then the Sentinel; and the top-of-the-range Senator. The Centurion, which is also available as a desktop version, has: upto 18 serial ports; 54Mb or 84Mb hard disk; 1Mb to 5Mb RAM; and an optional 0.25" 60Mb cartridge tape.

The Sentinel has: up to 34 serial ports; a choice of 84Mb, 168Mb or 510Mb hard disks; 5Mb RAM expandable to 16Mb; and again a 0.25" 60Mb cartridge tape. The Senator comes with up to 34 serial ports; 84Mb, 168Mb or 510Mb hard disks; 0.25" 60Mb cartridge tape; and an optional 0.5" 1600 BPI tape drive. Each of the systems have a Motorola 68020 processor, 5.25" 1Mb floppy disk drive and Unix System V.0 as standard. Bleasdale says that it is staying with V.0 for the time being because it had put a lot of work into getting it to work efficiently. A 4 to 6 user Centurion is available at around £10,000, a 16 user Sentinel for about £15, 500 and a 16-user Senator for £22,500. Although Bleasdale is aware that it is late in entering the increasingly popular 68020 Unix market it is confident that its reputation for support will maintain its existing customer-base and attract others. Chairman of Bleasdale, Eddie Bleasdale, said concerning the problems of a price war leading to bad support and dissatisfied customers that users must "appreciate the fact that support costs are not included in hardware costs". Tadpole meanwhile has decided that its best approach to maintaining its customers and interesting more is to offer the highest performance it can It has completed its 68020 implementation using the PMMU for Multibus and VME and is now nearing completion on Multibus II. It has shipped pre-production volumes of its 68020 products to its OEMs, BT Fulcrum and Plessey Microsystems. BT Fulcrum is using the Tadpole CPU card in its M6000, the main BT Unix box and says that it is selling over forecast and has shipped around 100 units over the past four months. The entry-level system is £9,000 and the price goes up to £30,000. the M6000 is being sold into general office automation environments and telecom vertical market applications. BT Fulcrum says that it is very pleased with the Tadpole cards and will be using them in efforts to produce a system of increased power, capacity and connectivity.

MOTOROLA TO OFFER MULTIPLEX AND LINK WITH IBM PCs

Network Innovations Corp. last week announced a multi-year OEM agreement with Motorola Computer Systems. Two-year-old Network Innovations will provide Motorola with an intelligent link between IBM Personal Computer applications and Unix-based relational database management systems for Motorola's latest line. The contract is valued at $500,000 and the agreement allows Motorola to market Network Innovations' Multiplex networking software. Motorola will offer Multiplex for its line of UNIX-based systems including the recently announced System 8000 and VISION/32 departmental supermicro-computers based on Motorola's 68020 processor. Multiplex connects personal computers and PC applications, such as Lotus 1-2- 3, dBASE and WordStar to query-based DBMS programs in larger computer systems and it will link PCs to databases, including Oracle, Informix-SQL and Unify, on the Motorola systems. Under Multiplex's Lotus-like interface, the user does not need to know which database is being accessed. Multiplex supports direct data exchange between PC and host applications, while eliminating the need for the PC user to learn host operating system commands, database query languages, or differences in file format types. PCs can now be connected to the Motorola systems by ordinary RS232C links, with local area network capabilities planned for the near future. Network Innovations, of Cupertino, California, claims that this permits low-cost connections at speeds up to 19.2 Kb per second.

IT MAY NOT BE WHAT YOU WANT BUT WE CAN
PROVE IT IS WHAT YOU ARE GOING TO GET

In this Green and Pleasant Land we may not be able to design a microprocessor that everyone wants to use, but we are the only people who can prove that our chips will do as they are told. The new breed of chip designers don't use the traditional English method to obtain obedience: leather-clad ladies weilding whips to instill discipline in unruly slave processors. Their only "rigour" is in the design and verification used to root out any deviation, and the tools they use for "correction" are formal methods and mathematical proofs. The Royal Signals and Radar Establishment (RSRE) produced "the world's first formally specified and verified microprocessor" earlier this year: the 32- bit Viper (Verifiable Integrated Processor for Enhanced Reliability). The RSRE's High Integrity Computing Group at Malvern has developed a set of tools to first describe and verify the logic of the processor, then translate these abstract logic functions into hardware, right down to gate level and mask design. Each level of description is proved to correspond exactly to the one above, so the eventual hardware design is an exact implementation of the initial, formally verified, abstract design. This approach is necessary for applications where reliability is paramount - where a malfunction may cause death or disaster such as controlling a plane or nuclear power plant. Commercial microprocessors are now so complex that it is impossible to exhausivly test them - there are too many logic paths through the chip. Also, when many microprocessors go into overflow an instantaneous change of sign, from a very large positive number to a very large negative number, occurs, with no warning error signal. This could cause a plane to dive instead of climb, or a valve to open instead of shut in a reactor. Viper not only detects such errors and stops, but has well-defined ways to recover and either restart the program or pass control to another chip. The starting point for the design was a high-level logical description of the processor in LCF-LSM (Logic of Computable Functions - Sequential Logic Machines), a set of mathematical techniques developed at the Computing Labotatory at Cambridge University and extended at RSRE. The architecture, although simple, includes an arithmetic logic unit, an accumulator, two index registers, a program counter and 16 basic hardwired instructions. LCF-LSM is used to write a behavioural description of the processor, first at the block level of alu and registers, then down to the gate level. The design is then verified using a first-order predicate calculus: this demonstrates that the low- level gate descriptions correspond exactly to the higher level specifications. At each level the theoretical design is simulated and emulated using a microcoded bit-slice emulation machine called Gemini and simulation software written in Algol 68.

To turn it into a practical hardware design, the specification is mapped into the hardware description language Ella. At each level of complexity, the practical Ella implementation of the theroetical LCF-LSM design is also simulated and emulated, and hopefully the simulations and emulations are the same. Ella allows formal methods to be used to transform the high-level block designs down to the low-level gate designs, with each step verified, the gate designs are then replaced by their equivalents from a manufacturers cell library and existing tools used to lay out and verify the design on silicon. Ferranti plans to offer a commercial version of the 32-bit part implemented on a 5,000 gate array using 1,5 micron double-layer metal Ferranti Advanced Bipolar Processm and rated at 0,8 mips at 10 MHz. GEC Marconi have produced a CMOS version of the Viper and are developing a radiation-hardened silicon-on-sapphire version. RSRE are also developing an ultra-reliable, real-time language called NewSpeak with a formal mathematical basis to program the Viper chips. NewSpeak is not only strongly data typed, but the concept has been extended to include dimensional analysis. The first versions will come with an assembly language called Vista and a software checking program called Malpas. This includes a military-style security feature: each lineof code must be signed by the programmer with his name and identification code, together with an explanation of what it does and why. These fully documented, safety-first chips are going to be very expensive, and will, even according to the designers, be useful in less than one per cent of microprocessor applications. But RSRE still there will be a niche for them in the commercial market. Down in Bath, Praxis Systems is working with RSRE to develop and market Ella worldwide. RSRE spent seven years developing the chip design system, which extends the concepts of software engineering and rigorous formal proof and verification to hardware design. It includes a language to express the design, a simulator to verify it and a management system to control it. Praxis, which uses software engineering techniques and formal methods with a crusading zeal, has a large project team extending, developing and maintaining Ella as a commercial product. It currently runs in a Vax/VMS environment, but it is being moved to Sun and Apollo Unix machines, it is already used by all major UK electronics companies and the University Grants Committee has bought the rights to provide Ella to all UK universities and polytechnics. And US companies are showing an interest... Customers report getting designs implemented in silicon in record time, with no mistakes. These are still early days, but if things continue in this way, horror stories such as the early bug-ridden versions of the Intel 80286 may be a thing of the past.

UNIRAS DEVELOPS INTERFACE LAYER FOR LITTLE-KNOWN BUT WIDELY-USED RASTER-BASED SOFTWARE

The need to protect graphics applications from the variety of standards has driven graphics software developers to implement an insulating layer. The Copenhagen-based company, best known since its product sprung into the light on the IBM RT at the RT's launch, has inserted this interface between applications and the graphics the current standard of GKS, Graphics Kernel System, or Uniras' own Raspak. This interface can, however, be "easily adapted for PHIGS or any other new system" says Allan Davies, Managing Director of Uniras UK. The company has three development packages UniGraph, UniMap and UniEdit and are used to develop applications by customers including BP, Shell, ICI, Schlumberger, UMIST and Cranfield. Uniras claims that its particular strength is in scientific graphic applications because its software is based upon raster technology as opposed to vector technology - building up charts, diagrams or graphs from coloured pixels instead of lines. The common objection to raster technology is that rotation and scaling is impossible and as this is something that engineers must do raster technology is unsuitable. Uniras admit that this may be true if an engineer is content with simple line drawings or 'wire frames' but if he wants to work on something that actually looks like the real thing, a solid shaded object, raster technology is the only option. Davies claims that doing this with raster technology is not as complex and is effectively impossible using vectors and adds that it is still expensive but as memory prices drop and processors become more powerful rasters will be the only way forward. The other criticism of raster technology is that while it may be posiible to produce a pretty picture on the screen when made into a hardcopy the individual pixels can still be seen. Uniras clims, however, that using its software and appropriate printers such as ink-jet printers from Applicon, Benson and Tektronix or electrostatic printers such as Versatec's pictures of photographic quality can be produced. The pictures we saw on our TV screens of Halley's Comet and the Chernobyl disaster were produced using Uniras. According to the company when the products were first developed, six years ago, they did not sell because the hardware generally available was not sufficiently advanced to handle it. Uniras' software will run under: Unix and its derivatives; MVS/VM; VMS; and DOS; and on hardware from most manufacturers including IBM, DEC, Hewlett- Packard, Apollo, Norsk Data, Sun Microsystems, Cray, Control Data, Unisys. The company cliams that about 20 Cray sites, most of the installed base, use Uniras software and that the software is also being used on the Cray machine currently under development. The company has a turnover of $10m and employs around 100 staff in Copenhagen, Dusseldorf, Paris, London, Dallas, Boston, Chicago and Los Angeles.

MICOM SYSTEMS HAS TCP/IP-BASED FOR NTS FAMILY UPGRADES

Micom Systems' Micom Interlan Inc subsidiary of Simi Valley, California has expanded its family of Ethernet networking products with three additions to its NTS family of Network Terminal Servers. The products are also available from the company's UK subsidiary Micom-Borer, based in Reading. The new products support the Transmission Control Protocol/ Internet Protocol (TCP/IP) networking protocol, which runs over Ethernet, and is used in the current Unix communication facilities NFS and RFS. The NTS100 is a new version of the company's NTS10 Network Terminal Server. It enables eight asynchronous devices to share a single Ethernet connection; a user at a ter- minal can, for example, log on to multiple host computers, run multiple applications and perform electronic-mail functions simultaneously. A companion product, the INTS32/MicroVMS, is a plug-in controller for DEC's MicroVAX enabling up to 32 terminal devices to share a single Ethernet connection and communicate with devices attached to NTS100s. A specialised version of the NTS100, called the NTS470, provides two-way file transfer between an Ethernet network and any Micom data PABX, called Instanet6000, Instanet6600 and Micro600. The NTS100 can also be set up to support Xerox's XNS/ITP protocols in place of TCP/IP. The INTS32/MicroVMS is fully compatible with the NTS100 and NTS10; any user whose terminal is attached to a terminal server can communicate over the Ethernet network and access a MicroVAX/MicroVMS host. It streamlines MicroVAX port-sharing by multiplexing up to 32 asynchronous devices onto an Ethernet and provides all the functions of the NTS100 in a plug-in controller. Because it provides a direct connection between DEC's MicroVAX and Ethernet means reduced costs with wiring reduced and the need for separate asynchronous controllers is eliminated. The NTS470 is a specialised version of the NTS100, which multiplexes eight asynchronous lines between a Micom data PABX and a local area network. With the NTS470, NTS100 users on the network can access data PABX resources, and the reverse is true for users on a Micom data PABX network. This data PABX gateway supports all the features offered by the NTS100. For data PABX users, this means compatibility with TCP/IP and its remote log-in network, called Telenet. The NTS100 with XNS protocol is $2,750 and is available now. The NTS100 with XNS and Featurepak software is $2,900 and is also available now. The NTS100 with TCP/IP protocol and Featurepak is $2,900 and will be available next February. The INTS32/MicroVMS is $3,000 and is available now. The NTS470 with XNS protocol is $3,000 and will be available in January. The NTS470 with TCP/IP protocol is $3,150 and will be available in February.

unigram·X

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

Counterpoint Computers Inc is wasting no time at all in lining up international marketing for its multiprocessor 68020- based System 19K Unix computers and has now signed a French distributor, **Intersys Computer SA** of Paris, to an exclusive three-year agreement.

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One company that **isn't rushing out its 80386 box is Televideo Systems Inc** the company is an investor in **Digital Research** spinout Microport and is await- ing Microport's MS-DOS under Unix System V operating system for the 80386 before launching.

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Cantec AG , formed in Zurich in 1983 specifically to market **Convergent Technologies** kit, has landed a $2m contract from the **Schweizerische LebensVesicherung und Rentenanstalt** life insurance and pensions firm, for 22 S/1280 Unix-based Workgroup Servers and other kit to equip all its offices around Switzerland.

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Ask Computer Systems of Los Altos, California has decided to establish its own **Ask Computer Systems (UK) Ltd** operation, and is terminating the nine-year marketing agreement with BP's **Scicon Ltd** for the Manman management information system for manufacturing companies that runs on DEC and Hewlett- Packard minis: Scicon, which has won over 80 customers for Manman, will transfer its mark- eting operation to the new UK firm, based in Milton Keynes, Bucks.

Minigrams

The Holliston, Massachusetts- based **Spectrum Technology Inc** subsidiary of **NERCO Inc**, Portland, Oregon, has a share in a five-year research contract with the **US Army Research Office** to develop and implement the first computerised intelligent control system to process Gallium Arsenide for commercial production, and ultimately install it at Spectrum's wafer production line: the aim is to create an expert system to assist in development of high quality GaAs crystals, and Spectrum has been brought in by prime contractor **General Electric Research and Development Center** of Schenec tady, New York; also in on the project are **Nektonics Inc** of Bedford, Massachusetts, and GE's Electronics Laboratory in Syracuse.

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Bull SA is not going to get any more cash from the French government while the new administration is in power, but at the same time it is going to need to raise new money next year, not only to pay for its stake in **Honeywell's** computer business, but also for its operations; it is not yet sufficiently profitable to be privatised, so is likely to go for a halfway house, issuing interest-bearing paper - known as certificates - that will be convertible into Bull ordinaries when it is able to go public.

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Information Technology Plc has announced the Ethermodem, which allows Ethernet to be used with ITL's Cablestream broadband local area network systems and represents an alternative to **DEC's** Decom: with a coverage of three miles, the product works at five operating frequencies, two of which can be used with MAP channels, and it is compatible with the DEC LAN 1CO Bridge.

Paxton Computers has announced that its accountancy software, Business Desk - now approved by the Royal Navy for use at sea for Service fund accounting, is now available under Unix and called Business Desk ET.

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Qontel's telex system, Qontelex, can now according to the company be used with **Quadratron's** office automation products Q-Office and Q-One.

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NCR and Computerized Lodging Systems of Long Beach, California have signed an agreement whereby the NCR sales tem will work with CLS' to sell the CLS property management software system with the NCR Tower.

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ICL has bounced a McDonnell Douglas Pick System and time on the IBM systems owned by its neighbours at Elmbridge Borough Council in Surrey: ICL is to supply Series 39 mainframes and DRS 300 terminal computers to the council under a £1.7m pact.

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Relational Technology has entered a three-year joint marketing agreement with **Apollo Computer** to distribute Ingres on Apollo's Domain workstations.

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Visitors to the new ski centre in Chatham, Kent will have their comings and goings monitored by an **Optim Computer System** which uses Unix-based software written in fourth generation language Sculptor from MPD running on a 68000- based Digico Reagal micro.

Printed with *SoftQuad Publishing Software.* **supplied by UNIXSYS UK Ltd.**

London, Week Ending December 13   **Number 107**

SUN MICROSYSTEMS UNVEILS NETWORK FILE SYSTEM FOR V.3

Sun Microsystems Inc has introduced the impatiently-awaited Unix System V.3 version of its Network File System, which supports transparent file transfer between Unix computers. Distribution of the new release is being handled by Sun's master distributors - Lachman Associates in Chi- cago, the Instruction Set here, and SRA in Japan. They will be selling source code licences - for the AT&T 3B machine, so that firms will have to convert it for their own kit. Implementation on the 3B line is iron- ic in that one of the key features of Unix System V.3 is the AT&T answer to Network File System, the Remote File System. AT&T is pushing the latter, but the Unix community is not impressed - RFS is not yet ready, and it will not initially support heterogeneous systems. AT&T and Sun agreed about 18 months ago to converge the two different strains of Unix and AT&T are reportedly thinking of adopting Sun's virtual file system instead of its own file system switch, which is currently undefined and undocumented and liable to change. This would mean that NFS could slot onto System V and RFS onto 4.2 BSD.

ZILOG RESTRUCTURES, ABS BECOMES MASTER UK VAR

Following the Zilog staff shrink in the US (UX No 105) Zilog UK has 'restructured' itself and given the UK distribution operation to its major UK VAR, ABS Computers. "This", says David Bethel, European Managing Director, "brings the UK into line with the rest of Europe", Zilog's policy outside the UK has been to have a master VAR in each country. The UK sales team at Zilog comprised four people which have now moved over to ABS. Zilog based in Maidenhead, Berks, now totals 16 members of staff and will concern themselves solely with existing and new major country VARs. Zilog says that it will be making joint announcements with Brighton-based ABS during January next year which will include product developments.

AT&T MULLS COMPUTER, TELECOM PRODUCT SWAPS WITH FUJITSU

AT&T is neither confirming nor denying persistent reports from Japan that it is seri ously considering a comprehensive product and technology exchange agreement with Fujitsu Ltd. Various reports on the talks in the US and Japan are consistent on the broad outlines - that AT&T is discussing bringing Fujitsu in as a collaborator on Unix computers and software development in exchange for Fujitsu marketing both public and private AT&T telephone exchanges in Japan. The suggestion is that Fujitsu would take the Dimension System 85 PABX - the smaller System 75 is al- ready marketed by Toshiba in Japan - and also the Number 5 ESS public exchange, which AT&T has so far failed to sell on its own to Nippon Telegraph & Telephone. It is also mooted that AT&T might move on to market Fujitsu-built computers optim- ised to run Unix that would slot in above its own 3B range of supermicros and mini- computers. Fujitsu's software dispute with IBM is now seen as so serious that the company is widely believed to be ready to drop IBM compatibility as the key selling point for its M-series mainframes, and that its only viable alternative would be to switch to Unix, possibly running Amdahl's UTS implementation that runs under VM so that users could preserve their investment in IBM applications while writing new ones under Unix.

AT&T ABANDONS OMNICAD-COUNTERPOINT SYSTEM

One victim of the major shakeout in AT&T's computer operations is the Omni- page computer-based publishing system the company had planned to introduce, re- ports Computer Systems News. The sys- tem was to have used hardware and software from two companies in which AT&T is a significant investor, Omnicad Inc and Counterpoint Computer Corp. Reason for abandonment of the planned product is believed to be AT&T's decision to de-emphasise stand-alone systems in favour of networked solutions, but there are also claimed to have been bugs in the Omnicad software. AT&T, which was all set to introduce Omnipage at the begin- ning of September, is not now selling any Omnicad products - and Omnicad is not pleased: it says it spent "seven figures" implementing its software on the Counter- point Computer Corp System 19 68020 workstation.

MICROPORT READY TO SHIP UNIX SYSTEM V.3 FOR 80386

Underlining the lead that various flavours of Unix are building up over a native MS- DOS for the Intel 80386 chip, Microport Systems Inc of Scotts Valley, California says that it will start shipping its imple- mentation of Unix System V.3 for the 80386 this month. Licences will cost $10,000. Microport Systems also has a GKS-compatible graphics program and a laser printer interface; they cost $169 apiece.

OLIVETTI-BACKED TOLTEC
TO PUT PICK ON ENMASSE UNIX BOX

The move to bring the Pick and Unix operating systems together is turning into a stampede, and the latest effort to alleviate the Unix thousands of Pick applications comes from a new Phoenix, Arizona company backed by Olivetti. The company is Toltec Computers Inc, and the target machine is that giant multi-68000 box, the ECS-1, launched at the beginning of the year by En-Masse Computer Corp of Acton, Massachusetts. According to Computer Systems News, Toltec is planning for applications running under its implementation of Pick to share files with the highly modified EnMasse implementation of Unix System V. It will also work with the EDMS data entry system that EnMasse has derived from the Unify relational database management system, and Toltec is designing it so that it will also use IBM Personal ATs as applications processors when used with the ECS-1 in a dsitributed environment. Toltec will have exclusive worldwide rights to Pick on the ECS-1, for which Olivetti has European marketing rights. Little has been heard of Olivetti's second major venture capital investment programme since the company launched it some three years ago, but it is thought to have put up enough to gain a 30% stake in Toltec. Toltec was formed by former Sequoia and Microdata people and is looking for about $1m in total in venture capital funding. The ECS-1 is designed to accept boards built around any member of the Motorola 68000 family, and boards can be mixed and matched. Each runs under its own copy of the modified Unix, but they are typed as file, input-output or communications processors, and the machine is designed to support a daunting 768 users - and EnMasse has plans to expand that to 3,000. EnMasse has adapted and twisted Unix to provide all the functionality of MVS on an IBM mainframe, but to provide much better support for intensive transaction processing. It supports a single, tightly-controlled centralised file system, an Indexed Sequential Access Method - ISAM - file structure with the Unify-based EDMS system on top of it, automatic backout and recovery, logs and audit trails, and is optimised to run a multiprocessor Cobol. Next move for EnMasse will be support expanded to 3,000 users.

TWO NEW AGREEMENTS FOR EXCELAN
BRINGS TOTAL CONTRACT REVENUE TO $25m

This week Excelan announced that it has signed original-equipment manufacturer agreements with both Valid Logic Systems Inc and Altos Computer Systems for Excelan's Ethernet, TCP/IP networking products. The exclusive agreements are valued together at around $2m and will extend through 1987. The San Jose, California-based company says that these agreements brings the total value of contracts that it has received this year to $25m. Under the new agreement, Valid will purchase Excelan's EXOS 203 and 8044 intelligent Ethernet controller boards and TCP/IP software for its workstations, based on DEC's VAXstation II and II/GPX workstations, providing them with a high-speed connection to Ethernet and 802.3 local-area networks. Altos will purchase Excelan's EXOS 201 Multibus board and TCP/IP software for inclusion in the Altos 3068 32-bit multiuser system that runs Unix. Altos believes that the capabilities offered by Excelan will help sell the computer into the federal government office and European marketplaces. During the past year, Excelan has signed OEM agreements with companies in the computer-aided design, manufacturing and engineering areas including Silicon Graphics Inc, Applicon and Calma Co. In the office automation area, Excelan has agreements with Unisys, NCR Corp, Arete Systems Corp and Plexus Computers Inc, and in the desktop publishing area, with Atex Inc, a subsidiary of Kodak. Excelan products are used in scientific applications through agreements with Alliant Computer Systems Corp, Convex Computer Corp, Intel Scientific and Masscomp. Excelan has also signed an agreement with Syntax for marketing and development of a local area network server, called the SMBserver: the product implements Microsoft's SMB specifications on Unix System V and 4.2 BSD systems and connects to the network using Excelan's Ethernet controllers and TCP/IP software. PCs can communicate with the SMB server using Microsoft's MS-Net Redirector or IBM's PC Local Area network.

CONVERGENT BRINGS 386 N-GEN TO THE UK, UNISYS SETS 386-BASED B25 FOR FEBRUARY

Last week saw the UK launch of Convergent Technologies' 16Mhz 80386 version of the N- Gen (UX No 103) with the new version of the CTOS operating system, CTOS/VM. The versions that will be shipped in January will concurrently run CTOS and MS-DOS tasks but a version of the N-Gen that runs Unix and MS- DOS concurrently is "ready and available". To date Unix and CTOS cannot live together as both operating systems are designed to control the hardware. Convergent says that it is working on this but adds that it sees the demand for concurrent CTOS and Unix as limited. The company, with its UK headquarters in Bracknell, Berks, says that its major OEMs including the Burroughs arm of Unisys, NCR and Bull have agreed to take the new N-Gen. Unisys says that it will be making first deliveries of a B25 built around the 80386 N-Gen in February next year. In the second quarter Unisys will introduce the BTOS II operating system for the B25 line, which will be based on CTOS/VM. CTOS/VM supports document designer software which is planned to be fully integrated with the OMS II office program that runs on the Unisys A-Series mainframes. Unisys says that it has shipped over 150,000 B25s to users. Convergent anticipates that the end-user price for the 386 N-Gen will be in the region of £3,000 to £4,000. Convergent also announced the Network PC, Clusternet and Telecluster in the UK. Telecluster is expected to be available in the UK some time during the first half of next year following BAPT approval. Convergent said that it is at the same stage in West Germany and slightly behind in France and two Scandinavian countries.

SCO GIVES VOTE OF CONFIDENCE TO 80386 AND XENIX

The Santa Cruz Operation have undertaken to deliver its 386 version of Xenix during the first quarter of next year. Doug Michels, co-founder of the California-based company, said that Microsoft and SCO would be making a joint announcement during the first quarter of 1987. SCO has brought out its 386 Xenix toolkit which it classes as a prototype but it does not encourage customers to buy as most development work can be done on the 286 version. SCO is confident that the 386 and Xenix will take over the traditional mini market within the next couple of years and it will endanger the workstation market with enhancements such as paging and virtual memory support. The other significant factor, says Michels, is that machines based on the 386 will be cheaper.

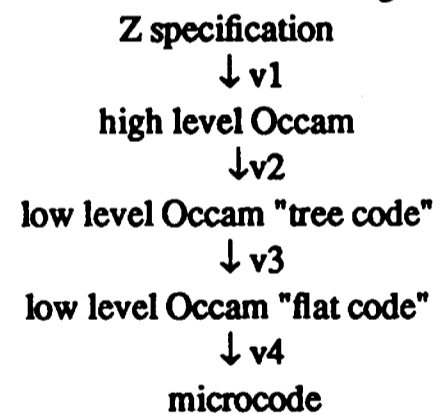## TIS LAND STOCK EXCHANGE, HOPING TO CATCH THE CITY WITH CONVERGENT

TIS has landed its seventh order from the Stock Exchange for the Convergent Technologies kit that it distributes. The Bourne End, Bucks-based distributor says that it won the order over the other, already established, Unix-based systems vendors; Altos and DEC, because the Convergent Megaframe outperformed the others in price performance and the Stock Exchange liked the support service offered by TIS. TIS says that it can guarantee a one hour response to site and an eight hour backup. TIS has supplied Megaframes for the Market Maker Registration system, development, the Company News Service and the first system delivered was for evaluation purposes. Each of the systems delivered cost in the region of £45,000. The Mightyframes ordered for the Company News Service application have 16Mb of memory, two 85Mb disk subsystems, and 30 ports. TIS usually supplies the Quadraton range of office automation packages with the Convergent machines but the stock exchange needed facilities such as graphics and more integration between the different packages and opted instead for Uniplex II+, from Redwood, and Informix from Informix Corp. Bill Fish, director of TIS, is convinced that these orders are just the beginning of many more to come from the Stock Exchange and, he hopes, from the city in general. TIS has been distributing the Convergent machines for two and a half years but is possibly better known for distributing the Fortune systems. The company was set up in 1982 with the intention of dealing purely with Unix-based machines, starting with the Fortune kit. Around 700 Unix systems have been delivered by TIS and, Fish estimates, these are roughly spilt between Fortune and Convergent but he adds that the Convergent base is growing rapidly. Although TIS says it is able to sell and support the N-Gen line from Convergent it is concentrating on the Unix- based systems but the introduction of the 386 N-Gen and CTOS/VM could change this. The 70 employee strong company names amongst its customers: BUPA, Matthew Hall, Reed International, and Butterworths. Last year the company produced a turnover figure of £4.5m and it says it is on target this year for a turnover figure of £7m and it has set itself a growth target for next year of 20% to 25%.

ON CHIP FLOATING POINT UNIT KEEPS THE TRANSPUTER
AHEAD OF THE COMPETITION

Inmos has used formal methods to add a floating point unit to its Transputer, which it claims makes it the "fastest microproccessor in the world". Billed as the first of a string of enhancements planned to keep the Transputer at the forefront of microprocessor technology, the fpu on the 20 MHz T800 delivers a sustained 1,5 megaflops (millions of floating point operations per second) when handling 32-bit calculations. It can still deliver 1,1 megaflops when handling 64-bit calculations, and a 30 MHz version planned for next year is rated at 2,25 megaflops. The on-chip memory has been doubled to 4 Kbytes of fast static RAM (off-chip memory is treated as an extension of the on-chip RAM, giving a flat, linear address space of 4 giga-bytes) - inmos claim this allows the part to be used alone in some applications. The four bi-directional links to other Transputers have also been upgraded, although they automatically slow down when linked to the existing T414 to retain compatibility. (The whole chip is pin-for-pin compatible with the existing part and can replace some or all of the Transputers on an existing board to improve the performance). The data rate between Transputers is 1,8 megabytes per second in one direction or 2,4 megabytes per second when the link carries data in both directions at once. The T800 also has enhanced graphics support: the existing part supports a block move designed to saturate the memory bandwidth, moving any number of bytes from and byte boundary in memory to any other byte boundary using the smallest number of word read and write operations) it supports colour displays by assigning a byte for every pixel). Using the internal memory, the block move sustains a transfer rate of 40 megabytes per second; using the fastest external memory, the block move sustains 13,3 ,megabytes per second. (The forthcoming 30 MHz chip will sustain rates of 60 and 20 megabytes per second respectively). The T800 extends this capability with three new instructions: a two-dimensional version of the block move which can move windows around the screen at full memory bandwidth; conditional versions of the same move to place templates and text into the windows; and an operation that copies bytes from source to destination, but writing either only zero or only non-zero bytes to the destination. This allows new objects of any shape to be drawn on top of the current image. All the new instructions work at the same speed as the simple T414 block move, allowing a 1 million pixel screen to be redrawn 13 times per second. When Inmos came to try and implement an on-chip floating point unit for the Transputer, it also found that the complexity was so great that is was impossible to validate by exhaustive testing, and conventional design methods were no help in establishing the correctness of the design.

So it turned to formal methods, which it found gave the added bonus of decreasing design time as well as ensuring correctness. The Transputer language, Occam, is based on the language CSP (Communicating Sequential Processes) developed by Tony Hoare at the Programming Research Group at Oxford University. It is based on formal semantics, which greatly simplifies the application of formal methods, compared to other programming languages which have no rigorous mathematical basis. The implementation, which was done in co-operation with the Programming Research Group, started with the specification language Z. This was used both to precisely specify the instructions and to express the IEEE 754 floating point standard mathematically. Z produces short and precise specifications of instructions and, being mathematically based, it avoids the problems of interpreting ambiguous natural language specifications. This specification can be implemented fairly naturally, at a high level, in Occam. Then the implementation can be proved correct, using Occam's denotational semantics. The algebraic semantics of Occam then allow the Occam to be tranformed into a form that corresponds to the microcode for the Transputer.

The transformation is in four stages:

Z specification

$\downarrow$ v1

high level Occam

$\downarrow$ v2

low level Occam "tree code"

$\downarrow$ v3

low level Occam "flat code"

$\downarrow$ v4

microcode

Steps 1 to 3 can be proved correct using the formal semantics of Occam. In practice, both steps 1 and 2 were performed backwards: an implementation was written and then transformed back into the previous specification. This was done using an Occam source code transformation system written in ML and implemented by the Programming Research Group. Steps 3 and 4 were performed semi-mechanically by pattern matching and textual substitution programs. Although these have not been formally proved, their use is more reliable than doing the same laborious and error-prone work by hand. As Inmos notes, computers do not miss out lines of microcode due to boredom. The T800, fabricated in 1,5 micron CMOS technology and dissipating less than one watt at sustained peak performance, forms part of the ESPRIT parallel computer architecture programme.

DATA GENERAL DECLARES MID-RANGE WAR ON DEC, IBM WITH MV/15000

Data General Corp has this week raised the temperature of the price-performance battle in the mid-range arena several degrees with the introduction - for immediate delivery - of the expected MV/15000, which is based on MV/20000 technology and replaces the MV/8000II. The 15000 comes in three models, 8, 10 and 12, rated at 2.9, 4.3 and 6.4 MIPS on one benchmark. The processor comes on two boards, one of which is swapped to upgrade between models. The company also introduced its first 1 Mbit memory boards for the 15000 and 20000, including 4Mb and 8Mb units 45% to 50% cheaper than their predecessors, and new 16Mb and 32Mb modules. Main memory of the new line goes to 32Mb, and the line takes 60 to 160 simulataneous office users - 25% to 100% more than supported by DEC or IBM on comparable machines, says Data General. It also claims a 33% to 60% price- performance edge over DEC and IBM, and to be up to 62% faster in technical applicati-ons. Against DEC, the MV/15000 is said to be 50% faster and 37% cheaper for a comparable system; saying specifically that an 8Mb CPU with floating point is 40% cheaper than a 9377/90, 44% cheaper than a VAX 8500. CPU prices are $60,000 to $200,000.

DATA GENERAL SYSTEMS HOUSE FOUNDER FILLS MARKET NEED WITH NEW COMPANY

A new company has been spawned to provide Data general users with Business Basic translators to Unix, Xenix and MS-DOS. Transoft last week announced its Unitran family of translators, Unicode and Uni-C, which it claims "achieves rapid 100% conversion". Unicode is compact code which only needs the target operating system to be resident at both translation and run-time and needs no compiler or linker. Uni-C is C code which is compiled and executed by a standard C compiler. Source programs are physically transferred to the target computerthen the source code is translated into Unicode or Uni-C and the new code will then run under the target operating system. A run-time licence for the Unitran translators will have an initial charge of £10,000. The company was set up by: the founder of MGE, a Data General Systems house, Mike Edwards; Geoff Baker former Systems Technical Director at MGE; and Dave Diaz who left a position as European Product Manager of ADP Network Services. The founders say that they know the market and know that there is a demand for Unitran-type products. The company will be selling its products direct in the UK but is looking for foreign distributors. Transoft plans to produce similar products for other manufacturers hardware and will be recruiting technical and sales staff during the first quarter of next year.

BORLAND's KAHN SHAPES UP TO MICROSOFT ON C, MS-DOS

Speaking at The Technologic Partners' Personal Computing: 'The 1987 Outlook forum in Santa Clara, California last week Philippe Kahn, president of Borland International Inc offered some thought-provoking responses to questions at the forum, easing the knife ever so gently into Microsoft Inc. Asked about Microsoft as a competitor for Borland, Kahn claimed that "Borland won the Pascal war with Microsoft" adding that "There's going to be another battle about C." Asked to compare Microsoft's upcoming MS-DOS 5.0 with the follow-on 6.0 release, Kahn declined to do so; instead, he advised his questioner to ask Bill Gates of of Microsoft - adding "If he doesn't know, ask Bill Lowe" - William Lowe is the head of IBM's Entry Systems divis- ion. This was taken to mean that Kahn believed that PC-DOS 6.0 might be an IBM product rather than a Microsoft product or that IBM might have more to say about the specs of 6.0 than Microsoft would. On the 80386 front, Kahn commented that there were "opportunities on the 80386 even at the operating system level." Kahn also told the forum that "1987 will see a lot of new Borland products in a lot of fields. You will see a lot of artificial intelligence products from Borland." On the company's current products, Kahn claimed that "In June in the United Kingdom, unit sales of Turbo Prolog were greater than unit sales of 1-2-3". Worldwide, according to Kahn, Turbo Prolog had sold 100,000 units Turbo Pascal had sold 500,000, and SideKick 1m units.

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On Thursday 18th December **Sphinx** will be hosting a briefing on the IEEE P1003 (POSIX) working group meeting being held this week in Atlantic City, Georgia: Dominic Dunlop will be giving the seminar to UK users and suppliers at Sphinx's Riverside Centre in Maidenhead, interested parties should phone David Goodall at Sphinx on 0628 75343.

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Artificial Intelligence could be moving along Unix lines with the potential inception of an X/Open-type group: the organisers of the first two meetings, AI Ltd of Watford, say that it has received quite a lot of interest but no decision has been taken to set up such a group or exactly what it should concern itself with but standards and marketing are being looked at.

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Following the **Santa Cruz Operation's** announcement at the end of November **Sphinx Ltd** is making applications running under Xenix V available to HP Vectra 286 users and Sphinx also plans to release PC/AT applications to the same users.

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Gould Computer Systems has launched "ruggedised" versions of its PowerNode 6000 and Concept 32/67 computers, these incorporate aluminium chassis and supports; shock absorbers and isolators; high performance cooling fans and military specification connectors.

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And **Gould** has launched a prototype of a multiprocessor Bare Machine Ada which is a host-target implementation: the host is a PowerNode 6000 running Gould's Unix implementation, UTX/32, and the target can be the 6000 or 9000.

Minigrams

Ladybird Books is using a Unisys 5000/90 for administration and production control.

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The Verdix Corp Ada development system will now be distributed in Sweden, Japan and Israel: Modulforetagen Open Systems AB of Solna will take care of the growing Swedish Ada-under-Unix market; **Shoshin Corp** in Tokyo gets non-exclusive rights to distribute and support the development system in Japan; and **Motorola Israel Ltd** of Tel Aviv will take care of the Israeli market.

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The Evans & Sutherland Computer Romulus-D mechanical design and solid modelling is now available on the **Apollo Domain** range of workstations: the key feature of Romulus is that it enables a team of designers to create all the components of a system and then assemble them on screen to ensure that nobody has absent-mindedly specified a left-hand thread or a bolt that won't.

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Cifer has added a six virtual screen option to its T3 Windowing Terminal (UX No 92): the T3 is designed to be used with a multi-tasking operating system such as Unix.

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Armstrong Micro ElectronicsFp has launched the Cavalier, a 32-bit Unix V.2-based micro which uses seven processors on a 16-user system and five on an eight user - it has its own dedicated processors for disk and screen I/O and comes with Uniplex II plus for a price of between £15,000 and £30,000 depending upon the configuration.

Ai Electronice Corp of Tokyo, Japan has signed to distribute the Triple X Unix-based workstation from **Torch Computers** in Japan.

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And the Triple X has found favour with **Marconi** , it is being used as the basis for part of a range of new integrated design and test automation systems: Marconi is marketing the Triple X as the Midata 120 at a price of £10,000.

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Kalamazoo has formed a business unit to market fourth generation products and services called **4-Front Computer Services.**

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Apropos its third generation 32-bit microprocessor set the WE32200 (UX No 106) **AT&T** is celebrating the fact that even with the complexity of more than 400,000 transistors each in two of the parts, the first devices fabricated at AT&T "achieved the remarkable distinction" of passing all performance tests: the company puts the success down to use of computer-aided design tools developed at **AT&T Bell Laboratories** that enable designers to perform comprehensive simulations of chip function prior to fabrication.

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Christmas time being almost upon us, and the festive spirit affecting us all. We at Unigram.X have decided to have a competition, and give away a prize worth £25 either in record or book tokens. What we would like you to do is compose a Unix-based crossword. All entries have to be in by Friday, January 9, and the winning entry will appear in the very next issue. Please send all entries to the address shown at the bottom of Unigram.X.

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PORTABILITY: IBM PLANS SYSTEMS APPLICATIONS ARCHITECTURE

A new set of programming specifications that some see as being comparable in importance to Systems Network Architecture is on the way from IBM - and the company has gone on the record about it. Called Systems Applications Architecture, it is IBM's answer to the incompatibilities which plague its various product lines, and is a set of programming interface definitions that are being created with the promise that if developers adhere to them, then their applications will be portable across IBM's operating systems and product lines. Initially, according to Computer Systems News, Systems Applications Architecture will address portability between its three live 370-type operating systems, MVS, VM and DOS/VSE, but the intention is to extend it to the mid-range Systems 36 and 38, and to the Personal Computer. The existence of Systems Applications Architecture was revealed by Edward Lucente, an IBM vice president and group executive in the Information Systems Group, who declared in a question-and-answer session that SSA would begin to surface "very shortly". "Our goal is to publish all of these interfaces and to continue to refine them, and have them consistent all the way through" the product line, he is quoted as saying. The plans look like a partial answer to the threat posed to IBM by the portability of Unix and of applications written for it, but their existence will tend to invite its competitors to implement Systems Applications Architecture on their own machines too, so that applications written for IBM machines could be transferred. There are several drawbacks to the IBM plan too, the most striking being that there are hundreds of thousands of live applications not written to the interface, and most large shops already have an enormous applications backlog, and one that would tend to increase rapidly if they tried to switch to the new interfaces or added the workload of adapting existing programs to it. The other major negative is that applications written to run efficiently on one machine may run very poorly on an incompatible one even if they do conform to Systems Applications Architecture.

$25m CONTRACT FOR APOLLO FROM REDAC, NEW SCOTTISH PLANT

One of the largest purchasers of Apollo hardware, Racal-Redac, has renewed its contract for 18 months in the biggest deal Apollo has made in the UK. The $25m contract is for about 1,000 DN3000 workstations. Redac will be selling the machines as a turnkey electronic design automation package based on its Visula software. Redac says that it is also "working with" Apollo's high-end DN580 workstation which it considers will add graphics improvements. Apollo expects that most, if not all, of the machines for this contract will be manufactured in the new European plant that it has this week decided to site in Livingston, Scotland. Apollo has had a 30,000 square foot repair centre in Livingston and the new $5m facility is to be built near it and will occupy 97,000 square foot. The plant will manufacture all Apollo products except the Alliant DSP9000. Apollo is also considering setting up a manufacturing plant in the Far East.

MASSCOMP REPACKAGES ITS 68020 WORKSTATION SYSTEM

Massachusetts Computer Corp, based in Westford, has repackaged its MC5400 68020- based system to create an MC5520, which comes in a 15- slot cabinet rather than the six slot of its predecessor. The new system, configured with processor, 19" colour graphics screen, 71Mb Winchester, quarter inch cartridge tape unit, three serial ports, C, Fortran and the RTU real-time implementation of Unix, comes in at $45,500. When fitted with the MassComp XPA-1 floating point accelerator, the price of the system increases to $51,500. US deliveries of the new model begin at once. MassComp's biggest successes so far have been a pair of major OEM contracts for its scientific systems from Harris Corp, down in Melbourne, Florida.

DEC's UNANNOUNCED VAXSTAR WINS $30m CITICORP PACT

Put off a couple of times over the past few months, launch of DEC's upcoming VAX-Star is again expected imminently, reports Institutional Investor magazine. The new high performance workstation aimed at the office market is expected to be based on the GPX, the MicroVAX II enhanced for graphics performance that is aimed at the CAD/CAM workstation markets currently led by Apollo Computer and Sun Microsystems. The VAXStar is rated at 1 MIPS, with 1Mb of main memory - "It is a business version of the GPX," says a Citicorp source, "a stripped down version." Citicorp placed an order for more than 1,000 workstations, worth close to $30m. The giant New York bank wants them for stock, bond and foreign exchange traders in London and New York.

COMPUTER X DEVELOPING REAL-TIME UNIX FOR NEW KERNEL

Computer X has set itself the goal of having a real-time implementation of Unix and its own real-time distributed operating system, cXOS, combined into a single kernel by 1990. Computer X has set 1990 as the target because it anticipates that a definitive operating system standard will be set by then, so the Chicago-based company will be keeping its eye on the development of standards and making some assumptions between now and then. Work on a real-time implementation of Unix began a couple of months ago. Taking system V.2 as the basis for the new kernel Computer X will be addressing problems of scheduling, inter- process communications and the ability to lock certain processes into memory to make Unix more predictable. cXOS is now being shipped and work on a real-time implementation was started a couple of months ago. cXOS was developed by Computer X specifically for automation and control applications. Alan Kierson, Director of Marketing for Computer X, says that it has gone "a few steps beyond the approach of traditional computer manufacturers", which have also based operating systems on process message modules for efficiency in developing applications, by adding software tools which are optional components of the operating system which include a human interface, database management and communications. cXOS is used in Computer X's cell controller platforms. A cell is any set of automative machines which a cell controller controls and a platform is the combination of hardware and software sold to OEMs, the controller itself is produced by the OEM. Honeywell Inc, as was, is the first customer for the platform which will use it in its factory automation business.

ALL DUTCH MICODUTCH GETS FIRST X/OPEN ACE UNIX

Schreiner Electronics is the first company to adopt the X/Open compliant Ace Unix (UX No 102) as standard on its 68020-based Microdutch Computer. This year Schreiner based in Poeldijk, Netherlands acquired the license for the Microdutch from a research and development company called TNO also of the Netherlands. Microdutch was developed under the name of Geminix as part of a project for the building industry and is now sold purely to OEMs as development systems, graphics workstations and process monitoring systems. There are four different models of the Microdutch: 100, 200, 300, and 400 each has a minimum standard hardware configuration of: a 68020 cpu with a 68881 co-processor; 2Mb DRAM; a SCSI interface for 26Mb storage; two RS-232C interfaces; and a 3.5" floppy disk drive. The main difference between the models is the number of caed slots available on each: the 100 has 20; the 200 has 9; the 300 - 5; and the 400 - 2. Schreiner says that it has installed 150 systems to date but mainly in the process monitoring world and universities but has decided that the Microdutch's price performance ratio makes it eligible to compete throughout the rest of Europe and the company is now actively seeking distributors. The cost of a Microdutch 400 is 36,000 Dutch Guilders, so working on an exchange rate of 3.2 Dutch Guilders to the pound, this would give us a cost of £11,250.

NETWORK INNOVATIONS' MULTIPLEX TO TIE PERSONALS TO MOTOROLA's UNIX MACHINES

Network Innovations Corp has won a multi-year OEM agreement from Motorola Computer Systems for its Multiplex product. Two-year-old Network work Innovations will provide Motorola with an intelligent link between IBM Personal Computer applications and Unix-based relational database management systems for Motorola's latest line of supermicros. The contract is valued at $500,000 and the agreement allows Motorola to market Network Innovations' Multiplex networking software. Motorola will offer Multiplex for its line of Unix-based systems including the recently announced System 8000 and Vision/32 departmental boxes based on the 32-bit Motorola 68020. Multi- plex connects personal computers and MS-DOS applications such as Lotus 1-2-3, dBase and WordStar to query-based database programs in larger computer systems and it will link Personals to databases, including Oracle, Informix-SQL and Unify, on the Motorola systems. Under Multiplex's 1-2-3-like interface, the user does not need to know which database is being accessed. Multiplex supports direct data exchange between Personal and host ap- plications, while eliminating the need for the Personal user to learn host operating system commands, database query languages, or differences in file format types. Personals can now be connected to the Motorola systems by ordinary RS232C links, with local area network capabilities planned for the near future. Network Innovations, of Cupertino, California, claims that this enables low-cost connections at data rates of up to 19.2 Kbps.

ILLINOIS CEDAR PARALLEL SYSTEM USES 16 ALLIANT CPUs

A team under David Kuck, who was the prime mover in the design of the Alliant Computer Corp FX series of high-performance engineering systems, is now working at the University of Illinois on a massively parallel processor that is built of 16 of the Alliant FX8 machines. Development of the machine, which is called Cedar, is reportedly being funded mainly by the US National Science Foundation and the Department of Energy. Alliant, of Acton, Massachusetts, rates the FX8 - which is only the building block for Cedar, at up to 34.6 MIPS and 94 Mflops. A minimum configuration consists of one proprietary 64-bit compute processor, and two standard interactive processors, which in the initial incarnation were Motorola 68012s - the 68012 is the extended memory address version of the 68010. But it can grow to eight of the 64-bit CPUs and 12 of the Motorola chips, and Alliant has a Fortran compiler that takes VAX Fortran and automatically splits it for parallel working.

HEWLETT-PACKARD PICKS SUPERFAST 25MHz 68020 FOR 9000/350

Hewlett-Packard Co has enhanced the Motorola end of its Unix-based HP9000 technical computer line with launch in the US of the HP9000 Model 350, which uses the fastest version currently available of the 32-bit Motorola 68020, which is clocked at 25MHz. These days, comparing your computer's performance to the VAX-11/780 is rather like choosing the Model T Ford as the yardstick for rating the acceleration characteristics of your car, but Hewlett-Packard claims that the 350 delivers four times the power of the venerable DEC VAX model. The 350 comes with standard 8Mb processor, IEEE 802.3 Ethernet local area network interface, high speed disk interface, Hewlett-Packard Interface Bus and RS232 ports, and support for up to 16 disk drives in capacities of 10Mb to 571Mb. The machine comes in five applications-specific versions covering two- and three-dimensional graphics through to artificial intelligence. The bottom-end model is the 350M, a monochrome two dimensional version at $24,600, and the 350C at $32,900 is the colour version of it. The 350CX is a two and three-dimensional wire-frame colour version at $43,900, and the Rolls Royce of the family is the 350SRX for three-dimensional solid modelling, which puts up 1,280 by 1,024 pixels on a 19" screen with eight to 24 planes of colour. The 350AIM version is designed specifically for artificial intelligence software development, and sells for $28,400.

THOMSON IS STILL WAITING FOR 68020 MASKS FROM MOTOROLA

Promised that it would get mask sets, database tapes and documentation for fabricating the 32-bit Motorola 68020 microprocessor two years ago, Thomson SA of France is still waiting - and some observers question whether it will ever now get them following the broad-brush agreement between Motorola and Toshiba Corp. Under Motorola's agreement with Toshiba, the two companies will establish a jointly-owned chip factory in Japan, which inter alia will fabricate the full Motorola microprocessor line - and both partners will be free to sell the resulting products. And in the interim, Motorola will supply Toshiba with finished parts to sell under its own name. The delay in passing on the masks is extremely embarrassing for Thomson, because, reports Electronic News, the firm had promised customers samples from its Grenoble factory for the end of last year, and volume this year. Motorola says that it has not rejected the parts Thomson - and its US acquisition Mostek - are offering in exchange for rights to make the 68020, and Thomson is saying hopefully that it still expects the masks and tapes in a couple of months. Motorola might well regret cutting Thomson off, because a whole collection of French companies have designed products around Motorola chips specifically because they were made by Thomson in France - and at whatever cost will be prepared to switch to whatever Thomason may choose as an alternative.

UNISYS CUTS REACH SCOTLAND; 1100 SOFTWARE UNIT TO CLOSE?

The programme to reduce the total employment at Unisys Corp by 8% reached Scotland last week with the announcement that the venerable Burroughs base in in Cumbernauld was to close completely, with the loss of the last 360 jobs there: Burroughs ended manufacturing at the plant back in February at a cost of 350 jobs, and the plant has been reduced to doing new product design and distribution. Although it is a form-er Burroughs plant that is closing in Scotland, recent cuts in the US have borne more heavily on former Sperry bases, and despite the Unisys commitment to keep the two mainframe product lines going in perpetuity, some of the reorganisations in the US will cause a twinge of renewed anxiety to Sperry 1100 users. According to Electronic News, the Atlanta, Georgia 1100 mainframe software operation is expected to be closed, with work done there likely to be transferred to Roseville, Minnesota, a transfer sufficiently disruptive that many of the 80-member Atlanta op-eration may well choose not to move. Work at Atlanta includes development of an Extended Mode Executive involving reduced instruction set technology and single level cache for OS 1100, and an XA Plus for the top-end 1100 - or 2200 - machine that is due in 1989. Another project at Atlanta has been to add a hypervisory capability to OS 1100 to enable it to run other operating systems - specifically Unix - as guests. The company has touted as a key benefit the fact that Unix runs on almost its entire line - but the present OS 1100 implementation is extremely inefficient, and the native implementation envisaged in the hypervisor project would be much more attractive. The centre also handles the add- ition of security features to OS 1100 for the National Security Agency. One activity that will definitely be closed down according to the US trade weekly is a software productivity effort to improve the efficiency of development projects. The plant closures announced a couple of weeks back involved the Sperry plant in Bristol, Tennessee, making 1100/70 circuit boards - the 1100/70 is now superseded by the 2200 - printers, tape subsystems, communications terminals, and the DCP/10, 20 and 40 front-end and communications processors, which will presumably be replaced by Burroughs communications processors, a field which the company had built up in part by acquisitions. The Eau Claire, Wisconsin circuit board plant was one that Burroughs inherited when it acquired Memorex.

US INVESTIGATES JAPAN BIAS IN SUPERCOMPUTER PURCHASES

Discovering that while US manufact-urers have 86% of the world market for supercomputers outside Japan, but only 23% of the Japanese market, the Reagan administration has instituted a formal investigation of the Japanese import poli-cy on large-scale scientific machines - a development warmly welcomed by both Cray Research and Control Data. The administration declares that the US is acknowledged to be the world leader in supercomputer tech-nology, and detects a particular discrimination against US manufact-urers in the fact that no US mach- ines have been bought by public bodies. Fujitsu, through Amdahl Corp, and NEC, through Honeywell, are trying to penetrate the US mar-ket for scientific supercomputers.

MITSUBISHI SET TO BE TEXAS INSTRUMENTS' FIRST PARTNER

Hot on the heels of Texas Instrum-ents' announcement that it had app-ointed William Sick to pursue semiconductor col-laborations with foreign companies, the Nippon Keizai Shimbun reports that Texas has already reached a product exchange agreement with Mi- tsubishi Electric Corp. According to the Japanese business newspaper, Mitsubishi is already supplying Texas with CMOS logic circuits to be sold under the Texas Instruments name, and that Texas will shortly start shipping TTL parts to the To-kyo company. The Mitsubishi-Texas agreement covers finished parts, in contrast to the pact between Motorola and Toshiba, under which Toshi-ba supplies Motorola with memory chip wafers to dice and package.

BULLISH CRAY RESEARCH IS WARY OF POSSIBLE THREAT FROM IBM

Cray Research, as the only company shipping super- computers in the price range of $15m upwards, sees no direct competition from any quarter apart from CDC's ETA Systems and from NEC Corp - but the com- pany is by no means complacement about IBM. John Rollwagen, chairman, told stock analysts this week that the company does compete with IBM at the bot- tom end of its range, and doesn't discount the pos- sibility that IBM will move up-market to challenge its strongholds. It sees a threat because 40% of its users are primarily IBM users, and 40% of its prospects are also IBM users. The company will ship 45 machines this year, with an average value of $15m, against 34 with an average value of $12m last year. In 1987 it plans to ship 55 - 45 new, 10 used. It has taken 44 orders this year, 17 from new users, 27 from existing. Next year the research and development budget will rise to $100m from $75m this year. The Cray 2, currently shipped with four CPUs, is due to expand both upwards and downwards, with announcements set for early 1987.

BRITISH TELECOM AXES 400 FULCRUM JOBS

British Telecom's Fulcrum manufacturing subsidiary has axed 400 jobs as it gets rid of old electro- mechanical equipment, replacing it with networked electronics and computer skills. The move hits all three of the company's manufacturing plants in Birmingham, London and Manchester. Fulcrum has standardised on Unix-based equipment and as well as manufacturing for Telecom, it also manufactures for companies such as Tadpole Technology and Bleasdale.

KALAMAZOO BUYS CAE MAINTENANCE ARM

Kalamazoo Plc, the Birmingham-based microcomputer distributor majoring on the motor trade, has strengthened its third party maintenance operation with the acquisition of TE Datacare from peripherals, and voice and data communications specialist CAE Group. The new purchase will be merged with Kalamazoo's KMS maintenance division to form a new company, KMS Datacare, which, according to managing director John Higgs, will be strong enough to capitalise on the predicted shakeout in the third party maintenance market. TE Datacare, which for some time has worked for KMS on an agency basis, adds around £1m of annual business to KMS's £2.2m. The combined operation - offices in Birmingham and Tring - employs 70 engineers staff and will contin- ue to support micros, terminals, printers and data communications products.

STRATUS WINS MARKET MAKERS OVER TANDEM

In the wake of October's Big Bang, City of London-based Stratus Computer Ltd, the UK subsidiary of Status Computer Inc, has been elaborating on its presence in the dealer rooms around the Square Mile. On the day itself Stratus claimed to have 25 of its front office, fault-tolerant 32-bit systems running its own virtuual operating system and Unix System V side by side, up and running, with its nearest rival, Tandem Computer, installed at three sites. An alliance with Software Sciences resulted in several market makers, including Barclays de Zoete Wedd, using COLT (Continuous OnLine Trading) for off-floor trading support; Logica developed FAST TRADE for equity trading and MAX, which brings together the Stock Market's Topic information service and the London Financial Futures' equivalent. Stratus says that between 15% and 30% of its worldwide turnover comes from its OEM agreement with IBM, adding that London deregulation generated £10 million of business with about 6% of the hardware value in service and maintenance contracts. Managing director David Taylor says that the front office market for fault-tolerant systems, where the dealing is done, has not been saturated and also expects "huge" demand in the back office arena where the settlement of transactions takes place. Taylor says that Stratus' UK business is equally split between brokerage and communications contracts, highlighting IBM's recent £40 million System 88 EFT/POS (electronic funds transfer/point of sale) pilot scheme running on Stratus kit. Outside the City Stratus has machines installed at Automatic Teller Machines (ATMs) at the Abbey National and National Provincial Building Societies, using its Base 24 system. Taylor says that although he thinks the availability of a fully functioned Unix operating system played no part in the market makers' decision to take Stratus Unix will become more important as the software "begins to flow through Unix". Taylor sees the financial institutions increasingly adopting networking solutions on a wide area and a local area environment, suggesting that network compatibility will make up a substantial part of Stratus' second generation of fault-tolerant machines. Suggesting that neither DEC nor IBM yet has a serious rival to the Stratus/32 system, Taylor is quite happy to see IBM competing with a Stratus-based offering; "it's a win or win situation - when we lose a pitch to IBM we still win."

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Jarogate of London has added a new model to its to its Sprite Xenix range of 80386-based micros: the new machine, positioned between the Sprite PC and the Sprite 150 models, has 1Mb of 32-bit RAM and costs £4,250.

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Sun Microsystems of Camberley, Surrey has announced a contract that it values at £1m with Manchester University for the supply of its workstations for undergraduate training and research.

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Sierra Geophysics Inc has announced packages for seismic processing, interpretation and modelling for the oil exploration industry to run on the Sun-3 family of workstations.

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Sequent Europe Ltd of London, plans a series of seminars for the New Year in the UK concerning parallel processing, the first in the series will involve parallel processing and databases: presentations will be given by representatives of Informix, Oracle, Unify and Relational Technology.

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Software Express of Houston, Texas has announced that it will be supplying its Appgen line of applications generator packages to Parallel Computers Inc of Santa Cruz, California.

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Excelan continues its success this week (UX No 107) with its Ethernet and TCP/IP products by signing an agreement with **Applix Inc** of Westboro, Massachusetts to market Excelan's products with Applix's office automation software, Alis - Alis runs on DEC VAXes, Masscomp workstations, Sun workstations, IBM PC AT and RT, and the Compaq Deskpro 386: Excelan says that if Alis is used with the EXOS controllers users acn design a hierarchial network system with dissimilar host computers.

Minigrams

Inference Corp will be launching a new version of its Inference ART expert system development environment during the first quarter of 1987, ART will now be available in C which the company hopes will allow it to address a wider and more commercial market: Ferranti Computer Systems and its subsidiaries will distribute the system throughout the UK.

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Sphinx ,of Maidenhead, Berkshire,has launched a package of software products for what it considers the fast growing mixed PC-DOS and Xenix environment.

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Sphinx also says that the new Santa Cruz Operation base in London will provide "in-depth local support to its sales and marketing operations".

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Systems Reliability ,of Luton, Bedfordshire,has been appointed by **Integrated Micro Products** , of Consett, Co Durham, to carry out third party maintenance on IMP's Unix-based Mentor microcomputers: Systems Reliability say that they will typically answer a call within four hours, Systems Reliability has nine regional service centres.

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TIS Ltd ,has announced that the new addition to the Convergent Unix-based line that it distributes, the S640, is now available from its Bounre End, Bucks base.

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Former **Sperry Corp** chairman Gerald Probst will resign from the **Unisys Corp** board at the end of the year, but will con tinue to consult for Unisys.

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Apollo Computer Inc, Chelmsford, Massachusetts, has a $1.5m order from **Pacific Bell** for its Domain workstations, servers and communic ations gateways to create a network of over 400 personal computers op erating under a single file system, for its Disbursement Accounting Group in San Ramone, California.

Flexible Computer Corp , Dallas, Texas, which is tottering on the brink of insolvency, has postponed its annual meeting to February 12 from December 12.

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Texas Instruments Inc has signed a development and marketing agreement with **Unilogic Ltd** of Pittsburgh, Pennsylvania to be able to offer the Scribe document production pro gram to users of the Explorer arti ficial intelligence computer: we're not sure that this sort of thing should be encouraged since graphic design requires rather more than simply the tools with which to ac plish it, but Texas claims that Scribe enables Explorer users with no special knowledge of typography to produce camera-ready documents quickly; it's available this month.

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We can't take this too seriously, because a couple of years back we calculated on the growth trend at the time that IBM would be a trillion dollar company in the year 2004, and that doesn't look like happening now, but applying the same methods, **DEC** vice-president John Shields has calculated that on present trends, DEC will surpass IBM in turnover in the year 2007 - which has the folks at Maynard smi- ling and donning "2007" ties, because 2007 also happens to be the minimaker's 50th anniversary year.

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Northern Telecom's Vienna Advanced Office Computer has been awarded Design Centre Selection: this entitles the product to wear the 'kitemark'.

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This is the last issue of 1986: we will be back in the New Year, the next issue date will be week ending January 3rd. In the meantime everyone at Unigram.X **wishes you a very Merry Christmas and a successful 1987.**

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