UNIX® NEWS

UNIX is a registered trademark of AT&T in the USA and other countries

London, September 1989 **Number 7**

ARDENT, STELLAR MERGE TO CREATE STARDENT

In what sounds uncomfortably like a marriage made in hell, sibling graphics minisupercomputer makers Ardent Computer Corp, in Sunnyvale, California, and Stellar Computer Inc, from the other side of the country in Newton, Massachusetts, are to merge on a 50-50 basis to form Stardent Inc. Respectively founded by industry luminaries Allen Michels and William Poduska, the two, which launched initial products within a week of each other in March 1988, are together doing about $25m turnover and have sold a total of 650 machines - 400 for Ardent, 250 for Stellar. The two founders will be co-chairman and joint chief executive, and have not decided which base will become the Stardent headquarters. On technology, it is understood that a merged product line using Ardent's MIPS Computer Systems Inc RISC-based processor and Stellar's graphics will be the medium term aim. However Ardent's long planned Autumn launch will go ahead - new low-end "Stilleto" workstations and minisupers will ship before the year is out. Ardent, which raised $108m in venture capital against $60m by Stellar, is by far the stronger of the two by virtue of the fact that diversifying Japanese tractor builder Kubota Ltd has been bankrolling it, and manufactures its workstations. Stellar will close its US manufacturing and transfer it to Kubota also.

INTEL VIES WITH SPARC FOR TOP PERFORMANCE AT SUN

Sun Microsystems is still a bit touchy when it comes to talking about plans for a new Intel 80486-based workstation to replace the 386i, but it now looks as though production of what is being called the 486i will go ahead, adhering to the public commitment Sun made at the launch of the chip in April. The project had earlier looked in jeopardy when sources close to Sun revealed that the 486i would put the performance of other Sun systems to shame, provoking more than a little heated debate at the company's Mountain View, California headquarters. Electronic News put figures of 15 MIPS and 19 MIPS respectively on 25MHz and 33MHz versions of the 486i - which would overshadow Sun's flagship Sparc-based products, currently topped by a 16 MIPS Sparcstation server, though 29 MIPS Sparcstations are planned for next year, according to the paper. Andy Nilssen, senior product manager for the 386i at Sun's Boston Development Center, Billerica, Massachusetts, said that prototypes of the 486i are now up and running and looking "pretty good", whilst production capability is in the process of being ramped up in anticipation of volume 80486 availability from Intel. Sun says that version 4.0.2 of SunOS will be available in the first week of September for the 386i, which includes significant performance enhancements for the MS-DOS window application, as well as a new GXI graphics accelerator board. Computer Reseller News estimates that demand for Sparcstations is now outstripping supply by around 30%, translating into a 60 day delay for orders.

IBM AIX "HELD BACK THREE MONTHS"

Reports coming out of the US indicate that IBM will be three months late in shipping version 3.0 of its Unix pretender AIX, which is to form the basis of the Open Software Foundation's OSF1 operating system. However the OSF seems to have been prepared for Big Blue's customary tardiness and says the delay has already been accounted for in the release schedule for OSF1, to go ahead as planned before the end of the year. Latest intelligence on IBM's new family of RTs suggests there will be five machines priced from $10,000 to $100,000, with performance ranging between 20 MIPS and 50 MIPS - to which a $5,000 diskless version will be added at a later date. The Project RIOS machines will use a Micro Channel Architecture bus and will be able to use PS/2 cards and adaptors (although PS/2s will apparently no take RIOS adaptors). They will run the delayed AIX 3.0, which will not have IBM's Virtual Resource Manager, and won't run on existing RTs, being closer to the functionality and modularity of AIX for the PS/2, but with added features. While optimists still expect to see the machines in October, with the delay in delivering AIX, sources close to IBM now put the release at some months away.

X/OPEN "TO RESOLVE USER INTERFACE ISSUE NEXT MONTH"

X/Open has scheduled a meeting this month to resolve its current quandary over the issue of a standard graphical user interface for the Unix operating system. X/Open was originally expected to make a decision between AT&T's Open Look or the Open Software Foundation's Motif interface earlier this year, but apparently backed off after pressure from the opposing factions within its ranks. Whilst Open Look is generally regarded as the better solution technically, OSF Motif gained an early lead out in the marketplace and now appears well established. Aside from ducking the issue altogether, or risking offence and choosing one or the other, X/Open must either develop its own interface (very unlikely) or find a way of supporting both contenders and letting the market decide. This now appears to be the most likely course of action, backed up by Unix Software Operation chief Larry Dooling, who told delegates at the Uni-Forum Summer conference in Boston, (see page 2), that "as long as 80% of the toolkits between Open Look and OSF Motif were common, then Unix V.4 would support both with no problem".

PHOENIX "TO ABANDON SPARC"

The headlong rush by Sun Microsystems to licence the Sparc processor to all comers looks set to receive its first major setback this month, with the expected announcement that Sparc International member Phoenix Technologies, Norwood, Massachusetts, will discontinue its Sparc development efforts and run down its Unix activities, including the licensing of the SunOS operating system it took on in February. Alongside Interactive Systems Corp, Phoenix was one of two third party software companies who agreed to become second sources for software development environments for the Sparc chip, such as the SunOS operating system, debuggers, compilers, networking and windowing software. The change in direction comes on the back of poor financial results this year from the ten year old company.

CONTENTS

Page 2 - Showcase, Forthcoming Events, Show News
Page 3 - Hardware news, Workstations & News Roundup
Page 4 - Hardware, X Terminals, Systems & The Low End
Page 5 - Hardware, Servers, Boards & Cards
Page 6 - Feature - Making Sense Of POSIX
Page 7 - Software News, X-Windows, Interfaces & Operating Systems
Page 8 - Software, Communications & Portability
Page 9 - Software, Languages, Databases, Wheelin' & Dealin'
Page 10 - Feature - The Future Of PICK
Page 11 - More Hardware & Software News
Page 12 - Briefs, Contacts

SHOWCASE

LOW-KEY SUMMER UNIFORUM PROVIDES INDUSTRY FOCUS

William Fellows reports from Boston, Massachusetts

Considering that there are probably more Unix users in this part of the world than anywhere else, users, and vendors too, were conspicuous by their absence at the UniForum Summer show in Boston last month. With the Massachusetts Institute of Technology and Harvard sprawled along the north bank of the Charles River in Cambridge, and a host of Unix companies beyond, the show on the south side should really have attracted more visitors. But vendors had an unusually reserved presence, with IBM's stand very modest, whilst AT&T, Santa Cruz Operation and NCR were missing altogether. Despite all this, the show did provide a useful focusing point for the Unix marketplace in general, as it moves relentlessly through cycles of change and re-definition.

Unix V.4 - it looks like November for general release

As far as the operating system is concerned, versions of Unix System V.4 for the 68000, 88000 and Sparc processors are now available to the 34 companies that have been receiving early versions - this is the third and last set of early releases following 3B versions in March and 386 versions in June. This suggests a general release time of November for everyone else. According to both Unix International and AT&T's Unix Software Operation, the move gives those 34 companies "a nine month head start in development over the rest of the field". Unix Software Operation chief Larry Dooling, addressing the conference that ran alongside the exhibition, said that X/Open's Prospectus of Market Demand, hammered out with users at a recent meeting in Montreal, Canada, (UN No 5), will be directly translated into a set of product demands by Unix International, and combined with input from the organisation's own work groups. Dooling said that USO would then be obliged under its contract to "provide them with hows and whens, or a justification of why not".

IXI signs Motorola for X.Desktop - new version soon

The continuing struggle to establish a standard graphical user interface for Unix has already moved up from general agreement on a common base of X-Windows towards the higher level skirmishes between AT&T's Open Look and OSF Motif. Now the front line is moving towards a higher level still - that of desktop managers that sit on top of X applications, providing the user with a general iconic interface. At the show, Cambridge, UK-based IXI Ltd signed up another major player for its X.Desktop product - Motorola Inc is to endorse X.Desktop as a standard on its Delta series of systems, sold directly by IXI to customers at a cost of $495. The promised shrink- wrapped version of X.Desktop will be available in the fourth quarter. IXI's Anil Malhotra added that the new version two of the product will be available soon, with improvements and extensions developed primarily from suggestions by users of version one. Upgrades will be provided for existing users for the cost of a tape.

...as HP rejects both X.Desktop and Looking Glass

Both IXI and rivals Visix Inc with its Looking Glass desktop manager have been sweeping the field for customers in this market, with few other competitors in sight so far. Both Hewlett-Packard and Apollo were said to have evaluated the products, but found X.Desktop too primitive and the more technically sophisticated Looking Glass too commercially problematic. The combined company has apparently embarked on a project to develop its own desktop manager, which might take up to 30% of the market out of the clutches of the two smaller companies, if and when it comes to market.

FORTHCOMING EVENTS

Open Systems In The Office. September 19. Waldorf Hotel, London. UniForum UK: 0727 36003.

Mid-Range Systems And Unix. September 27-28. QEII Conference Centre, London. Blenhim: 01 868 4466.

Personal Computer Show. September 27-October 1. Earls Court, London. Mountbuild: 01 468 1951.

Interop '89. October 2-6. San Jose, California. Advanced Computing: 0101 415 941 3399, ext 734.

dBase User Show. October 2-4. Kensington Town Hall, London. Penn Commincations: 01 840 7200.

Openview '89. October 3. Penta Hotel, Heathrow, London. Computerworld: 0272 277104.

International Desktop & Professional Publishing Show. October 7-8. London Arena. Database Exhibitions: 0625 879970.

Image Processing '89. October 10-12. Wembley Conference Centre, London. Blenhim Online: 01 868 4466.

1st East-West Online Information Meeting. October 11-13. Moscow. Learned Information: 0865 730275.

Unixexpo '89. November 1-3. New York. National Expositions: 0101 212 391 9111.

The Open Systems Show. November 1-3. Olympia, London. Cahners Exhibitions: 01 948 9800.

The Mac User Show. November 1-4. Olympia, London. 01 486 1951.

Computer Graphics. November 7-9. Alexandra Palace, London.

Comdex Fall. November 13-17. Convention Center, Las Vegas. Interface Group: 0101 617 449 6600.

Unix '89 Scandanavia. November 14-16. Stockholm International Fairs, Alvsjo, Sweden. UNIForum AB: + 46 8 750 3976.

Computers in the City. November 14-16. Barbican, London. Blenhim Online: 01 868 4466.

Desktop Publishing North. November 27-29. Manchester. The Exhibition Partnership: 01 446 8431.

Online Information '89. December 12-14. Olympia 2, London. Learned Information: 0865 730275.

Mac World Expo. January 23-25. Business Design Centre, London. CW Communications: 01 226 6893.

Unix Convention '90. March 27-30. Paris. BIRP: 010 33 1 4742 2021.

WHO'S RUNNING THE SHOW ?

The Interface Group's pitch into the Unix exhibition arena from its strong base of the Comdex trade show with next year's Unix Solutions exhibition and conference, October 3-5 at Anaheim in California, has really set the cat amongst the pigeons. It looks like an attempt to knock off some of the main competitors, of which there are four, not counting European, and other sideshows. In the firing line are the two UniForum shows - the large Spring Unix carnival and the smaller Summer affair - which are both run by the US /usr/group, now known itself as UniForum; and the two Unix Expo events run by National Exposition - the main New York show and the newly established Unix Expo West to be held in Los Angeles California between May 7th and 9th next year. The question is, can the Unix market support all five? Exhibitor costs run into hundreds and thousands of dollars per show, and some at the UniForum show in Boston, expressed a feeling that five really is too many. Both UniForum and Unix Expo's organisers view the Interface Group's move with some trepidation, although both are confident that it won't affect their plans. Nevertheless, both UniForum and Unix Expo would seem to be vulnerable, the not-for-profit UniForum because much of its revenues come directly from the shows - the loss of one would be a severe body blow. National Exposition's Unix Expo West is also right on the front line, because it is targeted at almost exactly the same exhibitors as Unix Solutions, specifically West Coast, Pacific basin and Asian companies. Furthermore, the timings bring next year's Unix Expo New York and Unix Solutions right up against each other, Unix Solutions running from October 3-5 and Unix Expo October 31st to November 2nd 1990.

HARDWARE NEWS

WORKSTATIONS

Silicon Graphic's UK arm, Abingdon, Oxfordshire, is starting to catch up with its US parent's revamp of the Unix based Personal Iris Series last month, (UN No 6), adding the 3D graphics 4D/25 Turbo workstation, and Data Station 4D/25S server to the range. Using a 20MHz version of MIPS Computer Systems R3000 and R3010 RISC chip sets, the 4D/25 - with two 8Mb models - is claimed to offer four times the graphics performance of entry level systems and a 60% increase in CPU performance - 16 MIPS and 1.6 MFLOPS - for a 25% increase in price. With 8 colour planes and a 14" monitor prices start at £22,650. The 4D/25G comes with 24 colour planes, four overlay planes, 24 bit Z buffer, 380Mb disk and a 19" monitor for £36,350. Both feature new Silicon Graphics designed graphics processors which boost the polygon rate fourfold to 20,000, and 3D vector calculations by three times to 200,000. The Data Station 4D/25S, which uses a single 20MHz R3000 chip can be configured with up to 32Mb of memory, 170Mb SCSI disk and an Ethernet Interface with a starting price of £11,450. In addition, Turbo graphics upgrades from the standard Personal Iris workstations to the performance of the 4D25 are available, at a cost of £4,450 - significantly more than the $5,000 US users have been asked to pay.

Wang Laboratories Inc has shunned RISC technology and settled on the new Intel 80486 as the basis of its belated plunge into Unix, Computer Systems News reports. The company plans to build a family of 80486 workstations that can be integrated with its proprietary VS business computers, and in multi- vendor open architecture networks. The product line is to include systems, servers, dumb asynchronous terminals and X Window workstations. Wang and plans to mix and match the Unix various standards available, going for Posix compliance, the AT&T System V Interface Definition, some System V.3 extensions, the X/Open Co Ltd Common Application Environment and the X Window System. In will also put its WIIS Wang Integrated Image System up under Unix on the X Window stations. The products, due to start appearing late this year, will also include 80486-based Unix systems for character applications such as word and document processing.

UK graphics specialist Dowty Information Systems, Chippenham, Wiltshire, is moving into the Unix workstation market with the launch of its Dowty Workstation. It uses a 25MHz version of Motorola's 68030 processor and comes with 4Mb of RAM, will be unveiled at the forthcoming Computer Graphics show in London's Alexandra Palace, which runs from November 7-9. With Unix, Ethernet, NFS and a 91Mb hard drive, prices start at £13,000. Dowty will also be showing off Network Computing Devices' 16" X Window Display Stations which it is to OEM in a deal to be signed with the Mountain View, California based company shortly. Dowty will offer the X Stations at a starting price of £2,200.

HM Systems Plc, London NW has plunged into the 80486 fray, coming out with an £8,500 version of the Minstrel Workstation using the chip and undercutting both the £9,112 IBM PS/2 Power Platform and the AST Research 486 at £9,500. The price is for a machine with 4Mb 80486 CPU, 1Mb video memory and 240Mb disk - and the box is 40% smaller than the IBM PS/2 Model 70; existing Minstrel Workstation users can upgrade with a processor board swap-out. It will be out as soon as HM Systems gets enough chips from Intel

--- NEWS ROUNDUP ---

More financial troubles and consolidation from computer companies last month. **Wang Laboratories** Inc turned in a $375m loss during its fourth quarter, and spent the rest of the month attempting to re-negotiate its credit agreements at the bank. Eventual settlement came with the appointment of new President Richard Miller from **Thomson Consumer Electronics** to replace Fred Wang, who went on record to express his "confidence that the financial problems facing Wang would prove manageable". But more job cuts are in the pipeline.

Other in the wars included **Elxsi Corp** of San Jose, which has given up its uphill struggle to establish its 64-bit minisupercomputers, fired half of its staff, and will from now on concentrate on selling its operating system software. **Tolerant Systems** announced its own retreat from hardware manufacture back in March, but has now sealed the decision with a namechange to **Tolerant Software Inc** and will now sell system level software fault tolerance. **Encore Computer Corp**, which recently acquired **Gould Computer Systems**, looks set to retain only the Gould Concept/32 line of real-time computers in its consolidation of the two operations, and is shedding 100 jobs in the US.

Even the largest companies are having a hard time: both **Unisys Corp** and **DEC** are to reduce their workforces following unimpressive results. **Unisys**, with over 90,000 employees, plans to shed 3% over the next two years, and **DEC** has ordered at least nine of its departments to cut workforces by a quarter, a move likely to affect around 7,500 people over the next couple of years. **NCR**, with net profits down 8% for the first half of its financial year, has re-structured its operations into two new groups, general purpose products, and integrated systems, for details see Wheelin' and Dealin', page 9. And Unix high flyer **Sun Microsystems** revealed a $20m fourth quarter loss, and admitted that a return to profitability in the first quarter of its new year "could not be assured".

The continuing efforts by **Sun Microsystems** to establish its SPARC Risc processor met with mixed fortunes. A big boost came from an endorsement by **Philiip NV**, the first European company to agree to fabricate the chip. But then came the news that **Sparc International** member **Phoenix Technologies** was set to abandon its Sparc development efforts, following poor financial results. If it does withdraw from the marketplace, rivals **Interactive Systems Corp** will be left as the only independent source for Sparc licencees to obtain systems software for the chip.

Hewlett-Packard is also opening up its technology for others to use - but rather more selectively than **Sun**, which has opted to encourage the widest range of Sparc licencees it can get. **HP**, however is looking for only "complementary" vendors to license its Precision Architecture Risc chip, and announced that **Samsung** and **Hitachi** in Japan would be its first partners.

Although the industry was steeling itself for **IBM**'s launch of new generation Unix workstations next month, it now seems as if the event will be delayed until the new year - see page 1. Five models are expected, using a high speed Micro Channel Architecture bus, and offering head on competition to the likes of **Sun Microsystems** and **DEC** - but at a cost of object compatibility with the existing RTs.

X TERMINALS

Visual Technology Inc, Lowell, Massachusetts, long established as makers of DEC and IBM compatible systems, has voluntarily filed for Chapter 11 bankruptcy in the US courts, but intends to come out revamped as a "viable X-Windows company," with a family of new X Terminal Display stations waiting in the wings. The DEC and IBM side of the firm is to be de-emphasised, although existing customers will continue to be supported, and there are four new X terminals to be released over the coming few months. The new 19" monochrome X terminal, with between 1Mb and 4Mb memory begins shipping this week. Claimed to deliver six times the speed of the existing 640 X Display station it costs $2,695. A 15" monochrome version will be out in October, priced at $1,595, along with a high performance 68020 based X Terminal. Colour version are currently under development and will go into production in the fourth quarter.

Recent Unix convert Data General is the latest company to launch an X-Window display station to provide its customers with a facility for workstation-like graphics without the local compute power of a workstation or high-end PC. The company's AVX-30 station is designed to work with the Motorola 88000-based Aviion Unix range, and costs around a quarter of the cost per seat of traditional solutions, according to Data General. Supporting Ethernet through the TCP/IP protocol, the station also supports Telnet for hosts unable to support X, and has a built in VT100 termnial emulator, allowing serial access to one host while local area network connections are maintained. Inside is a 12.5 MHz Motorola 68000 processor with display video RAM, graphics co- processor, and up to 4.5Mb of system RAM. The 16-inch square, 1024 x 1024-pixel monitor includes eight fonts of various sizes built in for fast access. Prices start at $2,800, with immediate availability.

SYSTEMS

The Bracknell, Berkshire based division of FPS Computing - the Beaverton, Oregon company still much better known as Floating Point Systems Inc - has added some more machines to its range of lower end departmental computers running Unix V.3. The Models 300X and 300SX servers come from Stellar as part of an OEM agreement. Prices start at £92,000 for a basic configuration with 32Mb of memory expandable up to 128Mb. Using FPS' multi-processor architecture the 300X offers 25 MIPS and 80 MFLOPS. The 300SX has a scalar accelerator option which boosts performance to 35 MIPS and 100 MFLPOS. The 350X and 350SX workstations, which start at £109,000, offer improved graphics capability - animation of up to 30 frames per second - with PHIGS+ 3D, GKS and the FPS Application Visualisation System. These dual display systems can be configured simultaneously with a high resolution graphics display and a video monitor. Both the Model 300 and 350 series come with TCP/IP, NFS and Ethernet, and can be connected to the FPS 500 mid-range supercomputer as a front-end.

UCL Group Plc 's Universal Computers is exclusively distributing the new 68X Series 030 computer from Altos Computer Systems in the UK: based on the 25MHz Motorola 68030 processor, it is available with 4Mb, 8Mb, or 16Mb of Error Correction Code RAM, up to three 380Mb hard disks, and an internal 1.6Mb floppy drive; the machine is being targeted at corporate Pick users, and a 64 user system costs around around £70,000.

Fault tolerant gurus Tandem Computers Inc and Stratus Computer Inc, are each preparing new top-end machines for introduction this autumn. Tandem Computers, Cupertino has a new high-end machine code- named Cyclone to run its Guardian operating system, and according to Electronic News will unveil it in October. Next year, Tandem plans to come out with a parallel family of Unix- based machines built around the R-series RISC microprocessor from MIPS Computer Systems Inc. When the MIPS-based machines arrive, Tandem is likely to drop the standard - non- fault-tolerant - Unix machines it buys OEM from Altos Computer Systems Inc and sells as the LXN. Coming from Marlborough, Massachusetts-based Stratus is a line of 68030-based machines to replace the 68020-based XA2000 line; the 68030 is suddenly interesting now that it is offered in a 50MHz version. For the future, Stratus is working on machines using Intel Corp's new 80860 RISC chip, but before that arrives, either later this year or early next, it will launch a native fault- tolerant Unix for its Motorola machines. It presently offers a USF Unix implementation of Unix that runs under its proprietary VOS, but is expected to drop that when the native Unix - which will be able to run either alone or alongside VOS - arrives.

AT THE LOW END

SyFA Data Systems Plc of Watford has added new models to its SX range of Unix micros. The new machines include an entry-level desktop system using a single board 68030 computer from Motorola Computer Systems, running at 16MHz or 20MHz; a mid-range SX60/04 workgroup system; and an extended SX62XP, which increases the power of the standard SX60 by up to 70% through the use of dual 68030 processors. SyFA also extended the disk storage capacity of its mid-range SX62/46 system up to 2.7Gb, and revealed its plans for future top-end products, which include the Motorola 88000-based SX80 RISC systems, using multiple 88100 processors running at 20MHz or 25MHz, rated at between 17 and 60 MIPS - these are due by the end of the year. And for mid-1990, SyFA will introduce a new 68040-based SX70 range, including a dual processor model. Prices for the upgraded models start at £6,500 for the desktop machine, rising to £69,500 for the basic dual-processor SX62XP.

Hewlett-Packard Co is quickly building up its Vectra MS-DOS personal computer line to provide a low-end for its Motorola 68000 family Unix workstations, and has announced agreements with The Santa Cruz Operation Inc and Corollary Inc that will enable it to offer complete multi-user systems based on the high-end Vectra models. It has gone to Corollary for its serial input-output subsystem, which supports up to 32 terminals on an 80386-based AT bus machine, while Santa Cruz will supply its SCO Unix System V/386 3.2.

Data General Corp has added Dasher/386-25, Dasher/386sx and Dasher/286-12c AT-alike personal computers to its line. The new models run the DG/PC-I personal computer integration software and the company's proprietary Comprehensive Electronic Office. They are accompanied by a new release of the MS-DOS ICobol interactive Cobol which now features complete program and file compatibility with ICobol applications running under Data General's AOS/VS and DG/RDOS operating systems. The company also announced Revision 2.0.1 of the 386ix operating system from Interactive Systems Corp, which adds support for the TCP/IP communications protocol so that 80386-based Dashers running the Unix implementation can communicate with Data General's MV/ minicomputer family and its new 88000-based AViiON RISC-based systems. The Dasher/286-12c with the 40Mb disk is $3,000, the Dasher/386sx is from $3,800 and the Dasher/386-25 costs $8,500.

SERVERS

3Com Corp, Santa Clara, California has bundled several of its hardware and software products to create 3+Open Client-Server System. The system is offered with software interfaces to enable it to be used with kit from DEC, IBM, Apple Computer, and the generality of Unix systems. 3+Open Client-Server System consists of 3+Open LAN Manager, the new 80386-based 3Server/500, the company's network workstations, and electronic mail and internetwork capability. It comes in two standard packages, both available next month, and each includes 3Server/500 preloaded with 3+Open LAN Manager with Demand Protocol Architecture and the appropriate combination of 3Stations. The introductory price with one 3Station/2E is $19,250. Internetworking options are 3+Open TCP; the GS/X25 gateway for Ethernet, token ring and broadband local area networks; and the 3+Open Maxess Systems Network Architecture gateway for access to IBM hosts. 3+Open TCP, out in October, is $350 for the single user version, $2,000 for a server licence. GS/X25 gateway server and router for TCP/IP is out now, GS/X25 for XNS, October; GS/X25 for Open Systems Interconnection, November, at $12,500 to $20,500 depending on configuration. The Maxess SNA Gateway, October, is $6,000 for the SDLC link version, including necessary co-processor board; the Token Ring version - no co-processor needed, costs $3,400.

Disk subsystem integrator Emulex Corp, Costa Mesa, California has diversified into Unix-based servers for terminals of an Ethernetwork with the launch of the Performance 4000-T Terminal Server. Based on the firm's server for DEC local area network users, the product supports the TCP/IP transport protocol and enables up to 32 terminals plus a parallel printer to be connected to an Ethernetwork. The 16-port configuration is $3,900, a 16-port expansion unit is $2,185.

BOARDS AND CARDS

Santa Clara, California based Integrated Device Technology Inc's RISC CPU module is now available in the UK from Microlog Ltd , Woking, Surrey: the IDT7RS101 card uses an R3000 chip set from MIPS Computer Systems - available with or without the R3010 floating point accelerator - running at 12MHz, 16MHz, 20MHz or 25MHz, and providing 9, 12, 16 and 20 MIPS of performance respectively - prices start at $2,895, rising to $3,640.

UK company, Technology Concepts , Cwmbran, Gwent, is moving into the Unix market, announcing support for Xenix right across its range of serial input/output products. In addition, the firm has a new multi-port card supporting eight asynchronous channels on both the PC/AT and PS/2 formats, providing an option to buffer up to 16 characters in and out per channel - also Xenix compatible. Prices start at £525.

Cubix Corp , headquartered in Carson City, Nevada has a 2410 intelligent front-end Ethernet controller for use with the latest implementations of the Open Systems Interconnection and TCP/IP networking protocol stacks: built around a 1Mb 80186, the 2410 is designed specifically for multitasking network environments, providing a method for connecting and running concurrent sessions on MS-DOS micros and any other Ethernet- connected resource; no prices were given for the 2410.

The Boston-based Helios Systems division of Dynatech Co's Piiceon Inc is offering 4Mb, 8Mb and 12Mb memory boards compatible with the Sun-3 Eurocard VME board set - the MSE boards plug directly into Sun's Eurocard VME system, and operate on the Sun P2 bus. Systems designers can expand the 4Mb Sun Eurocard system in increments of 4Mb, building 8Mb, 12Mb or 16Mb systems using a single add-in Helios MSE board - and the boards are the smaller 6U format against Sun's 9U boards - and Helios suggests that there are also more input- output boards available for the 6U configuration than for 9U. The 4Mb board lists for $3,000, the 8Mb board, which has no Sun counterpart, is $5,000 and the 12Mb is $7,000.

Integrated Micro Products, of Consett, County Durham, is launching what it believes to be the first 68030 board running at 50MHz. With 12 MIPS performance the board is claimed to double the power of the existing 25MHz processor in board applications. The JT68030 VME board is specifically designed for IMP's parallel MJ multiprocessor systems and the chip is mounted with a 32 Kb cache and an optional 40 MHz 68882 floating point co-processor - the cache is controlled by a 68230 parallel interface and timer, allowing the processor to operate at a greater clock frequency than is possible when operating out of RAM. Existing 25MHz IMP 68030 VME boards can be upgraded to the 50MHz version.

Symbolics Inc, Burlington, Massachusetts has has come out with a UX400S co-processor board for Sun Microsystems Inc workstations, and versions of its artificial intelligence application development and run- time software for use with it on the Suns. The UX400S Unix co-processor board is very similar to the MacIvory co- processor for the Apple Macintosh: each combines the proprietary Ivory symbolic microprocessor with the necessary interfaces. The board with 10Mb memory and the company's run- time software costs $13,900 and will be available for VMEbus Sun-3s next month; the workstation needs a hard disk.

HOSTED POSIX: WHO GAINS ?

The POSIX portable operating system interface standard produced by the IEEE has provided a useful focus for related standards efforts such as X/Open's Portability Guide and the Japanese SIGMA project, and is a common link between Uni developments undertaken by the Open Software Foundation and Unix International. But now companies are adding the Posix interface to proprietary operating systems. Dominic Dunlop of The Standard Answer looks into a new trend.

Many people think that POSIX is a standard for UNIX. It's not. If it were, it would not be possible for Digital Equipment, Hewlett-Packard, and Microsoft to confuse an already bemused market by announcing POSIX interfaces for their proprietary operating systems - VMS, MP/E, and OS/2 respectively. Why are suppliers rushing to jump on the POSIX bandwagon, and what is it about the POSIX standard which allows them to do so without completely jettisoning their original operating environment? And, in the end, does POSIX compatibility at this level bring any benefit to computer users?

As with so many things in this world, the answers to these questions have to do with power, and those who wield it. The US government wields a lot of power over computer suppliers by dint of the enormous budget that it controls. So, when the government's National Institute of Science and Technology (NIST, formerly the National Bureau of Standards - NBS) brings out a Federal Information Processing Standard (FIPS) which specifies requirements to be satisfies by all US government purchased computers, suppliers sit up and listen.

A year ago, NIST released FIPS 151. Broadly speaking, this states that all computers purchased by the US government for general purpose data processing must be able to offer a POSIX interface. (There are various exceptions: one of the more important is that, pending a standard for real-time POSIX, computer systems which must satisfy some real-time requirement can ignore the FIPS.)

Check in the box

Note that the FIPS requires only a capability: it does not specify that the computer actually runs POSIX while doing the job for which the government buys it. All it has to do is offer a POSIX interface in case the government decides to install additional POSIX-compliant application software at some time in the future. This approach is realistic: large application packages cannot be written to use a new operating system interface at the drop of a hat, so many current needs can be satisfied only by existing packages designed for proprietary operating systems. On the other hand, the approach allows suppliers to continue offering solutions based on proprietary technology, just so long as they can prove that POSIX is supported as an option, and so put a check in the box on the requirements form. This may well delay the day when all the applications are written for POSIX as a matter of course.

This brings us to another concentration of power - that of the manufacturers themselves. It was clear from the early days of the POSIX project in the IEEE (Institute of Electrical and Electronic Engineers) that the proposed operating system interface could not simply describe UNIX running on a bare machine, but must also apply to emulations of UNIX hosted by other operating systems. Without this capability, POSIX could not gain support from important computer manufacturers, and so would have little chance of becoming a publicly-agreed standard.

Consequently, IEEE Std. 1003.1-1988, the document which finally emerged from the standards process, is careful not to specify anything which might imply that the POSIX environment has total control of its host system. For example, nothing in the standard allows even a privileged user to set the time of day, to connect or disconnect file systems, or to configure input/output devices: these actions may be the province of some underlying environment, not of POSIX itself.

Not quite rich

The result is a definition of an environment which can be hosted by VMS, MP/E, OS/2, and, indeed, any other multitasking operating system which offers a supervisor mode and a protection mechanism. It is also a definition which is not quite rich enough to allow the implementation of many types of practical application program.

FIPS 151 makes the application developer's life a little easier by requiring some features specified only as options in the POSIX standard. Consequently, a FIPS-compliant interface is a better base for useful applications than an interface which presents simply the minimum requirements of the POSIX standard. And, because the FIPS is backed by the stick of US government requirements and the carrot of US government funds, it has come to represent the practical standard to which suppliers conform. Even so, a practical application program is likely to require a considerably larger foundation, taking in such topics as administration, command language, communications, database access, graphics and screen control. Standards covering these fields are emerging, and are likely to be backed by future FIPS.

NIST has done the world a service by requiring compliance to FIPS 151, but is smart enough to know that this is only one step along the road that leads eventually to open systems. The current POSIX standard on its own is not rich enough to form a basis for practical applications in the real world. This applies whether the environment is in control of the systems on which it runs, or if it is hosted by some other operating system. Consequently, a supplier who offers no more than a POSIX interface to an existing proprietary operating system is not offering a great deal: several additional standardised subsystems are required before the facility becomes useful.

The many draft standards being developed by the IEEE and others will eventually be sufficient to define open systems which can fill any requirement without the need for extensions. Until then, less authoritative, but considerably more comprehensive, documents such as the X/Open Portability Guide, come much closer to describing practical systems which allow real application portability.

Editor's note: UniForum - the US /usr/group - has published an updated version of its "Your Guide to POSIX" booklet, the first in a planned series which will soon include three more volumes - POSIX Explored: System Interface, Shells and Tools and Real Time Extensions. Contact UniForum on 408 986 8840.

SOFTWARE NEWS

X-WINDOWS

Advanced Graphics Engineering, or AGE, as it prefers, has implemented the server side of the X Windows system on Texas Instrument's TI 34010 graphics chip. It means that using the San Diego, California based company's XoftWare, a manufacturer can implement X Windows on any computer system, controller or peripheral using the popular chip, without the associated development costs. The XoftWare T10 package is an implementation of the MIT X Window System Version 11 Release 3 Server, and requires only 512Kb of memory to do the job. A range of built in interface programs are available for porting to specific system configurations, for example an Ethernet software driver for DOS applications and the standard Berkeley network library for Unix System V. The licence fee for XoftWare ranges from $30 to $240 per system. An enhanced version - XoftWare TGA - is compatible with the Texas Instruments Graphics Architecture standard. The software can be used across the entire range of 34010 products and XoftWare costs from $40 to $180 per server.

Paris based artificial intelligence systems house Cognitech , has launched an X-Windows based interface development environment called Onyx. The object orientated system is written in C and has a library of 300 primitives. Supporting graphic design, interactive development and automatic generation of C code, it is said to run on all Unix workstations.

Hunter Systems Inc has integrated its XDOS binary compiler with X-Windows through a recently signed deal with its neighbour, Mountain View, California-based Eakins Associates. Using XDOS, which converts DOS applications into a binary format so that they can run as native Unix software, X users will be able to run XDOS converted applications on X display stations alongside Unix programs. So far XDOS works with DOS applications such as Lotus 1-2-3, WordPerfect, dBASE III Plus, WordStar Professional and MultiMate Advantage II, and can run on Motorola-based hardware from Sun, Sony, NCR, Unisys, Motorola, Bull and Arix, with support for Apollo, HP and Xenix 386.

THE USER INTERFACE

With IXI's desktop manager already out in the field, Visix Software Inc's Looking Glass desktop manager has been somewhat left behind but the company says it has now shipped beta versions of Looking Glass which will go out on full release sometime next month. Shrink-wrapped versions for Sun, Hewlett-Packard, IBM and DEC hardware will be available before the end of the year. Looking Glass will be formally introduced to the world at Unix Expo in New York, 1-3 November. Visix is set to announce further licencees for its desktop manager in the first weeks of September, and says that itself and rivals IXI now have around a one and a half year head start on anyone else developing a similar product.

Meanwhile IXI Ltd has been called upon by Systime spin-off VisionWare Ltd of Leeds in Yorkshire to help in the development of its X Window System server for OS/2, which will run under Presentation Manager. When released early next year, VisionWare's PS/2 X server should be the first of its kind on the market. The MS-DOS/Unix integration specialist says that its XVision DOS X server running under Microsoft windows and previewed at the European Unix User Show last June (UN No 5) will begin shipping in October.

Data General Corp has become the first company to take a licence to Hewlett-Packard's NewWave software environment, the company plans to add it to its office systems line this month.

Following an agreement with Sherill-Lubinski Corporation, the UK's Tenet Systems Ltd of Horsham, West Sussex, is to distribute the Corte Madera, California-based company's Graphical Modelling System in Europe. GMS allows users to develop graphical user interfaces for the purpose of dynamic modelling, and is aimed at the specialised graphics marketplace, particularly avionics command and control systems in the defence and aerospace sectors, and process control in industry. As well as presenting an object- orientated visual schema, GMS, which is written in C, employs object-orientated techniques in its construction, such as inheritance and hierarchies. A development licence costs £10,000, run-time is £2,500. In anticipation of a healthy European demand for GMS, Tenet is opening a subsidiary in Paris in October, followed by another in Munich in January of next year.

OPERATING SYSTEMS

Lynx Real-Time Systems' LynxOS real time operating system has now passed the IEEE's Posix standards for the Unix operating system, as well as the US government's Federal Information Processing - FIPS-151 - standard, giving a boost to the fortunes of the Campbell, California based real time specialists. In addition LynxOS is now compatible with AT&T's 386 Unix at the binary level, which means it can run a range of shrink wrapped software including Informix, WordPerfect, QCalc, Masterplan, as well as Fortran, Pascal and BASIC compilers. Development work included a complete rewriting for what is claimed to be the only fully compatible real time version of Unix - it has no AT&T code - and is also compatible at source level with Berkeley 4.3.

Microsoft Corp has announced a new release, 1.2, of its own version of the OS/2 operating system. MS OS/2 includes a new high-performance file system to improve response and the overall system performance, and it will be the basis for future file system features. Version 1.2 also includes enhancements to the Presentation Manager shell with additional icons and more direct mouse manipulation facilities. There is also a PostScript device driver.

Plans for closer integration of Hewlett-Packard's HP-UX and Apollo's Domain unixalike operating systems will come to a head with the release of HP-UX version 8.0, scheduled for the middle of next year. The two will not be formally merged, rather they will converge around the Open Software Foundation's OSF1 offering and X pen's portability guide. HP-UX 8.0 - to which a free upgrade from previous versions is to be given - will be XPG3 compliant and is expected to receive B1 security branding.

The XA2000 family of fault-tolerant continuous processing systems from Stratus Computer Inc can now run Pick-based office automation software. The company has now completed its promised integration of Pick Open Architecture, Version 2.0 with its VOS operating system, and over the next six months it intends to release enhanced versions which will enable users to exchange data and files between Pick and VOS environments. The company has also released a suite of office automation software packages including JET Software's The Works 2.0, a Pick word-processing package; Via Systems' Compusheet, a Pick spreadsheet; and Accusoft Enterprises' Accuplot II, and Accumath graphics and enhanced math software packages. The software for the Model 70 starts at £21,550 and runs through to £43,000 for the 110 to 160.

Unisys Corp plans to make future releases of its mainframe operating systems Posix-compliant, starting with the 1100-2200 family and the A series, release dates are promised in the fourth quarter.

COMMUNICATIONS

Unisys Corp is adding ICL Series 39 mainframe communications options to its U5000 and U6000 series Unix machines through a deal with Oxford-based Hytec Information Systems Ltd. The two companies are near to completing a project to integrate Hytec's Sonnet standardised open network to the Unisys range, allowing full terminal access and file transfer between the Unix boxes and ICL's Series 39 and 2900 mainframes running OSLAN. Sonnet will be integrated to the Unisys Open Systems Interconnection Transport layer via X.25 for wide area networks, or Ethernet for local area networks.

Stratus Computer Inc now has interfaces to IBM's Token Ring Network, and Sun Microsystems' Network File System. It has increased its support for Transmission Control Protocol/Internet Protocol TCP/IP networks, and has enhanced its Ethernet connectivity. Support for IBM's Advanced Program-to-Program Communications, APPC, over Token Ring networks means that XA2000 systems may now participate in Token Ring-based local area networks. Applications that use APPC facilities can communicate on a program-to-program basis, and XA2000 applications that use APPC and the Data Link Protocol will be able to communicate on Token Ring-based systems without reprogramming. The new interface comprises a Link Manager and Adaptor. The Manager costs between £664 and £1,448, the Adaptor is £3,879 with a £43 cable. Both are available in the fourth quarter.

After concentrating in recent years on MS-DOS and OS/2 connectivity software, Rabbit Software Corp of Malvern in Pennsylvania has gone back to its Unix roots with a new set of connectivity products to provide IBM 3270 emulation over SNA for Unix, Xenix and AIX operating systems. RabbitPLUS 3270 allows users to execute local applications while connected with the host, download information from the host for local processing, transfer file between host and 386-based PC systems, and to have multiple host sessions active simultaneously. Another product, Netcom II provides X.25 for Unix and Xenix 386 systems to connect up to packet-switched wide area networks. And RabbitPLUS RJE emulation deals with IBM remote job entry devices such as card readers, punches, exchange devices, printers and consoles.

Mission Electronic 's UK division, based in Huntingdon, Cambridgeshire, has developed a low cost method for linking small Unix and Xenix systems into standard Novell networks supporting non-Unix systems as well any other TCP/IP based network. Using a 25MHz, 386 based Mission workstation with the Unix file system mounted, NFS and dedicated cards, the link up costs around £340 per workstation, compared to the £5,000 or so that is otherwise be required for such connectivity with other products. The method was developed in conjunction with Hardwick, Cambridgeshire based TCP/IP specialists Unipalm , and the job is reported to take just ten minutes to complete.

Software Inc of Des Moines, Iowa has gone to Tri Data Systems Inc over in Sunnyvale, California for its Netway 3270 SNA local area network gateways to create a QM-Professional gateway for its QuickMail Apple Macintosh electronic mail system. QM-Professional, to be available in the fourth quarter, is designed to provide a transparent, two-way mail exchange between QuickMail and IBM Profs via the Netway SNA gateways. A single QM-Professional Gateway will support up to 100 users per MailCenter and up to 32 MailCenters per Mail Server machine. Netway 1000 and Netway 2000 provide Macintosh and MS-DOS users with shared access to 3270 sessions on IBM hosts. Netway 1000 supports up to 16 simultaneous 3270 user sessions and costs $4,000, the Netway 2000 with 64 simultaneous sessions and support for multiple hosts, is $10,000. Pricing for the QM- Professional Gateway will be set later, but QuickMail costs $400 for 10 users, $270 for five users, and $70 for a single user add-on. QuickMail PC sells for $200 for every five users.

Sun Microsystems' Tops networking division has added gateways to IBM's Profs mainframe office automation system from its InBox electronic mail product, and TOPS also promises gateways to the Unix Mail electronic messaging system. The new gateways are promised for the fourth quarter of this year.

The Santa Cruz Operation Inc has gone to Santa Monica-based Retix Inc for local and wide-area Open Systems Interconnection software for use with its SCO Unix System V/386 and SCO Xenix operating systems for personal computers, and as an add-on product for the Santa Cruz Open Desktop, integrated graphical Unix front end. Santa Cruz will offer full seven-layer Open Systems applications, including file transfer access and management and X400 message handling. The open systems communications software will run concurrently with existing Santa Cruz networking packages, including TCP/IP and Xenix-Net on the same processor.

PORTABILITY

ExperTelligence Inc, Santa Barbara, California is claiming two breakthrough software technologies, which it is calling adaptable portability and smart object programming - at present available only on Texas Instruments Explorer and microExplorer machines and on the Apple Computer Inc Macintosh running in native mode. Adaptable portability enables applications to be moved from one system to another without the need to modify the code or the interface. The smart objects technique is described as an advanced use of object-oriented programming that enables programmers to manipulate objects like scrollers, gauges, sliders and so forth directly, choosing from a menu of objects. The new technologies are included in ExperAction! for the Explorer and the Mac with Procyon Common Lisp and the Common Lisp Object System, with Unix and IBM PS/2 versions planned.

Bothell, Washington based Emerald Technology' s Unix to Unix automatic file transfer program - Blazer - is now available in an updated version on the IBM 6150, the NCR Tower 32 and Interactive's 386/IX operating system, along with AT&T's 3B1, 3B2 and 6386, SCO Xenix, Unisys 5000 and Plexus systems: marketed in the US by Emerald's Seattle based SST Data division, in Europe it is available from Real Time Computer Services, Channel Islands, UK; Delta Infomatica SCRL, Trento, Italy; Quatemaire Informatique, Boulogne, France; and MBS GmbH, Dusseldorf, West Germany - in its new guise Blazer is claimed to be twice as fast as its predecessor.

A French company, Suresnes, Paris-based GEI Emeraude, is claiming to be the first to implement an Esprit programme project to establish a portable environment for computer-aided software engineering tools. Esprit's Portable Common Tool Environment (PCTE) standard is an interface intended to make software engineering tools portable across a wide range of workstations. Running on Unix-based workstations, the Emeraude software acts as a layer between software and programmers, replacing the Unix file system with its own object management system. Emeraude also provides programmers working in a local area network with a graphical user interface, and transparently distributes programs and data over the network.

A software porting centre has been set up by Dataflex Services Ltd, London, for software developers wanting to move their PC applications to the range of Unix environments: the company claims that on average a complete 'ready-to-run' port can be done in four hours and 17 different Unix implementations are supported.

LANGUAGES

Sun Microsystems has introduced its own version of AT&T's C++ object oriented language at the recent International Joint Conference on Artificial Intelligence held at Detroit. Sun C++ is said to be one of the first products to be based on C++ Release 2.0 from AT&T, and includes a set of integrated program development tools. Including the new features of Release 2.0 such as support for multiple inheritance, the Sun version also works with Sun tools such as an enhanced version of dbx and dbxtool window debugger, for source level debugging capabilities, and uses the dynamic linking and shared library features of the Unix-based SunOS operating system, with additional libraries for stream I/O, complex arithmetic and tasking. Sun C++ also supports the Network Software Environment (NSE) configuration management system, and allows object linking to information written in Sun's FORTRAN, Pascal, Modula-2 and C implementations. No prices were given.

UK software house Harlequin Ltd of Cambridge, also chose the Detroit conference as the launchpad for a new development environment for Common Lisp. LispWorks is a package integrating the ANSI standard Common Lisp with an object-oriented environment based on the Common Lisp Object System, along with lightweight processes, X-Windows, and monochrome and colour graphics. The user interface is an optimised version of CLX, the standard Common Lisp interface to X-Windows, and there is also an implementation of the CLUE Common Lisp User Interface Environment. Available on a wide range of hardware, LispWorks costs £5,000 for a single user version on a Sun workstation.

Cobalt Blue, San Jose, California has a new dual-translation package to convert Fortran 77 - with Mispec extensions - to either C++ or C. FOR_C++ is available for Sun-3 and Xenix/386 environments, and although Fortran code is not object orientated by FOR_C++, translations use optimum C++ constructs, and resulting C++ code is claimed to be compilable and ready to run. The Sun version costs $2,250, Xenix/386 is $1,850, and both include C and C++ source to the run-time library.

Quintus Computer Systems Inc, Mountain View, California, and Sequent Computer Systems Inc, Beaverton, Oregon, jointly announced that the Quintus Prolog Multiprocessing Package is available for parallel computers. The knowledge engineering product is designed exclusively for parallel processing systems.

DATABASES AND 4GLs

Relational Technology Inc, Alameda, California has done a Unix implementation of Ingres for the Intel 80486 microprocessor. It has also teamed with Corollary Inc to implement Ingres on multiprocessor 80386-and 80486-based Unix supermicros that involves optimising Ingres for Corollary's 386/smp symmetrical multiprocessing Unix, based on Santa Cruz Operation's SCO Xenix System V and SCO Unix System V/386.

Unify Corp has ported its Accell applications development system and Unify relational database to run on Apple Computer Corp's A/UX implementation of Unix, which it hopes will make A/UX more attractive to corporate and educational users. Vertical market packages written for the Accell/Unify RDBMS package include healthcare, manufacturing, retail and distribution, banking and finance, and government administration.

Alpha Microsystems Ltd of Maidenhead, Berkshire is actively seeking dealers for its new applications software development tool, Infinity. A run-time licence for the new 4GL product costs between £300 and £1,500, and a development licence is between £2,500 and £6,000. There will be a Unix version from Applied Information Retrieval Systems in the next 12 months.

WHEELIN' AND DEALIN'

August ...hotter than July. **Intel** looks set to introduce multiprocessing enhancements to its still new i860 processor, only revealed in March, (UN No 2). Unofficially dubbed the N11 or i870, it is thought that the part will offer a performance boost comparable to that from the 386 to the 486.

Standards bodies are much in the news again - and the end of the longstanding battle of the graphical user interfaces for Unix may at last be in sight - the **X/Open** group meeting this month to resolve its quandry over a standard. The decision should then allow everyone to get on with the business of developing software, held up whilst the rivals have been slugging it out. Meanwhile **Unix International** says it is developing technology the will resolve the whole issue, and putting two and two together, this may have something to do with the belief held within the **Unix Software Operation** that as long as 80% of the completetd toolkits between Open Look and Motif are common, then Unix V.4 will support both of them with no problem.

And going East, **Unix International** has been in China, preparing the way for the possible adoption of Unix as a standard in the government's computer contracts - despite the fact that hardware imports are banned at the moment. And it now looks as though Unix version V.4 will go on general release over the next month or so. Meanwhile, rival the **Open Software Foundation** is set to issue a new Request For Technology this month, it will seek to establish a standard means of integrating different databases running on a network. And the **IEEE**'s 1003 POSIX committee has two more additions to its plethora of project groups working on standards profiles for Open Systems architecture - the two are for supercomputing and transaction processing.

After a poor first half-year performance, **NCR** is reorganising into two groups. An Integrated Systems Group will provide system solutions to end users via five divisions of the companuy's sale force, a Self-Service division based in Dundee, a Financial Systems Division including the Dayton and Waterloo, Ontario, and Utrecht, Netherlands engineering facilities, a new Office Information Systems Division rises from the ashes of OIS-Columbia; and two existing divisions - Retail and Applied Digital Data Systems - will remain as they are. And **BBN**, Cambridge, Massachusetts is also having to perform some drastic surgery after bad results, closing its 20-employee plant in Livingston, Scotland.

Going West ...Watford based company **AI Ltd** has opened a US subsidiary in Beaverton, Oregon. **Secure Information Systems Ltd** has opened its computer security evaluation unit, called CLEF, licensed by the UK government's Communications and Electronics Security Group. Ex **UCL** managing director Chris Creighton Thomas is the founder of a new company, **Computer Profiles Group** - headquartered in Coventry - launched to address the UK Unix, AIX and networking markets. Reading based **Active Memory Technology's** DAP digital array processor is to be implemented in Gallium Arsenide by **E-Systems Inc**, Dallas, Texas under a project funded by the US Defense Advanced Research Projects Agency.

PICK - ON A ROAD TO UNIX

by William Fellows

The Pick operating system, which began life as a data management stores system for a US military project way back in the mid-1960s, has evolved into a commercial multiuser system - for users as opposed to technicians - with an inbuilt relational data base and English like inquiry language at its heart. According to a new report by the International Database Management Association, San Diego, California, Dick Pick's brainchild is now thought to have around two million users worldwide, and over 3000 applications written specifically for it. So Pick has reached maturity, or so it would seem, but the version of Pick which eventually becomes standard is up for grabs, and if its immediate prospects - according to the report - "are somewhat shaky" - then what of its future ?

Last month we reported that in the long term Pick is destined to become inextricably bound to the fortunes of Unix, (UN No 6). At the parental home in Irvine, California, Pick Systems has a pragmatic plan to intergrate Pick with the popular flavours of Unix, as well as other operating systems such as OS/2, over the next year or so. The IDMA's industry report on the Pick marketplace essentially confirms the need for these initiatives, predicting that the survival of Pick is linked to its future coexistence with other operating systems. Recent industry trends towards coalescence add further impetus to this direction, with Sanyo, Edgcore, Sequoia, Stratus, the Ultimate Corp, ADDS/NCR and McDonnel Douglas all joining up for the Pick/Unix corps.

In The Beginning

Early versions of Pick were developed on machines from Microdata - now the basis of McDonnel Douglas Corp's information business - and Intertechnique, now IN2. The first port was to Honeywell's Level 6 minicomputer for the Ultimate Corp, which became the first Pick licensee in 1978. In 1981 the first IBM implementation rolled on to the Series 1, and in the same year Pick and Associates adopted the name by which it is known today - Pick Systems. A couple of years later the PC revolution kicked further life into Pick, it being one of the only software environments capable of running in a business environment on concurrent, multiuser PCs: versions for the XT and AT were released in 1984 and 1985.

Where Pick really missed the boat was in the the open systems market which sprang into life from the mid-1980s. It should really have spelt open waters for the export of Pick into rich new territory. Ironically a system emulating Pick under Unix was developed first by VMark Software in 1985 known as uniVerse - and although it was written in C and not Pick assembler, this shot across the bows was all too omenent. The long anticipated Open Architecture version of Pick was not unveiled until 1986 and its reception was a disappointment, containing few enhancements over classic Pick. Open Architecture version 2 and Advanced Pick soon followed, which attempted to address the shortcomings, but their arrival only seemed to confuse the marketplace, rather than galvanize it into Pick activity.

Good For Business - But

Although Pick, with its inbuilt relational database, is ideal for business environments, in the open systems marketplace applications and operating systems stand or fall on their ability to perform a complete range of computing tasks. Here Pick falls down in several crucial areas. Firstly in scientific computing, where it is easily surpassed by Unix, Pick cannot compete because its lacks high floating point performance and mathematical functions. More importantly, communication features essential to the interaction of open and distributed systems networks are lacking, and security is weak. Office Automation applications are also found lacking. Although wordproceesing, spreadsheet and graphics functions do exist, the IDMA's report found users to be less than satisfactory with them.

Despite the practical shortcomings of trying to position Pick in an open systems environment for which it was not really designed, a shrewder insight into the problem is given by Nick Drescher, president of UCL Ltd, who observed that fundementally, Pick falls down because it is "not a well-known operating system backed by a large company." IBM operating systems are accepted because it is IBM, and Unix is accepted - with all its variations - because it has AT&T and others behind it.

Users Spell Out Message

In the stand alone market, compared solely with Unix and PC/MS DOS, Pick has barely a 3% market share - the other two taking 31% and 66% respectively, and even when - according to the report - PC/MS DOS popularity falls to around 50% in 1993, with Unix taking 44%, Pick's share will still only be around 5%. Indeed it is certainly not just the product which has attracted licencees - Dave Jackson, founder of Altos Computer Systems is quoted as saying, "I could be a hypocrite and say that Altos is in the Pick market because the operating environment is technically the best, but the truth is that Pick's distribution channels are equally, if not more important, to that."

And the Unix message is clearly spelt out - most importantly - by users. In the report, of those respondants who said they were evaluating alternative operating systems, 63% said they were giving Unix serious consideration, 64% said a Pick only system was out of the question, and over half said they would select a Unix/Pick system. Nevertheless Pick is still important to its users - the report claims that nearly 90% reckoned Pick has given their business a competitive edge.

Taking A Ride

So how can Pick Systems reconcile these forces and still come out on top ? The IDMA predicts that by 1993 86% of all Pick suppliers will offer Pick and Unix concurrently - the figure is around 50% at present - with the present two million users rising to eight million in ten years time. The installed base of Pick systems is projected to grow from 100,000 to 250,000 by 1993. To reach these giddy heights it is clear that Pick needs to ride on the back of Unix - the report even suggests that integration of the two "will prove a life saver for the Pick operating system." Certainly all this is not lost on Dick Pick and co down in Irvine, California, which has signalled that its road is to be paved with Unix.

MORE HARDWARE AND SOFTWARE NEWS

Netwise Inc of Boulder, Colerado, is one of the first companies to publicly announce its submission to the Open Software Foundation's Distributed Computing request for technology. Supported by users such as Data General, NCR, Novell, Unify and Wang, the company said it would be submitting its RPC remote procedure call product to the OSF's third request for technology. RPC has been sold by Netwise for the past two years, and is claimed to provide advanced remote procedure call technology to over thirty hardware platforms and to popular networks. Novell uses the tool as its standard RPC interface, and Unify Corp is using RPC to implement the client-server and remote database features in its forthcoming release of Accell-SQL for Unify 2000. The tool includes two primary components: an RPC compiler to generate network communications source code that will support distributed processing between all components of a LAN application, independently of hardware and operating system; and a network library for a specific network and operating system environment. Support is available for MS-DOS, OS/2, Unix, Xenix, VS, MPE and VMS, with network libraries for NetWare, LAN Manager, TCP/IP, DECnet, I*, NetIPC and NetBIOS (XNS). According to UK distributors Integralis of Bracknell, the tools can be used by applications developers "who do not have to be skilled in real-time software development".

DEC is promising a response by the end of the month to a demand from Adapso, the Association of Data Processing Service Organisations, that it end its practice of bundling the run-time version of its Rdb relational database with the VMS for the VAX minicomputer family. Adapso and key members led by Software AG and Oracle Corp contend that the practice of bundling Rdb violates anti-trust laws; DEC says it is bundling the run-time database software because so much of its other software depends on it.

The Open Software Foundation hopes to scotch rumours that its ambitious Architecture Neutral Distribution Format project may not be technically possible by releasing a few details about the Format - intended to enable shrink wrapped software to run on any Unix system, regardless of processor. 24 summaries of proposals have been received for the RFT, the majority of which have come from non-members, according to OSF spokeswoman Liz Cobbs. Detailed submissions will be received by October 16th. Following a member review of these at the end of the year, a shortlist of hopefuls will be drawn up early in 1990. There are currently three different approaches to the problem. The first involves a straight encryption or coding of the software to make it machine independent. The second is to provide an intermediate compiler format - some kind of halfway house. And the third is to develop tagged executable code - almost at machine/assembler level, in which extra information is "tagged" onto existing executable code. As yet, the OSF is unwilling to talk about any timescale for product/laboratory development or release. On the distributed computing front, submissions for the RFT are due in by October 6, following which a member review will take place in November. A technical decision will be made early next year. The OSF currently has 180 employees, set to rise to 220 by the end of the year. 70% are engaged in research and development. Latest tally of members is 158.

Hewlett-Packard Co has announced its first Precision Architecture RISC-based server, a new low-end HP-UX Unix workstation in the HP9000 800 line, release 7.0 of HP-UX, which includes the Open Software Foundation Motif windowing environment as the user interface, and Hewlett's first electronic mail product for Unix systems. The new release of HP-UX will be available for the 9000 Series 300 and Series 800 by year-end and the company says it has adopted OSF/Motif as the primary user environment for Series 300 workstations, and that it will be the underlying user interface for its future NewWave product under HP-UX, so that MS-DOS and OS/2 users will get the same user interface under Unix. The new OpenMail is based on X400 and is written to X/Open standards. A new AdvanceMail III version of its MS- DOS electronic mail program enables users to communicate through DeskManager on the HP3000 minis and through OpenMail on the HP9000s. OpenMail licences are $3,900 to $21,500 and it arrives in November; AdvanceMail III follows in December at $420 per single-user copy. The new HP9000 Model 635SV is the first HP-UX server and sells for $49,000. The new Model 808S is an eight-user, entry- level machine that sells for $21,950 configured, and both ship sometime in the fourth quarter. There are also AdvanceLinks for MS-Windows and for Macintosh, providing terminal emulation and file transfer to Hewlett's HP3000, HP9000 and HP1000 minicomputers, enabling MS-DOS and Mac users to access electronic-mail services on the HP3000 and HP9000; AdvanceLink for Windows is $300, for Macintosh it's $300, $350 and $400 for the text, graphics and colour graphics versions, out now.

Motorola Inc is now saying that 50MHz versions of its 68030 processor will become available in January of 1990 (although Integrated Micro Products Ltd already claims to have some, rated at 12 MIPS - see page 5), with its next generation CISC processor, the 68040, due out in the second quarter of next year. According to Arix Corp, however, early shipments are expected around now. If it gets the chips, Arix says it could be in a position to offer a 68040 upgrade for System 90 users by January. The new chip is expected to take the performance of the Arix multi-processor up from the current top of 40 MIPS to 180 MIPS. And Arix is also having second thoughts about the 68030, which it originally declined to take as a CPU because performance gains were minimal. As from December, Arix will replace the older 68020 chips used in the communications processor and disk controlller sub-systems of the System 90 with 68030s.

Cranfield Institute of Technology's Cranfield Data Systems - Cranfield, Bedfordshire, has developed a signal processing and data acquisition system around Concurrent Computer Corp's Model 5550 real-time Unix machines, and has signed the Scientific-Atlanta Spectral Dynamics Division to distribute the system worldwide on an exclusive basis except here in the UK, where the system will also be marketed by Cranfield. The Model 5550s, from the Masscomp side of the Tinton Falls, New Jersey house, will be used as the basis for turnkey engineering test and analysis workstations that will run the Cranfield software. The systems will be pitched at engineering test and spectrum analysis applications in aerospace, automotive, industrial machinery and defence markets.

Finishing touches to **Next Inc's** operating system version 1.0 are currently being made ready for release this month - it was originally expected in June: aside from bug fixes, the new version includes new network services and database software, including a beta version of Sybase , a new version of Mathematica from **Wolfram Research**, faster launching of programs and graphics and a new version of Net Info network management software.

Nixdorf Computer Ltd has introduced its POS 2000 range of retail point of sale terminals which has four models: the 2000/10, available now, uses a Z280 processor, the 2000/20 and the 2000/30 mid-range models use AT bus technology with 80286 and 80386 chips respectively and will be ready to ship by the end of the year, while the top model, the 2000/40 uses an 80386SX chip and will be available in 1990; the 2000/10 is compatible with Nixdorf's 8812 family and enables existing customers to migrate to the 2000/20 MS-DOS single user and 2000/30 Unix multi-user models as well as to the 2000/40 master terminal which supports operating systems such as Flexos and Unix.

Omri Serlin's Transaction Processing Performance Council has now come out with TPC Benchmark A, and is offering it up for public comment and review: no date has been set for this, but Serlin wants to hear from those interested in checking the thing out, at PO Box 1450, Los Altos, California CA 94023.

Corollary Inc , of Irvine, California, is looking for European distributors for its 8x4 terminal concentrator range of products - last year was a lean one for European sales due to a dispute with the existing exclusive European distributor **Specialix Systems**, which has now developed its own competing product.

The convoluted world of standards committees is hard to keep abreast of, and so the **US Usenix Association** has got together with the **European Unix User Group** to employ a single representative, Dominic Dunlop of **The Standard Answer** , to attend all the meetings of the International Standards Organisation Unix and C meetings and keep them informed: some idea of how involved that work will be can be gained from the full title of the ISO group working on the standards, in effect an IEEE Posix standard for Europe - it's Working Group 15 of Sub-Committee 22 of Technical Committee 1 of the International Standards Organisation and the International Electrotechnical Commission, known as ISO/IEC TCI SC22 WG15 for short...!

Nobody in the Unix world seems capable of attracting publicity like Steve Jobs: last month the **New York Times Sunday** magazine ran a major article on the ex Apple founder's bid to get his new venture off the ground, including a full page colour picture of the man himself - but even this accolade was topped by the inclusion of Jobs amongst the list of the ten sexiest men in the US, included in the latest edition of Playgirl - so if NeXT should ever run short of cash, he can always make a bob or two posing for a **Playgirl** centrefold.

Neuron Data , Palo Alto, California, maker of the Nexpert expert system, has opened offices in London, though it will not be competing with existing UK distributors.

And **Automated Reasoning Corp**, developer of the I-CAT expert system for computer aided testing of electronic equipment on Unix workstations has also set up a UK office in London.

HCR Corp, Toronto, Canada, has a C++ compiler based on version 2.0 of AT&T's language - HCR/C++ is available now and includes dbx, HCR's source level debugger: price is $500, or $100 for an upgrade from its compiler for C++ version 1.0.

Unisys Corp is reportedly preparing its own answer to IBM's System Applications Architecture, helping to tie together its multiple hardware platforms: the Unisys Solutions Generation Environment, or SGE, is intended to ease software portability, provide a consistent interface, and simplify network administration between Unisys platforms.

Advanced Technology Systems Inc of Vienna, Virginia is preparing to launch a product called LCache/386 which is designed to provide 80386-based machines under Unix with a large buffer so that users can pull data off write-once optical disk drives at near magnetic disk speed.

The Instruction Set reckons that there is enough demand for AIX skills out there now to warrant three new courses entirely devoted to IBM's Unix pretender - Using AIX, AIX Fundamentals and AIX Systems Administrator are each intended to provide introductory training in AIX.

Dean Microsystems, Pangbourne, Berkshire, has been appointed UK distributor for **Parsytec GmbH**, Aachen, West Germany's range of transputer based products - starter and development kits start at around £2,500 - Parsytec says it hopes to offer Ethernet connectivity in two months time, followed by TCP/IP at the end of the year.

The Kernel Group, Leeds, has set up an Open Systems Distribution division as a service to value-added-resellers and major end users: the division has initially announced a manufacturer agreement with **Altos UK**, but says that other manufacturer deals are on the way, with up to six signed up by next year.

And **Computer Service Technology**, also of Leeds, has also signed up with **Altos** as a distributor: CST is the result of the recent management buy-outs at **Systime**, and alrady has a network of some 40 VARs.

Data General is to licence Portable NetWare from **Novell Inc** for both its Eclipse MV and Aviion Unix systems using the Motorola 88000.

CONTACTS

AI Ltd UK 923 247707. **AT&T** UK 567 7711. **Advanced Graphics Engineering** US 619 565 7373. **Apollo** UK 908 366 188. **Automated Reasoning** UK 780 1828. **Chernikeeff** UK 1 985 8855 **Cobalt Blue** US 408 723 0474. **Cognitech** FRANCE 010 331 4583 7300. **Cranfied Institute** UK 234 750111. **Dataflex** UK 1 729 4460. **Dowty** UK 225 891881. **Emerald** US 206 485 8200. **Floating Point** UK 344 56921. **Harlequin Ltd** UK 44 223 872522 **Hewlett-Packard** UK 344 773199. **Hunter Systems** US 415 965 2400. **Integrated Device Technology** UK 372 363339. **Integrated Micro Products** UK 207 503481. **Intergraph Corp** UK 793 619999. **Kode** UK 793 511345. **Lynx** US 408 370 2233. **Microsoft** UK 734 500741. **Mission Electronics** UK 480 52777 **Motorla Computer Systems** UK 628 39121. **NCR** UK 1 723 7070. **Neuron Data** UK 408 2333. **Novell** UK 44 344 860400 **Open Software Foundation** Belgium 32 2647 7740. **POSIX** US 603 884 51 **Phoenix Technologies** US 617 769 7020. **Pick Systems** US 714 261 7425. **Point 4 Data Corp** USA 1 714 259 0777 **Prime Computer** UK 5727 400. **Quatemaire Informatique** France 46 04 1010. **Rabbit Software** USA 1 215 647 0440 **Real Time Services** UK 0534 70072. **Recognition Equipment** US 214 579 6000. **Relational Technology Ltd** UK 1 351 7722. **SST** US 414 242 3999. **Silicon Graphics** UK 235 554444. **Software Inc** US 515 270 6200. **Strand Technologies** US 503 690 9830. **Stratus** UK 1 570 4433. **Sun** UK 1 276 62111. **SyFA Data Systems** UK 923 54545. **Tenet Systems** UK 403 711555. **Tolerant Software** USA 1 408 433 5588 **Tymnet** US 408 922 0250 **UCL** UK 84421 3151. **Unix International Inc** US 201 263 8400. **Visix** US 800 832 8668. **Visual Technology** US 508 459 4903.

UNIX NEWS

UNIX NEWS is published monthly by Unigram Products Ltd, 4th Floor, 12 Sutton Row, London W1V 5FH.

Editor: William Fellows
Consultant: John Abbott
Circulation: Simon Thompson
Brigit Ingham
Letters and contributions welcome.

Telephone +44 (0) 1 528 7083
Fax +44 (0) 1 439 1105.

Subscription Orders: £55 per 12 issues. Enquiries and payment to Unigram Products, 4th Floor, 12 Sutton Row, London W1V 5FH.