

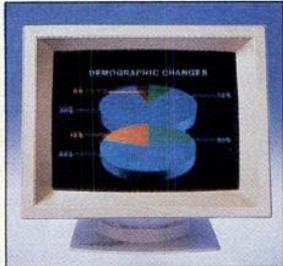
## NEC Multisync Product Line Gets Additions

By George Abruzzese

NEW YORK — NEC Home Electronics (USA) Inc. unveiled here last week its new IBM PC-, PS/2-, and Macintosh II-compatible additions to its Multisync monitor family.

Two displays, one graphics card, and a PS/2 adapter plug were unveiled. Called the Multisync Plus and the Multisync XL, the new displays are enhanced versions of the original Multisync monitor.

The NEC monitors provide users with improved resolution



The Multisync Plus color monitor provides 960 by 720 resolution.

and wider scanning frequencies to accommodate a wider range of adapters, NEC said, including the VGA and MCGA modes for the new IBM PS/2 line. Other graphics modes supported include monochrome, CGA, and EGA in the TTL mode, and PGA, NEC said.

The Multisync Plus color  
**Continued on Page 89**

## Toshiba Unveils Lightweight Laptop; Sidesteps U.S. Tariffs

By Lisa L. Spiegelman

Skirting U.S. tariffs on Japanese laptops, Toshiba America Inc. last week announced a 6.4-pound, PC-compatible laptop that it claimed will be the lightest, smallest IBM compatible available in the United States.

At the same time, the company said it will manufacture a wide-carriage model in its 24-pin dot-matrix printer line.

The 4.77-MHz 80C88-based laptop, the model T1000, is

unaffected by the trade sanctions on Japanese imports because it has an 8-bit bus. The sanctions apply instead to laptops with 16-bit processors and 16-bit buses, such as Toshiba's T1100 Plus and T3100.

The system is priced at \$1,199 in a standard configuration that includes an 80-character-by-25-line supertwist LCD screen, 512K of RAM, and a

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## Spring Comdex to Showcase IBM PS/2, Compatible Products

By Rachel Parker

ATLANTA — Buyers anxious to get a look at IBM's new PS/2 line and compatible products from major vendors will have their first chance at the Spring Comdex show here.

IBM will probably have the most impressive display of the 600 vendors exhibiting at the show, which runs from June 1

through June 4. The company will set up 52 pedestals bearing the PS/2 line and related products, according to spokeswoman Linda Dezan. IBM will show not only the Models 30, 50, 60, and 80, but also the standard and extended versions of OS/2, connectivity solutions, and sev-

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## Chip Set to Spawn PS/2 Compatibles

### Bus Duplicates Micro Channel, Company Says

By Rachel Parker and Lisa L. Spiegelman

MILPITAS, CA — Chips and Technologies said last week its reverse engineering of IBM's Micro Channel Architecture will let hardware makers bring out PS/2 compatibles by as early as the first quarter of 1988.

"We are working with the silicon and believe we will begin delivering samples of the chip set to hardware makers by the fourth quarter," said Chips and Technologies spokesman Michael Ares. Engineers at Chips and Technologies are reverse engineering the three major circuits to determine their relationship to the Micro Channel, analyzing the layers of silicon and looking for the basic logic functions that make up the chip.

### Cloning IBM's Micro Channel

Vendors of PC AT compatibles said last week they expect to have little difficulty producing machines that clone the IBM Micro Channel Architecture, but some questioned whether they would choose to do so.

Engineers at Houston-based Compaq Computer Corp. believe the Micro Channel 32-bit capability can be provided. "It is not a particularly difficult technology," said spokesman Robert Beach.

Televideo Systems Inc., the Sunnyvale, California, vendor of the Teletar 386,

believes it will be relatively easy to convert from the 8- and 16-bit AT bus to one like the Micro Channel, according to President and CEO Philip Hwang.

In Fremont, California, Club AT director of marketing Roger Hatfield said reproducing the Micro Channel "is just a matter of where you route all the lines coming in" to each expansion slot. The firm's upcoming 80386-based machine, however, will likely have just a 16-bit bus, he said.

Many of those same ven-  
**Continued on Page 89**

The company also plans to work on the 32-bit version of the Micro Channel bus in the Model 80 when it is available.

Chips and Technologies also said it believes its bus design will

escape legal problems related to IBM's patents on the Micro Channel. "To duplicate each of IBM's functions exactly would probably infringe on their prop-

**Continued on Page 89**

## IBM's First 386 Machines to Ship Early But Firm Places Model 60 on Constrained List

By Alice LaPlante

IBM's first 386 machines will be available within a month, the company announced last week. It is pushing up the shipping date of the first two configurations of the Model 80 from July to June.

However, IBM has placed the Model 60 on a "constrained" distribution list, saying that demand for the 286-based machine has far outpaced supply.

According to IBM spokesman Cary Ziter, the Model 80-041 — with 1 megabyte of RAM and a 44-megabyte hard disk — and the Model 80-071 — with 2 megabytes of RAM and a 70-megabyte hard disk — will both ship a month earlier than originally announced.

The fourth-quarter shipping date of the third configuration of the Model 80, which has a 20-MHz 80386 and 115-megabyte

hard drive, has not changed.

However, IBM's Model 60-041 is currently not available in large volume from dealers or sales force. The Model 60-071 has yet to be shipped Ziter said.

"There is a supply/demand imbalance on the first configuration of the Model 60 [with a 44-megabyte hard drive], but IBM is doing everything it can to get product out the door and

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### AT DEADLINE

## Vendor Plans PS/2 Compatible 386

Mini-Micro Business Systems of Boulder, Colorado, plans to announce at spring Comdex an 80386 machine that will eventually offer PS/2 compatibility. The TSI PC-Tower 386 will be available in four configurations, all of which use a 386 chip operating at 16 MHz and provide two 32-bit, two 8-bit, and four 16-bit slots.

The basic Model 40, priced at \$4,995, comes standard with 512K of memory, a half- or full-height floppy drive, and a 40-megabyte hard disk

with an access speed of 28 milliseconds. Other configurations feature tape backup systems and hard drive capacities of up to 140 megabytes.

According to Mike Hamblin, vice president of marketing for the company, it will offer an upgrade kit for the computers in the fourth quarter that will allow the machines to be compatible with the Personal System/2's Micro Channel bus.

— Lisa L. Spiegelman  
**Continued on Page 3**

# Ashton-Tate Revises Volume Upgrade Program, Support Policy

By Peggy Watt

TORRANCE, CA — Ashton-Tate is revamping its corporate support and upgrade policies in answer to complaints from volume buyers who said prices were too high and the process inconvenient.

Lower prices and mix-and-match product options were announced for the volume upgrade program last week, and this week the company will unveil new prices and negotiable

contract policies for corporate support. Early subscribers can change their contracts and choose the services they want, rather than face only a carte blanche enrollment, said Jeanne Mowlds, manager of corporate marketing and services.

"We may finally be able to use volume purchases," said Ann Bruner, systems analyst for the Massachusetts court system, which uses a variety of Ashton-

Tate products but does not have a large number of any single program.

"I'm pleased they're listening to corporate users," said another corporate information center staffer. "Ashton-Tate's been one of the last to recognize the hassle of collecting diskettes."

One microcomputer manager whose company bypassed the initial support program announced last summer, said the

new plan will cost his three sites approximately \$3,000 less than the original \$8,000 annual service price.

Changes to the volume upgrade program were prompted by the recent announcement of a revised Multimate, Mowlds said. Buyers may now combine old and new purchases, as well as copies of different Ashton-Tate programs that are priced the same, to reach the minimum

quotas for volume upgrade prices, Mowlds said. Users no longer have a deadline by which to upgrade, and a new discount category was added for customers with more than 500 copies.

Volume buyers no longer need to return disks or even report serial numbers of copies if the company has a designated person responsible for disposing of the old versions, Mowlds said.

## Chipset

Continued From Page 1

erty," Ares said. "However, when the logic is extracted and the entire system is studied, typically there are better and more efficient ways to provide system-level compatibility without infringing on individual patent functions," he said.

"Some of the functions in the Micro Channel are mainframe-style memory management and peripheral-control techniques," said Ares. The architecture controls the calls from the video display, microprocessor, memory, and other peripherals, playing traffic cop to ensure that calls will be directed properly and not collide, he said. "We used to have a two-lane road, but now we have a four-lane highway to control."

The company is also working on reverse engineering the other IBM-proprietary element in the PS/2 line: the Video Graphics Array. Engineers are examining the silicon that goes into the circuit and should have sample quantities of a VGA-compatible chip set by the fourth quarter.

With Chips and Technol-

ogies' chip sets providing the Micro Channel Architecture and VGA functions, true PS/2 compatibles should be available by late in the first quarter of 1988 — about the same time OS/2 begins shipping. "Like our other products, the silicon we produce for PS/2 will be [fully] compatible," said Ares.

The company is also working with Phoenix Technologies and others who are experimenting with a PS/2-compatible BIOS, Ares said. The Chips and Technologies bus design combined with a BIOS will give hardware makers what they need to build PS/2 compatibles.

In addition to its PS/2-compatible plans, Chips and Technologies is developing both an XT and a faster AT chip set, and a graphics chip set, said financial analysts familiar with the company's plans. The XT and AT chip sets are expected to be announced shortly after spring Comdex, with vendors supplying products in early fall.

Although Chips and Technologies would not confirm the products, the company said it would introduce six or seven products for the current PC architecture by the end of the summer.

Channel Architecture to the IEEE as a possible 32-bit standard.

IBM spokeswoman Linda Dezan, however, said IBM has applied for patents on some Micro Channel components and, if patented, some portions of the bus will not be licensed.

Even if IBM does succeed in establishing its proprietary rights to the architecture, George Colony, president of Forrester Research, in Cambridge, Massachusetts, said he believes IBM will license Micro Channel to clone makers. He added compatible vendors may have no other choice than licensing through IBM because there may be no legal cloning method that will work with something like a bus.

Pointing to Digital Equipment Corp.'s successful patenting of the BI bus of its 8200-series VAXes, Colony said those who clone Micro Channel take a big risk.

— Edward Warner

## Model 60

Continued From Page 1

to dealers," Ziter said. "The second Model 60 [with a 70-megabyte hard drive] will begin shipping to dealers later this month."

Because most corporations test new PCs extensively before buying in volume, the lack of Model 60s makes it difficult for

them to put the machine on their "approved" list, said dealers.

"I have a number of corporate customers who are interested in evaluating the Model 60, but none of whom have made any commitment yet to the new IBM PS/2 line because of the difficulty of getting a unit," said Matt Fitzsimmons, manager of a Computerland in White Plains, New York.

"The Model 60 is listed as a

constrained product on special allocation, which means it comes into the store in dribs and drabs," agreed Irwin Feder, regional sales manager for a Florida Computerland chain. "It could take anywhere from 30 to 60 days before the product is readily available."

All IBM dealers contacted by InfoWorld said that both models were readily available, and that orders for either machine could be filled immediately.

## Toshiba

Continued From Page 1

3½-inch, 720K floppy drive.

The T1000 is 12.2 inches wide, 2.05 inches high, and 11 inches deep and is limited to a single internal floppy disk drive. A ROM-based copy of MS-DOS, Version 2.11 is included.

The machine can reportedly run for five hours on its rechargeable internal battery and is supplied with a power adapter for recharging and running the computer from an AC outlet.

The T1000 will be shown at spring Comdex in Atlanta next week and is expected to be available in large quantities in

July through dealers, according to Tom Sherrard, Toshiba's manager of PC marketing.

Options for the T1000 include a 1,200-bps internal Hayes-compatible modem, scheduled for July or August delivery, and a 768K memory card, to be available by September. The memory card provides 128K of standard memory and 640K of EMS memory. The EMS memory can be used as a RAM disk, said Sherrard.

Prices for the modem and memory card have not been determined.

Toshiba also introduced the P341SL printer, which is a wide-carriage version of its slim-line 24-pin, dot-matrix printers. The printer operates at 216 cps in



The T1000, at 6.4 pounds, is the smallest and lightest IBM-compatible PC in the United States, according to Toshiba, its maker.

high-speed draft mode and 72 cps in letter-quality mode. Standard on the \$999 printer are two slots and 32K of RAM.

Toshiba America Inc., Information Systems Division, 9740 Irvine Blvd., Irvine, CA 92718; (714) 380-3000.

## Cloning

Continued From Page 1

dors say they are waiting to see how soon Micro Channel capability is actually needed. IBM only this month has begun supplying expansion board vendors with the handshaking protocols needed to create Micro Channel boards. Because no 32-bit boards exist for the Micro Channel, "there is no near-term use for that 32-bit architecture," Compaq's Beach observed.

Another question in the minds of clone makers is whether IBM will patent the Micro Channel technology or put the full specification into the public domain, as consultant Carl Warren believes IBM will do. Warren, president of the Warren Group, in Huntington Beach, California, said he believes there is nothing patentable. He said sources at IBM have told him they expect to present the Micro

## NEC

Continued From Page 1

monitor is aimed at the high-resolution business graphics and desktop publishing marketplace. The Multisync Plus provides resolution up to 960 by 720 pixels with a scanning rate of 21.8 kHz to 45 kHz horizontally and 50 to 80 Hz vertically. The 15-inch diagonal, TTL/analog-switchable Plus monitor lists for \$1,399.

The Multisync XL is a 20-inch diagonal monitor that supports resolutions up to 1,024 by 768 and is aimed at the CAD/CAM market. The XL's highest resolution coincides with that of the IBM Display Adapter 8514, which is expected to ship in June. Several other vendors, including Microfield Graphics Inc. of Beaverton, Oregon, and The Mylex Corp. of Miami,

Florida, said they will provide adapter boards supporting that resolution.

The XL also is TTL/analog switchable with horizontal and vertical scan rates of 21.8 kHz to 50 kHz and 50 Hz to 80 Hz, respectively. It costs \$3,195. Both monitors will be available in late summer, NEC said.

NEC also showed its new EGA-compatible Multisync



The NEC Multisync XL monitor is aimed at the CAD/CAM market, according to the company.

GB-1 color graphics card, which is priced at \$549. When used in conjunction with the Multisync monitors the card provides visual resolution equivalent to IBM's high-resolution PGA adapter, NEC said. The GB-1 provides 640 by 480 resolution and 16 colors on-screen from a palette of 64. The graphics card can also be used with other monitors that support Hercules monochrome, MDA, CGA, and EGA modes, according to NEC.

To provide compatibility with the IBM PS/2, NEC also introduced a \$25 9-pin to 15-pin conversion plug for its monitors.

The original Multisync, which NEC will continue to sell, has a scanning range of 15 kHz to 35 kHz horizontally and 50 Hz to 60 Hz vertically, with a resolution of 800 by 560.

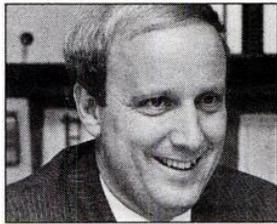
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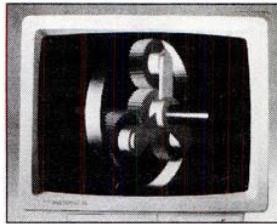
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**AT DEADLINE** *Continued From Page 1*

## Maynard Unveils Tape Adapter for MCA

Maynard Electronics Inc. of Casselberry, Florida, announced last week the Maynstream Tape Adapter, which it said is the first tape drive adapter card for the Micro Channel Architecture of IBM's PS/2 Models 50, 60, and 80.

By connecting to the MCA bus, the new card will allow faster tape drive backup than possible with drives that connect to the floppy disk controller on the PS/2 series, the company said. "It's hard to be 100 percent sure, but from all the investigation we have done, we have not been able to find another manufacturer that has a production-ready board that runs on the Micro Channel bus," said Maynard Knapp, company president.

The adapter card will sell for around \$295 and be available in production quantities by June 15, Knapp said. The new card will be included in the price of Maynard's Maynstream line of portable tape drives and will work with any QIC-02 standard interface drive, he said. However, if used with other companies' drives, the card would require custom cables that Maynard will not supply.

— Tom Moran

## Firm to Announce New Version of Xywrite

Xyquest Inc. of Bedford, Massachusetts, said last week it will announce an update of its Xywrite word processing program at Comdex in Atlanta. Although president John Hild confirmed that the new version, likely to be called 3.2, is being readied for market, he refused to give any product details.

However, sources close to Xyquest said a case-sensitive spelling checker that allows both interactive and batch spell-checking has been added. Also expected are a thesaurus and a "red-lining" feature, which permits changes between document revisions to be shown.

— Eric Lach

## Firmware to Better Windows Performance

Firmware that increases the performance of Windows applications software by two to 10 times over current speeds will be available in June, said Texas Instruments and Graphic Software Systems Inc. (GSS) of Beaverton, Oregon. GSS will market the TMS34010 Windows Accelerator through board makers.

Based on TI's 34010 32-bit graphics processor, the accelerator will work without alteration with any add-in board using the chip, said a TI spokesman. Users will purchase the firmware from board manufacturers, he said. GSS is currently negotiating with six board makers, according to a GSS spokeswoman. The company said it will sell the TMS34010 Windows Accelerator to board makers for \$15,000 for a license to sell 3,000 units.

— Priscilla Chabal

## Multuser PC-MOS/386 Available For Users

PC-MOS/386, one of several multuser, multitasking operating systems that runs DOS software but exploits the power of the 386 chip, is now shipping to end-users, said the Atlanta-based The Software Link.

PC-MOS/386 is compatible with about 75 percent of existing DOS software, including Lotus 1-2-3, Wordstar and Dbase III Plus, said Jeff Weyrich, product marketing coordinator for the company.

The operating system offers full support for 32-bit protected mode operation and virtual 8086 mode, which permits multiple DOS sessions to be run on the same system, or for terminals to be added to the 386 machine to run DOS programs.

The single-user version of PC-MOS/386 is \$195. A five-user version is \$595, and a 25-user version is \$995. The full PC-MOS kernel is about 117K, Weyrich said, though not all of that is necessarily loaded at once. The 386 system requires a minimum of 1 megabyte of RAM, and the number of multiple DOS sessions is limited by the system configuration.

— Scott Mace

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