Windows to OS/2: How It Works
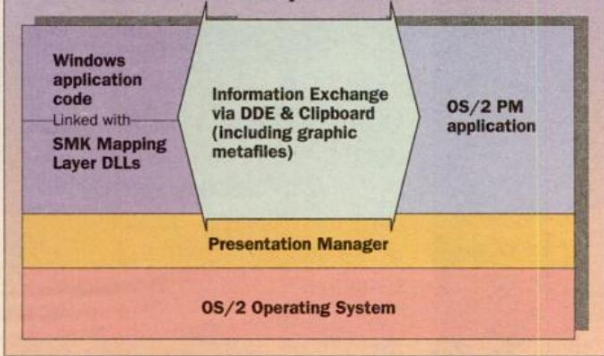
Microsoft's Porthole allows developers to link their Windows code to Presentation Manager through a mapping layer.

Developers Get First Beta Version of Porthole Tool

Program Helps Port Windows Apps to PM

BY STUART J. JOHNSTON

Microsoft is shipping selected developers a prerelease version of its "Porthole" Windows-to-OS/2 Presentation Manager porting tool with surprising results — it works, sources said.

The Windows to OS/2 Software Migration Kit (SMK), which began reaching developers last week, is still in "late alpha or early beta" form. It probably will not ship officially until September, according to

sources. But while the SMK does not yet support the full Windows Application Programming Interface (API) and ported code still has some performance problems, it does help developers move code quickly.

"We brought our [Windows] code over [to OS/2] in a day and I was shocked," said one developer, who also conceded "there were some performance issues."

Code-named Porthole, the SMK, which Microsoft acknow-

See Porthole, Page 109

Word Perfect to Produce Scaled-Down Version of 5.1

BY YVONNE LEE

Word Perfect Corp. is working on a scaled-down word processor designed for laptop users and others who don't need all the features in Word Perfect, Version 5.1.

The product, called Letter Perfect, will produce Word Perfect 5.1-compatible files and have many of its features, including font support, graphics,

pull-down menus, and mouse support.

Letter Perfect will also use many of the same template keystrokes as the top-selling word processor, but because the program has fewer features, the menus will be simpler, according to Alan Ashton, Word Perfect's president.

Officials at Word Perfect would not project an availability

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IBM Admits Changes to PS/2 MCA

Older Machines Lack Support for Streaming Data

BY PATRICK DRYDEN
AND ALICE LaPLANTE

SAN FRANCISCO — IBM officials acknowledged last week for the first time that there is a difference in how the Micro Channel Architecture is implemented on newer models of the PS/2 compared to older models, and that purchasers of most current PS/2s would not be able to access the enhanced capabilities of the MCA announced last fall.

Micro Channel card and system developers attended an IBM seminar here last week to receive help in implementing bus mastering and enhancements such as data transfers at double or quadruple the usual MCA rate.

Most owners of current Micro Channel systems, however,

Support for MCA Streaming Data Procedures

IBM machines
- Model 65 (061, 121)
- Model 70 (A21, B21, A61, B61)
- Model 80 (A21, A31)
- RS/6000 Line
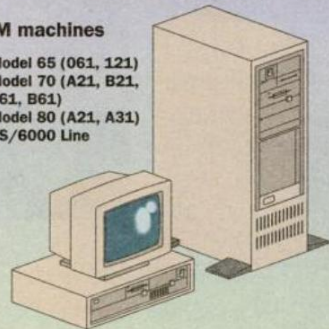
Card vendors
- Core (ESDI Adapter)
- 3Com (Ethernet)
- IBM (SCSI, Token Ring, Graphics Controller)

Enhanced Micro Channel features are supported by IBM's newer systems, but only by a few add-on boards.

won't see all the benefits, said IBM officials at the class. Instead, high-performance cards designed for streaming data transfers will step down to the default 20-megabyte-per-second

bus rate in older PS/2s and all current MCA compatibles.

PC and MIS managers interviewed by *InfoWorld* said they were not particularly distressed

See MCA, Page 8

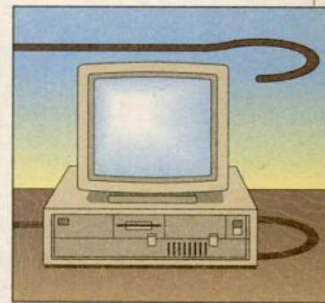# Faulty SCSI Adapter Halts Shipment of PS/2 Servers

BY ALICE LaPLANTE
AND ED SCANNELL

WHITE PLAINS, NY — IBM's attempt to spur sales of its tower-configuration PS/2-based machines is off to a rocky start. Within a month of the formal announcement of the new Models 65 SX and 80, IBM had to suspend shipment due to a

problem with the SCSI adapter used by the machines.

The machines will begin shipping again by the end of the month, said Rob Wilson, an IBM spokesman.

"Through volume ramp-up in ongoing quality testing, IBM has determined that a limited number of IBM SCSI adapters in the new Model 80s and Model 65 SXes may experience failures in certain data transfer operations," Wilson said. "This fail-
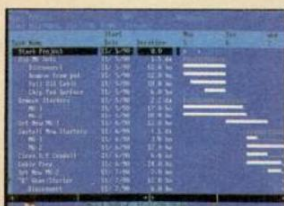

ure can result in a modification of data without any error indication."

The problem was with the adapters, Wilson said. There were no problems with the PS/2

See SCSI, Page 109

Mac IIci Memory Management Blamed for Incompatibilities

BY ERIC LACH

Apple Computer Inc. acknowledged last week that the Macintosh IIci has been experiencing an unexpectedly high number of hardware and software incompatibilities.

"The majority of applications out there work on the IIci with no problems, and the few that did have problems have generally been corrected by this

point," said Fred Benz, Apple product manager for the Macintosh IIci.

Nevertheless, the IIci already has gained a reputation as an ill-behaved system. "There has been no great influx of IIci's at Lockheed, and I don't know of any large companies where there has been," said Mike Bailey, a systems integrator at Lockheed Missiles and Space, in Sunny-

See Mac IIci, Page 109

G. BOREN/INFOWORLD

MCA

by the news.

"I'm a longtime IBM customer, and I am never surprised that things announced on a given day are not adaptable to older machines," said Wayne Sadin, vice president of MIS at Murray Financial Corp., in Dallas. "I buy what I need and get a reasonable life out of it without worrying about waiting for two months to see what else might be announced."

"You need to ask yourself, 'In these boxes, what kind of transfer rate is really needed?' " said Bob Holmes, manager of systems evaluation at Southern California Gas Co., in Los Angeles. "The current transfer rates aren't going to be a bottleneck in the real world."

The Model 65 SX and the two newest versions of the Model 70 and Model 80 provide the motherboard signal support for new bus-master exchange options, whereby adapters can communicate independently at 40 megabytes per second in 32-bit mode or 80 megabytes per second by 64-bit multiplexing (see chart, Page 1).

"We're always forward compatible, but we can't support everything backwards," said Ralph Sorrentino, senior planner from IBM's entry systems division, who arranged the bus-master design classes for the special marketing programs group. There are no compatibility problems, but users could fail to get the full benefit of certain

add-on cards, depending on which PS/2 they own, he said.

"A streaming data card works in a PS/2 where the pins are still reserved and won't smoke the system," Sorrentino said.

Short of replacing the motherboard, upgrading PS/2s other than these isn't feasible for adding streaming data support, Sorrentino said. Users who want this enhancement must move to a new system.

The RISC System/6000 supports streaming data modes, as well as parity and fault-recovery enhancements announced to MCA developers in September of 1989. The RS/6000 is also the first system to include the host itself in high-speed bus exchanges with enhanced add-in cards.

One network adapter card engineer in last week's class said data streaming would help ease bus latency problems, especially with multiple cards in a server.

"From a design standpoint, it's there so I'll use it if cost and schedules allow," the engineer said. "But I doubt there will be many systems out there to use these features."

Another attendee said his firm would put these advanced capabilities into their add-on products for the RS/6000 family, but not the PS/2s. "I don't feel the PS/2s have enough backbone to support all these enhanced MCA features."

System engineers from NCR Corp. said that matching the latest MCA enhancements is vital because their company targets major corporations that need and can afford to upgrade.

Slate Plans Development Of Pen-Based Applications

BY NICO KROHN

Quieting industry speculation, Slate Corp. last week announced it is developing applications for pen input computers.

Slate, a Scottsdale, Arizona, firm formed earlier this year by a handful of industry veterans, is the first company to announce plans to develop general market applications for the fledgling pen interface technology. Vertical market programs have been announced by several other vendors, including participants in the Pen Interface and Handwriting Recognition Conference sponsored by Grid Systems Corp. last week. Grid is as yet the only U.S. vendor shipping a pen input computer, and there is no software for it.

Other pen input computers are expected to be released soon by Scenario Inc., Momenta Corp., Go Corp., and Superscript Inc.

Industry analysts say the development of software is critical to the success of the industry. Slate expects to answer that need shortly.

"We've got products working in the lab," said Vern Raburn, Slate's CEO. "Certainly this year we'll be able to talk about products." Raburn declined to give details about Slate's products or their platforms, although he said one will feature a graphical user interface.

Raburn said he expects pen input technology to cause a "not evolutionary, but revolutionary" change in the computer industry.

"You don't get these opportunities but about once every five years," he said. "We see a new era in computing coming."

Analysts and hardware developers have expressed skepticism, saying pen interface technology has to overcome many barriers, including its incapability to recognize handwriting, before its future is ensured.

Gridpad and Scenario's Dynawriter, which is in beta testing, can only recognize printed characters, limiting the potential market for pen-based products. Some analysts estimate that handwriting recognition is five to 10 years away.

ALR Unveils Scalable EISA Desktop PC

BY MARK BROWNSTEIN

Advanced Logic Research last week added a desktop model to its line of scalable, EISA-bus computers.

The Business VEISA is based on a scalable design that allows the user to upgrade the system with one of three processor boards: a 33-MHz 80386, a 25-MHz 486, and a 33-MHz i486.

The ALR Business VEISA can be upgraded with one of three processor boards.

All peripherals, installed boards, and other system components remain unchanged when the system is upgraded.

The base unit includes 2 megabytes of standard memory, one 1.44-megabyte 3½-inch floppy drive, and an embedded AT-type hard disk controller. Up to 17 megabytes of RAM can be installed on the system board.

In addition, the Business VEISA includes a Flexcache and read-and-write-back cache.

The ALR Business VEISA 386/33 includes a VGA card and monitor that supports 800-by-600 resolution. Three versions of this model are available: the Model 40 with a 40-megabyte hard disk (priced at $4,999); the Model 80 with an 80-megabyte hard disk (priced at $5,499); and the Model 110, with a 106-megabyte hard disk (priced at $5,699).

The Business VEISA 486/25

features an i486 processor operating at 25 MHz. The base model, with one disk and no hard drive, sells for $4,999. Models 40, 80, and 110, with the same drives as listed above and VGA card and monitor, sell for $6,499, $6,999, and $7,199, respectively.

A processor card with a 33-MHz i486 processor will be offered when the chips become available in quantity.

ALR will smooth the upgrade process by offering a module buy-back plan. When a registered user returns a module and purchases an upgrade module, the company will send the owner a rebate ranging from $200 for the 33-MHz 386 to $1,200 for the 25-MHz 486.

The 25-MHz 486 and 33-MHz 386 systems will begin shipping next month.

Advanced Logic Research Inc., 9401 Jeronimo, Irvine, CA 92718; (714) 581-6770.

Zenographics to Ship Windows 3.0 Printer Drivers

BY MARK BROWNSTEIN
AND KRISTI COALE

Helping to fill the gap left by Microsoft's lackluster printer drivers, Zenographics Inc. is set to ship a Windows 3.0-compatible version of its high-speed printer drivers when that infamous operating environment hits the street.

Superprint makes printing outline fonts, bit maps, and vector graphics in Windows 10 to 15 times faster than printing with the Windows drivers, the company said. Part of what makes Superprint so speedy is Superdriver, which has raster image processor (RIP) capabilities. A text manager catalogs screen fonts, leaving them for any application to access easily.

Superprint comes in two versions: a $195 version for Hewlett-Packard Laserjets and a

$395 version for color thermal printers. Understanding that some Windows users may wait to upgrade to the as-yet-unannounced Windows 3.0, Zenographics is including a Superprint for Windows 2.1 along with the 3.0 driver. The 2.1 driver has all the same capabilities except for font cataloging.

Zenographics is also keeping apace with the Windows 3.0 applications announcements by shipping Pixie 2.0, an upgraded version of its charting and presentation design program. The new version lets users produce vertical and horizontal bar and line charts, in addition to scattergram and bar charts representing both standard and nonstandard deviations.

Through Dynamic Data Exchange, Pixie 2.0 updates charts as changes are made to the data on which they are based. The

program also matches Postscript fonts to the Bitstream fonts included in the package. Zenographics has added spell checking, new chart viewing options, and an on-screen slide show feature to this $295 package.

Also out of the gates are Import 4.0 and Import Plus, graphics translation programs that modify a variety of image formats into computer graphics metafile (CGM), Mirage IMA, and Graphic Software Systems' CGI and VDI formats. Import Plus drives specific printers using Soft RIP technology.

Import 4.0, which works with DOS, costs $295. Import Plus for the HP Paintjet costs $395, while a version for the Tektronix 4693DX color printer costs $495.

Zenographics Inc., 4 Executive Circle, Irvine, CA 92714; (714) 851-6352.

NCR Begins Move Away From 286s With Unveiling of 16-MHz 386SX PC

BY BARBARA DARROW

NCR Corp. last week introduced an entry-level 16-MHz 386SX machine as part of its move to 386SX and 486 CPUs.

The standard-bus ELPC 386SX comes with 1 megabyte of 100-nanosecond memory standard on the CPU that is upgradable with SIMMs to 3 or 5 megabytes. A 16-bit Super VGA graphics controller is also standard.

The machine is a portent of things to come, according to Gary Horning, assistant vice president of product line management for NCR's workstation group. While the company will continue to sell 286s for "anoth-

er year or so," its strategy is to phase out 286s — and eventually 386s — to concentrate on 386SX and 486 platforms, Horning said.

"Now, there's only about a 10 percent price difference between 286s and 386SXes," Horning said. "As we go to a higher level of integration with the SX system and Intel brings down the cost of the CPU and support chips, the 386SXes will be right on top of the 286s." The company plans to introduce a 20-MHz 386SX within the month, he added.

Prices for the ELPC 386SX range from $2,195 for a diskless model to $3,795 for a unit with a 1.44-megabyte 3½-inch floppy

NCR's ELPC 386SX is an entry-level machine that comes with a VGA graphics controller card.

drive and a 100-megabyte hard disk. Two intermediate units are also available. All computers are shipping now.

NCR Workstation Products Division, 1601 S. Main St., Dayton, OH 45479; (513) 445-5000.

5.1

date for Letter Perfect, which is not yet in beta test, but said it will cost $229.

Analysts said that bringing out a low-end product would not only help Word Perfect gain a foothold in that segment of the word processing market, but it could woo customers who may find the full feature set intimidating.

"It's not that a high-end word processor is more difficult," said Faith Halpern, an analyst with Wohl Associates. "It has more features. For a first-time user, who may not use all those features, it may seem more difficult. If they ever felt they would have more need, they could always use Word Perfect," she said.

As its name implies, Letter Perfect is intended for use with smaller documents. It will lack such features as tables, indexing, table of contents, and tables of authorities used to handle large documents. The program will not support footnotes at the

'Hold Jockey' to Spin 5¼-Inch Disks

A support line "hold jockey" who will give "traffic reports," monitor queues, spin disks, and air ads for Word Perfect Corp. products will go on-line next month.

Word Perfect's busy, toll-free technical support lines are practically a software industry legend, and company officials hope this newest twist will add a human touch to being placed on hold on their computer-switched support lines.

The hold jockey will monitor the queues and update callers on how soon an operator will get on the line, said Stan Mackay, Word Perfect's customer support director. The hold jockey will also give priority to users who have been waiting a long time.

For entertainment and information, waiting callers will hear "about one-third music, one-third traffic reports, and a third commercials" for Word Perfect products, Mackay said.

Also upcoming is a logistical change in Word Perfect support. The features line, which gets 13,000 calls daily, will be split into two: one for inquiries about graphics, tables, and equations; and the other for calls about labels, merges, and macros. For now, customers who call the features line are prompted to select a line by pressing a key on their Touch-Tone phones.

Word Perfect customer support operates from 7 a.m. to 6 p.m. Mountain time. Emergency support is available after hours.

— Yvonne Lee

bottom of the page, but will instead place them as endnotes.

When a Letter Perfect user calls up a Word Perfect document that uses tables or other features that Letter Perfect does

not support, the program will skip over the information, neither showing it on the screen nor printing it. When the file is sent back to Word Perfect 5.1, it will remain intact.

Porthole

ledged development of in February, is similar to Mirrors from Micrografx of Richardson, Texas.

Using either tool, developers relink Windows code with special Dynamic Link Libraries (DLL) that map Windows API calls onto PM calls, so programs can run with only minor modifications. Although Microsoft has acknowledged the SMK "borrows ideas" from Mirrors and announced a "technology exchange" between the two firms earlier this year, the software giant said no actual Micrografx code is used.

The SMK consists of two sets of DLLs — one for OS/2 1.2 that lets a Windows application run under either OS/2 1.2 or 2.0, and another that works only with 32-bit OS/2 2.0.

Microsoft declined to comment on developers' early reports. Sources said the company acknowledges performance problems and missing support for some API calls in the current SMK, but expects to fix them for final release. Later, developers will need only to relink code, but now they must code around unsupported features.

Overall, the SMK was greeted warmly by developers, even competitor Micrografx.

"While we won't use [the SMK] ourselves, we think it will be a very positive thing for PM," said Lyle Griffin, Micrografx director of research and development.

"It gives everybody a very clear path to move from Windows to PM," said Bill Cornfield, president of The Windows Support Group in New York.

Some developers had misgivings despite their enthusiasm.

"One question is, will the Windows messaging system let me put in multitasking [under PM] easily?" one developer said. He added that Microsoft claims it's possible, but he wonders how well it will work.

Some developers questioned whether the SMK may actually harm OS/2's viability by discouraging OS/2-specific products. "Basically, it's going to turn PM into a slower, more expensive way to run Windows applications," said one source.

While a straight port of a Windows program produces only a single-threaded OS/2 application, the SMK will supposedly allow code additions that let programmers incrementally add multithreaded execution, transforming the applications into true PM programs, sources said.

SCSI

systems themselves or with the SCSI peripheral devices that connect to them, he said.

IBM notified its dealers of the suspended shipments last week and developed a fix. Currently, IBM and its dealers are putting together a plan to swap the defective adapters, according to Wilson. He would not comment, however, on how many of the machines had already shipped.

"IBM has only seen the problem in the laboratory and is not aware of any failures on customer installed systems," Wilson said.

IBM-authorized dealers said that although this is an embarrassment for IBM, it doesn't

affect their corporate customers — yet.

"We sent out samples of the machines for people to look at, but I can't say we have a lot of back orders that we can't fill," said Katy Pushor, director of IBM product management for Microage, in Phoenix. "I can't say we've created a lot of demand for the product yet."

IBM has not yet informed Microage of what the fix entails, Pushor said.

"They haven't contacted us yet as to how they will do it [fix the faulty adapters] or what the fix is," Pushor said.

However, some PC managers have made purchasing decisions regarding the new machines. Wayne Sadin, vice president of MIS at Murray Financial Corp., in Dallas, had already purchased a Model 80-A31 when he heard about the problem.

"Our primary motivation for going to the new Model 80 was that we ran out of disk space," Sadin said. "Now that we are standardizing on OS/2 LAN Server, we need bigger and bigger and faster and faster disk drives."

Although its desktop PS/2s — particularly the different flavors of Models 50 and 70 — have sold well, IBM's more expandable Models 60 and 80 have yet to crack the Storeboard best-selling list of machines sold through the retail channel.

In the month of February, IBM slipped even further.

Although for the past four months the two top-selling machines through the retail channel have been the Models 55 SX and Model 30 286, Compaq shot to the top of the best-selling list in February with its own SX offering, the Deskpro 386.

Adobe to Offer RISC-Based RIP For High-End Postscript Devices

Making some inroads to faster color and graphics printing in Postscript, Adobe Systems Inc. is expected to announce this week a MIPS Computer Systems' R3000 RISC-based raster image processor (RIP), sources close to the company said.

Sources say the new RIP is intended more for high-end Postscript imagesetters and for color Postscript printing systems, like the recently announced Canon Color Laser Copier 500, which uses a Postscript interpreter based on Adobe's technology. Although Canon was showing a prototype of the RIP working with this system at Macworld Expo, the company declined comment on this upcoming announcement.

One Postscript guru said that cubic spline calculations, which result in curved characters, and "Bit BLTs," the movement of a group of dots or characters from one area of memory to another, should be faster as a result of this technology. Adobe was unavailable for comment.

— Kristi Coale

Mac IIci

vale, California. "I think that they are hesitant to invest in them until they are sure that the compatibility problems are over."

The IIci incorporates several major changes to the Mac II line's architecture and contains the first update of the Mac ROM since the original Macintosh II, Benz said.

"I don't think that we estimated as well as we could have what was going to be necessary to deal with the magnitude of some of these changes," Benz said. "Had I to do this over again, I would have made more systems available [to developers] earlier rather than later and tried to target developers who might
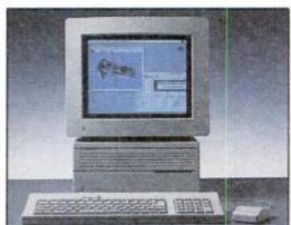
The IIci incorporates several changes to the Mac II architecture and contains the first update of the Mac ROM since the original Mac II introduction.

run into problems."

The current version of the Mac OS, called Version 6.0.5, tries to correct some incompatibilities and is now shipping with every Mac.

In an unusual move for Apple, the company issued last week a report that details why

certain incompatibilities occurred and what is being done to correct them.

Most problems stemmed from Apple's decision to change the memory addressing scheme in the IIci, as well as utilize the 68030's PMMU (page memory management unit), the report said.

The IIci was the first Mac to implement "non-contiguous memory," which makes the system more flexible when configuring memory but also means that there is no longer a one-to-one correspondence between logical and physical memory space, Benz said. As a result, some developers, especially those designing Nubus master cards, have been required to rewrite their drivers to do mapping between logical and physical addresses.

"This memory addressing

model is exactly the same as the model that we will use when we do virtual memory in System 7.0," Benz said. "So, if developers didn't make the changes now, they were going to have to make them later."

In addition, use of the PMMU now prevents applications from requesting access to RAM with an invalid address, Benz said. Previous systems truncated longer-than-normal addresses and passed them along to the memory controller. But in the IIci, the PMMU evaluates each address and sends out a bus error if it is not a proper address.

Consequently, a wide range of applications, Cdevs, Inits, desk accessories, and device drivers — as well as Version 3.0 of Apple's CD ROM driver and Version 2.3 of Mac Terminal — were incompatible, Benz said.

Unlike the IIci, the recently

announced Macintosh IIfx does not use non-contiguous memory, although it does use the PMMU to invalidate bad addresses, Benz said. "The IIfx utilizes the previous model, and so the IIci for right now is an anomaly as far as the way it does memory addressing." However, Apple is working on several unannounced products, including full systems that will use the same memory model as the IIci, according to Benz.

Additional IIci problems occurred because Apple decided to place 32-bit Quickdraw in ROM. As a result, some programming tools and paint and image-processing programs that were used to override 32-bit Quickdraw could not do so, and had to be modified. The locating of Quickdraw in ROM, rather than RAM, also confused some third-party video cards.