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DECEMBER 15, 1987
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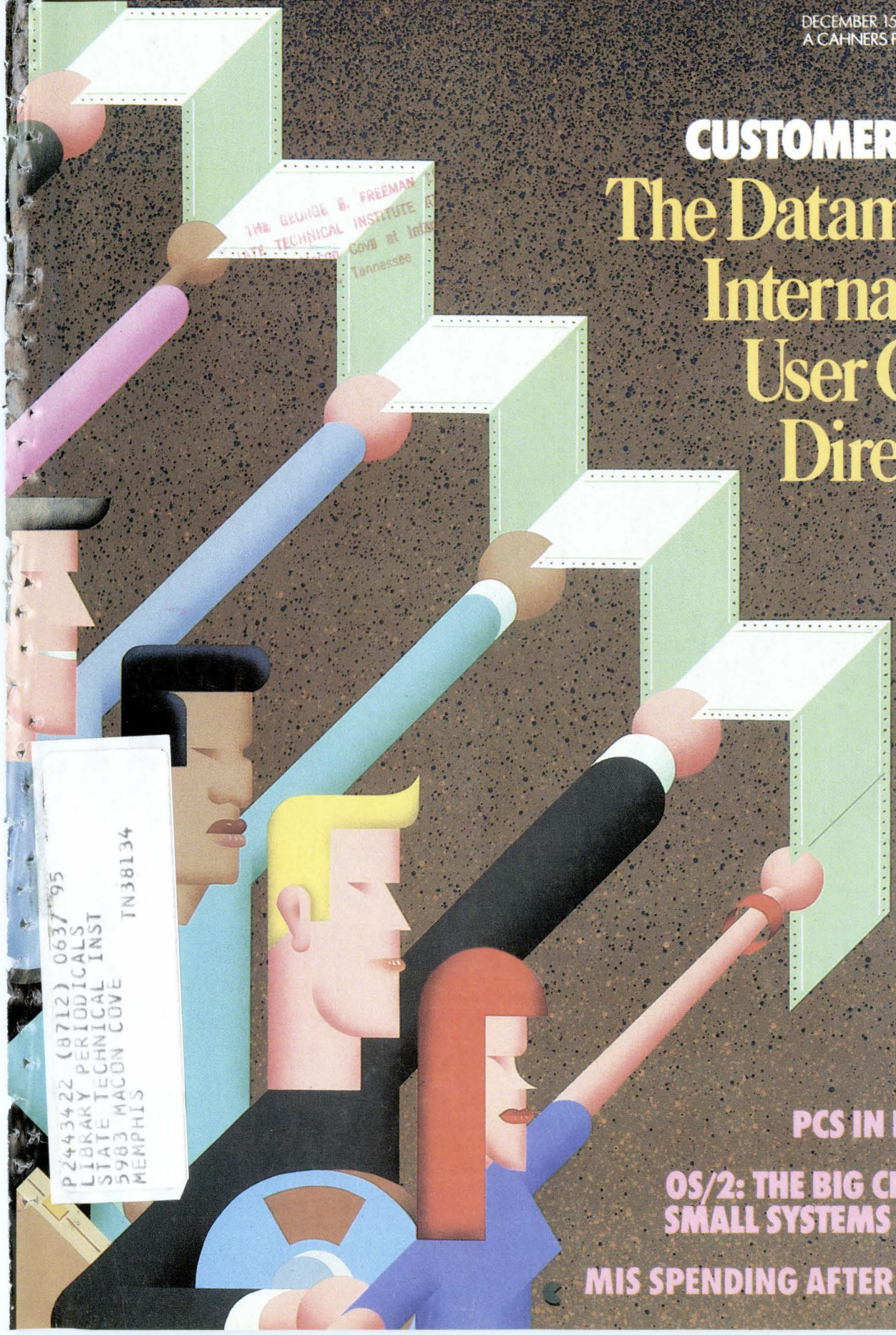

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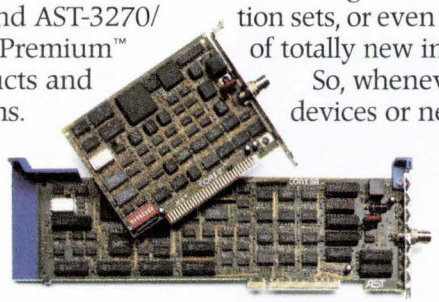

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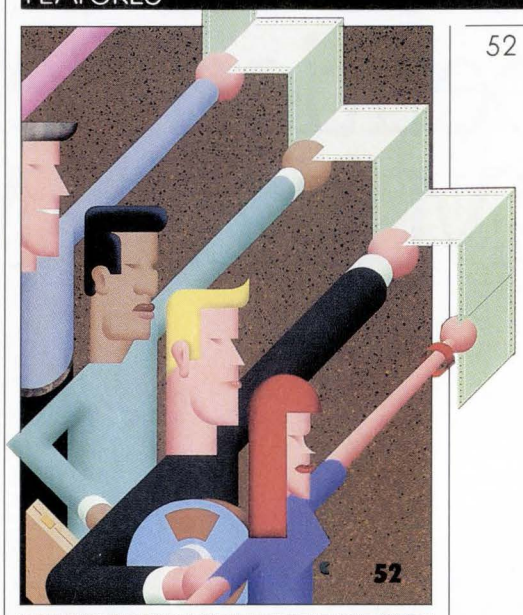

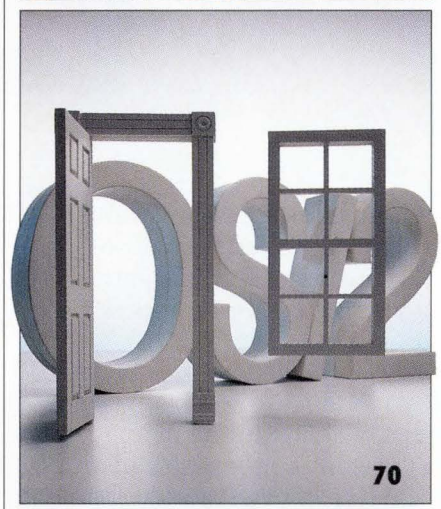

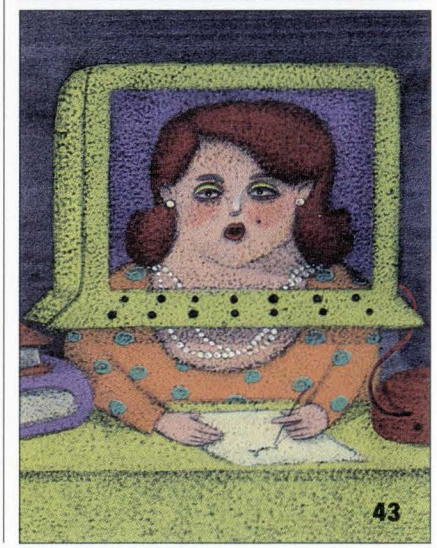

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How IBM's internal organization affects its customers.
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What IBM's new products promise and what they deliver.

DECEMBER 15, 1987
VOLUME 33
NUMBER 24
THIS ISSUE, 185,700 COPIES

1987 JESSE H. NEAL AWARD

Editorial

MIT's Regrettable Decision

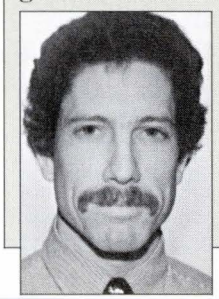
It strikes us as more than passing strange that the Massachusetts Institute of Technology succumbed to political pressure from the U.S. government in canceling a proposed deal to lease a Japanese supercomputer. The Commerce Department's disingenuous rationale, as expressed by acting secretary Bruce Smart, that such "imported products may be subject to U.S. anti-dumping duty proceedings" seems to add up to a curious definition of the national interest.

Not only do we find it disturbing that an institution such as MIT could be bent to the government's political will, but we find the notion of "dumping," as applied in this case, dubious at best and self-defeating at worst. First, the MIT deal with Honeywell NEC Supercomputers Inc. would have been on the basis of a leasing arrangement, not a sale. Technically, that means the so-called dumping law doesn't apply. Second, the SX 2 supercomputer that MIT would have received is considered by U.S. academicians and researchers to be first-rate technology (see "MIT Decision on Supercomputer Is Worrying U.S. Researchers," p. 19). How does its exclusion aid MIT—or any other U.S. institution of higher learning that may bow to political pressure—in producing leading edge R&D and remaining competitive internationally?

The Department of Commerce is evidently well aware of these points, particularly the legal one, which strongly suggests its letter to MIT was motivated to influence trade negotiations. At a time of trade disputes with Japan, in which supercomputers have become an icon in the struggle for markets, it might be granted that DOC's strategy was correct. But we feel it was the wrong way to go for several reasons.

Cutting off U.S. researchers from the best technology is a negative over the long term. DOC's move was tactical and short term, but strategically could be a blow at home if R&D is affected. In addition, stopping Japanese technology from coming ashore at a time when U.S. technology is flowing offshore seems to us a high-tech double whammy. Witness IBM's $40 million supercomputer donation to European colleges and universities (see Look Ahead, p. 9).

Instead, we'd like to see a trade policy based on sound principles, i.e., open markets and long-term strategic advantage. At the same time, we hope that any organization that in the future may be faced with a decision such as the one MIT faced will respond with greater resolve. To us, it's in the national interest.



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ABP ABC BPA

Letters

Hit the DEC

"Users Report Service Problems with Digital's High-End System" (Oct. 1, p. 17) contained much information on customer perspectives on VAX 8700 service. The article indicated that I had been responsible for "organizing" a meeting and that my attendance was primarily as a representative from Stevens Institute. The meeting that was held in New York was a regular, monthly meeting of the N.Y. Cluster LUG (Local User Group) of DECUS (Digital Equipment Computer Users Society). I attended and spoke at the meeting but did not chair the LUG or the meeting. My participation included a suggestion that Bankers Trust share its experiences so that other 8700 sites could gain from its knowledge. The list of problems and solutions contained in your article was based on the experiences that were reported at the meeting and was later published in the Large Systems SIG (Special Interest Group) section of the *DECUS U.S. Chapter SIGs Newsletters.*

Also, my conversation with Gary McWilliams, author of your article, was from the perspective of being the chairperson of the Large Systems SIG of DECUS, which is responsible for issues related to Digital's high-end systems. In this role, I represent the customer base on issues of concern to installations with large VAX systems as well as DEC system products. My comments were based on experiences described to me by members of DECUS, and were not primarily based on experiences at Stevens Institute. As a follow-up to the meeting and McWilliams' article, I have been asked to participate in discussions with Digital Field Service management with the intent of improving communications with the installed base.

LESLIE MALTZ
Chairperson
Large Systems SIG, DECUS
Marlboro, Mass.

Unisys Loyalists

"Can Unisys Move Fast Enough to Retain 1100 User Loyalty?" (Oct. 15, p. 17) incorrectly stated United Airlines' intentions with respect to its use of Unisys systems.

United Airlines has two Unisys 1100/84 systems located at our Maintenance Operations Division Data Center at San Francisco and a Unisys 1100/93 in Chicago at our Unimatic Data Center. United does not have plans to replace these systems with IBM equipment at any time in the future. The article also erroneously stated that Unimatic was an office automation system when in fact it is one of the most advanced aircraft flight planning, monitoring, and crew scheduling systems in the airline industry. We have converted two Unisys applications at our San Francisco center to IBM for data access considerations, but not because of any plan to move all applications off Unisys equipment.

I might point out that United also operates 20 large IBM mainframe systems supporting general business applications and computerized reservation services for the airline and over 8,500 travel agencies. We intend to remain a multiple vendor environment.

DON KARMAZIN
Vice President
Management Information Systems
United Airlines
Chicago

More Data Please

I write regarding the salary survey (Oct. 1, p. 78), which took on new importance for me when I recently began a job search. I was interested in the statistics provided on salaries and turnover rates. Median income was presented against a number of other interesting and useful measures for rather finely defined jobs. However, by not supplying standard deviation or some other range-type information, you do your audience a disservice. Data processing professionals should know enough statistics to realize that "above the median" describes half of a normally distributed population. In order to compare a number against a sample, one should know the median, mode, standard deviation, and range of the sample.

Despite the above omission, I found your survey quite interesting. I look forward to future editions, which I hope will contain more information from which to draw meaningful conclusions.

CHRISTOPHER NELSON
Stamford, Conn.

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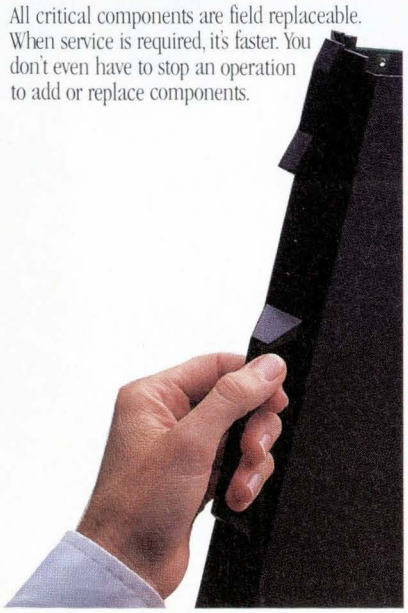
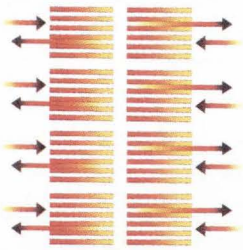
All critical components are field replaceable. When service is required, it's faster. You don't even have to stop an operation to add or replace components.



THE DATA EXPRESSWAY.

In a conventional database, I/O requests must be handled sequentially. This creates queues that slow response time. In the VLX system, there are multiple paths to multiple disks. Data enters and leaves the database simultaneously. No time is wasted, and all disk space gets used.



DIAGNOSTICS FROM A DISTANCE.

An integrated microprocessor allows us to monitor the system environment from anywhere in the world. We can even run stress tests remotely. If a failure does occur, the VLX has the capability to automatically dial out to remote centers anywhere in our worldwide network.

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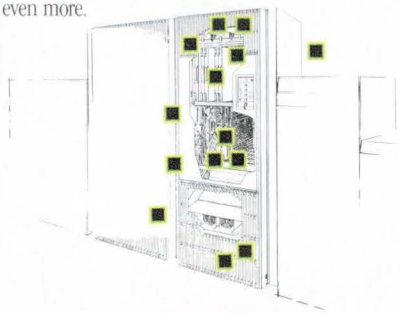
Expert systems software, using fault analysis, directs the problem diagnosis systematically. It also allows us to analyze it and shorten service time even more.



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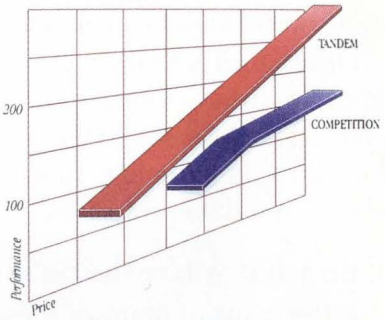

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Tandem systems achieve fault-tolerance with a unique, parallel processing architecture. There are no idle back-up components. Instead, multiple components share the workload. If one goes down, the others pick up the slack, and application processing is uninterrupted.

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TANDEMCOMPUTERS

Circle 4 on Reader Card

If you don't buy you'll miss

If you're looking for a good way to judge personal computers, a simple question will do: "What's in it for me?"

In the case of the IBM Personal System/2 family the simple answer is, "a great deal."

For openers, each model offers higher performance levels thanks to a "balanced system" approach for making things work together. Components were designed not just to coexist but to bring out the best in each other. So, for example, many of the programs you're using now and a wide range of other DOS applications will run up to 150% faster on the IBM Personal System/2 than on previous IBM PCs, depending on the model, of course.

Things that are optional on other PCs are standard on the Personal System/2—like advanced graphics, parallel and serial ports and more. And advanced IBM technology brings new levels of reliability and data protection.

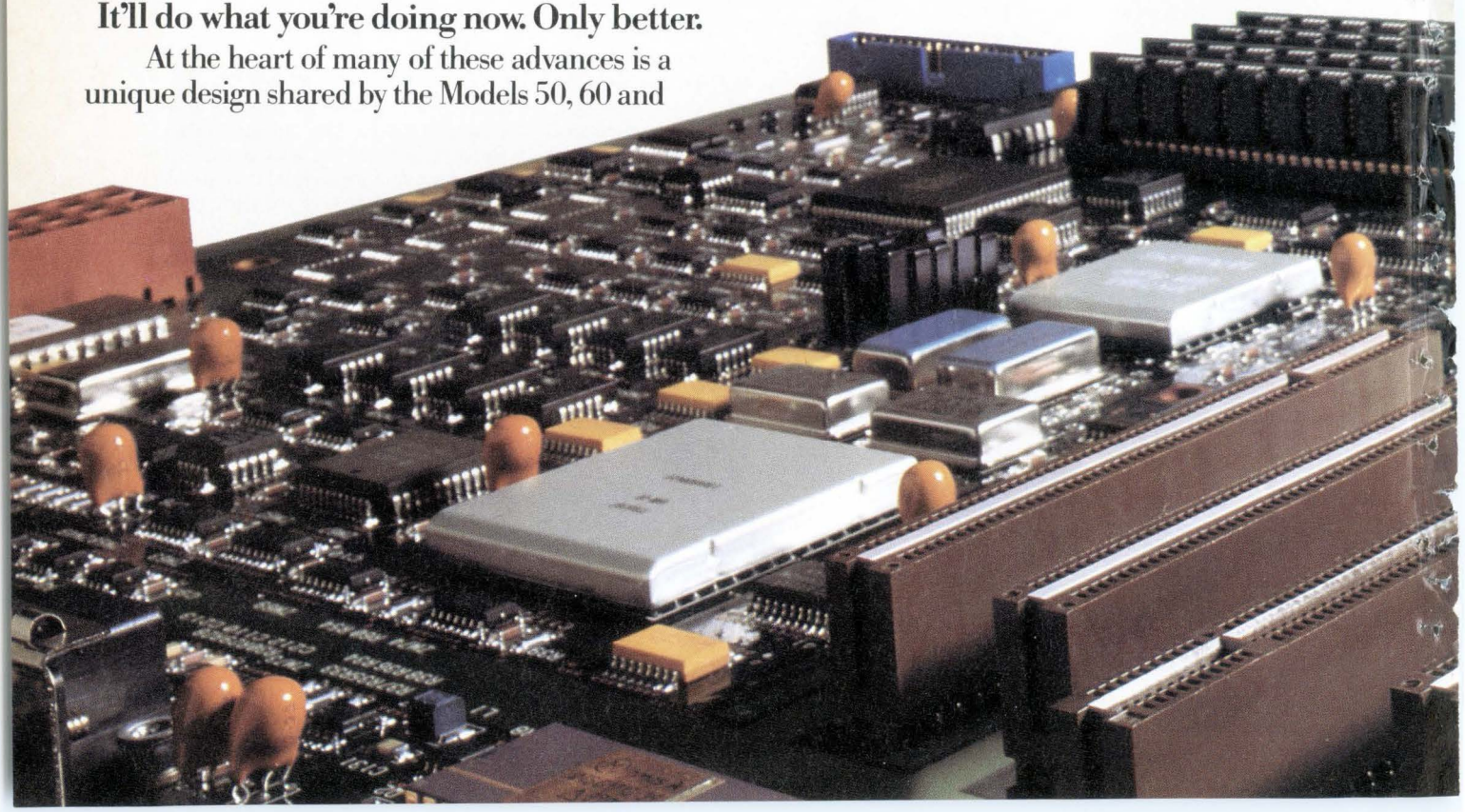
It'll do what you're doing now. Only better.

At the heart of many of these advances is a unique design shared by the Models 50, 60 and 80 of the Personal System/2 family. Technically it's called parallel bus architecture. We call it Micro Channel. But you can think of it simply as a superhighway with lots of fast lanes and bypasses. It allows data to flow faster and more efficiently, reducing the chance of information bottlenecks in the system.

What's more, the Micro Channel architecture not only makes it easier to speed information throughout the system, it also makes it easier to install peripherals and expansion cards in the system. There are no more DIP switches to set. It's all done electronically and automatically and, therefore, a great deal more reliably and easily.

Feature cards in your system can even transfer data directly to memory, via Micro Channel, leaving the microprocessor free to do other things.

The design of the Micro Channel also provides a faster, more efficient way to connect your



an IBM PS/2, the bus.

system to other IBM Personal Systems, local area networks, minicomputers and mainframes.

It'll do what you want to do tomorrow. Only better.

Micro Channel architecture also gives the IBM Personal System/2 something else that's surprisingly rare in personal computing: the ability to improve with age.

One of the main reasons the architecture was created, after all, was to get the most out of IBM's new operating system, OS/2. And together they'll unleash the power of the 286 chip in the Personal System/2 Models 50 and 60 and the 386 chip in the Model 80.

With IBM Operating System/2 you don't have to be a "power user" to run several programs at once. You can prepare a presentation while your system recalculates a spreadsheet and gets data from a mainframe. And with a future edition of OS/2, you'll be able to share all this information with others on a local network or over mega-distances. Vast memory and host processor resources will be more accessible. And software will do more things more easily.

So catch the Micro Channel bus and you're on the fast track to higher performance, exceptional expandability and greater reliability tomorrow, as well as today.

For more data about the IBM Personal System/2, call your IBM Marketing Representative or visit an IBM Authorized Advanced Products Dealer. For the dealer nearest you call 1-800-447-4700.

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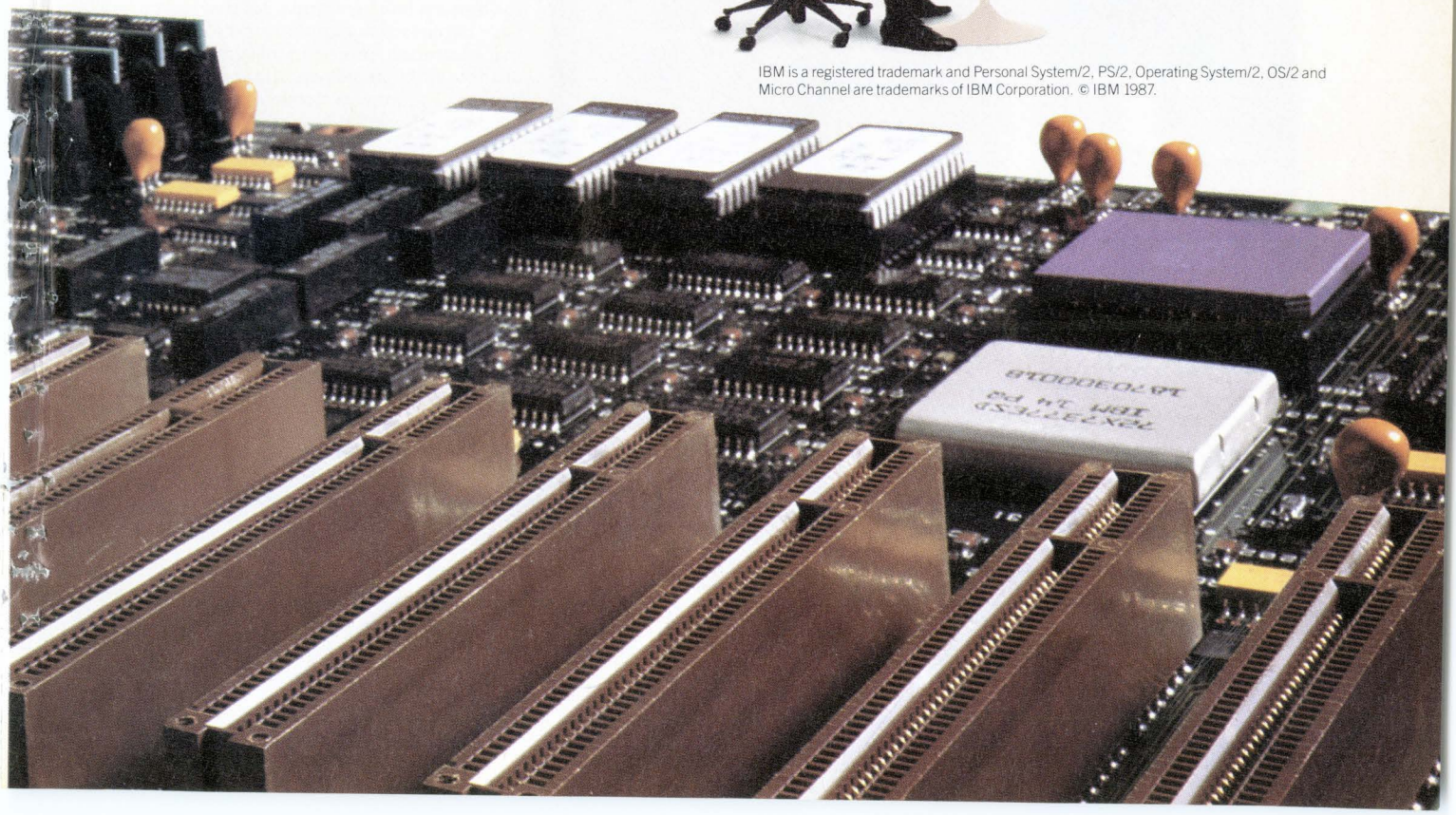

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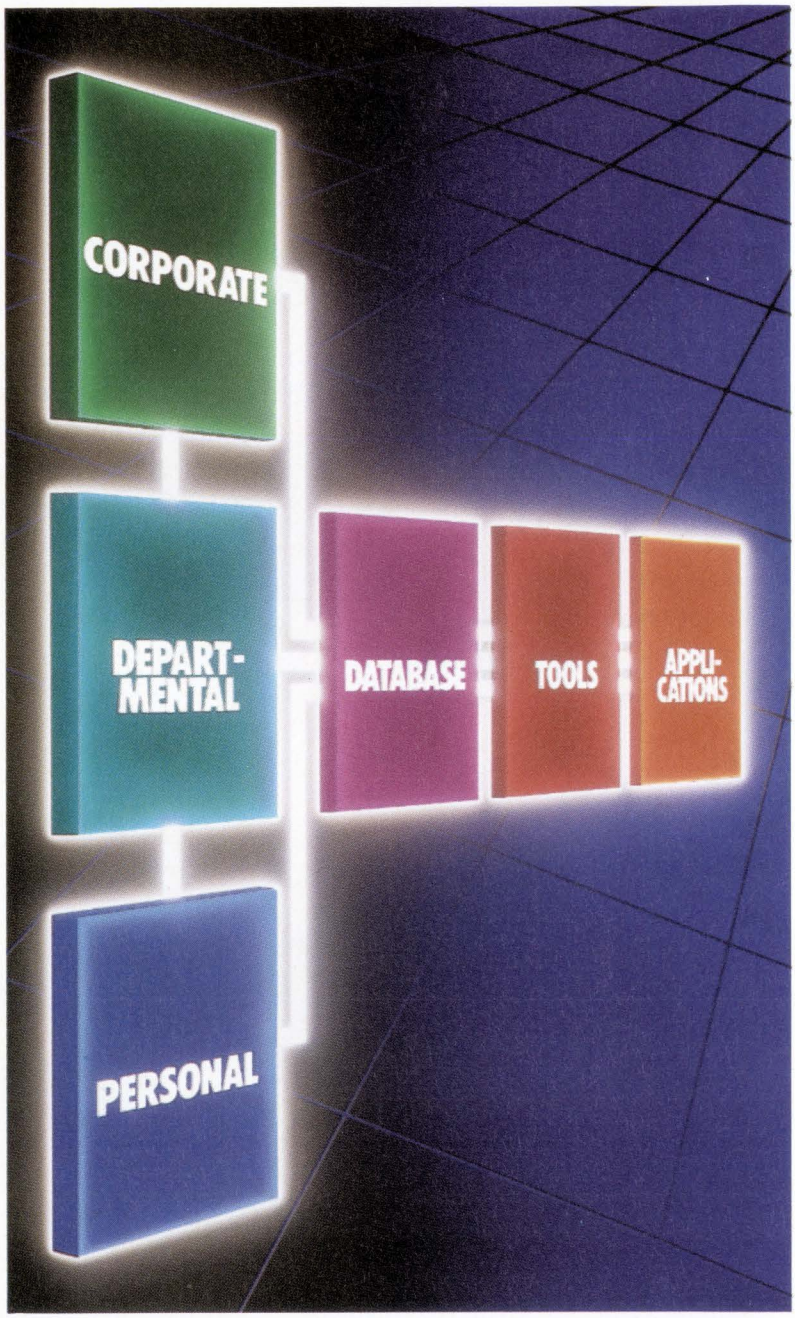

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Throughout the past year, Cullinet has told the stories of companies that have found total solutions to their business problems within this three-tiered offering of information management software and productivity tools. Cullinet's broad product line includes IBM® compatible software as well as software for Digital VAX™ systems and other departmental platforms. And our database products, productivity tools and fourth-generation business applications feature embeddable artificial intelligence and have been designed to allow the utilization of voice-response technology.

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Look Ahead

THE IRONY OF IT ALL

PARIS -- While university officials in the U.S. are still smarting from MIT's decision to eliminate NEC Supercomputers as a potential supplier--after being pressured by the U.S. Department of Commerce--European academic officials are celebrating IBM's plans to donate $40 million worth of supercomputers to European universities and institutes over the next two years. A minimum of five supercomputer centers will be established--in France, West Germany, Belgium, Switzerland, and Italy--comprising 3090 600E machines with vector processing facilities. In addition, there will be another 25 vector facilities donated to other European institutions. IBM says the move is to help stimulate European supercomputer research.

CONFIRMING THE KNOWN

CAMBRIDGE, MASS. -- IBM officials won't comment, but sources in attendance at a recent IBM telecommunications background session for consultants here say that IBM director and communications honcho Donald Heile, in a Q&A session, said IBM now considers the PU 4 and PU 5 host portions of its SNA model closed to outside vendors. That shouldn't come as a great shock since IBM recently restricted public distribution of PU 4 and PU 5 protocol information. But some consultants were surprised to hear Heile admit IBM's new position. Meanwhile, consultants at the same meeting were told by other IBM telecom big cheeses to expect a new front-end communications controller to replace the 3725 sometime early next year. The new model was described as highly configurable with a better price/performance point. Some observers expect the long-awaited new release of IBM's Network Control Program at the same time.

SMUGGLER DUE FOR TRIAL IN BRITAIN

LONDON -- Amid an upsurge of high-tech smuggling cases on both sides of the Atlantic, one convicted embargo-buster and fugitive from a U.S. arrest warrant is fighting back. Brian Butcher, a British dealer in used chip-making equipment, has persuaded a U.K. court that the government must explain why it doesn't stop U.S. officials from interfering in the business of British traders like himself. Earlier, Britain had stated its opposition to U.S. East-West trade embargo laws being imposed on U.K. companies. The government was expected to provide an affidavit of reply earlier this month, after which the judicial hearing will be listed for January 1988. If the judge finds in Butcher's favor, British cooperation with the U.S. Department of Commerce's denial order blacklist could be ruled illegal.

Look Ahead

ALCATEL PONDERS ITS FUTURE

BRUSSELS, BELGIUM -- The latest megamerger in the telecom business--Alcatel--is undergoing a strategic rethinking of its operations in preparation for major corporate announcements early next year. A fusion of ITT and the old French GCE telecom firm, Alcatel is aiming for significant growth in its business communications systems. Its plan covers the development of a digital PBX designed for the U.S. market and based on products developed by the French-based Telic subsidiary. Also under way is a restructuring of its IS-related product line.

ON THE LIST OF IBM'S GUESTS

TOKYO -- It looks like a U-turn, it sounds like a U-turn, but it's "no big deal," according to IBM. In late October, the company began offering a software option that lets Fujitsu software run on IBM hardware. The product was announced in an internal letter sent to salespeople, but no announcement was made because "we didn't think it was that big a deal," says an Asia/Pacific Group spokesman in Tokyo. The new software, called VM/MP II, lets Fujitsu's OSIV/F4 MSP E20 operating system be run as a guest OS on IBM 4381s. It's priced at ¥495,000 ($3,600) a month, and shipment is expected to begin in early 1988. Distribution will be limited to Japan and Australia, which are the only large markets for Fujitsu software.

PLEXUS EYES PARTNERSHIPS

SAN JOSE -- Multiuser Unix systems company Plexus Computers Inc. is looking hard for partners in the U.S. and Europe to help it expand sales of its XDP hardware and development environment. It is now in negotiations with two "major international systems integrator companies based in the U.S.," reveals a Plexus manager, and it expects to announce the first partnership deal around the end of the year.

LOOPHOLES IN CALIFORNIA

SAN FRANCISCO -- The California computer crime law is scheduled to change on the first of the year, and some users may not be so happy when they understand some of the new law's provisions. Although the law overall would expand the scope of prohibited activity, it includes a couple of new loopholes. For one thing, employees engaged in designated labor union activity would be exempt from criminal liability under the law. For another thing, all employees would be exempt unless the employer could prove the alleged misuse of computer equipment has cost it more than $100. Some California legal officials already are lobbying to have the new law changed.

(continued on p.12)

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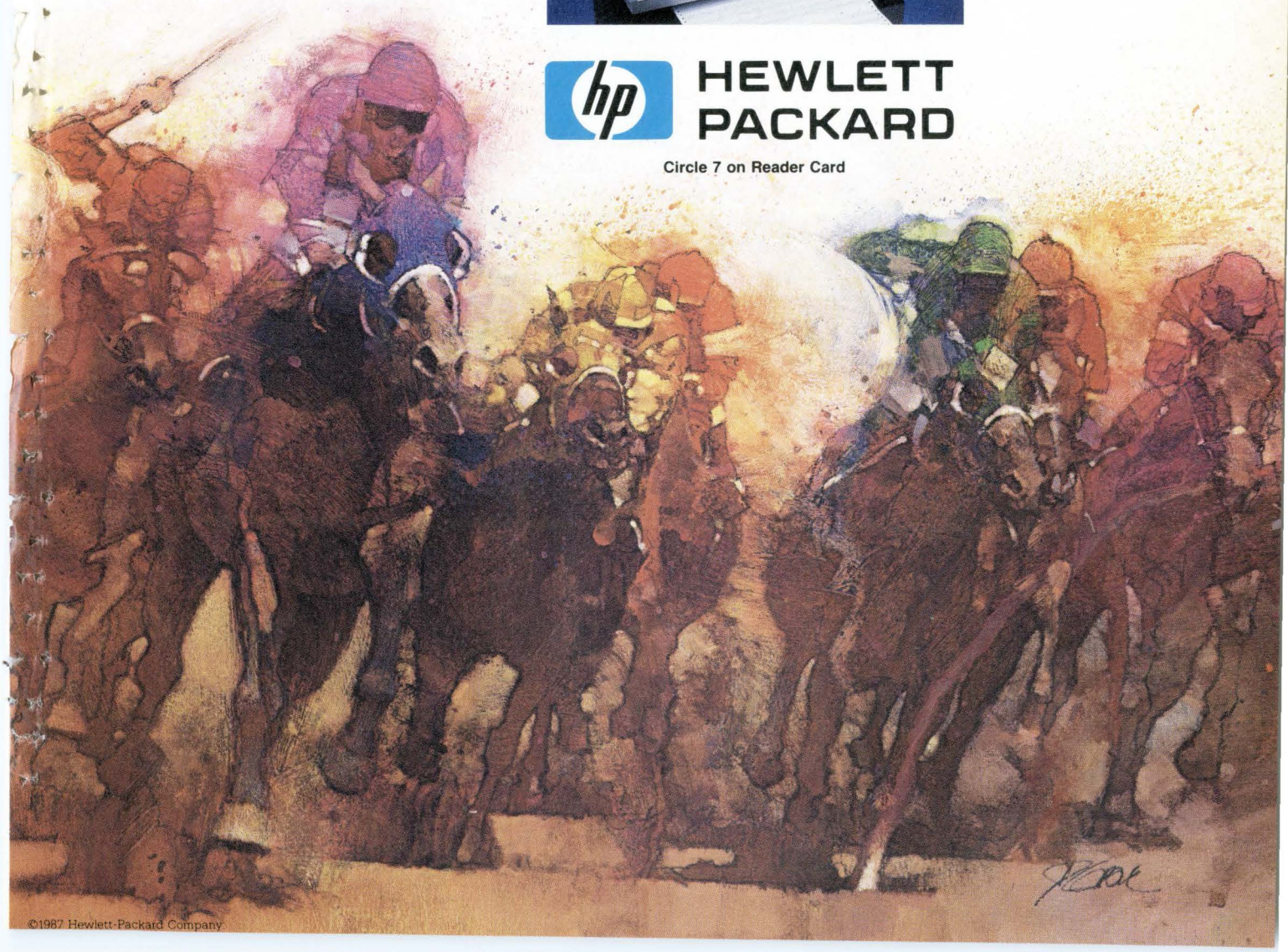

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Look Ahead

WOULD BRANDEIS USE ONE?

WASHINGTON, D.C. -- A request for proposals is out on the street to buy upwards of $120 million worth of personal computers to revamp the U.S. federal court system. Participants anticipate that the reward will be made before September 1988. On an ominous note, however, one federal court assistant warns that even after requests for proposals are accepted, the budget-conscious government is not obligated to purchase the systems.

A SURE BET FOR GEISCO

ZURICH -- Watch for the Association of International Bond Dealers (AIBD) to set up its own network for presettlement confirmation for the growing Eurobond market. Sources close to the AIBD say that the front-runner in the deal is GE Information Services (GEISCO). At present, Eurobonds are cleared by two organizations--Euro-Clear Clearance Systems in Belgium, which is owned by U.S. bank Morgan Guaranty, and Cedel in Luxembourg, which is owned by a consortium of French banks. Both of these organizations already use GEISCO.

BT CALLS IN THE CALVARY

LONDON -- Going commercial has opened up a few weak spots in the armory of telecom giant British Telecom, and the U.K. company is looking across the Atlantic for help. Faced with the prospect of delays, disruptions, and an IS debacle, the new privately owned corporation has called in New York's Nynex to help it integrate its internal IS operations. The consultancy deal is worth a reported $4 million.

NEXT ON THE AGENDA

CAMBRIDGE, MASS. -- Lotus intends to listen to its users in the upcoming months while it decides what the next version of Agenda will look like. Lotus founder Mitch Kapor insists, "User feedback will provide the selection mechanism to choose from the myriad." After redesigning the personal information management program as a pop-up to run in conjunction with other software, the company will consider enhancing the product with a graphical user interface to make it appealing to Apple users.

RUMORS AND RAW RANDOM DATA

TSX-32, the 12-year-old operating system for DEC PDP-11s from S&H Computer Systems, Nashville, will be made available for the VAX environment next September. . . .Sometime next year, Microcom, Norwood, Mass., will bring out a 9.6Kbps synchronous, full-duplex modem compliant with the CCITT V.32 standard. Microcom's Dick Sterry, vp for product marketing, expects the new modem to cost about $2,000.

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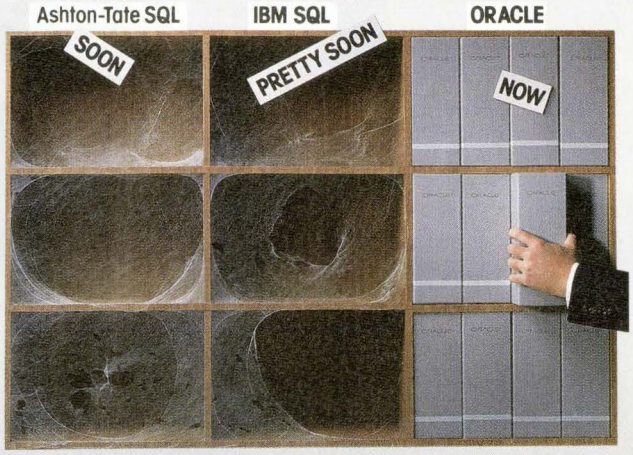
- Ashton-Tate has announced its intention to replace its outdated database technology with a SQL DBMS under OS/2, and
- IBM has announced its intention to offer SQL for OS/2 in its Extended Edition.



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City
State Zip

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*PC ORACLE requires an "OS/2 ready" 286/386-based PC running DOS 3.1+ with 1MB extended memory (2MB is recommended) and a minimum 10MB hard disk drive.

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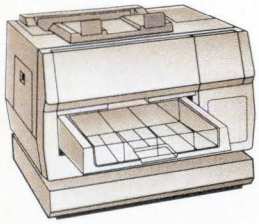
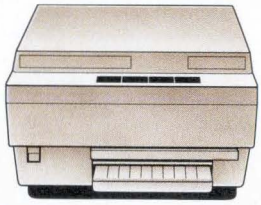
TRBA

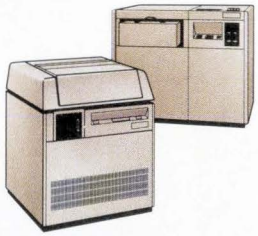
Inside thes revolution



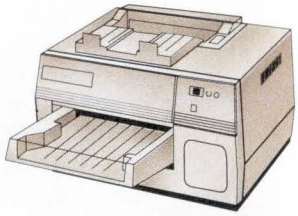
NBI, Inc. Model 908



QMS-PS® 800
QMS-PS® 800+
QMS-PS® 800 II



Linotype Company Linotronic™ 100
Linotype Company Linotronic™ 300



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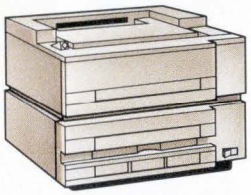
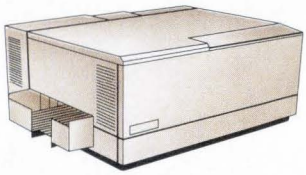
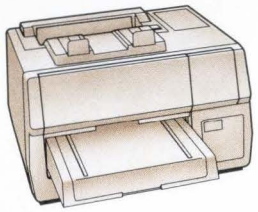


Qume Corporation ScripTEN™



Diconix Dijit® 1/PS



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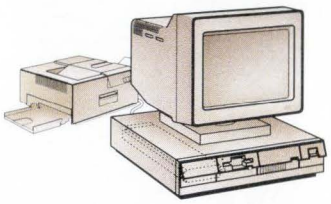

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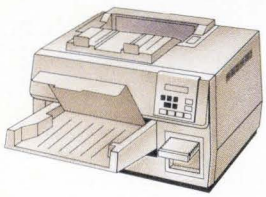
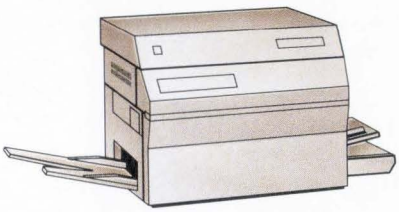


Texas Instruments OmniLaser™ 2108



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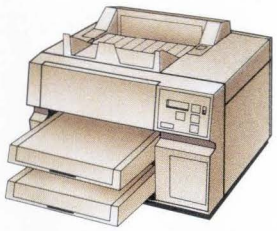
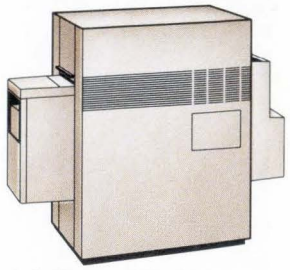


Wang LCS15™



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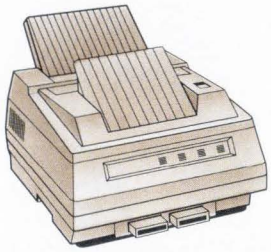
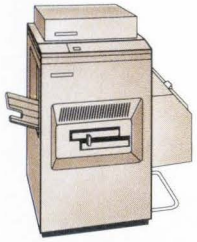
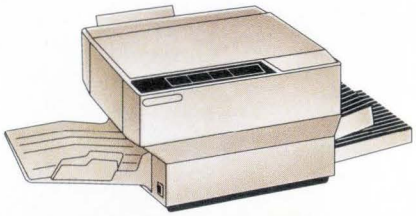
The Laser Connection PS Jet/PS Jet+™



NEC Information Systems
SilentWriter™ LC-890



QMS-PS® 2400



Apollo Computer Inc.
Domain/Laser 26™

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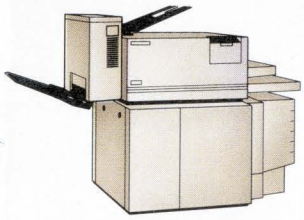
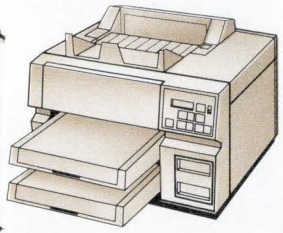
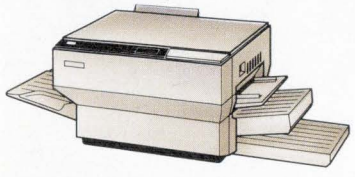


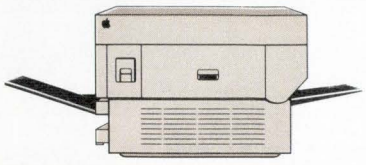
Digital Equipment Corp. PrintServer 40™



Texas Instruments OmniLaser™ 2115



Dataproducts Corp. LZR™ 2665



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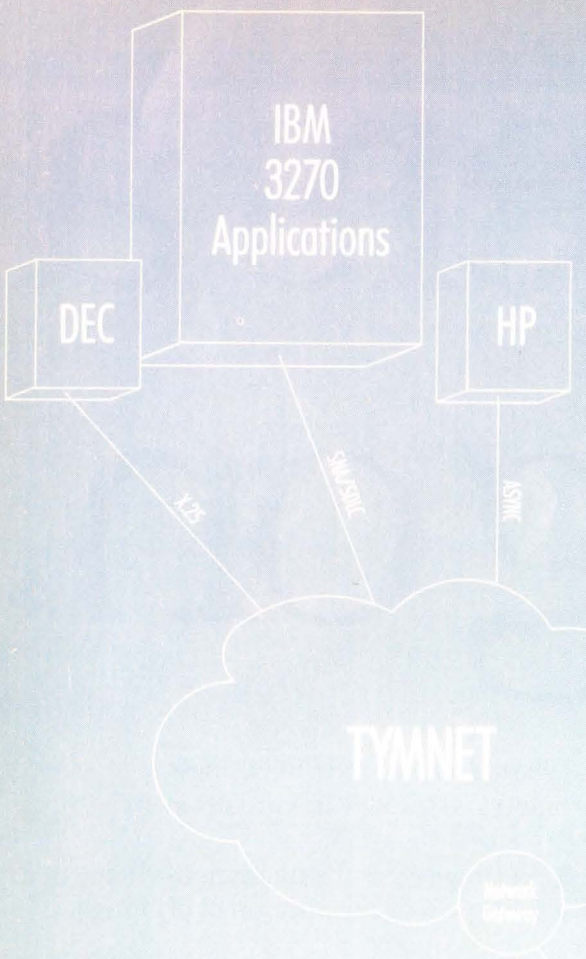

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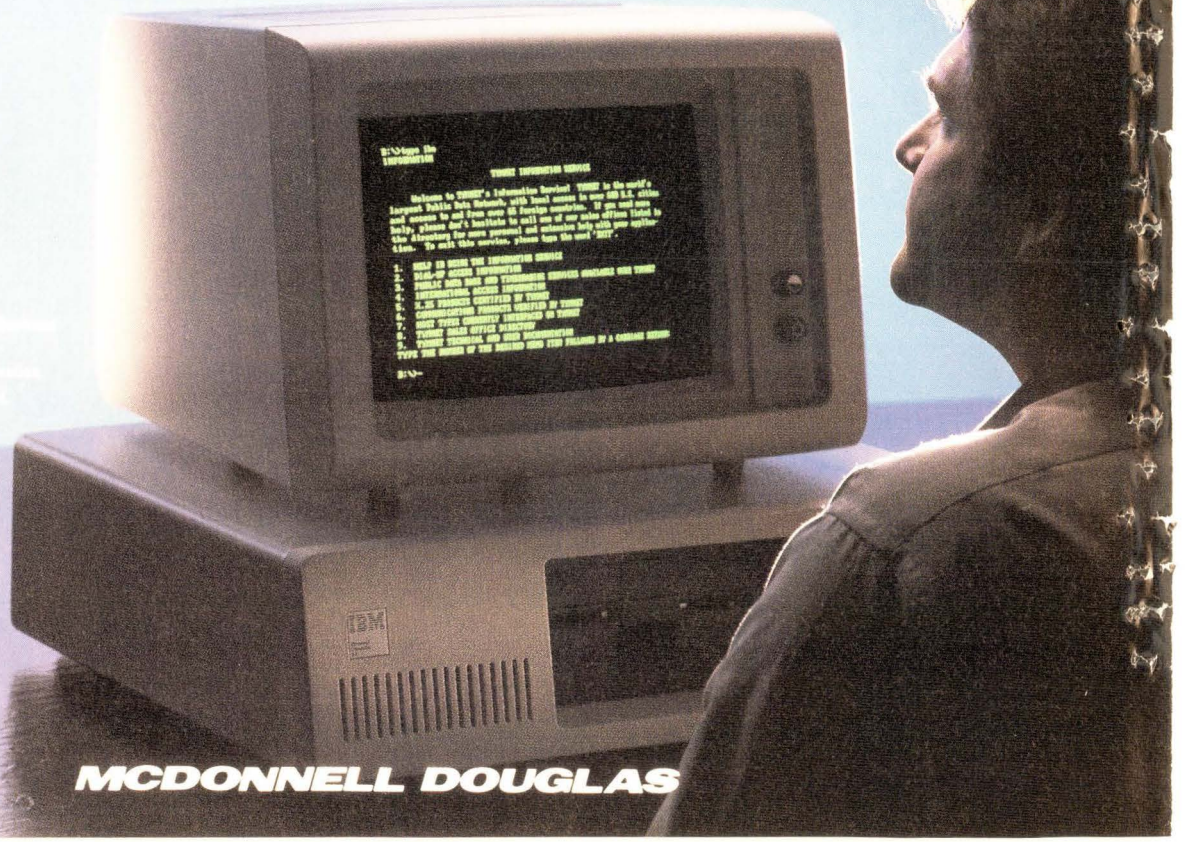

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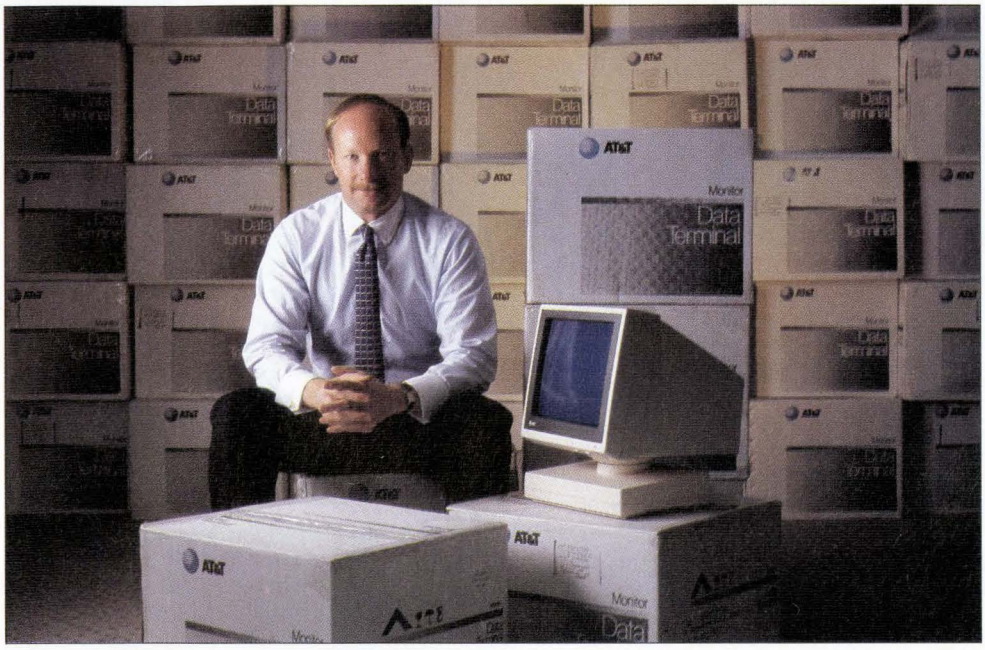
MCDONNELL DOUGLAS

WALL STREET CRASH AFTERMATH

IS Budgets Holding Fast After Stock Market Debacle

Postcrash studies reveal only slight dips in commercial IS spending, with most large shops resisting cutbacks. The federal market may be a different matter though.



AT&T'S ROTHMAN: He doesn't see buying habits changing.

Photograph by Michael Gluck

BY JEFF MOAD

When gloom and doom hit the world's stock exchanges on Oct. 19 and many financial experts began to predict that a recession was just around the corner, IS executives could have responded by hitting the panic button and slashing spending plans. The 22.6% one-day tumble in stock market prices and the dire economic predictions came just as many large companies were putting the final touches on their 1988 IS budgets.

Many quickly formulated backup plans for 1988, calling for cuts in IS operations and capital spending. Some companies—about 10%, according to a survey by the Gartner Group, Stamford, Conn.—have even lowered IS spending somewhat. For the most part, however, large users have resisted panic and are sticking to their precrash spending plans. Only in the federal government, where the stock market crash has been taken as a sign that it's finally time to get serious about cutting the budget deficit, do significant IS spending cuts seem likely.

That's good news for information systems vendors. Prior to the Wall Street slump, they had been encouraged by a modest but steady improvement in IS spending in 1987. There's a good chance that trend will continue in 1988, if IS executives stick to their precrash spending plans, as they appear to be.

Dan Cavanagh, senior vp at Metropolitan Life Insurance Co., New York, feels that "all of us have taken another look at our [IS spending] plans in light of what's been happening. But we haven't implemented any changes yet."

Met Life, which was finalizing its 1988 budget when the stock market went south, still plans to increase its IS spending by between 5% and 7% next year, an amount that is about equal to its 1987 IS spending increase.

Some Are Boosting Spending

So far, Met Life and others are sticking with plans to accelerate IS spending. At Wendy's International Inc. in Dublin, Ohio, 1988 IS spending is slated to rise 11.9% over 1987 levels. That follows a two-year cost containment program, by which annual IS spending increases were kept below 6%.

"We're working to decentralize functions to our field stores," says Wendy's Information Systems vice president Hari Notowidigdo. Despite the recent economic uncertainty, Wendy's will still go ahead with that plan, which calls for a network of PS/2-based systems tying together Wendy's 1,200 convenience food outlets.

Of course, that could all change if economic conditions continue to deteriorate. "We'll be looking at the budget every quarter in 1988 and it could be adjusted," says Notowidigdo. "The IS budget is, by its nature, a very visible part of the overall budget, and we tend to be affected by economic changes."

For now, nongovernment users—particularly those planning new PC-based and distributed systems—don't expect to see spending for those programs cut. A mid-November follow-up to the 1987-88 DATAMATION/Cowen & Co. mini/micro user survey shows that although 17.5% of those surveyed say they had seen some change in equipment purchase plans as a result of "fears raised regarding the economy," most users reporting changes had actually seen increases in their pc and minicomputer purchase budgets. Overall, 4.6% of respondents say they have increased spending for minicomputers, while 7% say they had increased spending for pcs. Only 1.7% had cut minicomputer spending plans, and 1.1% cut pc spending.

A less upbeat Gartner Group postcrash study shows that about 40% of Fortune 500 users are anticipating some cuts. The vast majority of those, however, predict budget cuts of less than 5%,

WENDY'S INTERNATIONAL INC.'S NOTOWIDIGDO: Economic changes tend to affect us.

and most of that was expected in new projects such as implementation of CASE tools and other new applications development environments.

Like many users, Jeffrey A. Alperin, Aetna assistant vice president for corporate technology planning, says that "we're trying to get the most out of our dollars by focusing on distributed processing, getting processing power close to the end user where it does the most good."

Aetna hasn't changed its plans to increase 1988 IS spending by about 4%, even though, as one of the largest portfolio managers in the stock market, the company figures to have been a big loser in the crash. "Overall," says Alperin, "there could be corporatewide spending concern if losses deepen. But I can see nothing that will focus just on IS."

A spokesman for Ford Motor Co. says the automaker currently plans no IS spending cuts, even though car sales showed a steep decline in October.

While most large companies haven't seen cutbacks in IS spending and don't expect to, users within the federal government have already been put on notice by Congress that 1988 budgets will be cut, and IS spending won't be spared. In just one corner of the federal budget—the Navy—Congress already has targeted a total of $113 million to be cut from the 1988 fund for purchasing new computers, beginning new systems, and operations and maintenance. The 1987 budget was $2.16 billion.

IS Cuts on Wall Street

Some stock brokerage firms that lost heavily in the market have already announced plans to cut back on IS spending. One major New York brokerage house has decided to hold 1988 spending for new systems flat, even though current internal forecasts predict capacity growth next year of around 30%, according to a high-level executive there who declined to be identified. IS planners at that brokerage house are responding by asking end users which systems could be cut back. "Certainly," the executive says, "given the predicted downturn in the industry, people are taking a real hard look at cutting costs. We in the securities industry probably are about six months ahead of other industries [in holding down spending]."

Such cuts are not universal on Wall Street. At Security Industries Automation Corp., which is responsible for automating trading on the New York and American Stock Exchanges, IS spending is being accelerated in 1988, according to advanced systems planning vp Jim Squires.

September Shipments Are Up

Vendors hope that such planning will be enough to sustain what had been a promising late 1987 computer industry upturn. For the month of September, computer shipments as measured by the U.S. Department of Commerce were up 4.7% compared with last September, and new computer orders were up 6.4% for the same month. IBM chairman John F. Akers recently told analysts that he is counting on a strong fourth quarter to produce a 1987 increase in IBM's midrange system shipments and slight mainframe growth, as well as improved gross profit margins.

Many of the factors that historically have produced strong industrywide fourth-quarter sales are still in place. One factor is attractive late-year lease rates. Leasing companies tend to offer better deals later in the year because new leases on their books in December improve their yearly tax status. Add to that the lower postcrash interest rates, and leasing executive Irving H. Rothman, chief financial officer of AT&T Credit Corp., is led to report, "We don't see companies changing their buying habits because of the market."

The real test, however, will come early next year when users begin to put their 1988 IS spending plans into practice. Moreover, vendors are not assuming that current IS budgets for 1988 won't change. IBM's Akers recently told analysts that the company is expecting growth next year "despite what happened in October," although he added that it is prepared to cut overhead further if that growth does not materialize.

Similarly, NCR chairman and president Charles E. Exley recently said, "Up to now we've seen no sign of any such downturn. The major economic statistics from the U.S. Department of Commerce are really quite encouraging. The natural concern is that the stock market is a leading indicator of future economic development, and the message it seems to be putting out is that we're heading for a contraction of general economic activity in both the U.S. and other countries. If that were to happen, it would have a severe impact on IS spending." ■

Photograph by Bruce Zake/Picture Group

SUPERCOMPUTERS

MIT Decision on Supercomputer Is Worrying U.S. Researchers

Brigham Young University also reports political pressure on a recent deal. Meanwhile, many wonder whether the MIT affair will end up punishing users.

BY WILLIE SCHATZ

The decision by the Massachusetts Institute of Technology (MIT) to cancel a proposed deal to lease a Japanese supercomputer after being pressured by the U.S. government is already causing fallout in the academic community and among market suppliers. At the same time, DATAMATION has learned that Brigham Young University, Provo, Utah, apparently also felt political pressure during its recent supercomputer procurement.

These and other developments, which are occurring during a time of politically charged trade disputes with Japan, have generated much discussion about MIT's decision, the government's role in that decision, and the possible chilling effect on the supercomputer market and on research at American universities. Some academicians, as well as researchers, contend that the MIT decision may have harmful reverberations over time.

Brigham Young University (BYU) had been talking to both Cray Research Inc. and Honeywell NEC Supercomputers Inc. (HNSX), the company that lost out with MIT, about acquiring a supercomputer for its linguistics programs. In mid-October, BYU eliminated both contenders because it was interested only in Evans & Sutherland, a Salt Lake City-based firm best known for its vector graphics processors. A BYU official says that although the decision was based on engineering criteria, there had been political pressure on BYU.

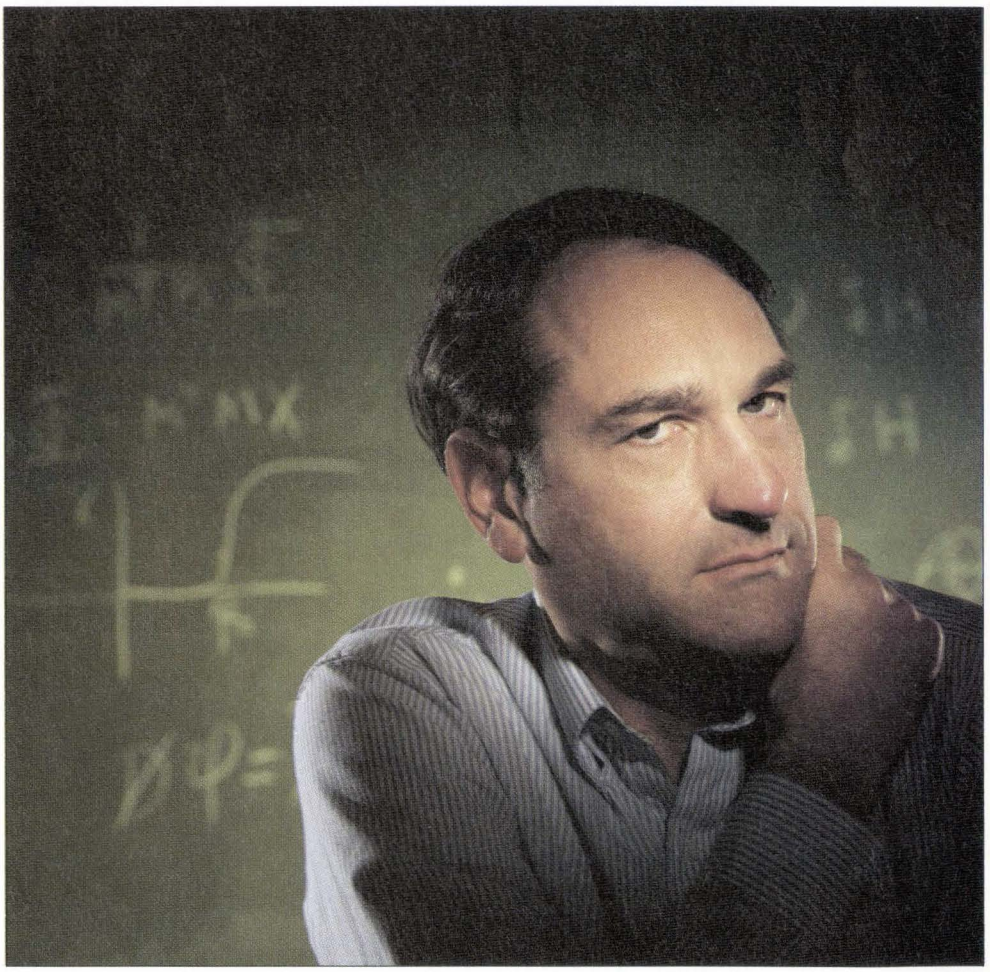
"There was definitely political pressure on the higher levels of the university," says Ed Redd, BYU's information systems officer and an associate professor of mechanical engineering. "But it never reached down to engineering. We were fully aware of the political ramifications of buying a Japanese supercomputer. But politics had nothing to do with our decision. It never had a chance to influence it. We made the decision at the engineering level."

L. Douglas Smoot, dean of BYU's College of Engineering and Technology, through a university spokesperson, denies that political pressure had been exerted on the university. "We made the decision to discontinue negotiations with HNSX on the technical aspects only," Smoot says. "We wanted a research relationship with the vendor and HNSX wasn't going to produce what we hoped for so we went another way."

Even though BYU apparently found a supplier for its needs, one immediate effect of the MIT event has been the decision by HNSX to drop out of the university market.

A Lean Period Ahead

"We're not dead in the water," HNSX president Jim Berrett tells DATAMATION. "But I think we're going to have a lean period for a year to 18 months. It's going to take at least that long before some semblance of order comes out of the trade dispute. The



Photograph by David Stick/Onyx

U. OF CALIF.'S SUGAR: Foreign competition spurs U.S. supercomputer manufacturers.

trade issue is a lightning rod for other issues, and supercomputers have gotten caught up in it. We can go two years without a sale if we have to.

"The MIT deal was a straight-up one. We have nothing to apologize for. It wasn't going to be lucrative for us, but it was a hell of a long way from dumping. Now we're going to concentrate on software applications for the commercial market. So, we won't pursue the university market."

That essentially shrinks the supply pool to Cray, IBM, and ETA, the Control Data subsidiary. Amdahl will continue to push Fujitsu's machine, but it hasn't yet gotten one over the U.S. border; the company was a bidder at MIT, but dropped out after the U.S. Commerce Department sent a letter expressing its reservations to MIT about HNSX. And National Advanced Systems has yet to advance Hitachi's supercomputer into the U.S. Two years ago, HNSX leased a Japanese-made SX 2 to the Houston Area Research Consortium, a group of four Texas universities. This touched off a storm of protest by U.S. supercomputer suppliers. Anti-dumping law, however, does not apply in leasing situations.

Berrett says HNSX and MIT had been communicating openly since last May and had taken great pains to avoid any action that remotely smacked of impropriety. But even those stringent precautions went for naught.

HNSX and MIT were very close to a deal that would have put HNSX's SX 2 into MIT for five years at a lease price of $9.5 million (see "Supercomputer Dumping Alleged at U.S. Universities," Sept. 15, p. 17). But just as the pair was about to consummate the marriage, then Acting Secretary of Commerce Bruce Smart told MIT president Paul Gray he didn't think it was such a terrific idea.

"I am writing to inform you that we have no objection to the acquisition of a foreign-produced supercomputer," Smart said in his letter. "However, you should be aware that imported products may be subject to U.S. anti-dumping duty proceedings."

That was all that HNSX and Amdahl, which was bidding Fujitsu's VP-200, needed to hear. They dropped out of the competition faster than bodies hitting the bottom of the East River.

MIT's Alternate Plan

Now, says MIT provost John Deutch, MIT will pursue more supercomputer firms to seek support from the National Science Foundation (NSF) to establish a linked supercomputer center that Deutch says will ensure access to a "frontier-class machine" based on U.S. technology.

"The government was not a bully, and we weren't a wimp," Deutch contends. "There was no improper pressure or threats. The government officials expressed their views legitimately and correctly. We reached the conclusion that we weren't going to buy a Japanese machine on our own. Bruce Smart's letter came subsequent to that. Then the two vendors withdrew.

"I think the dumping suggestion was disingenuous at best. So this shouldn't have a chilling effect on other universities."

But the emotions surrounding the trade issue show no signs of abating. In the same week that MIT decided it didn't want the deal to go down, a 13-company Department of Commerce supercomputer and minisupercomputer trade mission was in Japan to assess the impact of last August's supercomputer agreement. That's the one that provided for more transparent procurement by Japanese government agencies and universities.

"We wanted to make sure the agreement's not a paper tiger," says Deputy Assistant for Trade Development Joan McEntee.

"As far as I can tell," McEntee continues, "the MIT event and our mission are unrelated."

What may not be unrelated are the opinions being voiced about the effects of the MIT decision. "If they can stop MIT, no one else is going to try," says Larry Smarr, director of the National Center for Supercomputing Applications (NCSA) at the University of Illinois. As one of the five NSF national supercomputer centers, NCSA would be one big feather in HNS's cap. The company has offered Smarr at least two deals similar to the one it offered MIT, but so far there's no wedding date.

"I'm surprised MIT was that gutless," Smarr says. "They caved.

"The chilling effect is going to be very bad for the country," Smarr contends. "The MIT action affects everybody's decision for several years. It could put the U.S. an entire generation behind the rest of the world.

"People are going to play it safe and not fairly consider Japanese machines," Smarr continues. "That's really too bad, because the SX 2 is a very good machine. And that's not how you win. We live in a global economy, and to win you need the best technical tools in the hands of the best minds. The MIT activities will make it much harder for that to happen. And HNSX is dead in the water."

Bad Precedent Seen

Adds Bob Sugar, a physics professor at the University of California, Santa Barbara, and a remote user of the NSF's San Diego Supercomputer Center, "I think the government has established a very bad principle in the MIT case. I don't think the government's doing the U.S. supercomputer industry any good by trying to shield it from foreign competition. Foreign competition spurs U.S. supercomputer manufacturers to do better.

"That makes it better for scientists because we're getting the maximum return on our dollar. But anytime you reduce people's options, they do less well."

So now we've got supercomputer demand skyrocketing and supply plummeting. University users can kiss HNSX goodbye, even though the SX 2 is generally acknowledged as the fastest single-processor machine in the cosmos. And if Amdahl and NAS couldn't cut it before, they might as well fold their tents and go home.

The effects on research may not be felt for a while, but when they come, chances are they won't be pleasant.

"Any kind of government restraints don't punish the competition, they punish the user," says Peter Patton, executive director of the Consortium for Supercomputing Research in Minneapolis. "HNSX isn't the victim of the DOC's action. The students and faculty at MIT are.

"Why should it matter to the government where MIT gets a supercomputer?" asks Patton. "The DOC isn't seeing the whole picture. It's attempting to reprovincialize what's becoming an international market. The supercomputer race is going to be won by the side that gets the scientists and engineers the best access at the least cost. It's the technology that's important, not the sale of one or two more machines."

"This is just the latest example of America shooting itself in the foot," NCSA's Smarr says. "We don't have too many toes left." ■

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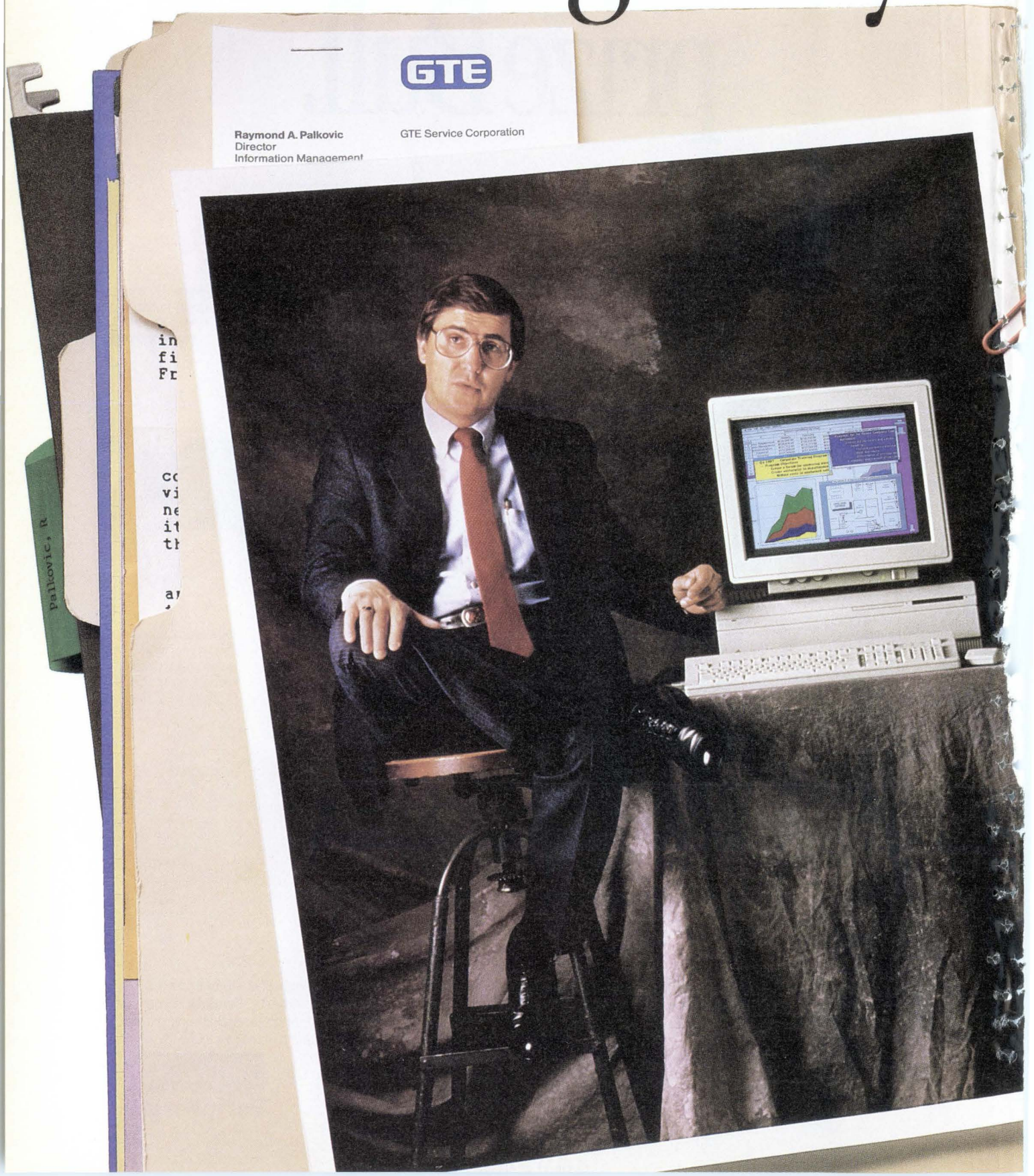

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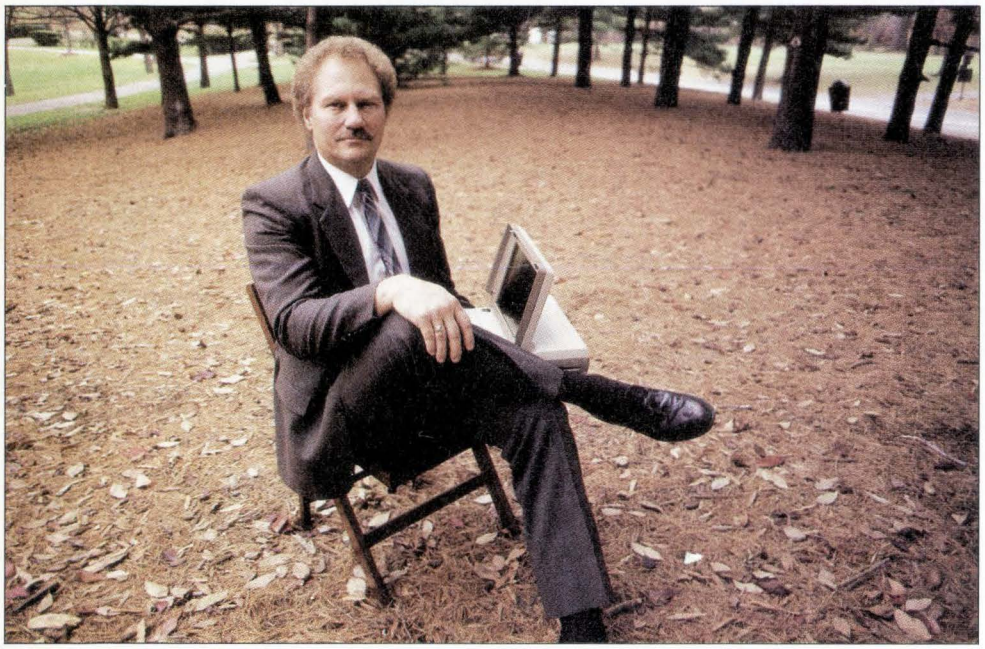
COMMUNICATIONS

X.400 E-Mail Standard Picks Up Steam in the U.S.

While IBM takes its time bringing X.400 products to market, other vendors and some users are forging ahead with products and implementations.



FOREST SERVICE'S WERNER: There's more work to do on X.400.

BY SUSAN KERR

It's no secret that "standards" has become the communications industry's favorite battle cry, and even IBM isn't immune to its allure. Some users, however, are discovering that while their choice vendors may acknowledge the attractiveness of emerging standards, it can be a little tough to actually find, not to mention implement, products that are based on these standards.

The latest case in point is the X.400 series of recommendations published by CCITT to define the mechanisms for interworking among different electronic message handling systems. The X.400 standard is included in the Open Systems Interconnection (OSI) model.

The promise of X.400 is a universal electronic mail system that will encompass services currently delivered by public electronic mailbox organizations as well as those offered by computer vendors, such as Profs and DISOSS from IBM, Comprehensive Electronic Office (CEO) from Data General, and All-in-1 from Digital Equipment Corp.

Speaking out against X.400 would be almost as bad as slamming motherhood and apple pie. Yet, some vendors that support the idea of X.400 appear unsure as to when to commit to product delivery dates. For example, while a Wang Laboratories executive believes it's "crucial" to have X.400, he'd prefer to wait for better conformance tests before unveiling products.

There are other reasons. "I've talked to quite a few customers in the United States to understand when IBM should introduce [X.400 products]," commented Ellen Hancock, president of IBM's Communications Products Div., at a recent public gathering. "We're still determining when to roll that out. It's clear that our European customers had a more critical need." She went on to say that the need is not seen clearly now in North America.

X.400 is in the early days of implementation, so products boasting X.400 conformance typically lack some of the rich features found in proprietary mail systems. That said, IBM has proprietary but popular mail system delivery vehicles such as SNADS (SNA Distribution Services), now part of the Systems Application Architecture (SAA), signaling its importance in the IBM lineup. Is IBM protecting its product line at the expense of international standards? Well, yes and no. And even if no, probably not for very long.

IBM has announced X.400 programs for transmitting messages from its two major office systems, DISOSS and Profs, to other X.400-based message handling systems. Neither will be available until the third quarter of 1988, however, and then only in Europe, the Middle East, and Africa. IBM eventually will broaden its geographic support for X.400 to the U.S., but it gives no clues as to when.

Protecting Customer Base

"Most large corporations such as Pacific Bell have various e-mail or messaging systems internally and most also have Profs," says Jeanne Bracken, that company's San Francisco-based director for message handling systems. "They would be interested in interconnection." She would like to see an IBM X.400 product, but suspects that "IBM is looking to protect its base, which it can do since it's stronger here [in the U.S.] than in Europe."

Also not very receptive to Big Blue's X.400 posturing is Ray Pardo, information services manager at Bechtel Eastern Power Corp., Gaithersburg, Md. "I was a little mystified by IBM's [X.400] comments," he says. "It did not seem to be in the same proactive vein I've seen [IBM take lately in communications]. We use Profs and we use a couple of other [mail systems] and we'd like to bridge them."

Nevertheless, IBM is not without its defenders. Eric Arnum, an analyst at Inter-

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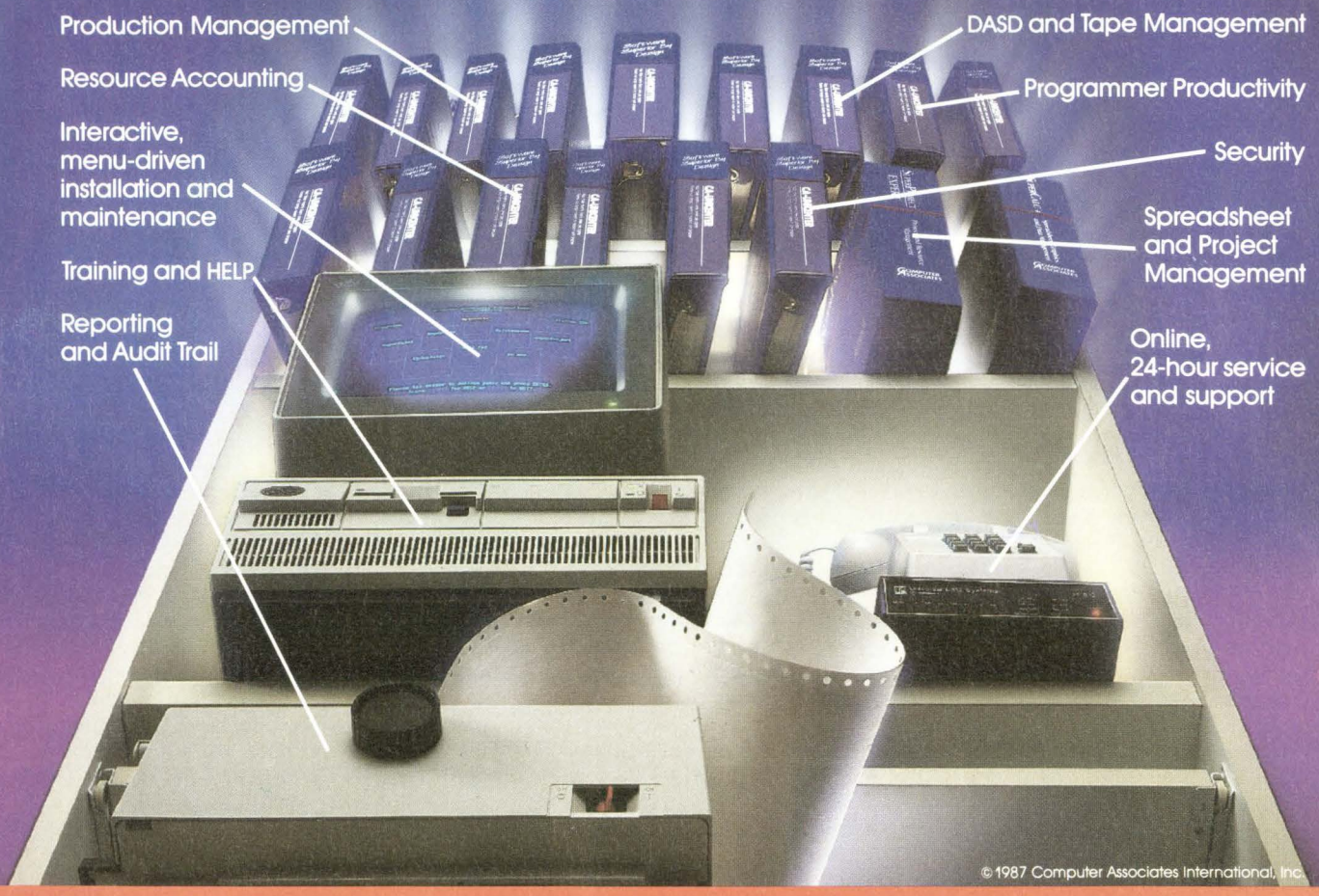

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national Resource Development Inc., Norwalk, Conn., has seen no backlash from IBM's delay in bringing X.400 across the Atlantic. "I really think 1988 is just the right time to come out with X.400," he remarks. "IBM sees an absolute need [for X.400 products] in Europe because if it wants to win bids, it's going to have to supply X.400. But it's not at the point in the U.S. where customers say, 'Don't call us without it.' "

In fact, one major U.S.-based multinational company's communications executive, in an interview with DATAMATION, had never even heard of X.400. The company uses DISOSS. Judging by that, IBM's proprietary electronic mail solutions show good signs of continued life. Yet, with an estimated base of approximately 1.2 million IBM electronic mail customers (of which three quarters are Profs users), at issue is what effect IBM's X.400 marketing will have on this standards movement and on its users.

PacBell May Market Software

Some users, such as Pacific Bell, are moving ahead with or without IBM. The telephone company has 16,000 electronic mail users and just about every major e-mail system. It has undertaken a joint development project with DEC to link as much as possible via X.400, and may even market that software.

Likewise, some IBM competitors are proceeding apace. Data General has sold approximately 25 licenses so far, according to Jock Shearer, a DG product planning manager. He believes these sales counter the argument of lack of North American concern. While early awareness of X.400 came from Europe, he says "without exception, all our early sales were in the U.S."

DG is now testing the possibility of linking into Telenet's Telemail 400 public messaging service as well as developing X.400 hooks into DEC's All-in-1. The U.S. Forest Service, in Washington, D.C., is a beta site for the DG/Telenet link (see "Forest Service Is DG Beta Site.")

Like the Reston, Va.-based Telenet, other public service providers are revving up beta tests and agreements with foreign countries' public providers, which are vital for many multinational users. AT&T offers X.400 gateways for its AT&T Mail service in the U.S. and Canada and hopes soon to close deals in Europe. "One of the things that'll stimulate more activity," says AT&T Mail group product manager Ross Staley, "is [the completion of] negotiations with other countries." One connectivity issue still to be figured out is how all the American public service providers will interconnect with each other.

That's not the only issue: how to incorporate IBM users into the fold in the interim is another.

Non-X.400 solutions do exist, of course. For example, DG offers CEO-to-DISOSS and CEO-to-Profs interchanges. In some point-to-point situations, those products may be more appealing than X.400. But X.400 will be preferable "if customers have a mixed bag of suppliers," says Shearer.

Pacific Bell's Bracken agrees. The company had developed its own software interfaces to interconnect systems, but the effort involved to keep those patches current with the latest of the vendor releases makes it undesirable.

AT&T To Stay Proprietary

Not everyone wants to wait for IBM. Richard Kozak, vp and general manager of messaging at Telenet, says that in the first quarter of 1988 the company will announce an X.400-based interface for Profs. AT&T won't; it'll continue to support Profs via a proprietary interface until an IBM product comes out.

DEC, however, isn't one to dawdle. In November, it announced the MAILbus set of software to link All-in-1 users, SNADS and DISOSS users, and X.400 users. DEC's first X.400 gateway became available last year, and since then the company has sold at least 50 licenses in the U.S. and at least that many overseas, according to DEC product planning manager Dennis Cannon.

Sure, this gives DEC an edge over IBM, according to DEC officials. "Digital offers OSI worldwide; IBM offers it only in Europe," comments David Korf, DEC's wide area networks and systems marketing manager. "[But] I don't think you can say we picked OSI to back IBM into a corner. It is an advantage to allow the customer to connect any system."

Telenet's Kozak says e-mail will "take several years" to explode, and adds, "This is not an overnight process." Overnight, no. But analyst Arnum expects IBM to make a statement of U.S. direction in 1988. If it doesn't, he believes, IBM could be faced with a less than sympathetic crowd.

Nevertheless, IBM can't be accused of being lazy. Arnum points to a number of enhancements to the company's own suite of products. Big Blue has added a Communications Interface to its SAA Common Programming Interface, which will, in IBM lingo, provide "a consistent application programming interface for writing applications that require a program-to-program connection." The Communications Interface will define the communications services of IBM's LU 6.2 protocol. "If you have an SNA network, you need LU 6.2 before X.400," says Arnum.

An IBM spokesman says the goal of the new interface is that applications written for one SAA-supported host system such as VM/SP can be more easily moved to another, such as OS/2 Extended Edition. As to what effect the new interface has on the life of IBM's current crop of products, which includes electronic mail, he can't say. ■

Forest Service Is DG Beta Site

The U.S. Forest Service, Washington, D.C., which boasts an internal e-mail network of 30,000 people and uses 850 DG computers, is beta testing the Data General/Telenet messaging link. Steve Werner, chief of telecommunications at the Forest Service, is happy with the test so far, but admits there's more work to do.

Werner says that chief among the needed developments for all X.400 suppliers is an agreement on standards for interchanging binary files, such as spreadsheets, rather than leaving it to the discretion of individual e-mail providers. While standards exist for ASCII text, recommendations should evolve next year for other character types. In addition, Werner says that improvements are needed with the initial addressing scheme. Nonetheless, comments Werner, "I'm very positive about X.400."

Before becoming a beta site, the Forest Service already used Telemail to talk to other government agencies. Previously, though, a user needed a Telemail mailbox and also a separate mailbox within the DG CEO system. Now, rather than requiring separate processes to access Telemail and CEO, e-mail is sent and received via CEO.

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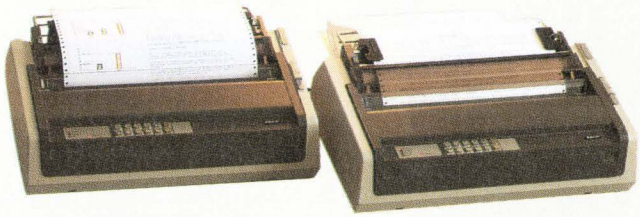

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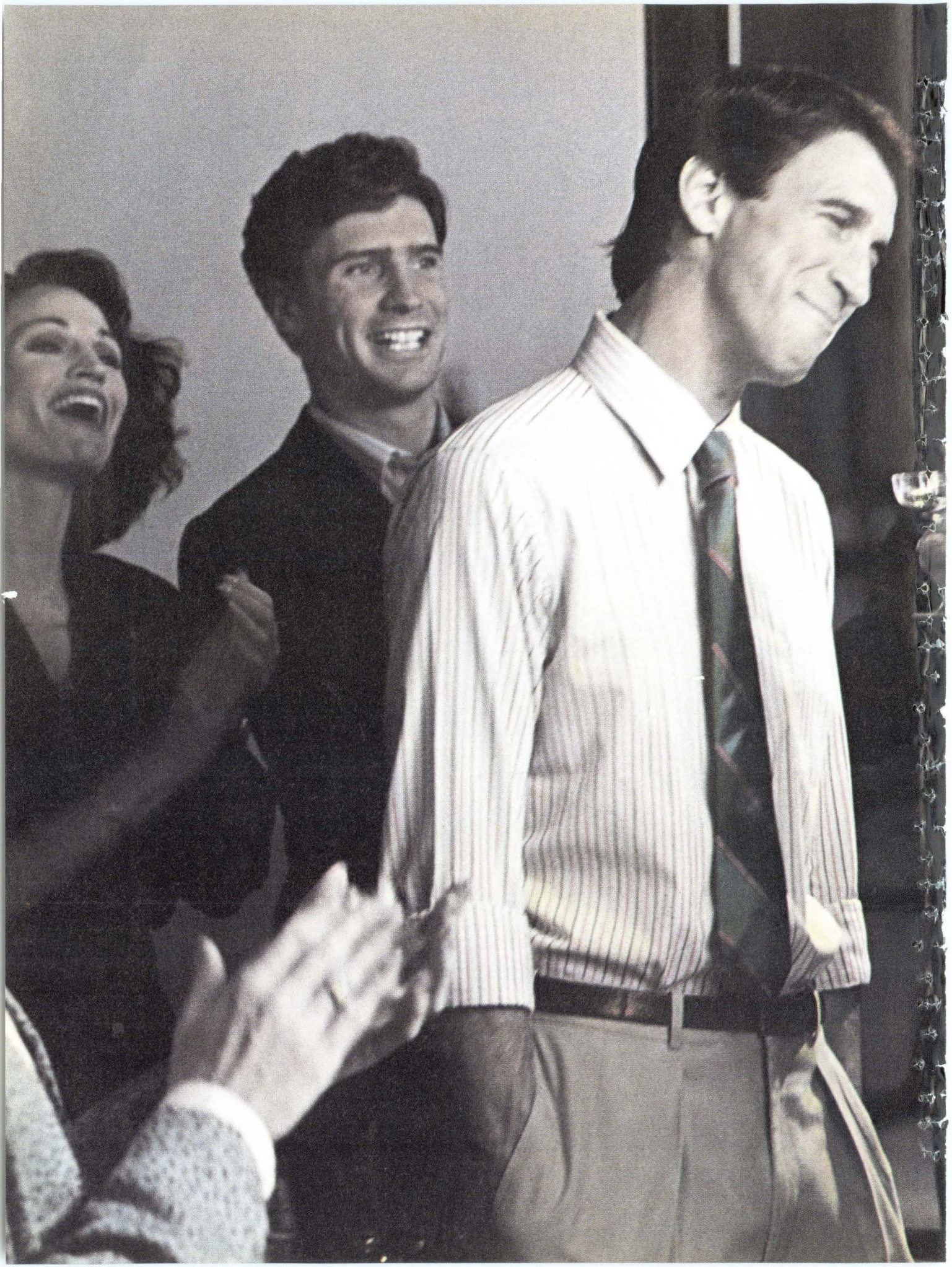

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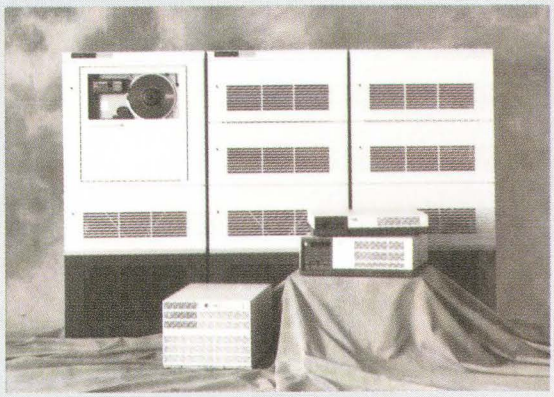

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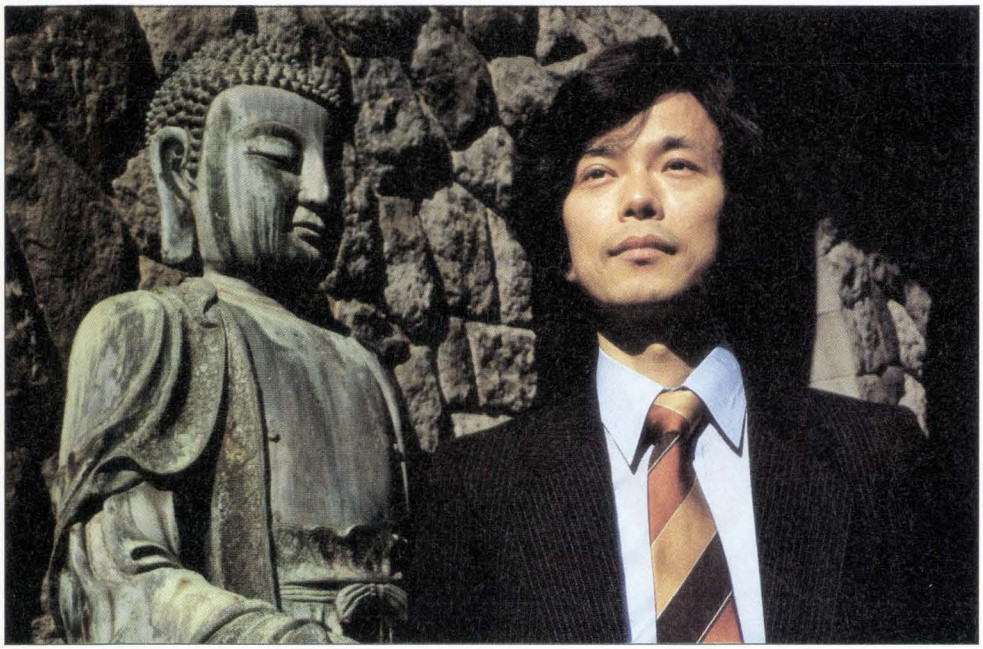
SOFTWARE

The Era of Packaged Software Dawns in Japan

Japanese users, once open only to customized software, are becoming less reluctant to use ready-made programs, but supply is still a problem.



ADL'S SAKEMI: Pcs have improved the status of packages.

BY ROBERT POE

Using packaged software is like wearing someone else's underwear, according to a popular Japanese IS saying. Traditionally, Japanese IS departments would much rather develop tailor-made applications with the help of vendors and third-party body shops than settle for packaged software. Due to the burdensome cost of writing custom software, however, such attitudes may soon become as outdated as last year's designer shorts.

The root of the problem is the way the big hardware vendors began in Japan, says Denis Mathias, Price Waterhouse Consultants' representative director in Tokyo. In the early days of the industry, according to Mathias, domestic computer makers, feeling at a technological disadvantage vis-à-vis IBM, were "giving a lot of free and highly discounted software help" to customers in order to get them to buy their hardware. Emphasizing turnkey systems sales, they would "send in 50 software engineers to write the code," says Mathias, and, as a result, "they got the market but killed the software industry."

Whether it was more a case of vendors' catering to their customers' natural inclinations or of users' preferences being shaped by the strategies of the manufacturers is "a chicken and egg question," according to Shigeru Shiinoki, a Price Waterhouse director in Tokyo. Whatever the case, using custom-made applications software has long been an almost inviolable mandate in the Japanese IS world. The large software houses, such as Tokyo's CSK Corp., have been almost exclusively body shops, forwarding programmers to clients on a time or project basis. Users have maintained large in-house staffs to develop and maintain their custom applications, while vendors have been generous when it comes to offering programming assistance.

As a result, a healthy independent industry providing packaged software for large machines never had a chance to develop. Pcs remain the only hardware for which a significant number of third-party packages is available, although minicomputers have recently become more popular target machines for independent developers. Meanwhile, mainframe programmers have been duplicating one another's efforts in countless Japanese IS shops.

The usefulness of the all-custom approach is reaching its limits, however. "There absolutely has been a change" in users' attitudes toward packaged software, declares Stephanie Johnson, international executive director of the Yankee Group in Boston. The change appears to be substantial.

"I estimate the market size for third-party software is increasing 35% per year," states Koichi Onodera, assistant director of software sales for CLC Corp., a Tokyo computer and software sales and leasing company.

Packaged Software Shortage

"In our industry, there is a change to preferring packaged software," says Kunio Hiraike, general manager of the computer systems division of Kyowa Bank. But, says Hiraike, there is a shortage of manpower and packages. Kyowa was looking for an asset liability management program and couldn't find one, so "we gave up, and are developing one ourselves," Hiraike says. Kyowa is also selling some of its internally developed packages to other banks near Tokyo.

To date, most of the action has been in systems control and database/data-handling software, of which "the Japanese have always been enamored," says John Siniscal, vice president of Asian/Pacific sales for McCormack & Dodge Corp., Natick, Mass. The applications market, on the other hand, is "almost entirely unexploited," says Price Waterhouse's Mathias.

Photograph by Eiji Miyazawa/Black Star

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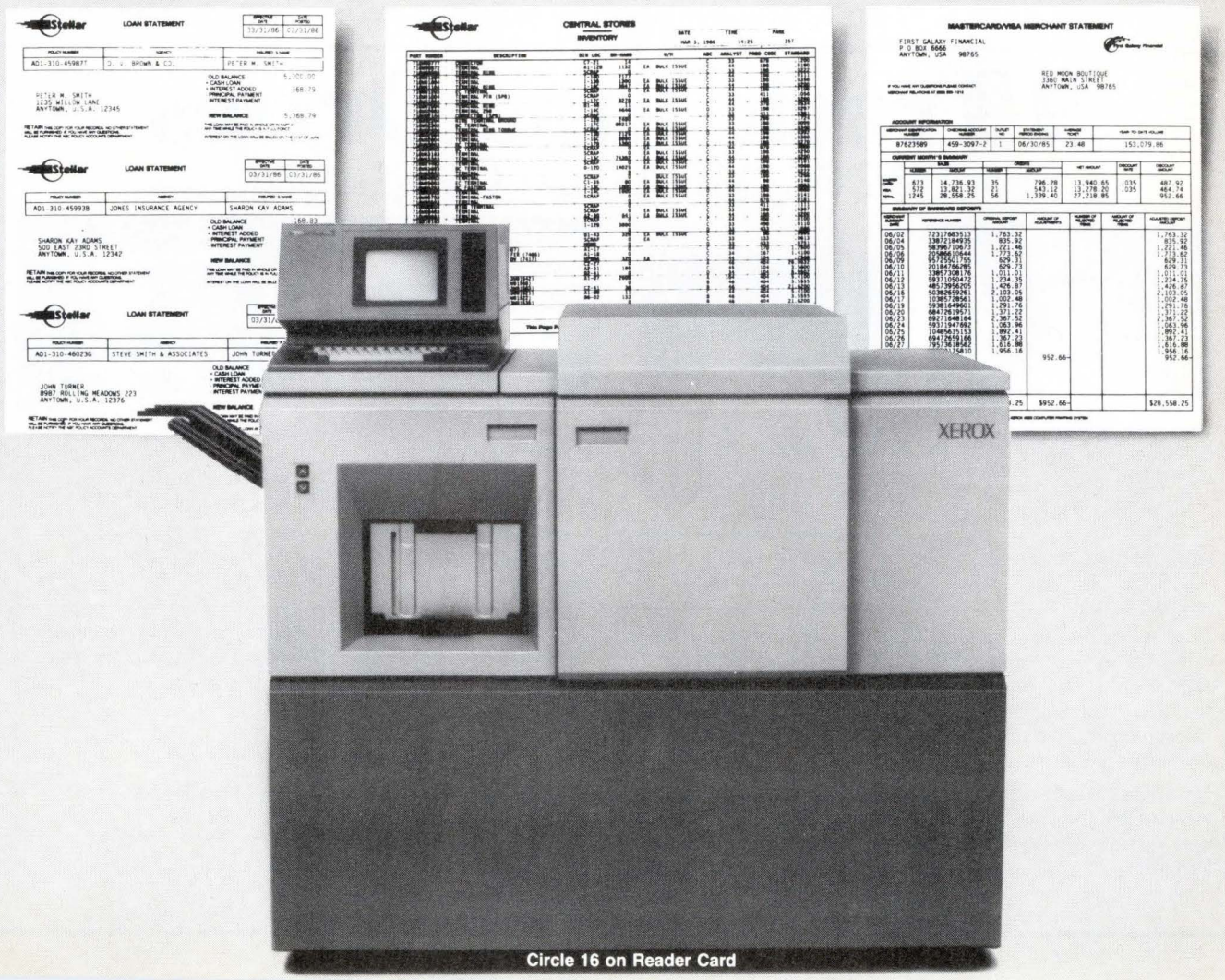

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One reason for the improving status of packages is Japan's office pc revolution. "Most users became familiar with packaged software through pcs," says Arthur D. Little (Japan) analyst Hiroyuki Sakemi. The strongest push toward packages may come from financial pressures; in an era of low growth and a highly valued yen, extravagances such as custom software receive more than a second glance.

Software developers are getting more expensive, mainly due to the programmer shortage, which, the Ministry of International Trade and Industry estimates, will reach 600,000 by the 1990s. The shortage drives up salaries, although they are still much lower than in the U.S., and, says Sakemi, it leads to increased job hopping.

The developer shortage is exacerbated by hardware manufacturers' increased hiring of programmers, Johnson says: "Japanese mainframers have started developing more software themselves, for the same reason IBM did more than 10 years ago—the way to sell hardware is to have good software."

The pcms began to wake up when they experienced increased uncertainty about the effectiveness of their compatibility strategy. In the past, says Johnson, companies such as Fujitsu and Hitachi could run on the basis of being IBM-compatible because they could take advantage of the large base of IBM applications. "But the disputes with IBM have clearly frightened them," he says (see "Users See Competition as Chief Benefit of Arbitration Ruling," Nov. 1, p. 17).

Business Sense Needed

Even a large increase in mainframers' efforts to come up with new software products isn't likely to satisfy demand. That's because even though they are trying to create packages, the results still look almost custom-made. According to McCormack & Dodge's Siniscal, "Fujitsu, Hitachi, and NEC already have packages, but they have very limited functionality."

To create packages with a wider appeal will require a "common sense of business. They will try but won't be successful, because they don't have experience in developing cross-industry applications," maintains Shiinoki of Price Waterhouse.

One of the more recent tactics of mainframe vendors is spinning off dozens of small software subsidiaries, which, they hope, will emulate the creativity of venture capital startups. This strategy doesn't get high marks either. Johnson of the Yankee Group feels it won't be successful because small subsidiaries are subject to the same pressures as large companies.

Foreign, third-party software houses may be able to satisfy the demand for packaged software. A number of such vendors have been fairly successful in Japan, including Software AG. In applications, the overseas vendors are just getting started.

Akira Urano, assistant general manager of the information and telecommunica-

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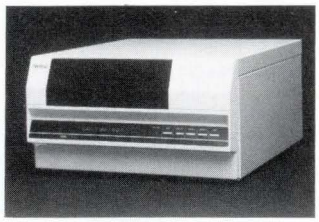

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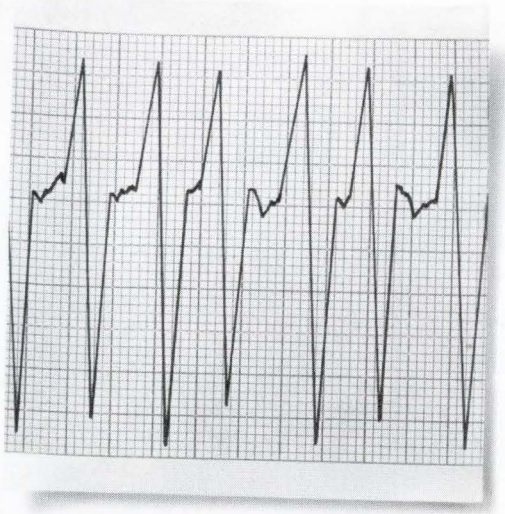
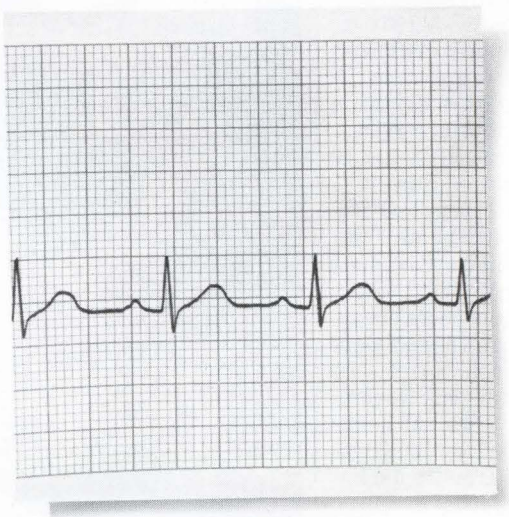


Before ITT



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tions systems division of trading company C. Itoh & Co. Ltd., believes that foreign packages won't do because of differences in management structures and mind-sets.

Cullinet's Experience Cited

Setting up a wholly owned subsidiary is considered by many to be a necessary, if expensive, move. Observers point to Cullinet as an example of what not to do. Working through distributors, the Westwood, Mass.-based company is estimated to have sold fewer than 30 sets of its IDMS/R database product in Japan since 1976.

A Cullinet spokesman in Westwood notes, however, that the company has recently taken steps to bolster its presence in the Far East. Earlier this year, Cullinet established a support center in Japan to aid its distributor, Century Research Corp. In addition, Cullinet last November added a regional headquarters operation in Singapore to handle the Pacific Basin, including Japan.

Most agree that conditions are right for an explosion of packaged software use in Japan. "In Japanese companies," says Mathias of Price Waterhouse, "there's a huge visible backlog—maybe two to three years' worth—in applications development. At the same time, software development costs are going up, hardware costs are coming down."

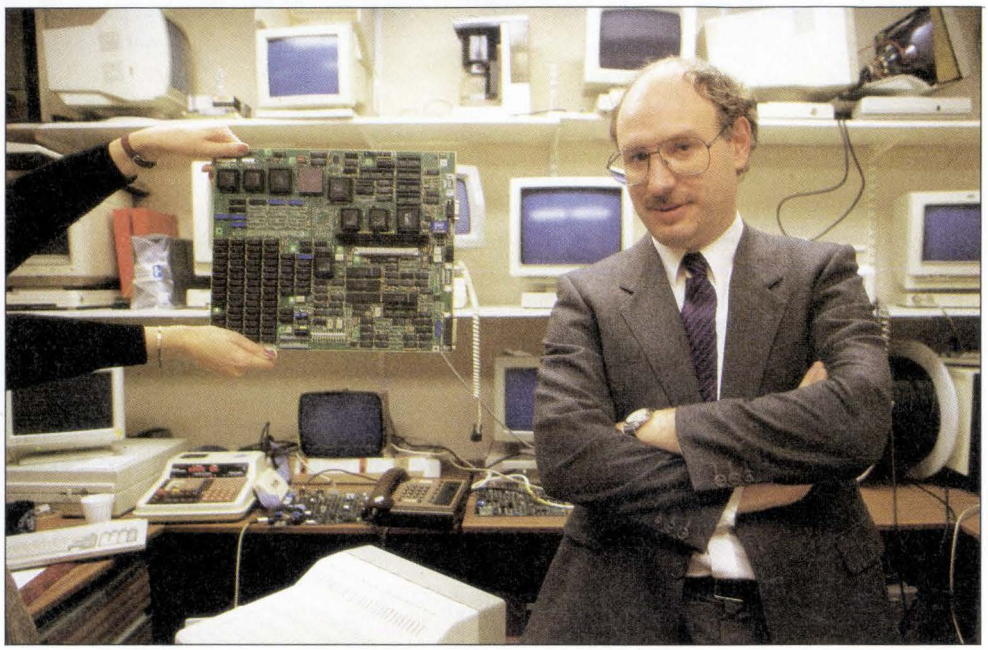
McCormack & Dodge's Siniscal feels that "all the same forces that were working in the U.S. 10 to 15 years ago are coming into play in Japan now."

Whether that explosion of packages occurs soon will depend, to a certain extent, on the efforts of the software vendors who have the products to offer. In the end, however, the role of packaged software in Japan will be determined by the users. ■

MICROCOMPUTERS

Clone Makers Treading Softly On PS/2 Micro Channel Turf

PC-compatible makers are racing to develop Micro Channel-based products, but in the push to market, the winner could end up being the biggest loser.



FUTURE INTERNATIONAL'S JACKSON: Legal questions loom larger than technical ones.

BY ROBERT FRANCIS

It's a race that no one wants to finish first. As microcomputer companies begin to decipher the intricacies of IBM's Micro Channel Architecture, the $64,000 question has evolved from "Who will be the first?" to "Who will be the first in court?"

Several companies have stated publicly, or at least hinted broadly, that they are working on a version of Micro Channel, just in case the demand for PS/2s begins to cut into sales of their existing IBM-compatible systems. However, because OS/2 Extended Edition—the operating system that IBM says will take full advantage of Micro Channel—will not be available until late 1988, vendors say that current buying decisions are not based on whether or not a machine has Micro Channel. That could change, though, and everybody who's anybody in the PC-compatible business seems ready to jump on what could become a Micro Channel development bandwagon.

At least two companies—Western Digital Corp., Irvine, Calif., and Chips & Technologies Inc., Milpitas, Calif.—confirm that they are developing the technology (see Look Ahead, Nov. 15, p. 10). Some of the crop of clone makers, such as Tandy Corp., Fort Worth, and Compaq Computer Corp., Houston, acknowledge that they have Micro Channel technology programs in some stage of development.

Micro Channel has taken center stage in the technical controversy over PS/2, even though its full benefits apparently won't be realized until OS/2 is fully developed. Simply put, Micro Channel is a pathway that moves data from the PS/2's central engine to other parts of the machine—such as the screen and disk drives—and allows data to move along a network of personal computers much faster than the architecture of the original IBM PC did. According to Tim Mannix, IBM's director of plans and controls at the Entry Systems Div., Boca Raton, Fla., Micro Channel pushes personal computers into a faster-paced arena.

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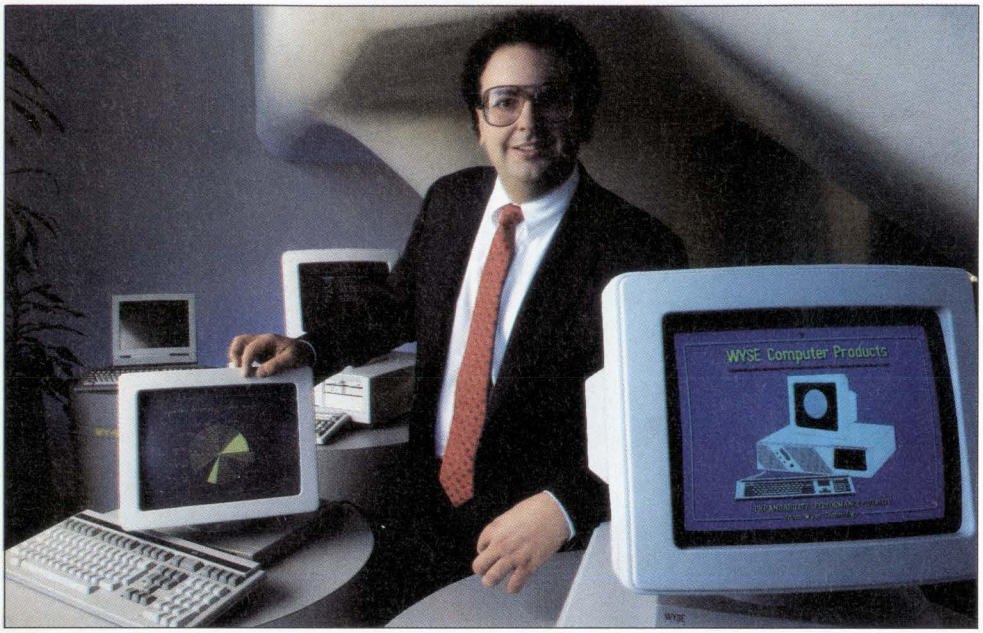


WYSE'S KRYZAN: We understand Micro Channel today.

Photograph by Sharon Hall

"With Micro Channel, the system will manage several functions at once," Mannix says. In comparing Micro Channel with the original PC bus architecture, he uses the analogy of a highway and a country road. On a highway, he says, "If you've got a lot of traffic you need more lanes, and you need to manage the flow of that traffic into the main artery. That's what Micro Channel does." The old architecture, he says, is "like a country road. If there were more demands than the system could handle, it just shuts down."

When OS/2 and related products become available, the new software running via Micro Channel will be more efficient, Mannix says.

Most PC-compatible manufacturers see little demand for Micro Channel technology for another year or two. That is when they anticipate the advantages of PS/2 and OS/2 will begin to take focus. Terminal and PC-compatible manufacturer Wyse Technologies, San Jose, has a Micro Channel program in the works, although it won't specify at what stage. "I can only say that we understand Micro Channel today," says Chris Kryzan, Wyse marketing manager.

Legal Question Looms Large

Wyse officials, like others investigating Micro Channel, say the big question is a legal one, not a technical one. At the moment, IBM seems unwilling to discuss utility licensing of Micro Channel, although Kryzan says that IBM is "more willing to talk to vendors" now than it was in the past. Still, IBM's reaction to a true PS/2 clone will only be known when one is brought to market. "This is a case where you don't want to be first, you want to be second," says Brian Jackson, managing director of IBM-compatible manufacturer Future International Ltd. in Surrey, England.

Jackson, whose background is in engineering, says the technical hurdles could be cleared with relative ease, but the legal questions loom much larger, and are infinitely more costly to any company willing to joust with IBM.

IBM's initial strategy concerning lawsuits and the PS/2 looked particularly fierce. Two companies ran afoul of Big Blue earlier this year by using variations of the PS/2 moniker. In an out-of-court settlement reached in November, AST Research Inc., Irvine, Calif., agreed to discontinue an advertisement using the headline "PS/2 Memory: Our Name Says It All." IBM agreed to drop the suit, while AST agreed to respect IBM's "Personal System/2" trademark. IBM also agreed to drop its objection to AST's product names Rampage/2 and Advantage/2.

A similar suit between IBM and Orchid Technology Inc., Freemont, Calif., was settled with Orchid agreeing that advertisements for its add-on products for the PS/2 would not be used in any way to suggest that IBM endorsed them. Although the two suits have been settled, the cases sent legal shivers down the backs of many clone makers.

Despite the legal battles, IBM may have backed off a bit of late, although it won't come out and say so. Recently, company officials did admit that legal PS/2 clones eventually will come out, but added that the effort on the part of clone makers will take some degree of expertise.

PS/2 with Micro Channel hit just as Tandy Corp. was making inroads with its strategy to broaden its base in the business market. Now, Tandy officials admit, without Micro Channel its new strategy could be handicapped. Consequently, Tandy has initiated a development program for Micro Channel, but, like Future International, it doesn't plan to be the first on the block with such a product.

Tandy officials see the PS/2 and its accompanying architecture as being far more important to corporate or high-end users than to Tandy's traditional customer in the home and education markets, who generally buy through retail channels.

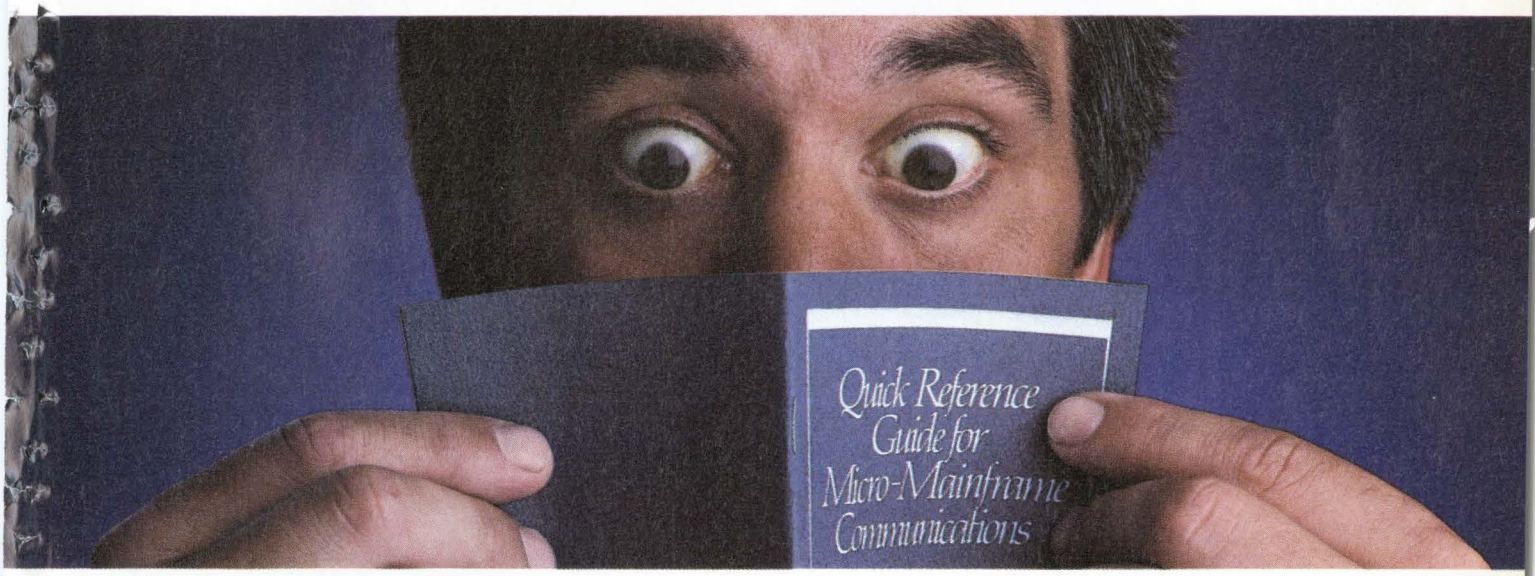
Back to Conventional Markets

Some IBM observers see the PS/2 in the same way—a move by IBM away from the mass market and back toward its conventional markets in business, government, and education. If that is the case, says Future International's Jackson, a two-tier operating system (DOS and OS/2) will exist for some time, depending on the users.

Bill Gates, chairman of Microsoft, Redmond, Wash., whose company is writing OS/2, shares Jackson's opinion: "I originally thought we'd see some slowdown in pc sales when the PS/2 was announced, but it has not happened to the degree I thought it would. The pc market has continued to grow or, if anything, grow faster since April 2 than before."

OS/2 will run on the current crop of pcs, but its full power will only be unleashed on the PS/2 machines, Gates says. "A key point," he continues, "is that OS/2 runs on older pcs *and* it runs on the

EXTRA HELP



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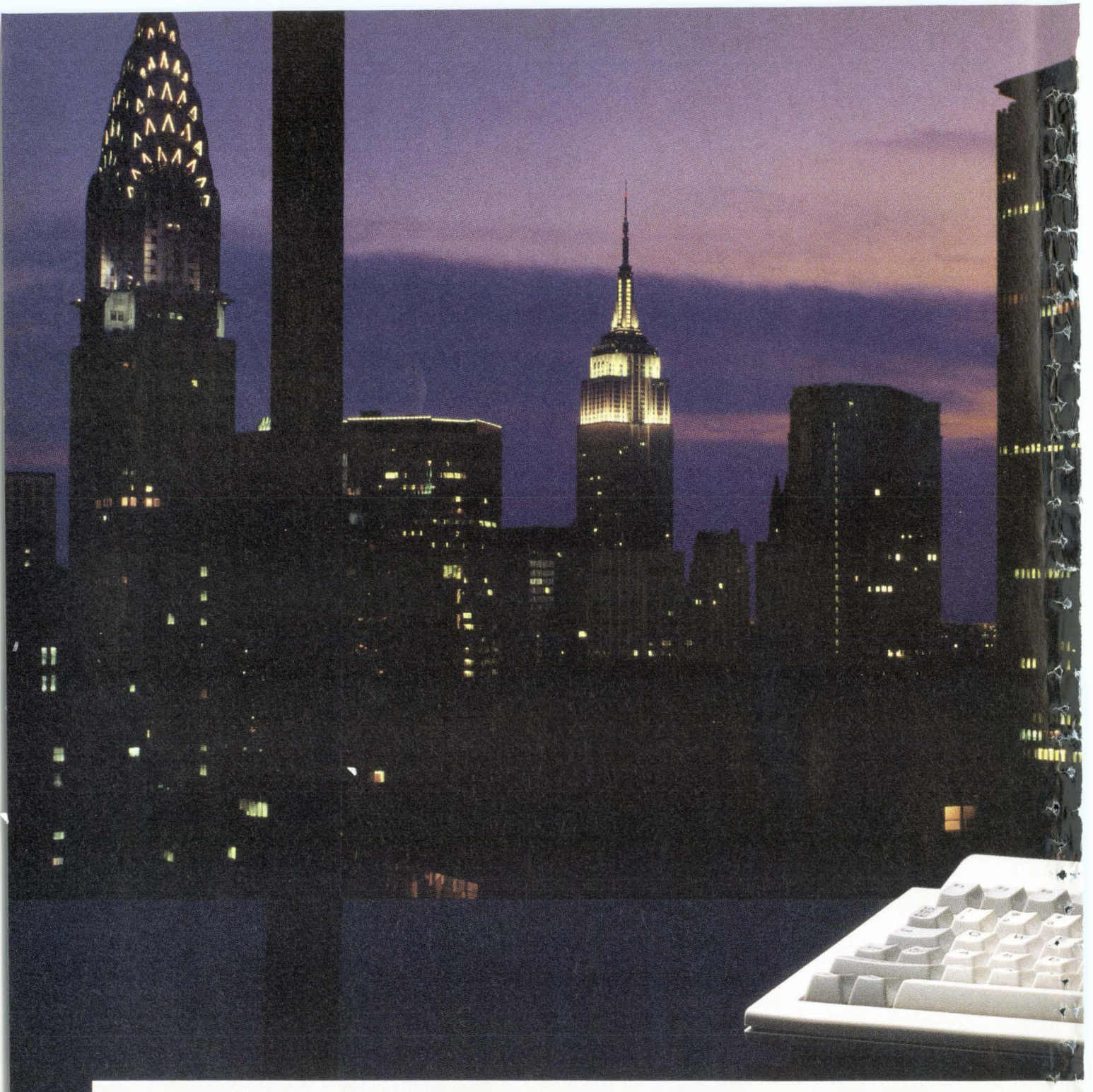

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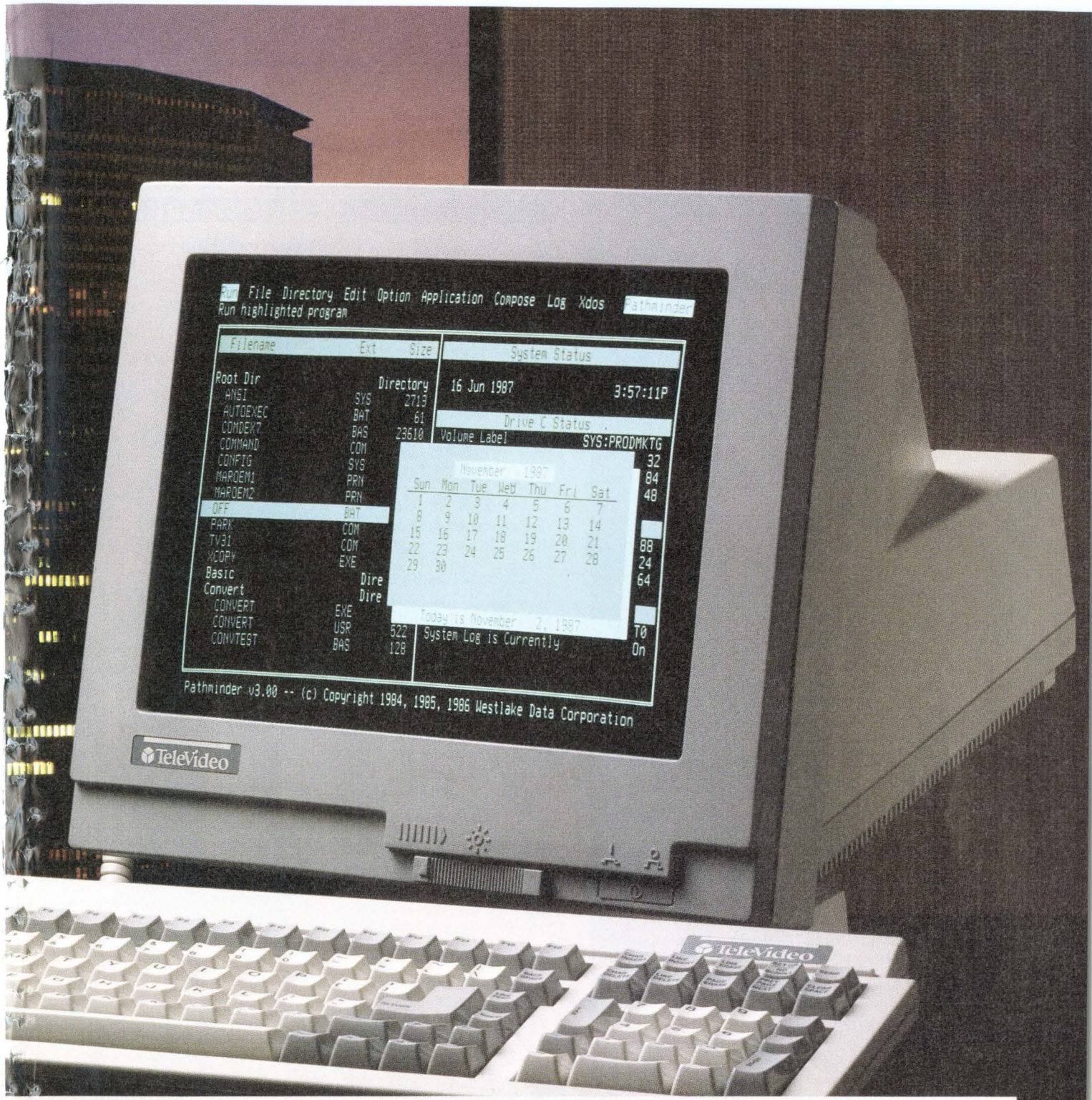

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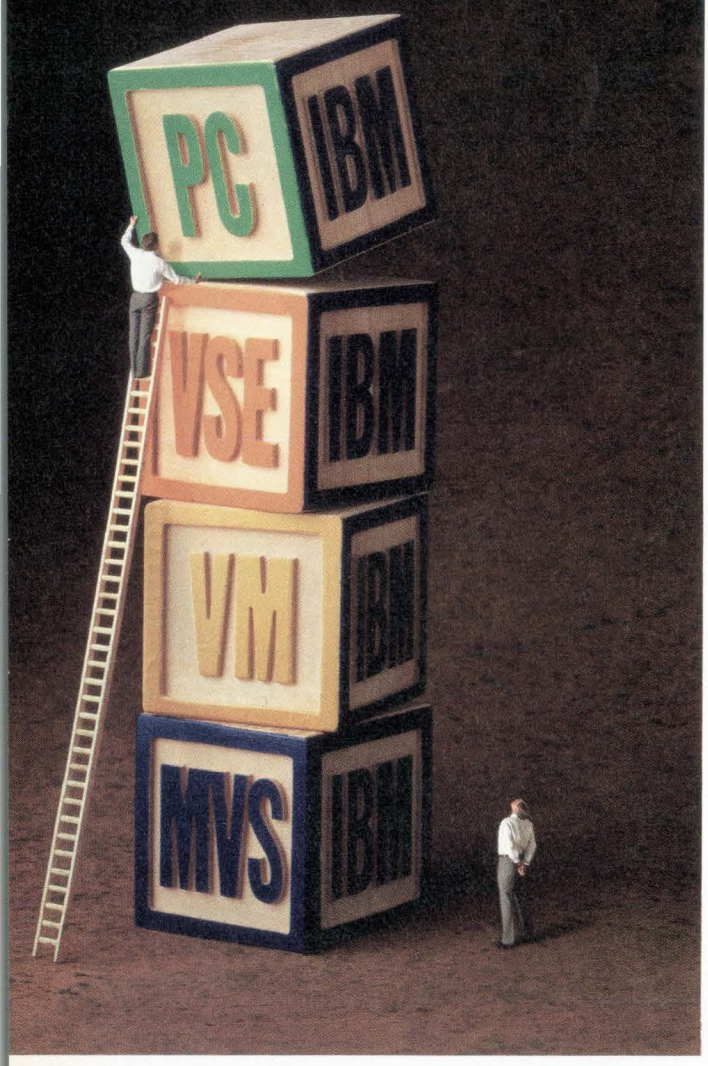

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News in Perspective

PS/2. The PS/2, however, is designed knowing that OS/2 is an open system capable of running many things at one time. The PS/2 does that better because it was designed with that in mind."

When the PS/2 was announced in April, many analysts expected to see clones by the end of the year. Now, most analysts don't expect to see clones until mid-1988, if then.

If mid-1988 is an accurate estimate of the arrival of the PS/2 clone, that would mean IBM would have had slightly more than a year to establish its position in the market, which has been one of Big Blue's goals for the new machines.

"When we developed the PS/2 and Micro Channel we knew there were some smart people out there," comments IBM's Mannix. "The question was how long would it take [them] to reengineer the thing. We figured about nine-to-15 months before someone would come up with something similar, so we're probably right on target with that. It's been a lot tougher than most people [clone makers] thought it would be."

With the first generation of PCs, the clone market was wide open because IBM used off-the-shelf hardware. For its new generation of PCs, IBM has been less open about its hardware, saying it is willing to license, under certain circumstances, Micro Channel utility patents, but not basic patents for PS/2. Nevertheless, IBM has acknowledged that legal clones are inevitable. Still, the computer giant hopes to maintain its technological lead. "We plan to take what we've got and make it better over time," says Mannix. "Others will try to catch us and even try to leapfrog us. If we become nerds then someday they may catch up, but I don't think that's going to happen." ■

BENCHMARKS

Honeywell Bull Layoffs

Honeywell Bull Inc. plans to cut approximately 1,600 jobs in 1988. The company, which was formed earlier this year and is owned by Honeywell Inc., Groupe Bull of France, and Japan's NEC Corp., had employed more than 20,000 people worldwide prior to the announcement. Also, Honeywell Bull intends to transfer mainframe manufacturing operations to Lawrence, Mass., from Phoenix as part of the overhaul.

Apple in Italy

Apple's Rome unit has announced a joint leasing venture with the successful Florentine clothing manufacturer, Benetton. Apple and Benetton will have equal shares in the new company, called Servizi Finanziari SpA (Safa). Safa is the first leasing venture for Apple. It will provide services for buyers and distributors of Apple products, including leasing, financing,factoring, and venture capital. In addition, Apple has acquired 24.9% of List SpA, which is a software house based in Pisa. List specializes in Unix research and the integration of the Macintosh into multivendor environments.

CCA on the Block

Computer Corp. of America (CCA), developer of the Model 204 DBMS, is among several businesses targeted for sale by Crownx Inc., a Canadian financial services and health care concern. Crownx, which acquired CCA in 1984, also plans to divest itself of Indisy, (formerly Prod-Net) a networking software developer, and Data Crown, a computer timesharing venture, both based in Toronto. Crownx promises to fund CCA operations through calendar '88, a spokeswoman says. The Cambridge, Mass.-based firm had revenues of $42 million in 1986. ■

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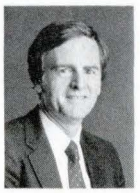

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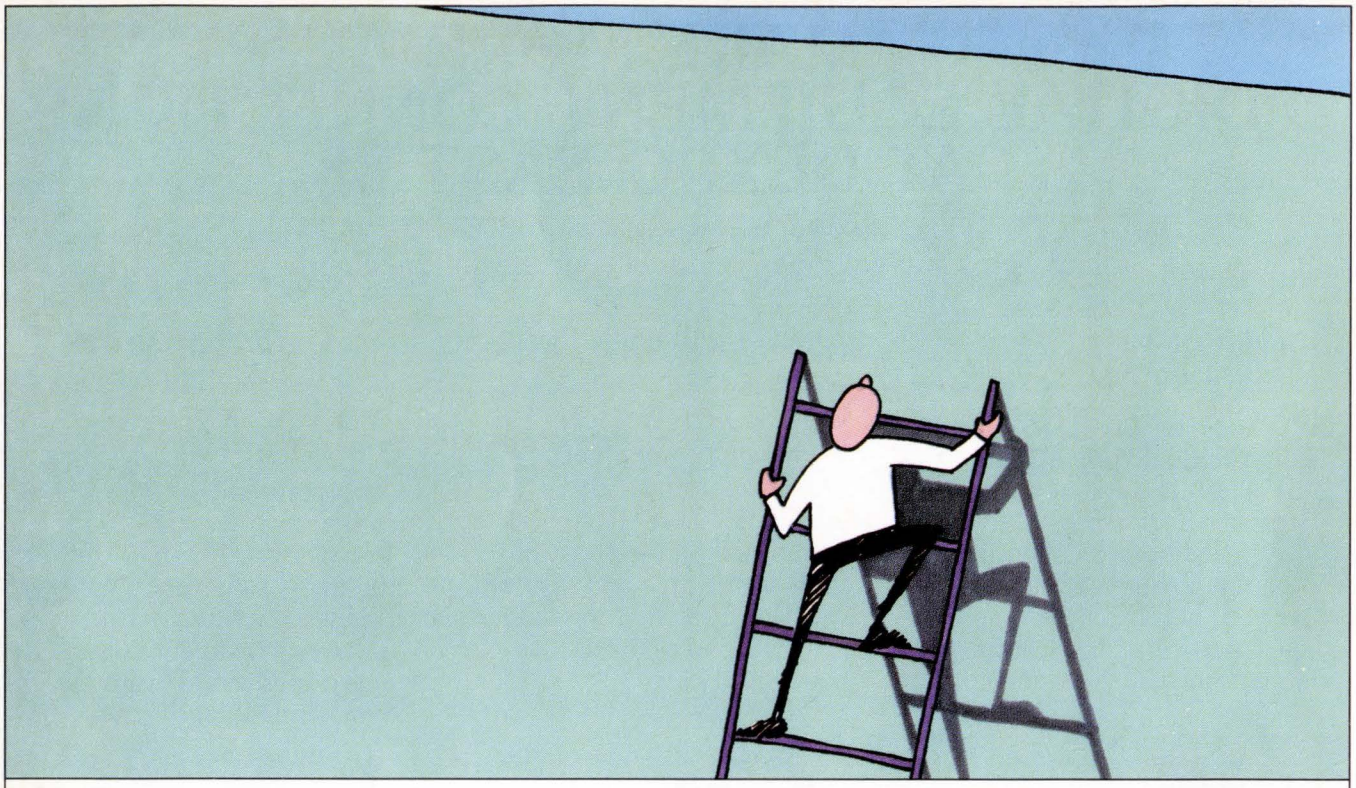

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Behind the News

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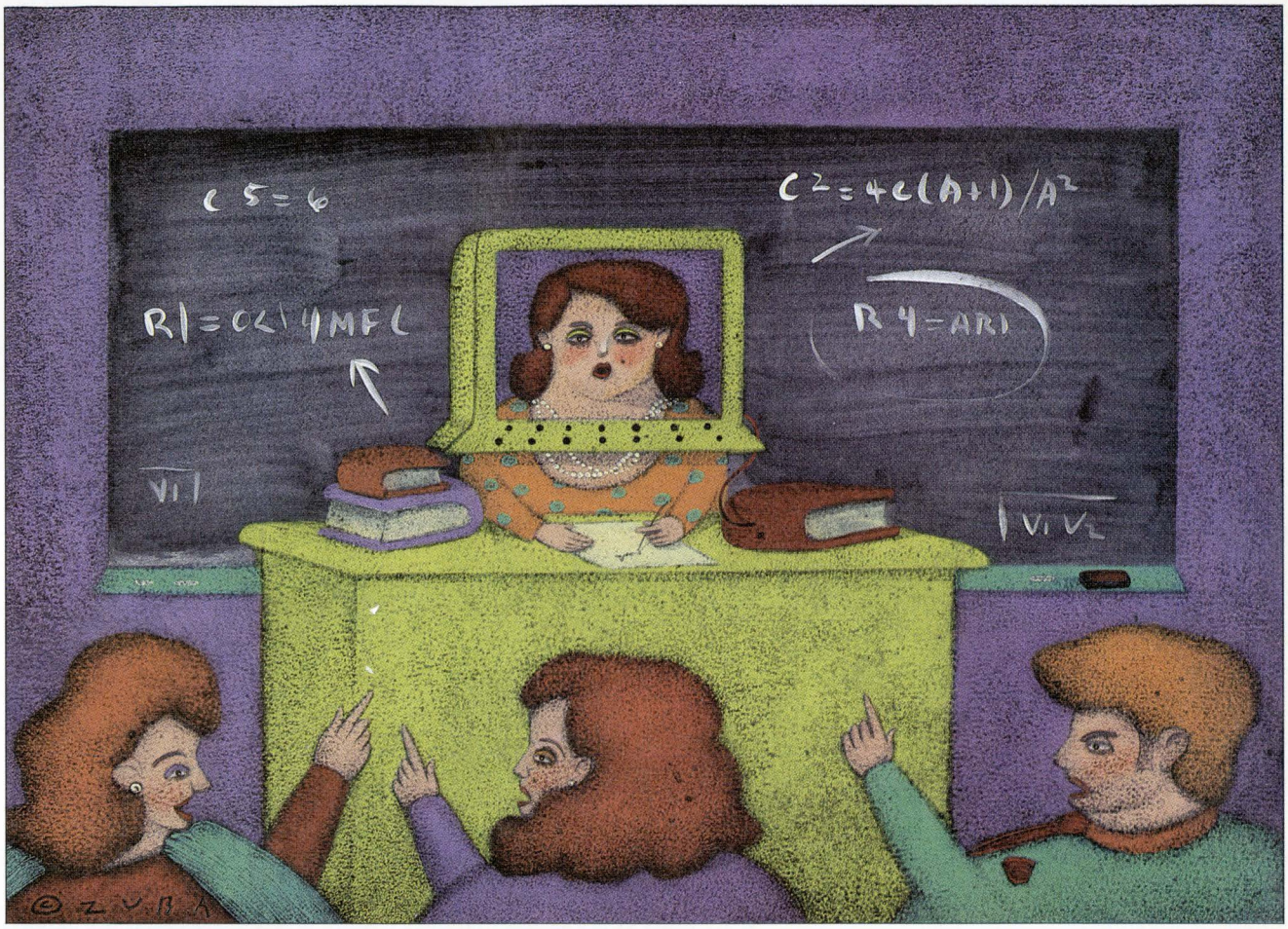


Illustration by Bob Zuba

Pcs in Education: Reading, Writing, and Algorithms

Despite socioeconomic differences and scarce funding, school programs are pressing ahead to provide students with computer skills.

BY THERESA BARRY

Today, students being graduated from America's schools are entering a job market that increasingly requires computer skills. But are some students being left behind because their schools do not provide computer training, either for economic or other reasons?

An examination of the kindergarten through twelfth grade educational systems in various municipalities throughout the country reveals that, in general, schoolchildren in affluent areas are being exposed to computers as early as kindergarten and are likely to have access to a well-equipped computer lab at school. In inner-city or rural school districts, there is a greater chance that by the time a student is graduated from high school and enters the job market, he or she will not have had the same exposure to computers. That's not to say that all rural areas are in the dark ages of computer usage. On the contrary, the paucity of financial resources in some of these areas is forcing school administrators to develop innovative and cost-effective ways to bring computers to their students.

Interviews with various school administrators reveal that it's not the federal or even the state governments that will spearhead the movement toward computer literacy in America's schools. The Computer Education Assistance Act of 1987, which held much promise for computing in all U.S. schools, may, in its final form, offer very little in the way of federal assistance. It's the local school officials and farsighted political leaders—whom New York City schools' chief information officer, Irwin Kaufman, characterizes as "visionaries"—who are paving the way in high-tech education.

Statistics provided by the U.S. Department of Education's Center for Education Statistics (compiled in October 1986) reveal that the percentage of U.S. public schools using microcomputers in the classroom rose to 92.2% in the fall of 1985 from 18.2% in the fall of 1981. The statistics show that the size of the schools makes a difference: 81.5% of schools with fewer than 200 students had microcomputers, while 97.9% of schools with more than 1,000 students did.

JEFFERSON HIGH'S REUTER: She believes her school "now has a direction for using computers and software in education."

In addition, *Instructional Uses of School Computers*, a report issued in August 1986 by the Center for Social Organization of Schools at Johns Hopkins University, states that the schools most likely to have at least one computer are those in relatively high socioeconomic metropolitan areas, and those offering classes up to grade six in smaller metropolitan areas. Least likely to have at least one computer were schools in which most students come from farm families, those offering kindergarten through grade eight in metropolitan areas that are primarily white and non-Hispanic, but in which children typically come from a low socioeconomic background, and elementary schools that have "racially mixed or predominantly minority" students. However, three quarters of the schools in the low socioeconomic grouping had microcomputers.

In school districts with poor and/or minority populations, the struggle to acquire computers is part of a larger movement to better educational quality. In Kansas City, Mo., for example, a lengthy court case ended in June 1985 with a ruling that, since 1969, the state had discriminated against schools with largely black and Hispanic enrollment when allotting assistance. As a result, says Theodore M. Shaw, codirector of the Western region of the NAACP's Legal Defense and Education Fund, the state is now required to provide funds to improve the quality of education in Kansas City schools—75.1% of the students in Kansas City are from minority groups. And, says Shaw, the provision of computer equipment for computer assisted instruction and improved computer literacy, as well as for operating the schools, is a large part of this funding. "Those students [in the inner-city schools] need computer training as much as anywhere else," he says.

Arthur Benson, a Kansas City attorney who worked with the NAACP on the case, says that up until the ruling, the Kansas City schools "were as [computer] illiterate as any major school district could be in the U.S." Just at the time when surrounding suburban schools began to consider acquiring computers (around 1969), Kansas City schools were losing their art, music, and physical education teachers. They "bottomed out" by the late '70s, Benson says. They are now in the midst of a transformation, purchasing computer equipment and implementing programs at a rapid pace.

Magnet School for Computers To Open

Schools that provide a specialized curriculum, often concentrated on a specific subject area—known as magnet schools—are being developed. Central High School Computers Unlimited is one such magnet school. It's situated in the heart of the inner city, says Benson, and is scheduled to open next September with a curriculum devoted to computers. The equipment budget will be $500,000 in the first year, $250,000 in the second year, and will level off at $100,000 per year within five years. While he's enthusiastic about the current state of affairs in the school system, Benson says it's too early to predict the results. He adds that, up to this point, students who are graduated from Kansas City schools have received no computer training.

Kansas City's students, as well as students from educational districts across the country, are entering a national job market that increasingly demands people with knowledge of computers. The Robert Half employment agency, which places workers in computer and financial service firms, reports that one of the questions most often asked by clients is, "Can this person use a personal computer?" Kelly Services Inc., a national temporary help service organization based in Detroit, reports that five years ago, training applicants to perform word processing and other computer functions was a mainstay of its business. Now, says senior vice president Carolyn Fryar, more time is spent testing them because most people who apply at Kelly already have some experience with computers. This experience is gained either in school or from previous jobs.

In the New York City school system, nearly every school has some computer equipment, says the Board of Education's Kaufman. "Before a student graduates from a [New York City] high school, he or she will have had access to the use of a computer in school," he says.

Photograph by Kristin Finnegan

In addition, Kaufman claims that 25% to 30% of the students in certain city schools have computers at home. For those who can't afford them, he says, New York recently implemented a program under which individual schools will loan computers to some students for use at home for a period of two to three months. Kaufman attributes the successful implementation of New York City's computer program to the city's Board of Education, whose members, he says, have been tremendously supportive. Still, there are some schools in New York City that do not have adequate computer facilities because of overcrowded conditions, Kaufman admits.

There are many types of computer programs in place in kindergarten through grade 12 in New York City's school system. For example, Kaufman says there are 60 sites in the Writing to Read program, which uses computers and teaches children how to type, and such staff development programs as How To Use the Computer in Arts, which is geared toward teacher training.

The teachers in New York City's public schools are being offered courses on computers during the summer in an "open university" setting. There is so much interest in these courses, claims Kaufman, that the administrators are turning people away. "The interest on the part of teachers is not an issue," Kaufman adds. "They are [interested], and we know it's making a difference" in the classroom.

NEW YORK CITY SCHOOLS' KAUFMAN: "You can't put computers into schools without bucks."

Over the last three years, Kaufman says, 500 new computer labs have been built in 125 schools throughout the five boroughs of New York City. The labs contain IBM, Tandy, Apple, and Commodore hardware. Kaufman says that the labs are state of the art. Approximately 125 to 150 more labs are planned per year, until all of the 1,100 schools in the system have three to four labs each. The expenditure on computer hardware and software over the last two years in New York City is about $30 million, not including instruction costs.

Computer Literacy is Not the Goal

New York's program, which began in the high schools, has been filtering down to the junior high and elementary schools. The main focus in the use of computers has not been on computer literacy. "In a system with 950,000 kids you don't focus on computer literacy per se," says Kaufman. "We're concerned with how computers will enhance learning in various subject areas."

An example of a school system that is using computers to attract students to magnet schools in the inner city is in Worcester, Mass. John Burke, the assistant superintendent of schools, says magnet schools in Worcester are given special treatment compared with nonmagnet schools when it comes to allocating equipment and staff to help with "minority de-isolation" and attracting students from nonmagnet districts.

The 1,500 teachers working in the

The Bill: Watered Down, But Still Afloat

The Computer Education Assistance Act of 1987, which was originally introduced by Sen. Frank R. Lautenberg (D-N.J.) and Sen. Timothy Wirth (D-Colo.) in 1983, held a great deal of promise for computer education in elementary and secondary schools in the U.S. In October, however, the funding proposed in the bill was reduced and sent to the Senate as part of a larger bill.

Joy Silver, a legislative assistant to Sen. Lautenberg in Washington, D.C., says the reduced version of the act maintains the main features of the original, but funding for hardware, software, and instruction has been reduced to $10 million from $150 million. To make matters worse, the $10 million is to be shared with three other educational programs. Silver expects the overall bill to pass this year.

One provision of the original bill that carried over, and which Silver thinks is quite significant, is the Eligibility for Grants requirements. Under these rules, individual states must follow stringent guidelines and document their planning activities for proposed computer installations. This, she says, will force states to have a clear direction for such programs in place, at least on paper.

A second important feature of the bill that remained intact is the Teacher Training Program. Called Title II of the original bill, this section states that the National Science Foundation shall arrange through grants and contracts with professional, scientific, or engineering organizations to improve the qualifications of individuals who train the teachers who in turn are responsible for using computers for educational programs in elementary and secondary schools.

All of the school administrators interviewed for this article felt that funding of teacher training was one of the most, if not the most, important aspects of computer literacy among schoolchildren. Just how important Title II was is revealed in a study published by the U.S. Department of Education in June 1986, which showed a direct relation between teacher training in computers and district wealth.

Photograph by Randa Bishop

Worcester public school system are trained at individual school and district levels. Says Burke, "We made a decision not to ask for volunteers" among teachers to train on computers. "All classrooms are *required* to go into the computer room. We worked in reverse." Burke adds that most teachers have taken to computers "quite well."

Each of the 41 elementary schools in the Worcester school system has a 32-station computer network, comprised of hard-disk-based Tandy microcomputers. Software curriculum packages are implemented on the systems. The school system also has a telecommunications program so that schools can communicate and exchange ideas with other schools inside and outside of the district. Burke has seen the most direct effect of the children's use of computers in their writing skills. He believes this is because the students are taught to use the computers as word processors, which allow them to correct their writing mistakes easily. "It's harder to pinpoint the effects in other curricula," adds Burke. "Did the computer teach a student to add better, or was it the math teacher?" he asks rhetorically.

Until this past year, funding for Worcester's computer facilities came from state and federal sources. Massachusetts's property taxes were capped in 1983 at 2.5%, spelling disaster for Worcester's schools, which cut 400 teachers. The city's budget picture has improved dramatically since, and Burke says city officials have been backing, among other things, computer education funding.

The Situation at the Rural Level

While the outlook for computing at New York City and Worcester schools looks pretty bright, some rural school districts are struggling. Marilyn Monahan of the New Hampshire branch of the National Education Association says, "The ratio of students to computers is still high. There is a great disparity in access to computers between kids of rich and poor communities."

Monahan says that because the level of interest in computers varies among districts, the benefits of computer education will also vary. She says the state is addressing this problem by providing computers to teachers to do their paperwork. By doing so, says Monahan, they will be spurring the interest among the teachers, which, it is hoped, will translate into enthusiasm for computers in the classroom.

Monahan sees school districts in New Hampshire, as well as those across the country, becoming more and more interested in purchasing computers. In a tour of computer facilities in U.S. schools, she found that some schools had computer labs, but very little software. One school she visited had "a few computers in its library" and the librarian, who never used a computer, was put in charge of them. Monahan found that, generally, there was a question of which discipline was the first to get computers.

With federal aid cutbacks, Monahan says it doesn't seem likely that a cohesive national effort will rectify these problems.

An Apple Network to the Rescue

An example of an innovative approach to providing computers in schools can be found in Salem, Ore. There, the challenge for local high school administrators was to share scarce resources, a characteristic of many rural communities that are geographically iso-

Vendor Offerings in Education

Here is what the four top vendors in the kindergarten through grade 12 education markets offer in grants and discounts to educational institutions and teachers:

Apple Computer Inc.

Apple's Corporate Grants department has a program called Equal Time, which targets disadvantaged students who traditionally have had limited access to computers in classrooms. Grants consist of up to 20 pcs, peripherals, software, and support. Apple's approach to the education market is known as the Apple Unified School System. On the sales side, Apple offers the Education Purchase Program (EPP), which offers special pricing to qualified schools. Another program under EPP allows full-time teaching professionals affiliated with schools to purchase a single Apple computer directly from Apple from a special price list. The Apple Repair Coupon Service Program offers service and repairs to elementary and secondary schools at a discount. The Apple Education Upgrades program offers schools with Apple computers discounts on selected upgrade equipment.

Commodore

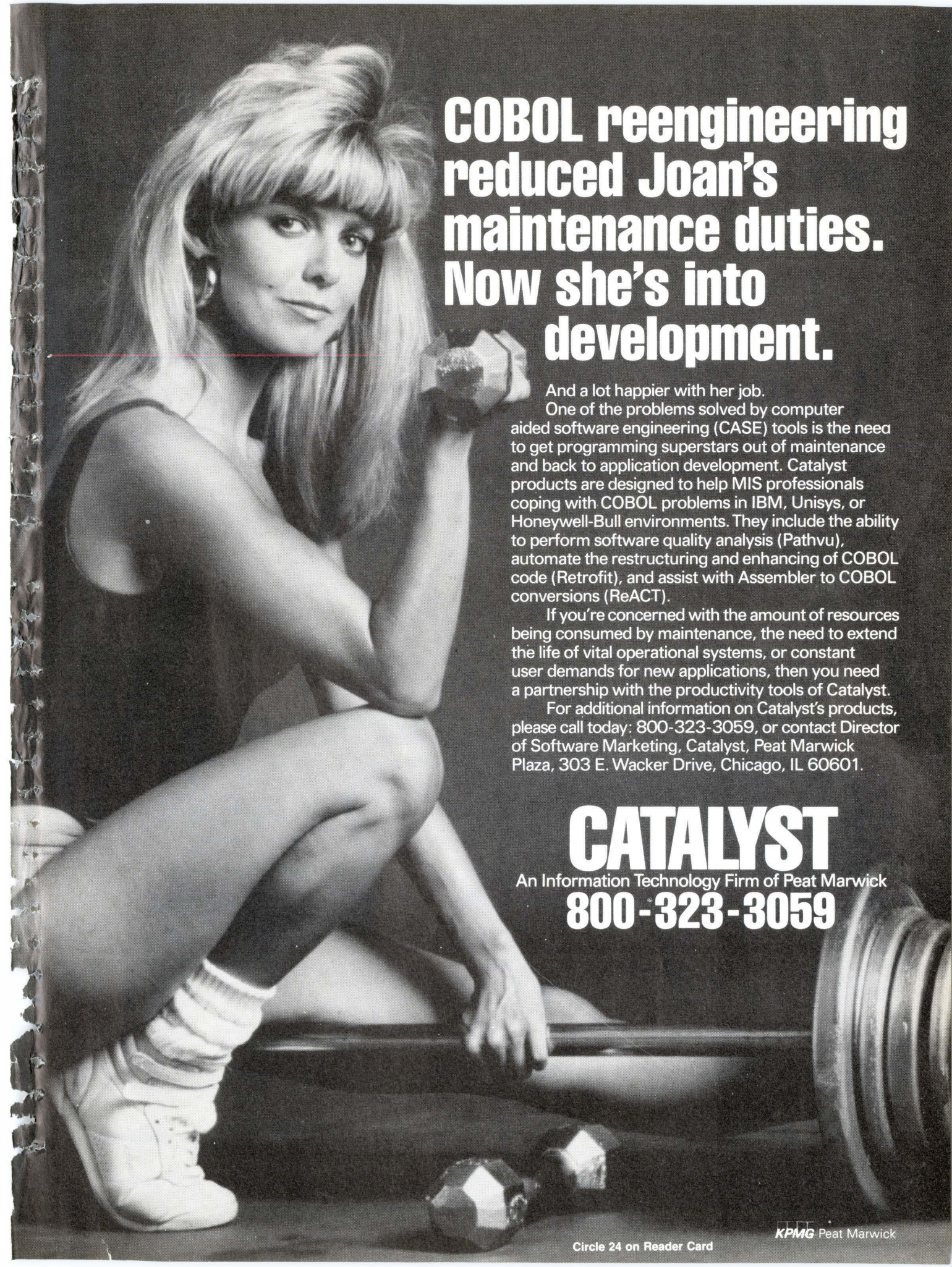
Commodore's education division ceased operation two years ago when the company was experiencing financial woes. Recently, the group was reformed and is revving up. The company does not now have a grants program in place. Discounts are available to both schools and teachers through local Commodore dealers.

IBM

IBM offers no educational grants. Three special marketing programs for kindergarten through grade 12 are offered. A special price offering is available for the PS/2 Model 25 when ordered by institutions that are offering classes in kindergarten through grade 12, that qualify for the education allowance, and that have a Volume Procurement Amendment or special bid contract in effect with IBM. IBM's Certified Education Specialist program for elementary and secondary schools allows a school, at the same time as it orders products, to select an IBM Certified Education Specialist from the IBM dealer network to supply assistance services at no extra charge. The IBM Faculty and Staff Purchase offering provides faculty and staff members with prices that are below list on selected IBM products for personal use.

Radio Shack's Education Div.

The Tandy Educational Grants Program awards grants to qualified educational institutions. Two marketing programs are also offered. The Educational Purchase Discounts program, in general, provides a 20% discount on Tandy/Radio Shack computer hardware and software to public schools and eligible accredited, nonprofit, private educational institutions. The Teacher Opportunity Program provides discounts to qualified educators who purchase Tandy MS/DOS computers for their own use at home.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lated. A consortium of four rural high schools and a community college in the Salem area implemented a low-cost network of Apple computers, which is allowing one "master teacher" to instruct students in four schools—separated by as much as 25 miles—simultaneously. Says Patrick Schwab, who provided the technical support for the project from Chemeketa Community College in Salem, the program has been "a delightful exercise in cooperation . . . among schools with a natural rivalry between them."

The four schools—Jefferson, Cascade, Regis, and Staten—while rivals on the football field, are electronic classmates in the advanced writing and English composition class. The master teacher is putting assignments into the network using the *Let's Talk* software program (provided by Rust Systems, Santa Clara). Students are getting their assignments using one of the four or five Apple IIe micros at each school, loading their completed work back into the computers, which are networked via modems, and sending them to the teacher's mailbox. The teacher corrects the papers on-line and returns them electronically to the students, who then correct them and return them once more to the teacher. Communication between teacher and student through the network is supplemented by field trips, which physically bring the students and teacher together. The master teacher did not know how to use a computer before she began the course. She was trained at a local college, which helped her develop the curricula for use on the computer network. The teacher then spent about a day training the students on how to move around with the program on the computers.

Bulletin Board Used by Four Schools

The hardware was acquired through a grant program from Apple. Chemeketa College initially provided the technical support and network management requirements of the program, as well as a joint bulletin board for all four schools. Schwab, the program director, has since turned over the monitoring of the bulletin board to Karen Reuter of Jefferson High School. Reuter, a media specialist in the school's library, had only basic computer skills when the program was implemented, she says.

Now, she boasts that taking over the operation of the bulletin boards has "caused me to be more skilled in the repair and maintenance of computers," as well as more knowledgeable about their general operation. Reuter also believes the program changed the whole tone of the school's curricula. "We now have a direction [for the use of] computers and software in education."

While disparities exist among affluent schools and schools in the inner-city and rural areas, in regard to computers and their uses in education, there are some encouraging signs that the socioeconomic barriers are not insurmountable. At least in the short run, the burden of interest in, and implementation of, computers in the classroom may rest with those at the grass roots level. ■

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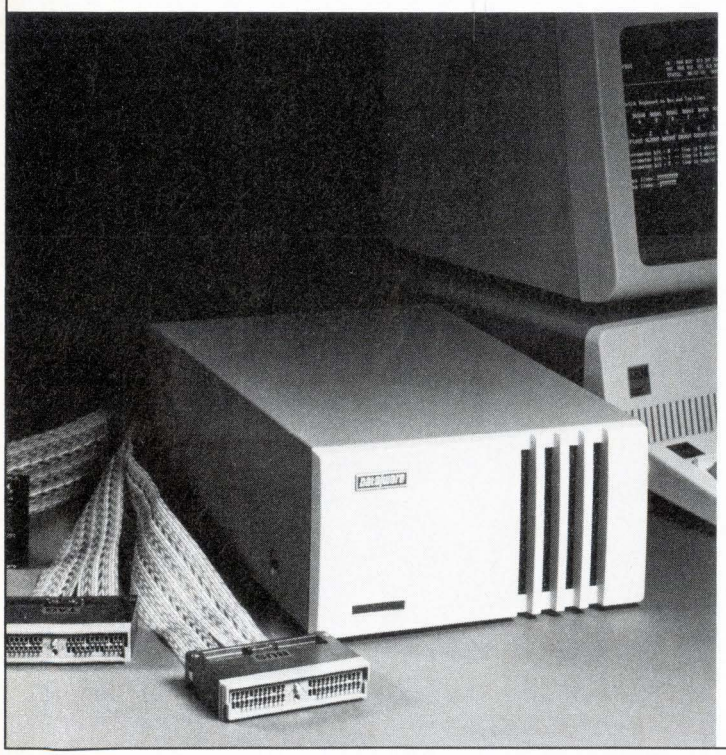

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You'll get guaranteed 4-hour response time. Diagnostics. Assured parts availability through the companies of Bell Atlantic Customer Services, Inc. An 11-hour service day. And Field Engineers trained on your entire system, not just on bits and pieces.

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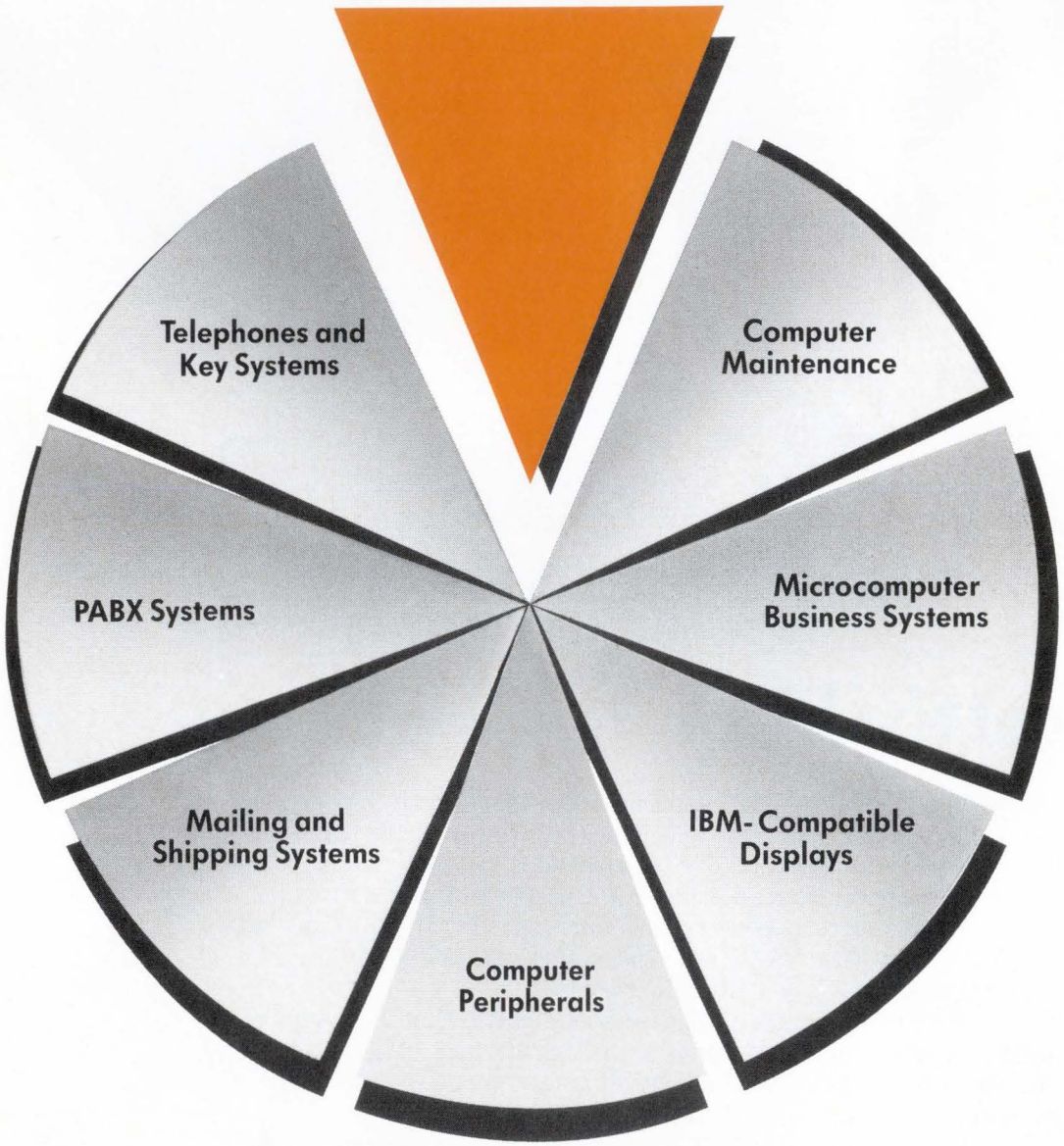

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ALCATEL MEANS BUSINESS

That's why we're called Alcatel Business Systems. Because our name reflects our focused commitment to improve the efficiency and productivity of American business.

Which, in turn, will make American businesses more profitable.

Alcatel Business Systems is a group of seven distinct companies joined by a common vision—to provide you with the best integrated communications, business information systems and services.

By themselves, these Alcatel companies are respected industry leaders in their fields, including single and multiuser business computers, computer terminals, local area network products, letter-quality printers, office publishing systems, single and multiline telephones, PABXs and key systems for small-to-medium-size businesses, postal and shipping systems, and computer service and maintenance.

As a group, these Alcatel companies work together to create a symmetry of systems and services, offering a comprehensive range of communications and information processing solutions for your business.

And because each of these companies is an integral part of Alcatel n.v., a multinational corporation with over $13 billion in sales, you can be sure that the Alcatel companies you work with today will be there when you need them tomorrow.

It's what we call our keystone commitment—and it's a fundamental part of the way we do business.

And we do mean business.

ALCATEL

For more information on Alcatel and the Alcatel Business Systems companies, call 1-800-556-1234 (ext. 247) or in California 1-800-441-2345 (ext. 247); or write Alcatel Business Systems, 1623 Buckeye Drive, Milpitas, CA 95035.

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CUSTOMER CLOUT!

DATAMATION'S Directory of User Groups

While user groups may not be the answer to every IS problem, they do offer information pros an easy route to increased influence with vendors. Other bonuses of membership include access to fellow users willing to talk about what they've learned from running their own systems and advance information on new hardware and software releases. We polled the world's largest IS vendors, the companies on the DATAMATION 100, for information on their user groups. Herewith, everything you need to know to increase your clout with your vendor.

A DATAMATION REPORT

Users of the world do, in fact, unite. They have nothing to lose, and a lot to gain. Whether they're customers of the big boys—IBM and Digital Equipment Corp., for instance—or at the fringes of the multiMIPS workstation market—like Sun folk or Intergraphites—users need more than vendors can provide. While vendors are happy to give users the ostensible specifications of their products and lots of support material based on their intentions, the day-to-day operation of computer shops can demand a lot more. Users need advice about the pitfalls of programs, the headaches that hardware is prone to create, and the hot skinny on service. That is where camaraderie comes in.

User groups provide IS professionals with a forum. By sharing their experiences, expectations, and complaints, group members can gain information during the course of a meeting or two that they otherwise might not glean from months of personal experience. More important, because user groups help users—participants exchange not only tips but actual programs and other valuable material—those active in a vendor-related organization can get practical value from the pool of know-how that the organizations create.

Specific benefits generally provided by user groups include the following:

- face-to-face contact with vendor personnel who might otherwise be phone shy;
- advance notice (or at least good hints) of forthcoming enhancements to software, hardware, and support;
- lists of vendors that can provide add-on hardware, special software, and training;
- gripe sessions that give users a chance to educate a vendor;
- stature with the vendor, which will typically view an involved user as a more important customer;
- access to special services such as online help bulletin boards;
- contact with other users involved in similar vertical applications;
- publications that the user can refer to when confronted with an unexpected challenge others have already met; and
- the increased stature both within the computing community and the user's company that comes with membership in a professional organization.

The cost of membership is usually peanuts compared with the price of the hardware involved, so the only real tax on the user and his or her company is the time involved in participation.

User groups are either nursed along with the help of vendors or sponsored by them. Vendors feel that these organizations improve relations between seller and buyer. No two vendors are alike in this regard, and it behooves the user interested in joining a group to give the appropriate organization the benefit of the doubt; at worst, the user can always drop out. Critics of the user groups, who were willing to spout off on condition that they remain anonymous, say that the organizations that were supposed to help them

Illustration by José Cruz

save time actually wasted it, and that the meetings were just a way for members to get some time out of the office. By contrast, many user group members interviewed in the course of assembling DATAMATION's directory say that their organizations have consistently provided valuable help to them as they have tried to get the most out of their machines, programs, personnel, and budgets. Between the extremes lies just about every kind of reaction—and every grade of quality—one might expect.

This directory itself shows the differences among groups, not only in terms of membership size, dues, and so forth, but also in terms of responsiveness. DATAMATION sent letters to every company in its roster of the world's 100 top vendors, and expected an overwhelming response from the firms that should have such groups. The response was indeed heartening, but, to our regret, incomplete. Some of the DATAMATION 100 vendors simply don't have groups, and, in the cases of companies such as C. Itoh and Bell Atlantic, there's probably no reason for them to. But others that seem like they ought to have such organizations (and that may indeed have them) simply ignored the requests for information. This may say something about the vendors, or at least their attitude toward customer relations.

Vendor: Amdahl Corp.
Group: Amdahl Users Group
Acronym: AUG
Address: 1250 East Arques Ave.
Sunnyvale, CA 94088
Phone: (408) 746-8510
Annual fee: $0
Individual members: 400
Corporate members: 300
Systems/products: All Amdahl products
Next meeting: June 12-15, Vancouver
Top officer: George Frickle, Pacific Northwest Bell Telephone Co.
Relation to vendor: Partially subsidized
Purpose: To provide a forum for members' education on management and technical issues in a conference setting. To research, gather, exchange, and spread facts and ideas relating to Amdahl products and services. To collectively provide statements of concern and direction to Amdahl. To furnish an opportunity for Amdahl to communicate statements of direction and plans to AUG members.
Services provided: Two national meetings per year.

Vendor: AT&T Unix Europe Ltd.
Group: European Unix System User Group
Acronym: EUUG
Address: Owles Hall
Buntingford SG99PL, England
Phone: 44-763-73039
Annual fee: N/A
Individual members: 0
Corporate members: 2,680
Systems/products: Unix
Next meeting: April 11-14, London
Top officer: Teus Hagen
Relation to vendor: Independent
Purpose: To promote the use of Unix and related services through the exchange of information and the cooperative efforts of its members.
Services provided: Two national meetings per year. Periodic workshops and tutorials. Quarterly newsletters.

Vendor: Bull SA
Group: European Federation of Bull & Honeywell Users Associations
Acronym: EFOBHUA
Address: 43 Rue de la Chaussee d'Antin
75009 Paris, France
Phone: 48-74-94-17
Annual fee: Expenses shared equally by members; this year, £10.
Individual members: 0
Corporate members: 500
Systems/products: DPS 7 and associated products
Next meeting: April 1988, London
Top officer: Roland de Conihout, Methodes et Informatique
Relation to vendor: Independent
Purpose: To establish a privileged contact with the developers and manufacturers of DPS 7 products. To coordinate the activity of technical groups set up to handle a specific problem. To work in close cooperation at the international level toward a joint definition of systems application and new hardware specifications. To establish an opening toward the external market, taking advantage of the status of the European Association.
Services provided: One international meeting per year. Special interest group seminars. Channels by which a user can request information of the vendor.

CDRS USER GROUP

Comdisco Disaster Recovery Services, Inc.

Vendor: Comdisco Inc.
Group: Comdisco Disaster Recovery Services User Group
Acronym: CDRSUG
Address: 6400 Shafer Court
Rosemont, IL 60018
Phone: (312) 698-3000
Annual fee: $0
Individual members: 0
Corporate members: 800
Systems/products: All
Next meeting: Feb. 3-5, Naples, Fla.
Top officer: Raymond Hipp, CDRS
Relation to vendor: Wholly subsidized
Purpose: The CDRS User Group is fully sponsored by CDRS for the purpose of providing a forum for disaster recovery information exchange and education.
Services provided: One national meeting per year. Customer advisory board. Quarterly newsletters. Periodic special reports.

Vendor: Computer Associates International Inc.
Group name: TOPIC Executive Committee
Address: 711 Stewart Ave.
Garden City, NY 11530
Phone: (516) 227-3300
Annual fee: $500
Individual members: 500
Corporate members: 0
Systems/products: CA-Top Secret
Next meeting: June 6-10, New Orleans
Top officer: Glenda Cummings, First Republic Bank
Relation to vendor: Independent
Purpose: To further the education of CA-Top Secret users. To further the awareness of security issues in general. To develop communication among users and between users and vendors.
Services provided: One national meeting per year. Periodic newsletters. Local user groups. User database. Enhancement tape.

Vendor: Concurrent Computer Corp.
Group name: Interchange Inc.
Address: 197 Hance Ave.
Tinton Falls, NJ 07724
Phone: (201) 758-7575
Annual fee: $125
Individual members: 1,500
Corporate members: 0
Systems/products: Concurrent, Interdata, Perkin-Elmer products
Next meeting: October 1988, Parsippany, N.J.
Top officer: Bill Atkins
Relation to vendor: Independent
Purpose: To establish and maintain a vehicle to effectively facilitate exchange of information among the membership. To provide guidance and support for special interest groups and local Interchange chapters. To provide the membership with the means to collectively communicate to Concurrent Computer Corp. on present and future product development and support.
Services provided: One national meeting per year. Special interest group meetings. Local chapter meetings and local interest groups. Quarterly meetings between the Interchange executive committee and representatives of Concurrent Computer Corp. Periodic newsletters. User program libraries. Electronic bulletin board.

Vendor: Control Data Corp.
Group name: VIM Inc.
Address: 8100 34th Ave. S.
Minneapolis, MN 55440
Phone: (612) 853-6311
Annual fee: $100
Individual members: 0
Corporate members: N/A
Systems/products: Cyber 180, ETA Systems supercomputers
Next meeting: May 2-5, Irvine, Calif.
Top officer: Ray Argo, University of Georgia
Relation to vendor: Partially subsidized
Purpose: To advance the art of computer usage through mutual education and to share ideas and information. To provide channels to facilitate the exchange of ideas and applications on a user-to-user basis. To provide CDC with the opportunity to present its plans and ideas to VIM members. To provide a unified approach to CDC on modifications and enhancements on hardware and associated CDC-supplied software.
Services provided: Two national meetings and two interim meetings per year. Quarterly newsletters. Published conference proceedings. Additional periodic publications.

Vendor: Control Data Corp.
Group name: European Control Data Users
Acronym: ECODU
Address: 8100 34th Ave. S.
Minneapolis, MN 55440
Phone: (612) 853-6311
Annual fee: SFr300
Individual members: N/A
Corporate members: N/A
Systems/products: Cyber 180, ETA Systems supercomputers
Next meeting: April 18-22, Nice, France
Top officer: Johan Rivertz, Norwegian Contractors
Relation to vendor: Partially subsidized
Purpose: To communicate with CDC by presenting the opinions, recommendations, and requests of ECODU members regarding CDC hardware, software, and related CDC services. To serve as a medium to exchange information between ECODU members.
Services provided: Two national meetings per year. Quarterly newsletters. Published conference proceedings. Additional periodic publications.

Vendor: Cray Research Inc.
Group name: Cray User Group Inc.
Acronym: CUG
Address: 608 Second Ave. S.
Minneapolis, MN 55402
Phone: (612) 333-5889
Annual fee: $1,200
Individual members: 0
Corporate members: 102
Systems/products: All Cray products
Next meeting: September 1988, Bologna, Italy
Top officer: Helene E. Kulsrud, IDA/CRD
Relation to vendor: Independent
Purpose: To provide an open forum to promote the free interchange of information and ideas that are of mutual interest and value to users of Cray computers, and to provide a formal communications channel between members of the corporation and Cray Research Inc.
Services provided: Periodic meetings and discussion groups. Publication of the results of research. Work to establish and improve standards for communicating computer science research results.

Vendor: Data General Corp.
Group name: North American Data General Users Group

NORTH AMERICAN DATA GENERAL USERS GROUP

Acronym: NADGUG
Address: 4400 Computer Dr.
Westboro, MA 01580
Phone: (617) 366-8911
Annual fee: $30
Individual members: 3,032
Corporate members: 0
Systems/products: All Data General products
Next meeting: N/A
Top officer: Calvin Durden, Tractor & Equipment Co.
Relation to vendor: Partially subsidized
Purpose: To advance the effective use of products or services marketed by Data General or its affiliates by promoting the free interchange of information.
Services provided: One national conference per year. Regional and special interest group network. Monthly magazine. Membership directory. Access to Data General publications. Online bulletin boards. User contacts. Participation in surveys and other opportunities to provide feedback to Data General.

Data General users at their 1986 meeting.

Vendor: Digital Equipment Corp.
Group name: Digital Equipment Computer User Society
Acronym: DECUS
Address: 219 Boston Post Rd.
Marlboro, MA 01752
Phone: (617) 480-3290
Annual fee: $0
Individual members: 100,000
Corporate members: 0
Systems/products: All DEC products
Next meeting: May 16-20, Cincinnati
Top officer: Charles Ham, E.I. Du Pont de Nemours
Relation to vendor: Partially subsidized
Purpose: To promote the exchange of information processing-related information among users of Digital Equipment Corp. products.

User Groups

Services provided: Two national meetings per year. Local users groups. Special interest groups. Periodic newsletters. Publish session notes. Program library.

Vendor: Diebold Inc.
Group name: The Advisory Group
Acronym: TAG
Address: 5995 Mayfair Rd.
N. Canton, OH 01752
Phone: (216) 497-5018
Annual fee: $230
Individual members: 275
Corporate members: 0
Systems/products: Diebold electronic transaction products (ATMs)
Next meeting: Sept. 18-21, Chicago
Top officer: Robert Cullinan, Shawmut Bank NA
Relation to vendor: Independent
Purpose: To provide members with a professionally organized means of communicating issues related to electronic transaction products and services to Diebold and sharing that information with other members. The group also provides input to the vendor on product enhancements and developments.
Services provided: One national meeting per year. Regional meetings. Quarterly newsletters. Member reference digest. Education class and accessory product discounts. Telephone hotline.

Vendor: Fujitsu Ltd.
Group name: Fujitsu Large Systems Users Group
Acronym: LS-ken
Address: 17-25 Shin-Kamata 1-chome Oto-ku
Tokyo 144, Japan
Phone: 03-735-1111
Annual fee: ¥30,000
Individual members: 0
Corporate members: 231
Systems/products: Fujitsu systems larger than M-360 or M-760/8
Next meeting: June 17, Tokyo
Top officer: Takahiro Miura, Nippon Oil Information Systems Co. Ltd.
Relation to vendor: Partially subsidized
Purpose: To provide the opportunity for group members to mutually exchange information and solve system-related problems. To research uses of advanced technology and future system trends. To propose to Fujitsu as a group recommendations concerning Fujitsu hardware and software.
Services provided: One national meeting per year. System exhibition seminar. Twenty-one research groups on various topics. Quarterly newsletters. Status report on information processing systems of all group members. List of software packages for distribution.

Vendor: Fujitsu Ltd.
Group name: FACOM Family Kai
Address: 6-1 Marunouchi 1-chome
Tokyo 100, Japan
Phone: 03-216-23211
Annual fee: ¥24,000
Individual members: 0
Corporate members: 3,750
Systems/products: All Fujitsu computers
Next meeting: May 1988, Tokyo
Top officer: Mizuho Satou, Taisei Fire & Marine Insurance Co.
Relation to vendor: Partially subsidized
Purpose: To research and discuss the effective use and improvement of FACOM computers.
Services provided: One national meeting per year. Periodic newsletters and other publications.

Vendor: Fujitsu Ltd.
Group name: Fujitsu Scientific System Users Association
Acronym: SS-ken
Address: 6-1 Marunouchi 1-chome
Tokyo 100, Japan
Phone: 03-216-23211
Annual fee: ¥20,000
Individual members: 0
Corporate members: 55
Systems/products: Large-scale FACOM computers
Next meeting: April 1988, Tokyo
Top officer: Teruo Fukumura, Nagoya University
Relation to vendor: Partially subsidized
Purpose: To exchange technical information needed by FACOM mainframe users in scientific and technical fields. To conduct discussions to respond to users needs and to solve problems. To work for the mutual benefit of users.
Services provided: Hold meetings on specific subjects. Periodic newsletters.

Vendor: Gould Inc.
Group name: Gould CSD User Group
Address: 6901 W. Sunrise Blvd.
Plantation, FL 33310
Phone: (305) 797-5717
Annual fee: $0
Individual members: 2,500
Corporate members: 0
Systems/products: All Gould products
Next meeting: Oct. 19-21, Fort Lauderdale, Fla.
Top officer: Ron Kirkpatrick, RCA Service Co.
Relation to vendor: Wholly subsidized
Purpose: To promote free exchange of information and ideas pertaining to the use of Gould computers and software. Inform Gould CSD users of new products and current developments in existing products.
Services provided: Two national meetings per year. Periodic newsletters. Access to user-oriented surveys. Software donations.

Vendor: Harris Corp.
Group name: Dialogue
Address: 1700 Chantilly Dr. NE
Atlanta, GA 30324
Phone: (404) 329-8000
Annual fee: $40
Individual members: N/A
Corporate members: N/A
Systems/products: All Lanier Business products
Next meeting: N/A
Top officer: Marsha Camp, Camp Executive Secretarial Services
Relation to vendor: Independent
Purpose: Establish communications among Lanier users on a local, regional, and national basis. Increase effective use of Lanier systems. Provide a formal communications channel between Dialogue members and Lanier. Reduce redundant developmental effort for applications.
Services provided: One national meeting per year. Local user groups. Periodic newsletters.

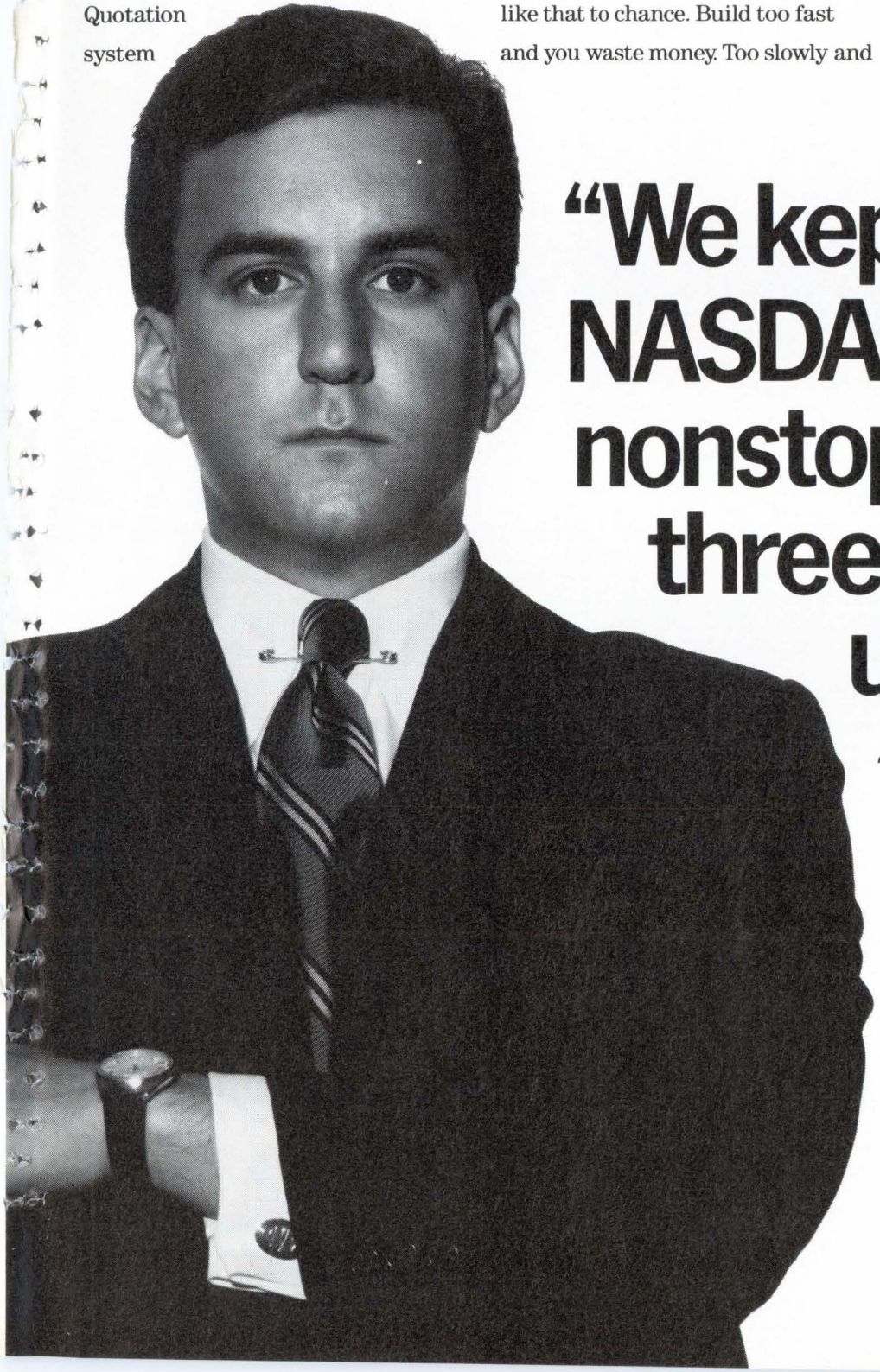
Vendor: Hewlett-Packard Co.
Group name: Intertex Inc.
Address: 680 Almanor Ave.
Sunnyvale, CA 94086
Phone: (408) 738-4848
Annual fee: $300 Corp., $70 Indiv.
Individual members: 7,320
Corporate members: 8,700
Systems/products: All HP products
Next meeting: February 1988, Anaheim, Calif.
Top officer: Robert Grenoble, Intertex Inc.
Relation to vendor: Independent
Purpose: To promote common business interests, encourage professional cooperation, foster the education and professional growth, stimulate the interchange and exchange of information, and advocate the needs of the users of Hewlett-Packard computer products and related software, hardware, peripheral devices,

An electronic stock market. An international network of computers through which shares are electronically traded with incredible speed.

The market is NASDAQ, and the network was built with Unisys equipment. The National Association of Securities Dealers Automatic Quotation system was founded in 1971. By 1978, daily volume was 11 million shares.

Now, in 1987, an average of 155 million shares a day are traded on a network of 3,000 terminals over a 6 million square mile trading floor. Uptime for the central Unisys computer is 99.92%.

"You can't leave network growth like that to chance. Build too fast and you waste money. Too slowly and you compromise service," says Sam Vail. His Unisys team is responsible for helping NASDAQ plan and manage the network growth. "We've been through three generations of equipment without once stopping for software conversions," Sam proudly points out. "Unisys systems grow right alongside the customer. I guess that's what the power of 2 means." Unisys and NASDAQ. The power of 2.



"We kept NASDAQ running nonstop through three major upgrades."

Sam Vail, Account Executive, Unisys.

UNISYS

The power of 2

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HAYES ANN TECHNOLOGICAL MODEMS THAT IM

It's long been thought that even the best of technology eventually becomes obsolete. A notion that we at Hayes could never really understand. And certainly never accept. So in defiance of it, we created the V-series Smartmodem 9600™ and V-series Smartmodem 2400.™ Modems that actually get better as they get older. Because they not only incorporate the most intelligent features found in modems today, they also possess the capability to provide a long-term growth path into the communications environments of tomorrow.

V-SERIES SMARTMODEM 9600

This is the fastest modem we've ever made. It can send and receive data at 9600 bps and with adaptive data compression achieve an effective throughput of up to 19,200 bps. Point-to-point error control, forward error correction and data flow control ensure that data gets there accurately.

The V-series Smartmodem 9600 also comes with automatic feature negotiation, a self-operating capability that analyzes all options for modem link and then selects the optimum feature set with any Hayes modem for the most efficient transmission at the highest shared speed.

Synchronous and asynchronous communications modes as well as simulated full-duplex employing advanced CCITT V.32 trellis code modulation and fast turnaround ping-pong technology are also part of the package. Plus you'll get the capability to link up with a range of networks, including SNA. And soon V-series technology will offer an X.25 PAD option to further accommodate network environments of today. And the future.

Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348.

OUNCES A CONTRADICTION: PROVE WITH AGE.

V-SERIES SMARTMODEM 2400

With adaptive data compression this modem can achieve an effective throughput of up to 4800 bps. Of course, it too offers point-to-point error control, forward error correction, data flow control, automatic feature negotiation and synchronous as well as asynchronous communications modes. And like the V-series Smartmodem 9600, it can link up with a wide range of networks, such as SNA, and be enhanced with an X.25 PAD option.

V-series modems come in stand-alone versions and internal versions (V-series Smartmodem 9600B™ and V-series Smartmodem 2400B™). Internal versions are bundled with our powerful new Smartcom III™ communications software.

And as yet another rebuttal to the argument for obsolescence, we developed the V-series Modem Enhancer.™ A separate stand-alone device that will upgrade current Smartmodem 1200™ and Smartmodem 2400™ external modems to the new standards set by the V-series products.

A closer look at the V-series product line will reveal to you a revolutionary technology designed to be the beneficiary of time, not its victim. So contact your Hayes Advanced System Dealer or call **800-635-1225** for the one nearest you.

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Circle 27 on Reader Card

and other related products within the Hewlett-Packard community, and to provide direct services to the membership.
Services provided: Periodic conferences and seminars. Magazine and periodic newsletters. Software library. Interface between users and HP.

Vendor: Hitachi Ltd.
Group name: HITAC Users Association
Address: 6-27-18 Minami-Oi
Shinagawa-ku
Toyko 140, Japan
Phone: 03-763-2411
Annual fee: ¥24,000
Individual members: 0
Corporate members: 1,500
Systems/products: Hitachi -S, -M, -L, -E, -G, and -T 2050/2020
Next meeting: June 1988, Tokyo
Top officer: N/A
Relation to vendor: Partially subsidized
Purpose: To conduct studies and exchange ideas regarding the effective use of Hitachi computer systems to increase business efficiency. To provide a venue for promoting friendship among its members.
Services provided: One national meeting per year. Chapter-level meetings, training sessions, and field trips. User group magazine and periodic publication of research papers.

Vendor: Honeywell Bull Inc.
Group name: HLSUA (U.S.)
Acronym: HLSUA
Address: 4000 Town Center
Southfield, MI 48075
Phone: (313) 353-4760
Annual fee: $325
Individual members: 0
Corporate members: 450
Systems/products: All Honeywell Bull products (predominantly large systems)
Next meeting: April 1988, Dallas
Top officer: Stanley G. Louck, Current Inc.
Relation to vendor: Independent
Purpose: To provide a forum for users to exchange and disseminate information. To promote the use of products and related vendor systems.
Services provided: Two national meetings per year. Member-donated software library. Work with standards organizations.

Vendor: Honeywell Bull Inc.
Group name: North American Honeywell Users Association
Acronym: NAHU
Address: P.O. Box 2037
Willingboro, NJ 08046
Phone: (609) 871-1531
Annual fee: $75
Individual members: 0
Corporate members: 536
Systems/products: DPS 4, 6, 7/7000, Level 6, Level 62/64
Next meeting: March 6-10, Norfolk, Va.
Top officer: Shirley Eick, Metropolitan Life Inc.
Relation to vendor: Independent
Purpose: To promote the free exchange of information between member units and vendors, and to facilitate and stimulate the timely interchange of information among member units.
Services provided: Two national meetings per year. Quarterly regional group meetings. Educational seminars at reduced cost.

HLSUA
EUROPE

Vendor: Honeywell Bull Inc.
Group name: HLSUA (Europe)
Address: 121 Avenue de Malakoff
F-75116 Paris, France
Phone: 45-02-90-90
Annual fee: FF3,900
Individual members: 30
Corporate members: 330
Systems/products: DPS/66, 8, 88, and 90; GCOS 3, 8
Next meeting: May 18-20, West Berlin
Top officer: Franco Fiorina, Interbanca
Relation to vendor: Independent
Purpose: Establish a privileged contact with the developers and manufacturers of Honeywell Bull products. Coordinate the activity of technical groups set up to handle a specific problem. Be present at the meetings organized by each organization. Work in close cooperation at an international level toward a joint definition of systems application and new hardware specifications. Establish an opening toward the external market, taking advantage of the status of the European Association.
Services provided: Periodic meetings by region. Specific task groups. Product-specific seminars and systems engineers meetings. Facilitate requests to vendor for system changes. Advanced information to the Associations.

UNITED STATES
IGUG

Vendor: Intergraph Corp.
Group name: United States Intergraph Graphics Users Group
Acronym: USIGUG
Address: One Madison Industrial Park
Huntsville, AL 35801
Phone: (205) 772-2292
Annual fee: $0
Individual members: 0
Corporate members: 3,000
Systems/products: All Intergraph products
Next meeting: May 15-19, Huntsville, Ala.
Top officer: Avrind K. Shah, Samborn, Stekette, Otis & Evans Inc.
Relation to vendor: Independent
Purpose: To provide a forum for the exchange of information that will lead to the more efficient utilization of graphic computer systems by its members and other interested users. To promote the free exchange of user-related information by maintaining up-to-date membership information and periodically communicating details of user activities. To provide a means by which suggestions and/or requirements for changes and improvements to graphic computer systems can be submitted to Intergraph Corp., as representing overall user opinion. To invest in real estate, mortgages, stocks, bonds, promissory notes, or any other type of investment. To own or lease real or personal property necessary or appropriate in the conduct of its business.
Services provided: One national meeting per year. Special interest groups, local user groups. Periodic newsletters.

A meeting of the IGUG Board of Directors.

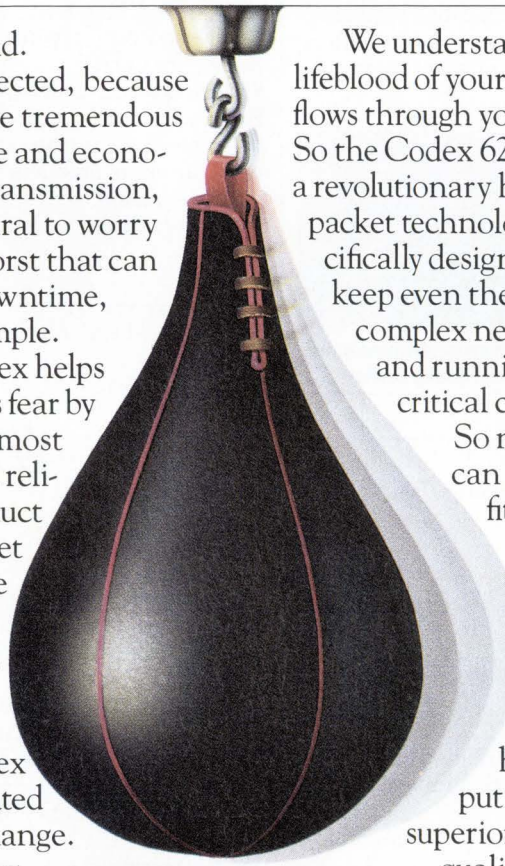
Codex offers T1 users something totally new and unexpected.

Peace of mind.

It's unexpected, because even with the tremendous performance and economies of T1 transmission, it's only natural to worry about the worst that can happen. Downtime, plain and simple.

Now Codex helps alleviate this fear by offering the most resilient and reliable T1 product on the market today. So the worst that can happen, can't.

Introducing the Codex 6290 Integrated Digital Exchange.



Network Resiliency – *With an economical comprehensive redundancy scheme, self-diagnostic and self-healing capabilities, the Codex 6290 allows your system to immediately and automatically bounce back if it gets hit.*

By utilizing a totally new T1 technology, Codex can now offer you both incredible reliability and incredible savings (often exceeding 30% in T1 line costs).

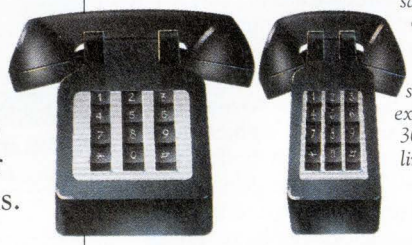
We understand that the lifeblood of your network flows through your T1 links. So the Codex 6290 employs a revolutionary high speed packet technology, specifically designed to keep even the most complex network up and running under critical conditions.

So now you can get the benefits of *both* traditional packet switching *and* circuit switching techniques. Including high throughput and superior toll quality voice transmission.

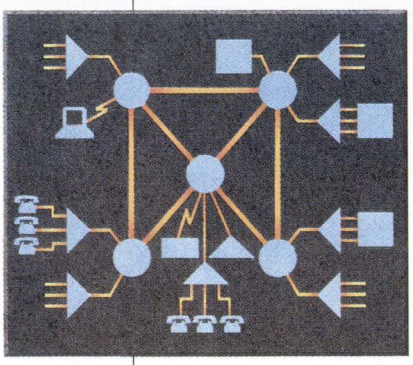
And of course the Codex 6290 is backed by our worldwide customer support and service organization.

The Codex 6290 is just one of many steps we're taking to improve digital network performance. But what else would you expect from the company with over 25 years' experience solving complex networking problems?

Voice Compression = More Cost Savings – *The Codex 6290 provides 4 to 1 voice compression, so you get twice as much channel capacity without sacrificing voice quality. That translates into savings often exceeding 30% in T1 line costs.*



For more information, call **1-800-426-1212, Ext. 7202.** In Europe, call 32-2-6608980. Or write Codex Corporation, Dept. 707-202, Maresfield Farm, 7 Blue Hill River Road, Canton, MA 02021-1097. And let us prove just how great your expectations can be.



Networking Expertise – *No matter how complex your T1 network, the Codex 6290 can help it run more cost efficiently and reliably. And Codex will help you with complete design, installation, applications and training support.*

Fast Packet Technology – *With this revolutionary new technology, information is "addressed," so even if it encounters a failed T1 circuit a "packet" will automatically reroute to its final destination.*

codex

MOTOROLA

The Networking Experts

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Sales offices in more than 40 countries worldwide. In Europe call 32-2-6608980, in Canada 416-793-5700, in the Far East 852-5-666706 (in Japan 81-3-5848101), in the Americas 617-364-2000.

Vendor: IBM Corp.
Group name: Guidance for Users of Integrated Data Equipment Inc.
Acronym: GUIDE Inc.
Address: 111 East Wacker Dr.
Chicago, IL 60601
Phone: (312) 644-6610
Annual fee: $400
Individual members: 0
Corporate members: 2,950
Systems/products: 4300 or 308X minimum
Next meeting: Nov. 1-6, Atlanta
Top officer: John Nack, Caterpillar Inc.
Relation to vendor: Independent
Purpose: To identify areas of productivity improvements in IS functions and provide the tools to make them a reality. Develop techniques for effective management of resources and to help meet quality, cost, and schedule objectives. Enable members to reach their goals by maximizing efficiency and effectiveness of their data processing systems. Provide user information on the proliferation of hardware and software in today's market and develop projections for future developments and trends. Work closely with IBM to make data processing systems as reliable and dependable as users require.
Services provided: One national meeting per year. Special interest groups. Periodic symposia. Newsletters and other publications.

SHARE

Vendor: IBM Corp.
Group name: SHARE Inc.
Address: 111 East Wacker Dr.
Chicago, IL 60601
Phone: (312) 822-0932
Annual fee: $250 initial fee
Individual members: 0
Corporate members: 2,546
Systems/products: High-end 370 architecture, MVS, VM and associated products
Next meeting: Feb. 28, Anaheim, Calif.
Top officer: Mike Armstrong, Ryder System Inc.
Relation to vendor: Independent
Purpose: To foster research and development of information processing technologies and to improve the effectiveness of SHARE members' information services by promoting mutual support and influencing the development of information processing products and services.
Services provided: One national meeting per year. Periodic discussion groups, forums, panels, lectures, and other similar programs. Publication of the results of research. Establishing and improving standards for communicating computer science results and programming information to interested members of the public.

SHARE officers Susan O'Connor, Michael Armstrong, John Chapman, and Cecilia Cowles.

Vendor: ICL
Group name: ICL Computer Users Association
Acronym: ICLCUA
Address: P.O. Box 42
Bracknell RG122LQ, England
Phone: 03-44-482933
Annual fee: N/A
Individual members: 4,000
Corporate members: 2,500
Systems/products: All ICL products from Series 39 to DRS Distributed Systems
Next meeting: May 4-6, Birmingham, U.K.
Top officer: Bryan Carlett, British Broadcasting Co.
Relation to vendor: Independent
Purpose: To coordinate action to achieve the most effective use of ICL products and to assist ICL to meet the present and future needs of users.
Services provided: Periodic management and technical seminars, conferences, and exhibitions. Collective representation to ICL and government standards organizations. User magazine. Discounts on supplies. Viewdata service.

Vendor: Lockheed/CADAM Inc.
Group name: CADAM Users Exchange
Acronym: CUE
Address: P.O. Box 3684
Torrence, CA 90510
Phone: (213) 212-5297
Annual fee: $400
Individual members: 0
Corporate members: 427

CUE
NORTH AMERICA

Systems/products: All CADAM software
Next meeting: March 14-17, New Orleans
Top officer: Rosemary Russo, Grumman Aerospace Corp.
Relation to vendor: Independent
Purpose: To further the communication between users and the vendor. To promote the use of products and related vendor systems.
Services provided: Two national meetings per year.

Vendor: Lockheed/Metier Management Systems
Group name: Artemis Users Association
Acronym: AUA
Address: 2900 N. Loop West
Houston, TX 77092
Phone: (713) 956-7511
Annual fee: $0
Individual members: 0
Corporate members: 300
Systems/products: All Artemis products
Next meeting: Nov. 8-10, Houston.
Top officer: Dale Winge, McDonnell Douglas
Relation to vendor: Independent
Purpose: To provide a forum for users to share the benefits of their combined experience with Artemis, and to collectively interface with Metier Management Systems Inc.
Services provided: One national meeting per year. Periodic chapter meetings. User exchanges and roundtables. Quarterly newsletters. Education on new products. Enhancement request prioritization.

Vendor: MAI Basic Four Inc.
Group name: Key Accounts Program
Acronym: KAP
Address: 14101 Myford Rd.
Tustin, CA 92680
Phone: (714) 730-2698
Annual fee: $0
Individual members: 700
Corporate members: 380
Systems/products: All MAI Basic Four products
Next meeting: March 3, Palm Springs, Calif.
Top officer: Bernard Jubb, MAI Basic Four
Relation to vendor: Wholly subsidized

Purpose: To serve the special needs of MAI Basic Four's largest customers through a single point of contact, representing those customers at MAI Basic Four corporate offices.
Services provided: One national meeting per year. Quarterly newsletters. Key accounts representative who has access to other large customers.

Vendor: Martin Marietta Corp.
Group name: MAS User Group
Address: 6801 Rockledge Rd.
Bethesda, MD 20817
Phone: (301) 897-6000
Annual fee: $50
Individual members: 0
Corporate members: 22
Systems/products: All MAS Software
Next meeting: November, Orlando, Fla.
Top officer: Larry Cram, Star Technologies Inc.
Relation to vendor: Heavily subsidized
Purpose: To provide a channel for communications between users and the company. To give direction to the company for software development.
Services provided: Two national meetings per year. Periodic newsletters.

Vendor: McDonnell Douglas Computer Systems
Group name: MICRU International
Address: 4000 MacArthur Blvd.
Newport Beach, CA 92660
Phone: (714) 250-1000
Annual fee: $175
Individual members: 650
Corporate members: 0
Systems/products: Microdata 6000, 9000, 18; Series 7000
Next meeting: May 1988, Clearwater, Fla.
Top officer: Larry Johansen, Signature Verification Systems

Microdata users eavesdropping.

Relation to vendor: Independent
Purpose: To provide an independent forum for information interchange for members of the Microdata community and the McDonnell Douglas Computer Systems Company.
Services provided: One national meeting per year. Special interest groups. Periodic newsletters. Recommendation program. Opinion surveys and other methods of feedback. Software discounts. Staff help desk.

Vendor: McDonnell Douglas Corp.
Group name: IHS Users Group
Acronym: IHSUG
Address: 600 McDonnell Blvd.
Hazelwood, MO 63042
Phone: (314) 233-4743
Annual fee: $100
Individual members: 0
Corporate members: 26
Systems/products: Integrated Hospital System
Next meeting: Feb. 8-10, Clearwater, Fla.
Top officer: Carl Weber, Swedish Medical Center
Relation to vendor: Independent
Purpose: To serve as a forum for the exchange of information about the McDonnell Douglas IHS; to provide continuing education relating to hospital information systems for members of the user group through organized programs presented by users, McDonnell Douglas, or other allied personnel; to recommend to McDonnell Douglas priorities for ongoing modifications or additions to McDonnell Douglas IHS and its interfaces; to recommend to McDonnell Douglas improvements in software, hardware, and client services support; and to establish and maintain a mechanism to coordinate the activities of the user group with the St. Louis office of McDonnell Douglas.
Services provided: Two national meetings per year. Published conference proceedings. Channels for users to request information of the vendor.

Vendor: NCR Corp.
Group name: Federation of NCR User Groups
Acronym: FNUG
Address: Mail Station USG2
Dayton, OH 45479
Phone: (513) 445-3131
Annual fee: $250 Corp., $25 Indiv.
Individual members: 3,000
Corporate members: 0
Systems/products: All NCR products
Next meeting: April 24-27, Nashville

FNUG
FEDERATION OF NCR USER GROUPS

Top officer: Rodney McComas, Walls Industries Inc.
Relation to vendor: Independent
Purpose: To promote and further the interests of NCR user groups. To consolidate the voices of member groups to more effectively communicate with NCR. To promote and further the educational interests of all NCR users.
Services provided: One national meeting per year. Various advisory committees. Quarterly newsletters.

Ronnie Anderson and Bob Richter, conference directors of NUCON:88 and NUCON:87.

Vendor: NEC Corp.
Group name: All NEAC Users Association
Acronym: NUA
Address: Mita 1-4-28 Minato-ku
Tokyo 108, Japan
Phone: 03-456-5111
Annual fee: ¥24,000
Individual members: 0
Corporate members: 2,000
Systems/products: All NEC products
Next meeting: March 11, Nagoya, Japan
Top officer: Akira Kadoi, Odakyu Electric Railway Co. Ltd.
Relation to vendor: Partially subsidized
Purpose: To give users of NEC computers the chance to meet each other and exchange their knowledge and experiences. To foster cooperation between NUA and the vendor.
Services provided: One national meeting per year. Special interest groups. Periodic symposia. Internal newsletter. Overseas training.

Vendor: Norsk Data SA
Group name: Norsk Computer Users Society
Acronym: NOCUS

Address: P.O. Box 25 Bogerid
Oslo, Norway N-0621
Phone: 47-2-62-60-00
Annual fee: SKr1000
Individual members: 0
Corporate members: 650
Systems/products: All Norsk Data products
Next meeting: November 1988, Montreux, Switzerland
Top officer: Chris Leslie, University of Reading
Relation to vendor: Partially subsidized
Purpose: To assist users in making the best possible use of their equipment. To establish contact between users. To attend to the common interests of its users.
Services provided: Periodic conferences. Special interest group meetings. Newsletters. Software catalogue.

NPUG

Vendor: Prime Computer Inc.
Group name: National Prime User Group
Acronym: NPUG
Address: P.O. Box 697
Laurel, MD 20707
Phone: (301) 490-2056
Annual fee: $25
Individual members: 1,600
Corporate members: 0
Systems/products: All Prime products
Next meeting: May 28, New Orleans
Top officer: John Steffen, John Steffen & Associates
Relation to vendor: Independent
Purpose: To provide an organized means of communication among Prime computer users and between the users and Prime Computer Inc. To provide an established forum for sharing ideas with Prime.
Services provided: One national meeting per year. Local and regional groups. Special interest groups. Quarterly newsletters. Software library.

A product booth at a recent NPUG gathering.

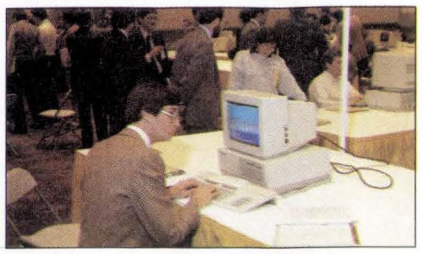
CURE — COOPERATIVE USERS OF RECOGNITION EQUIPMENT

Vendor: Recognition Equipment Inc.
Group: Cooperative Users of Recognition Equipment
Acronym: CURE
Address: 2701 E. Grauwyler
Irving, TX 75061
Phone: (214) 579-6137
Annual fee: $275 for conf.
Individual members: 0
Corporate members: 5,620
Systems/products: All REI equipment
Next meeting: May 2-4, Dallas
Top officer: Suzanne Martin, Houston Lighting and Power
Relation to vendor: Partially subsidized
Purpose: To collectively learn about new technologies, productivity improvements, innovative applications, and coming enhancements. To exchange information and ideas with other users of REI systems. To meet with REI top management to discuss issues and concerns, resulting in solutions to meet the user's needs.
Services provided: One national meeting per year. Quarterly newsletters. Electronic bulletin board network.

Looking at REI gear at a CURE meeting.

SUGI 13 Orlando

Vendor: SAS Institute Inc.
Group: SAS User Group
Acronym: SUGI
Address: 1 SAS Circle
Cary, NC 27572
Phone: (919) 467-8000
Annual fee: $0
Individual members: 0
Corporate members: 0
Systems/products: SAS System, System 2000, Data Management System, C products



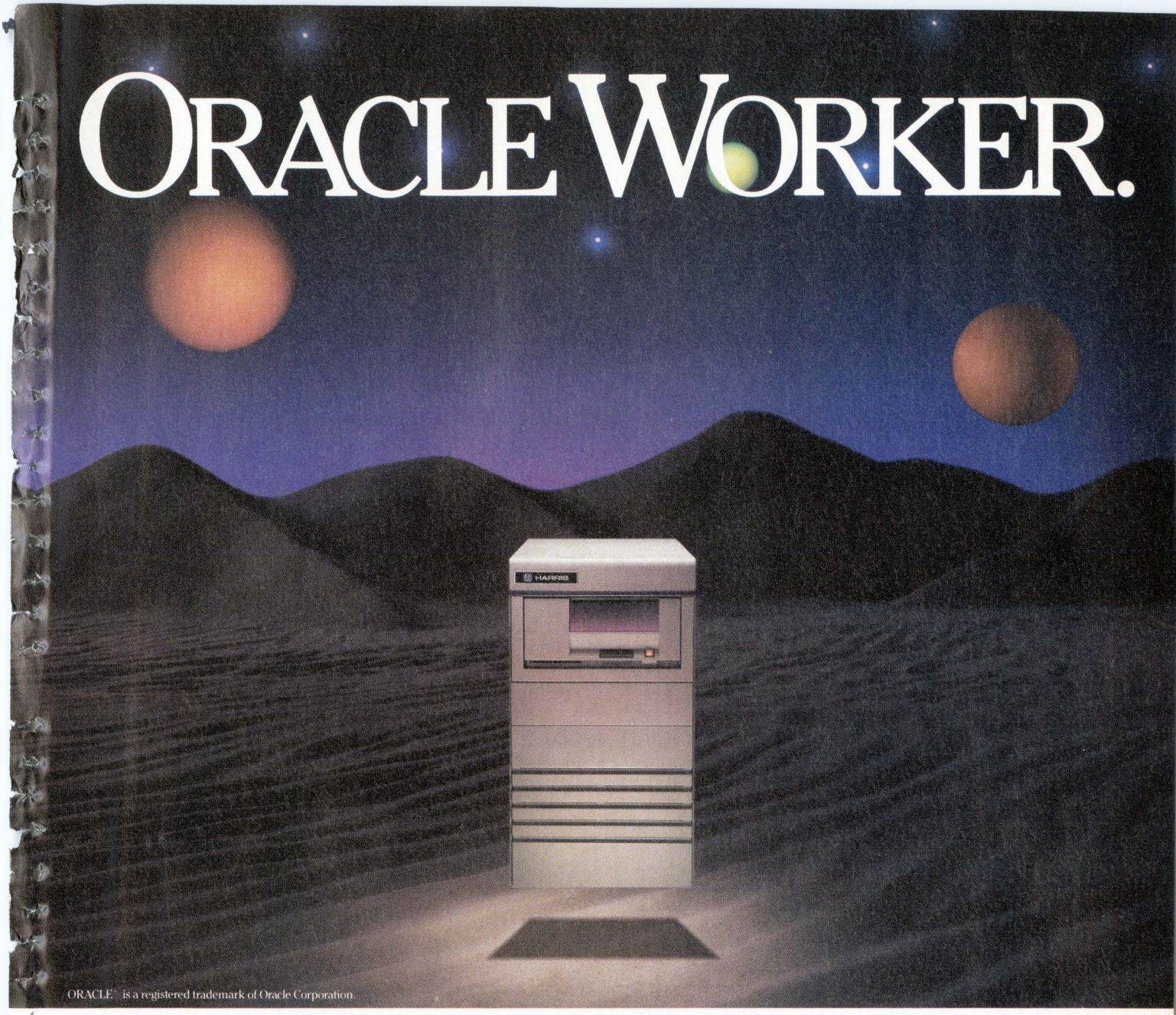
The SAS product demo area at SUGI 12.

Next meeting: March 27-30, Orlando, Fla.
Top officer: Gerry Hobbs, West Virginia University
Relation to vendor: Independent
Purpose: To give SAS software users the opportunity to discuss their software applications, learn techniques from other users, and hear about research and development at SAS Institute.
Services provided: One national meeting per year. Published proceedings. Consultants directory.

SNUG

Vendor: Shared Medical Systems Corp.
Group: SMS National User Group
Acronym: SNUG
Address: 51 Valley Stream Pkwy.
Malvern, PA 19355
Phone: (215) 296-6300
Annual fee: $0
Individual members: 0
Corporate members: 120
Systems/products: Independence software
Next meeting: April 13-15, Nashville
Top officer: Dennis Dasanko, University of Wisconsin Hospital & Clinics
Relation to vendor: Independent
Purpose: To promote the professional development and recognition of the membership of SNUG. To provide mutual assistance and liaison between SNUG and SMS. To provide a medium for the exchange of ideas, information, innovations, and solutions among members. To promote resource sharing. To facilitate the establishment of priorities for enhancements and new developments.
Services provided: Two national meetings per year. Periodic newsletters.

ORACLE WORKER.



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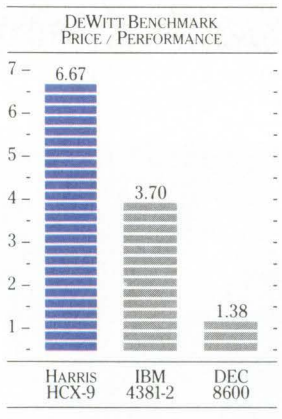
And Harris is the only name offering a complete range of hardware, from super-micros to super-minis, that supports ORACLE in a UNIX® environment. We also offer other leading software products for office automation, CAD/CAM/CAE and project management.

And our extensive networking capability such as NFS, Ethernet, DDN and SNA provide for flexibility and a complete growth path.



Harris has a strong commitment to ORACLE. We were the first ORACLE OEM and the first to deliver distributed database capabilities.

When you decide it's time for ORACLE to go to work for you, make sure you team it with the harder-working system.

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Circle 32 on Reader Card

Vendor: Sun Microsystems Inc.
Group name: Sun Microsystems User Group Inc.
Acronym: SUG
Address: 2550 Garcia Ave.
Mountain View, CA 94043
Phone: (415) 691-4343
Annual fee: $30
Individual members: 3,300
Corporate members: 924
Systems/products: All Sun products
Next meeting: N/A
Top officer: Sanford Meltzer, SUG
Relation to vendor: Partially subsidized
Purpose: To encourage the collection and dissemination of techniques, software, procedures, documentation, and related information of interest to Sun users. To encourage the exchange of information between Sun users and Sun Microsystems Inc. as well as between Sun users and vendors of products of interest to Sun users.
Services provided: One national meeting per year. International and domestic chapters. Member committees. Special event meetings. Quarterly newsletters. Donated software distribution library.

Vendor: Tandem Computers Inc.
Group name: International Tandem Users Group
Acronym: ITUG
Address: 111 E. Wacker Drive
Chicago, IL 60610
Phone: (312) 644-6610
Annual fee: $300
Individual members: 2,000
Corporate members: 0
Systems/products: All Tandem products
Next meeting: May 9-11, Amsterdam, the Netherlands
Top officer: Jim Holman, Domtar Inc.
Relation to vendor: Independent
Purpose: To advance the effective utilization of Tandem computers by promoting the free exchange of information concerning the use of such machines.
Services provided: Periodic national meetings. Various publications. Discounts on user group activities. Software library.

Vendor: Tandy Corp.
Group: Tangent
Address: P.O. Box 17580
Fort Worth, TX 76102
Phone: (817) 390-3700
Annual fee: $100
Individual members: 0
Corporate members: 250
Systems/products: All Tandy computers
Next meeting: April 18-20, Fort Worth
Top officer: James Foy, Foy Inc.
Relation to vendor: Independent
Purpose: To provide members with a forum for the exchange of ideas and to act as a liaison with Tandy Corp.
Services provided: One national meeting per year. Periodic newsletters. Electronic bulletin board.

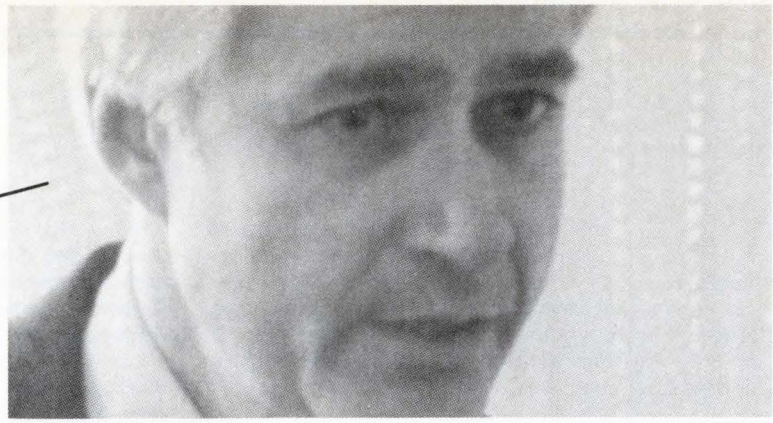
Vendor: Texas Instruments Inc.
Group: Texas Instruments Mini/Microcomputer Information Exchange
Acronym: TIMIX
Address: P.O. Box 201897
Austin, TX 78720
Phone: (512) 250-7151
Annual fee: $40
Individual members: 0
Corporate members: 6,000
Systems/products: All Texas Instruments products
Next meeting: June 19-22, San Jose
Top officer: Allan Butler, AccuLase Inc.
Relation to vendor: Independent
Purpose: To promote the exchange of information among users of Texas Instruments computer equipment.
Services provided: One national meeting per year. Local chapters. Monthly newsletters. Software and supplier directories. Insurance of $5,000 for accidental death and dismemberment.

In June 1987, Texas Instruments showed off new hardware at a meeting in Orlando, Fla.

Vendor: Toshiba Corp.
Group: TOSBAC Research Association
Address: 1-1-1 Shibaura Minato-ku
Tokyo 105, Japan
Phone: 03-457-2758
Annual fee: ¥20,000
Individual members: 0
Corporate members: 1,000
Systems/products: All Toshiba computers
Next meeting: October 1988, Hiroshima, Japan
Top officer: N/A
Relation to vendor: Independent
Purpose: To provide members with information on developments on Toshiba computers and associated products.
Services provided: One national meeting per year. Symposia and subcommittee meetings. Monthly newsletters.

Vendor: Unisys Corp.
Group: CUBE Inc., A Unisys Users Association
Address: P.O. Box 33053
Detroit, MI 48232
Phone: (313) 972-8698
Annual fee: $0
Individual members: 2,900
Corporate members: 1,500
Systems/products: All Unisys products
Next meeting: November 1988, New Orleans
Top officer: Terry Moser, Public School Employees Retirement System
Relation to vendor: Independent
Purpose: To engage in the interchange of ideas, techniques, and information. To hold meetings, seminars, and workshops. To study, formulate, and propose modifications, changes, and additions to Unisys equipment and systems.
Services provided: Two national meetings per year. Special interest groups. Published conference proceedings.

Vendor: Unisys Corp. International
Group: Unisys Users Association/SUAE
Acronym: UUA/SUAE
Address: Bakers Court Bakers Rd.
Uxbridge UB81RJ, England
Phone: 0895-37137
Annual fee: £250



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"There's just one small problem..."

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Strategic Solutions to Real-World Challenges

Circle 30 on Reader Card

Individual members: 0
Corporate members: 750
Systems/products: Mapper OS/3 Series 1100 Unix
Next meeting: November 1988, Nice, France
Top officer: D.B. Bachmann, Union Bank of Switzerland
Relation to vendor: Independent
Purpose: To provide a forum whereby users may freely exchange ideas and information concerning all aspects of Unisys products and services; review and comment on all aspects of Unisys products, services, and policies; present requirements for policy change and product development to Unisys; influence Unisys' future products and services; generally influence computer industry standards and practices. To provide a platform from which Unisys may respond to requests from UUA/SUAE; present new products and services; inform UUA/SUAE of Unisys policies that affect members of UUA/SUAE.
Services provided: Two conferences per year. Annual meetings of executives with Unisys top management. Periodic newsletters. Published conference notes and proceedings. Periodic special reports. Submission of product recommendations to Unisys.

Vendor: Unisys Corp.
Group: Unisys Users Association/ABCU
Acronym: UUA/ABCU
Address: Woodside, Over Lane
Baslow DE41RT, England
Phone: 24688-3241
Annual fee: £20 to £100
Individual members: 0
Corporate members: 1,250
Systems/products: A, V, B1000, B20 series, CMS, Linc/Mapper
Next meeting: April 1988, Gothenburg, Sweden
Top officer: Frank Oschwald, UUA/ABCU
Relation to vendor: Independent
Purpose: To provide an organization for collecting and representing the views of installation users and to act as a liaison between such users and Unisys on matters of common interest. To stimulate cooperation between Unisys and users for the general good of users. To act as a medium for the exchange of information and opinions between members, and to render assistance to members by providing advice and information, and by such other means as the association shall deem appropriate, with a view to promoting the most effective use of members' installations. To do all such other things as in the opinion of the association shall be conducive to the attainment of the above goals.
Services provided: Two national meetings per year. Eight newsletters per year. Formal dialogue with Unisys on behalf of members.

Vendor: Wang Laboratories Inc.
Group: International Society of Wang Users
Acronym: ISWU
Address: 1 Industrial Ave.
Lowell, MA 01851
Phone: (617) 459-5000
Annual fee: $80
Individual members: 7,000
Corporate members: 0
Systems/products: All Wang products
Next meeting: November 1988, Boston
Top officer: Bill Sturgen, Solar Turbine Inc.
Relation to vendor: Independent
Purpose: To advance for the benefit of Wang users the effective utilization of computers, systems, and software marketed and/or approved by Wang Laboratories Inc. by promoting the interchange of information and education concerning their use. To provide channels to facilitate the exchange of computer programs among ISWU members. To reduce the duplication of development efforts.
Services provided: One international meeting per year. Regular technical publications. Software library service. Wang product update information.

Vendor: Xerox Corp.
Group name: XPLOR International
Address: P.O. Box 1501
Palos Verdes Estates, CA 90274
Phone: (213) 373-3633
Annual fee: $200
Individual members: 0
Corporate members: 700
Systems/products: Xerox printing systems
Next meeting: November 1988, Los Angeles
Top officer: James Shand, RHM Computing Ltd.
Relation to vendor: Independent
Purpose: To provide forums for the development and exchange of information and support among users of advanced electronic printing systems. To act as a liaison among the users and suppliers of such systems and other suppliers of pertinent products and services.
Services provided: One national meeting per year. Joint technology councils. Regional and special interest groups. Bimonthly newsletter, published conference proceedings. Font catalogues and discounts. Hotline information service. Product enhancement surveys.

Vendor: Xerox Corp.
Group name: Ethernet Decision Makers Group Exchange
Acronym: EDGE
Address: 6632 South 191 Pl.
Kent, WA 98032
Phone: (206) 251-6010
Annual fee: $300
Individual members: 226
Corporate members: 200
Systems/products: All Xerox systems
Next meeting: October 1988, Dallas
Top officer: Gordon Sollars, Merrill Lynch
Relation to vendor: Independent
Purpose: To increase the usefulness of the Ethernet and its devices.
Services provided: Two national meetings per year. Periodic publications. Provide liaison between Xerox Corp. and users.

Reprints of all DATAMATION articles, including those printed in 1986, are available in quantities of 500 or more. Details may be obtained by telephoning Frank Pruzina in the Reprints Department at (312) 635-8800, or by writing to Cahners Reprint Services, Cahners Plaza, 1350 E. Touhy Ave., Des Plaines, IL 60013.

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Circle 31 on Reader Card

OS/2, the operating system designed by IBM and Microsoft, could launch a revolution in 32-bit microcomputing. The software has already sent sparks flying in the DOS camp. Some bold users who've taken the 32-bit plunge have already chosen Unix or one of the new micro operating systems for the Intel 80386 chip. Many of the 32-bit breed have begun to experiment with OS/2, which promises to open up new application realms.

The Big Change for Small Systems Software

BY MARY JO FOLEY

Big changes are in store for micro users who want to take advantage of 32-bit power. The engine of this change is the OS/2 operating system, which could revolutionize the way pc customers use and configure their systems. Talk of the new system and its claimed advantages is already sending sparks flying between users and vendors in the DOS camp.

The two vendors that designed OS/2—IBM and Microsoft—insist that the operating system will be 100% upwardly compatible with DOS. Nevertheless, DOS diehards maintain that the legions of micro users who for years have needed the power of machines based on the Intel 80386 chip shouldn't have had to wait so long for OS/2. (It was in fact written for the 80286).

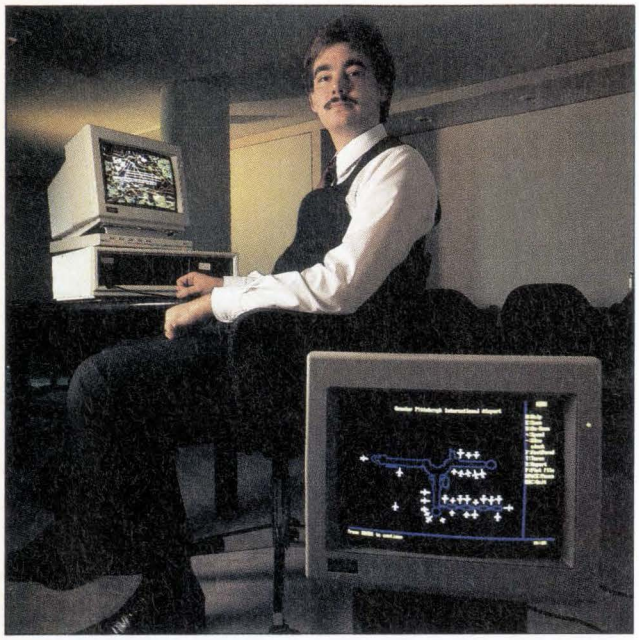
OS/2 is the first major new operating system to be introduced for any type of computer in the past few years. It began shipping earlier this month. OS/2 Extended Edition release 1.0 will become available in July 1988. Release 1.1, which will include Presentation Manager, will be available in November of next year.

Big Blue may be just as impatient to get the controversial operating system moving on the micros as users are. It is, after all, an integral part of the company's Systems Application Architecture, which won't be firmly fixed for another three years (see "The Printer Promise of SAA," Nov. 1, p. 58).

Early copies of OS/2 have been doled out to certain users who have been trying it out for between three months and a year or more. Microsoft, which is based in Redmond, Wash., reports that it has sold more than 2,200 of its Software Development Kits to independent software vendors and Fortune 1000 companies. These Software Development Kits include the OS/2 kernel, language compilers, and specifications for Microsoft's LAN Manager and Presentation Manager graphical interface, which is scheduled to be released to oems by the end of 1988. In general, the perceptions of the software held by these early users are quite positive.

Not everyone, however, is waiting for OS/2 to arrive. Some pc users have already taken the 32-bit plunge and have settled on Unix or one of its derivatives. Other micro mavericks have decided to experiment with one of the new microcomputer operating systems and environments designed specifically for the 80386 chip. These include PC-MOS/386 from The Software Link Inc. (Atlanta), VM/386 from Softguard Systems (Santa Clara), Merge 386 from Locus Computing Corp. (Santa Monica, Calif.), and

Photograph by Robert Lorenz



PEAT MARWICK'S CORNELL: We have nothing running on OS/2 yet.

Desqview 2.0 from Quarterdeck Office Systems (also in Santa Monica).

Other 32-bit micro users have chosen DOS combined with Microsoft's recently released Windows 386 program. Several members of this combo club, under the tutelage of Compaq Computer Corp., Houston, have spearheaded the opposition to OS/2. However, critics argue that without OS/2, 32-bit machines are little more than high-powered, high-priced ATs.

Despite these moves, William Lempesis, an analyst with market research firm Dataquest Inc. in San Jose, believes that many users will migrate to OS/2 as soon as it becomes available.

"The 80386-based computers are really power-user machines," he explains. "Their users are generally more knowledgeable and technical than other pc users." It follows, he says, that those same knowledgeable users will demand a more robust operating system such as OS/2.

Marketing Strategies Are Polarizing

But there's more than just performance dividing the OS/2 and DOS camps. The marketing strategies of competitors IBM and Compaq are also playing a substantial part in polarizing the factions.

According to Claire Fleig, an analyst with International Technology Group (ITG), a consulting firm based in Los Altos, Calif., Compaq has taken advantage of the head start it had on IBM by touting its 386 computers as standalone units or as machines that can serve as part of small network systems.

IBM has stated publicly that it has already shipped 1 million units of the 10-model PS/2 line, and that there have been an equal number of low-end and high-end systems going out the door (see Look Ahead, Dec. 1, p. 9). However, various research houses have reported that the bulk of these shipments have been of the Model 30 and Model 80.

Fleig says that IBM, unlike Compaq, "doesn't want its Model 80s to stand alone. It wants them to be networked or hooked into its minis and mainframes."

That may not be the systems scenario some companies have in mind, particularly those that have yet to declare any definite plans for OS/2. "We don't know when, or even if, OS/2 will be added to our systems for in-house use," declares Maureen Germano, marketing manager at Covia Corp., which is the Rosemont, Ill.-based IS subsidiary of United Airlines.

Almost all of Covia's PS/2 Model 50s are being used as development platforms for United's airline reservation systems package. Only one of the systems, however, is running OS/2, mostly for experimentation purposes.

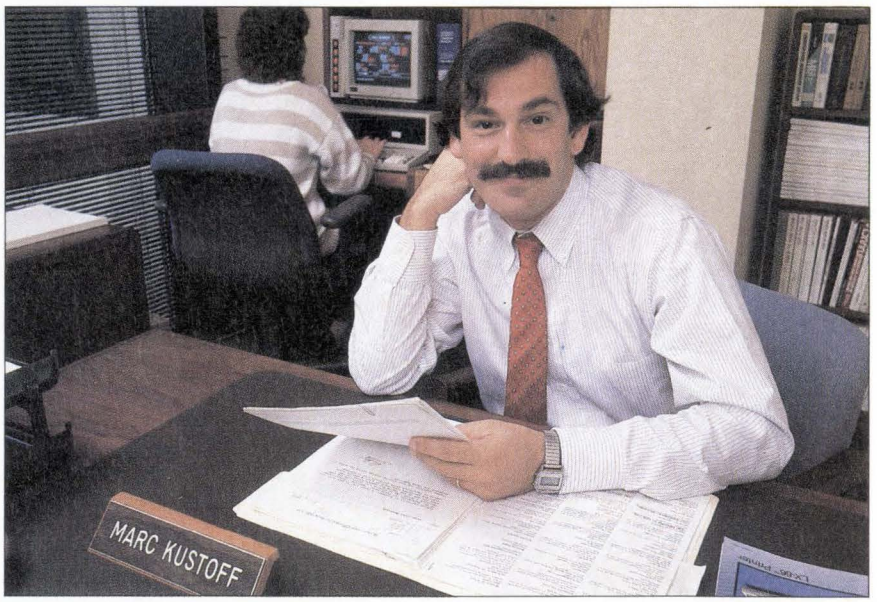
At Bow Hunter Supply Inc. (BSI), an archery equipment wholesaler in Vienna, W.Va., OS/2 is not a burning question or desire. BSI is more than satisfied with its 80386-, 80286-, and 8086-based Compaq hardware, which replaced a mainframe-host timesharing setup.

One of BSI's two 80386 machines that run under DOS acts as a file server for BSI's inventory control and receivables system. The other DOS micro acts as a report driver for the same system. Breaking out of the timesharing mainframe mode "was like going from a window fan to an air conditioner," says BSI president Jerry Moore. "It immediately reduced costs and improved our efficiency."

Pharmaceutical giant Rorer Group Inc. in Fort Washington, Pa., is another content Compaq customer. Rorer has installed more than 20 Deskpro 386s in the past eight months as part of its effort to redesign its personnel management system. All the micros are running DOS version 3.3. The company is gradually adding Windows 386 to each system.

The DOS-Windows 386 combination "allows us lots of OS/2 advantages already," says Marc Kustoff, manager of personnel information systems at Rorer. "Personally, I'd still be hesitant about going with PS/2 and OS/2 unless I needed OS/2 Extended, primarily due to the [threat] of vaporware."

The wizards of OS/2, IBM and partner Microsoft, claim they won't be lead-



KUSTOFF OF RORER: He fears the threat of vaporware with OS/2.

Photographs by (top) Jeff Reinking, (bottom) Akira Suwa

ing customers down the yellow brick road, and they're adamant about fulfilling their pledges.

Although the operating system was written for both the 16-bit and 32-bit Intel 80286 and not for the 32-bit 80386, it is still supposed to allow users to tap into many of the improved features of the new micro systems from various vendors. Included in that bag of goodies are substantially expanded memory, increased processing speeds, advanced networking capabilities, and better graphics.

Also, OS/2 is supposed to let users run multiple tasks and software packages concurrently (multitasking), restrict access to certain parts of programs via file locking, and perform other functions that once were considered to be the sole domain of minis and mainframes.

IBM's OS/2 Extended version is slated to include support for various communications schemes and for micro, mini, and mainframe networks. Another advertised feature is built-in relational database capabilities based upon SQL.

Pacific Bell an Early OS/2 User

The jump from DOS to OS/2, on the other hand, seems to be more manageable—at least in the eyes of some users. One early OS/2 experimenter is Pacific Bell in San Ramone, Calif., which is using the software as a base for its electronic mail system.

Pacific Bell's PS/2s function as file servers, linking various desktop systems. Electronic mail users eventually will be able to run the software across multiple systems, according to Bradley Kubitz, who was an engineering analyst at Pac Bell.

For Pacific Bell, multitasking and advanced networking were the major selling points for OS/2, says Kubitz, who explains that the company has decided to wait until OS/2 actually begins shipping before setting a release date for the commercial version of its electronic mail package.

Progress on the OS/2 front is much slower at the Airport Consulting Services division of Peat, Marwick, Main & Co. in San Mateo, Calif. "So far, we have yet to get anything up and running on OS/2," acknowledges management consultant Thomas Cornell. "We're waiting to see Presentation Manager."

The Peat Marwick division has four or five OS/2 projects waiting in the wings. Several of these are micro-based simulation models that will allow Peat Marwick users to experiment with various designs for airport terminals, ground transportation, and airspace traffic patterns. Current micro software designed to handle these tasks "quickly runs into the 640K [memory] barrier" imposed by DOS, Cornell explains.

Peat Marwick has been renting time on mainframes to run these simulations. Now, using its two PS/2s along with the 30 or so Compaq machines it acquired over the past few months, the company will rewrite its mainframe software for the micros and may even develop new applications, says Cornell. He believes that the interactive graphics capabilities should ease both the writing and running of Peat Marwick's new software.

Lockheed Aeronautics Systems Co. in Burbank, Calif., like Peat Marwick, is waiting for tools such as the Presentation Manager before it fully commits to OS/2. The firm's business development office continues to receive shipments of various 32-bit micros. All but one of these systems run DOS. The one exception is the machine used by Lockheed's senior defense requirements analyst William Cathaway, who is dabbling with OS/2.

Cathaway feels that the operating system's multitasking capabilities could come in handy in marketing applications such as customer demonstrations. He also feels, as other early experimenters do, that "a few years from now, OS/2 will be one of the main, if not the main, [microcomputer] operating systems." ■

Mary Jo Foley is a Washington, D.C.-based business and technology freelance writer.

OS/2 Takes Microcomputing Beyond the Mundane

Somewhere over the operating system rainbow lies the Emerald City of microcomputer applications—the promise held out by OS/2, the operating system that seems destined to change the pc user's universe.

The changes would be most welcome by many micro users who are anxious to see new applications avenues open up. A recent survey done by Compaq Computer Corp. showed just how dull life at the low end is these days. Purchasers of new micros based on the Intel 80386 chip told Compaq that they were using their more powerful systems for rather mundane computing chores.

About 60% are using their souped-up systems to run their current productivity-type applications more quickly and efficiently. In that application category are spreadsheets and project management software. The other 40% are using their 32-bit machines as technical workstations in areas such as computer aided design, networking, and software development.

Claire Fleig, an analyst with International Technology Group, a market research firm in Los Altos, Calif., predicts that once OS/2 becomes widely available—in the next three-to-five years—more powerful micros will be used as true distributed data processing systems. Some of these supermicros will serve in standalone clusters. Others, running IBM's OS/2 Extended Edition, will be tied to midrange and large-scale computers.

Look for new OS/2 applications software that will hit the shelves next year. Some of this software will be revved-up versions of existing DOS packages. Microsoft Corp., for example, has announced an OS/2 version of its Excel spreadsheet, which is slated to start shipping in the first quarter of next year. The new combo program will thus be able to take advantage of multitasking.

A spokesperson for Ashton-Tate, Torrance, Calif., says that the company will enhance DOS versions of its dBase database management product. At the same time, it will add new features to its OS/2-based dBase, which will include more fourth generation extensions, improved graphics interfaces, transparent data sharing, cross-application language facilities, and better work group solutions, the spokesperson says.

Industry watchers forecast a rash of other miraculous micro advances in the years to come. Some of the possibilities include desktop publishing packages that allow users to integrate photos into documents, word processing software with on-line dictionaries, thesauruses, and spelling checkers, and all types of applications with interactive, computer-based instruction built in.

By the turn of the decade, an operating system that can take full advantage of 32-bit power should be ready to roll. But, by then, an even more powerful generation of microprocessors in the Intel 80486 class will certainly be on the market. Also by 1990, industry gurus predict, IBM's VM operating system will have migrated way on down to the micro.

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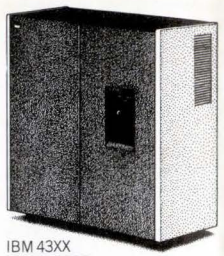

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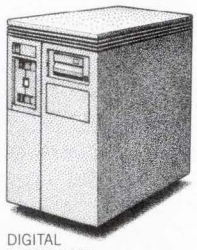

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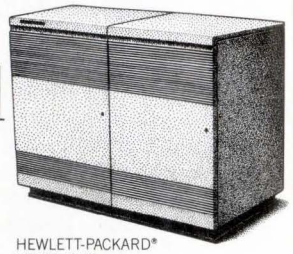

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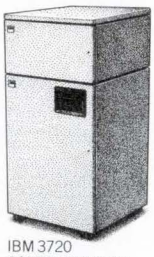

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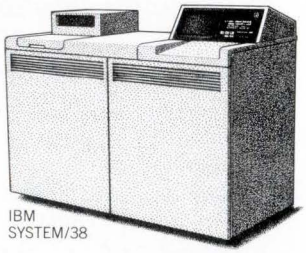

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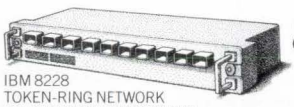

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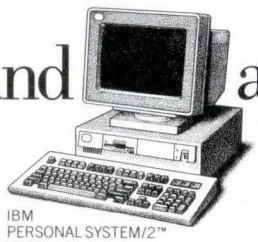

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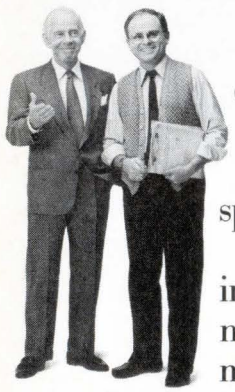

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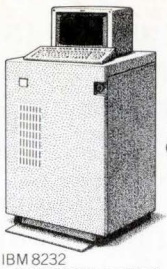
and  and  and  and  and

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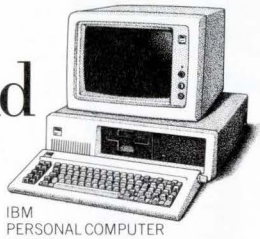
and  and  and  and

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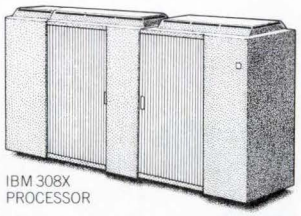
 and  and  and 

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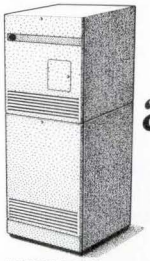
and  and  and  and  and

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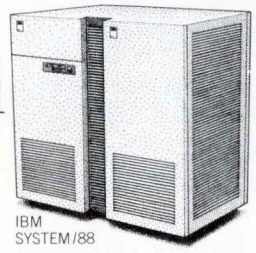
and 

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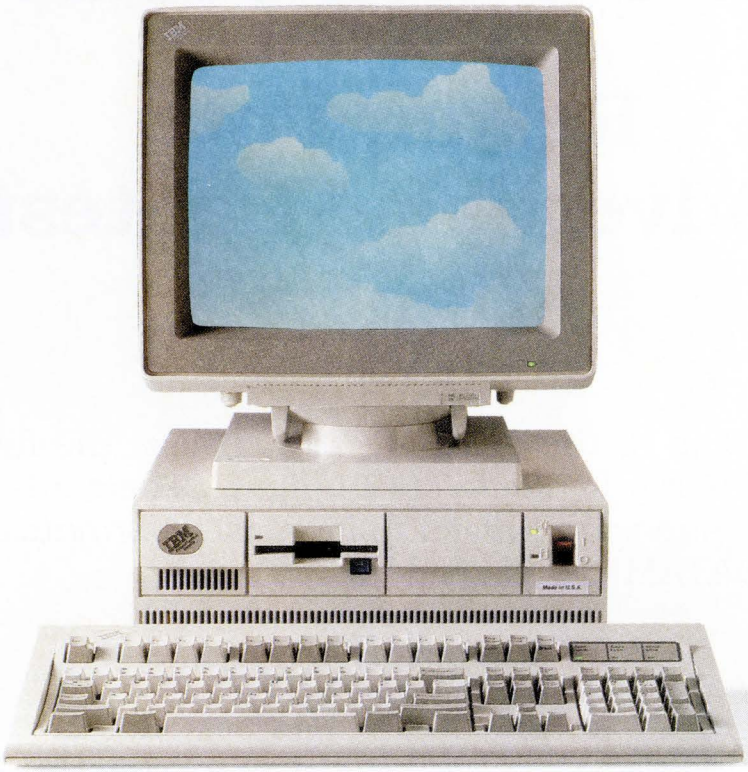

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IBM PC AT (8/1)	1.37	1.17	1.40
IBM PS/2 Model 50 (10/1)	1.71	1.70*	1.19*
IBM PS/2 Model 60 (10/1)	1.72	2.02	1.67

*With RAM cache: seq. 1.92, ran. 1.03
Source: InfoWorld Hardware Benchmark System, as published in InfoWorld May 11, 1987

A Lot Of Performance.

PC MAGAZINE

EDITOR'S CHOICE

to the company that has already delivered proven performance. As PC Magazine said when we received the Editor's Choice award, "The Premium/286 is without a doubt the best-looking and best-performing system with a 10 MHz rating. Its quality makes its price a bargain."

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AST Premium/286. The closer you look, the better we perform.

Yes, I want to learn more about the AST Premium/286.

☐ Please send me more information, including copies of what the critics had to say about the AST Premium/286.

☐ Please have an AST Representative call me.

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Datamation 12/15/87

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Introducing the two on earth

The new COMPAQ DESKPRO 386/20™

The world now has two new benchmarks from the leader in high-performance personal computing. The new 20-MHz COMPAQ DESKPRO 386/20 and the 20-lb., 20-MHz COMPAQ PORTABLE 386 deliver system performance that can rival minicomputers'. Plus they introduce advanced capabilities without sacrificing compatibility with the software and hardware you already own.

Both employ an industry-standard 80386 microprocessor and sophisticated 32-bit architecture. Our newest portable is up to 25% faster and our desktop is actually up to 50% faster than 16-MHz 386 PC's. But we did much more than simply increase the clock speed.

For instance, the COMPAQ DESKPRO 386/20 uses a cache memory controller. It complements the speed of the microprocessor, providing an increase in system performance up to 25% over other 20-MHz 386 PC's. It's also the first PC to offer an optional Weitek™ Coprocessor Board, which can give it the performance of a dedicated engineering workstation at a fraction of the cost.

They both provide the most storage and memory within their classes. Up to 300 MB of storage in our latest desktop and up to 100 MB in our new portable.

It simply works better.

most powerful PC's and off.

and the new 20-MHz COMPAQ PORTABLE 386™

Both use disk caching to inject more speed into disk-intensive applications.

As for memory, get up to 16 MB of high-speed 32-bit RAM with the COMPAQ DESKPRO 386/20 and up to 10 MB with the COMPAQ PORTABLE 386. Both computers feature the COMPAQ® Expanded Memory Manager, which supports the Lotus®/Intel®/Microsoft® Expanded Memory Specification to break the 640-Kbyte barrier.

With these new computers plus the original COMPAQ DESKPRO 386™, we now offer the broadest line of high-performance 386 solutions. They all let you run software being written to take advantage of 386 technology. *And to prove it, from now until December 31, 1987, we're including Microsoft® Windows/386 Presentation Manager free with your purchase of any COMPAQ 386-based PC.*

It provides multitasking capabilities with today's DOS applications to make you considerably more productive. But that's just the beginning. For more information, call 1-800-231-0900, Operator 43. In Canada, call 416-733-7876, Operator 43.

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COMPAQ®

GET MORE BITS

Emulex introduces the 36-hour day.

Not enough hours in the day? Emulex's Performance 1000 14.4Kbps leased line modem can give you more.

Replacing your 9600bps modem with a V.33-compatible model that runs 14,400bps is like installing a bigger pipe to carry 50% more data in the same number of hours... or like having 50% more hours in the day.

Adding that much more throughput to your existing lines means you can cancel your telco order for more. It also means faster response for your users.

So why hasn't everyone already upgraded to 14.4? Because until now, 14.4Kbps modems have been very expensive— typically over $3,000 each and sometimes much more, depending on features.

More Performance for the money.

An advanced design constructed around a few key proprietary VLSI chips, the Performance 1000 is changing the rules of the game for modems, as new technologies always do. Priced at $1795, it delivers 14.4 performance at a price we paid for 9600 not long ago. In a package about half the size of its competitors.

Given that low cost, 14.4 now will begin to replace 9600 as the industry standard just as 9600 displaced 4800 four or five years ago. At $1795, the Performance 1000 can pay for itself in leased line savings in relatively few months, and that's what it's all about. Technology may make it possible, but economics is what really forces change.

Performance™ 1000

Automatic speed adjustment both ways.

The smaller package packs more benefits too, including automatic speed adjustment. The CCITT V.33 spec calls out trellis coding for 14.4Kbps transmission and for its primary fallback rate of 12Kbps. The Performance 1000 extends that to 9600bps —for lines that are acting like barbed wire— to deliver *an error rate 100X better than a V.29 modem would* at the same speed.

The fallback can happen automatically if the

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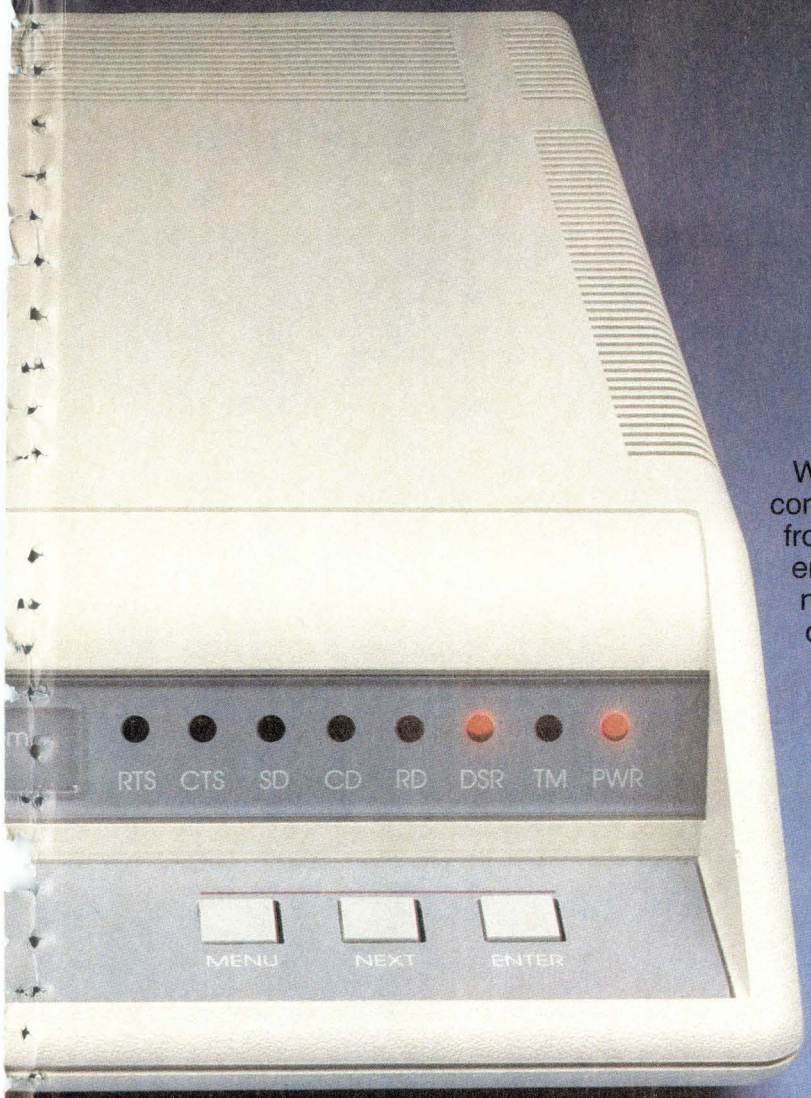
FOR YOUR BUCK!



Actual Size

14.4Kbps Modem

user chooses, and when the barbed wire starts acting like a telephone line again, the Performance 1000 can automatically speed up.

Don't leave home *with* it!

Modems with straps to connect and internal switches to set now will begin to look like antiques. Operating speeds and fallbacks and other parameters are set in the Performance 1000 by selecting from among English-language options displayed on its front panel.

What's more unusual, the *remote* unit also can be configured and tested through the local modem's front panel, without operator intervention at the far end. This can be especially useful, considering that no matter how many hours there are in a day, some of them will wind up being in the middle of the night.

Want to reconfigure the remote's fallback speed? Simply bring up the speed in the display and press ENTER.

Then bring up the download command and press ENTER a second time.

Want to see it again?

9.6 is enough?

There *may* be applications which can't take advantage of more speed, but could use more functions. For these, there's the Performance 1000/9.6, with almost all of the features of the Performance 1000/14.4—but for $500 less.

More to follow.

Emulex is one of the U.S.' leading manufacturers of high performance computer products, including disk and tape controllers, disk and tape subsystems, communications multiplexers, and others. The Performance 1000 is only one of a new series of end-user data communications products we're introducing. Watch for more. *Soon.*

For information, call our toll-free number.

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Circle 35 on Reader Card

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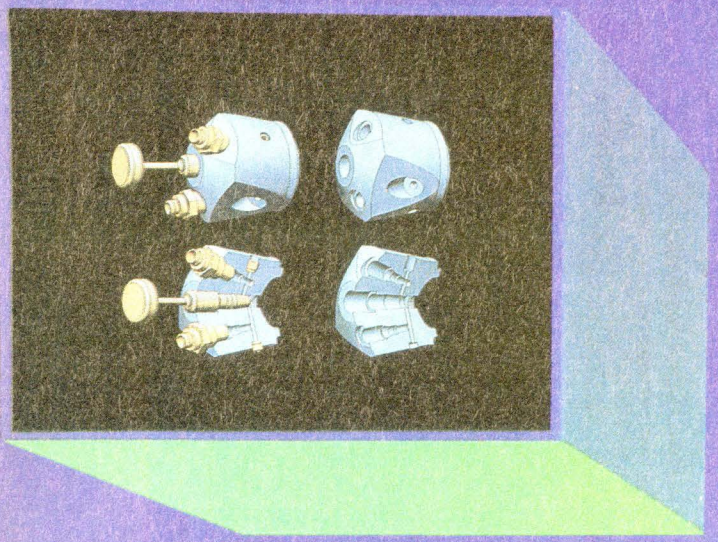

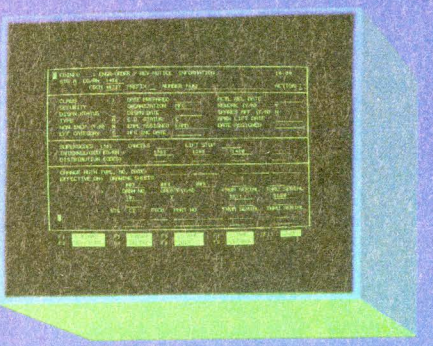

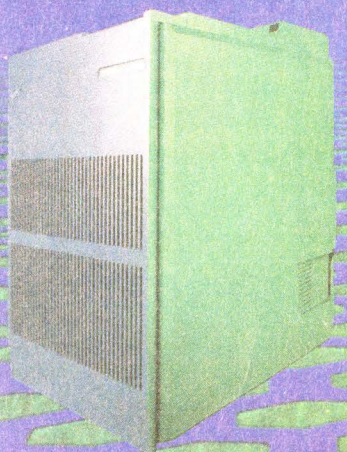

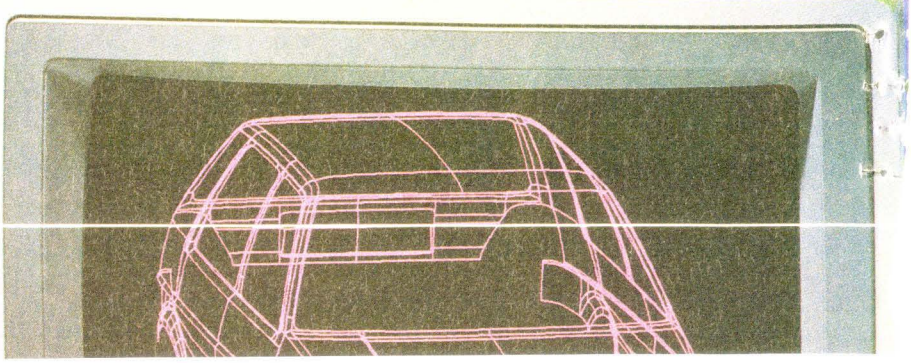

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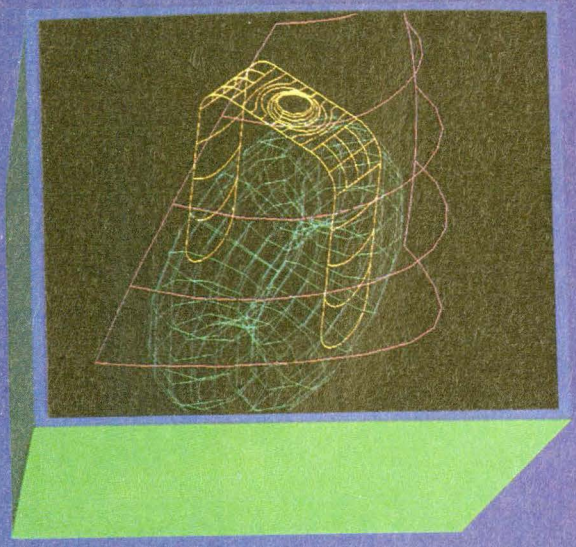

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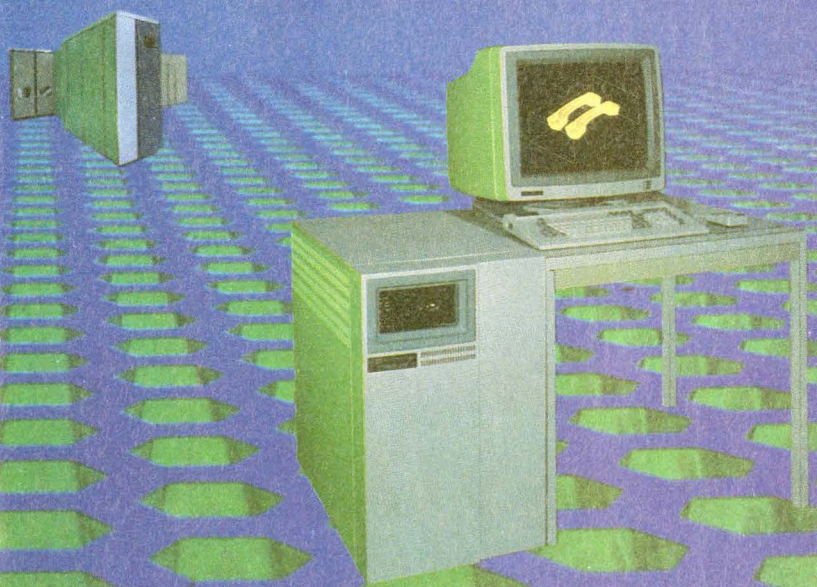
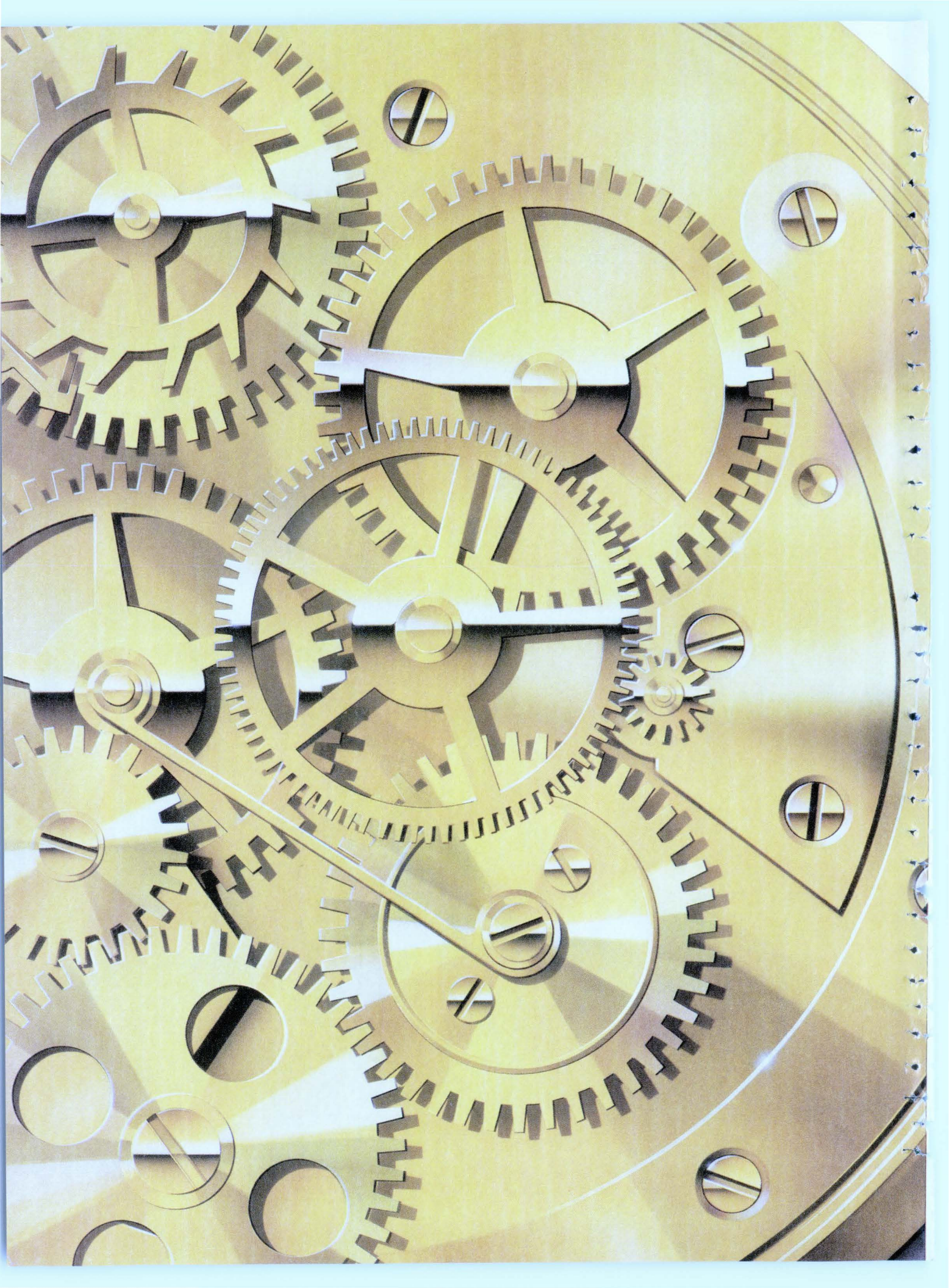
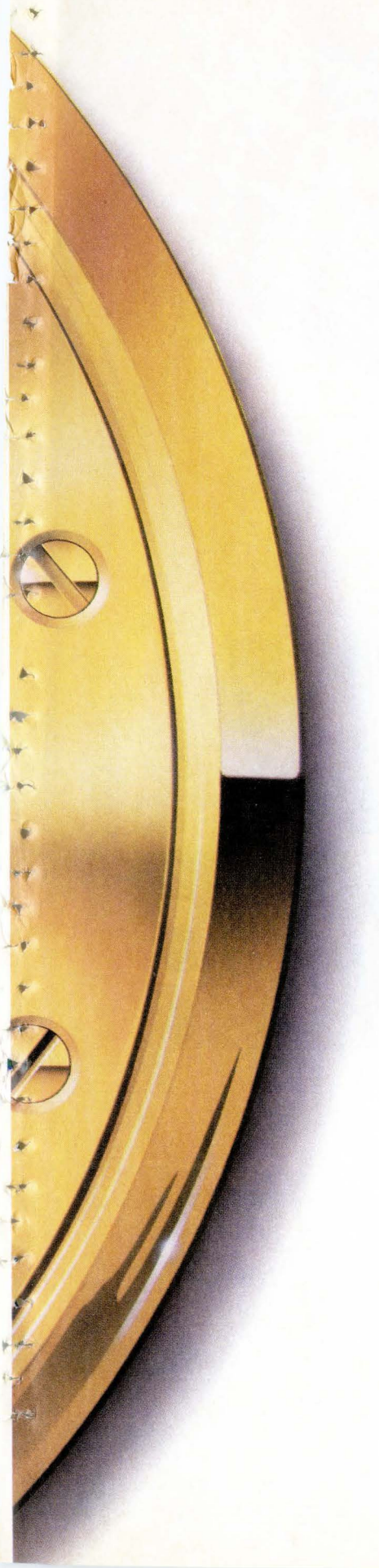


CONTROL DATA

Circle 36 on Reader Card





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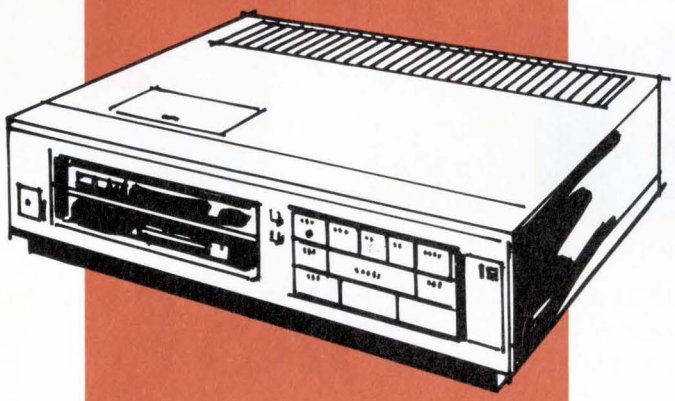
DATAMATION ANNOUNCES ITS 1988 READER VOTE CONTEST.

GRAND PRIZE



VHS VIDEO CASSETTE RECORDER

4 FIRST PRIZES

SONY WATCHMAN™ TV

Enter the *Datamation* Reader Vote Contest and you may win a valuable VHS video cassette recorder or Sony Watchman™ TV.

It's easy to enter. Just follow these three simple steps:

1. Select the 5 ads in the *JANUARY 1ST ISSUE* of *Datamation* that you think your fellow readers will choose as being the *most helpful* and *most informative*.
2. List your selections on the entry card provided in the *JANUARY 1ST ISSUE*.
3. Mail your entry card by February 4, 1988.

CONTEST RULES

1. List your top 5 ads in rank order on the entry card provided in the *JANUARY 1ST ISSUE* of *Datamation*. Indicate the name of the advertiser (company or organization) and the page number. (Ads placed by Cahners Publishing Company, *Datamation* or other Cahners publications cannot be considered in this contest.

2. No more than one entry may be submitted by any one individual. Entry blank MUST be filled in completely or it will not be considered.

3. To qualify, you MUST be engaged in information processing, supervising or managing MIS/DP personnel, or setting standards for selection of information processing or telecommunications hardware, software or services.

4. Contest void where prohibited or taxed by law. Liability for any taxes on prizes is the sole responsibility of the winners.

5. Entries that most closely match the rank selected by *Datamation* readers will be declared winners.

6. Entry cards must be postmarked before February 4, 1988.

7. In case of a tie, the earlier postmark will determine the winner. Decisions of the contest judges will be final.

8. In the event that a prize is not available, the publisher may substitute an alternative prize of equal value without prior notice.

DATAMATION

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FAST THINGS

The ACER 900 personal computer. Now at 12MHz, it's designed to race you ahead in business – faster

Inundated with a flood of choices, the ACER 900 is your best bet in choosing a personal computer to cope with power-hungry demands.

Dubbed "the AT standard to beat" by Computer Currents, the ACER 900 is designed for those who expect more of a personal computer. At less of a price.

Geared to go at 12MHz

At 12MHz, the ACER 900 charges through all the software written for Big Blue. At 50% faster than the industry standard PC/AT. Naturally, this speed can also be switched down to 8MHz by way of keyboard or software, for programs that need to operate under 12MHz.

With its true blue software/hardware compatibility, blazing speed and superior functional design, the ACER 900 can give your business the power edge you've been looking for.

Form follows function

LED indicators for high speed or hard disk, and reset button are located within easy reach on the front panel. And for total security, we designed a keylock which simultaneously locks keyboard and reset button.

One more thing no matter where you are, we guarantee after-sales service through our worldwide distribution network.

From home computers to super-micros – meet the Acer team of PC's.

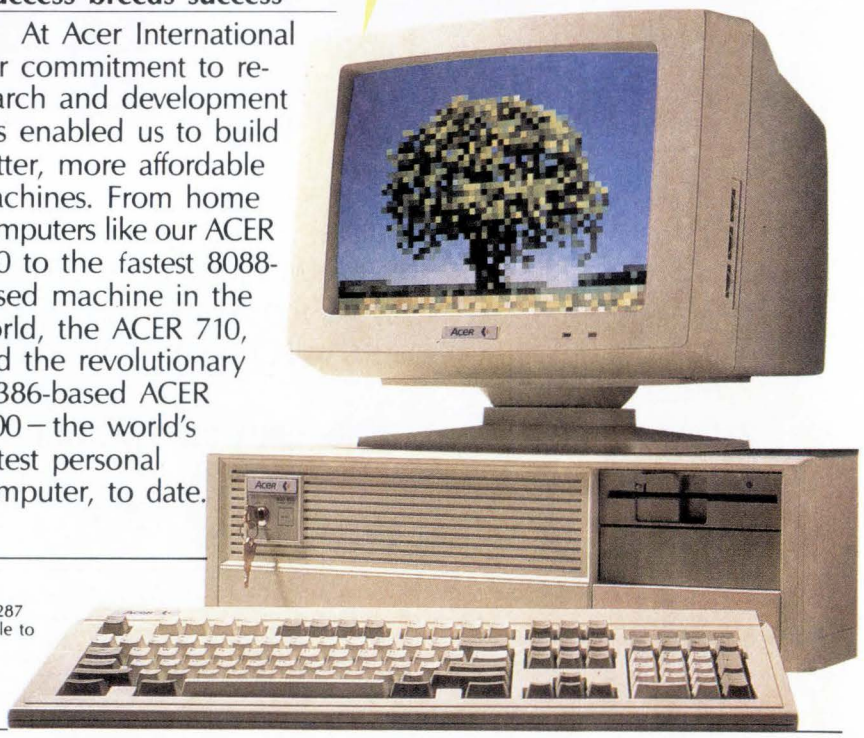
Success breeds success

At Acer International our commitment to research and development has enabled us to build better, more affordable machines. From home computers like our ACER 500 to the fastest 8088-based machine in the world, the ACER 710, and the revolutionary 80386-based ACER 1100 – the world's fastest personal computer, to date.

Acer. A name synonymous with quality, reliability, price performance and advanced technology. In short, value.

So what are you waiting for? Check out the ACER 900 today. Because the faster the 900 moves, the sooner you'll succeed.

FIRST



Technical Specifications
ACER 900B CPU 80286, 8/12MHz switchable. Socket for 80287 math coprocessor. 8 expansion slots. RAM 512KB, expandable to 1MB 1FDD, 1.2MB. Microsoft® MS-DOS® 3.2
ACER 900E As 900B plus 1 WDD, 40MB, 40ms.

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OFF-LINE

A MULTIPLE OPERATING SYSTEM family of departmental computers has been unveiled by Icon International Inc., Orem, Utah, and Sanyo Business Systems Corp., Osaka, Japan, which owns 65% of Icon. The systems, called the MultiMicro/Mainframe family are capable of running AT&T's Unix, Pick Systems' Pick, and Microsoft's MS/DOS operating systems simultaneously. Icon targets the systems either toward the multiuser environment or as connectivity systems to link existing pcs, workstations, and peripherals.

The company's first product, the MPS020-2, was introduced in fall '86. That product is being reintroduced as the Icon 2000, which supports up to 16 users. The original product supported Pick and MS/DOS, but not Unix. The 2000 is priced at $15,000. The Icon 3000 supports up to 64 users and is priced at $30,000, and the top-of-the-line Icon 4000, which supports as many as 128 users, is priced at $55,000.

The Icon 2000, 3000, and 4000 employ a new architecure called MultiMicro/Mainframe, which uses multiple 32-bit microprocessors in parallel. A proprietary operating system kernel, called Icon/OS, is the foundation for the three operating systems.

The systems' central processor, disk cache processor, and peripheral communications processor subsystems contribute to the computers' ability to handle operating systems concurrently, Icon says. Additional performance is provided by SMILE (Shared Memory Interconnect Local Environment), which is Icon's interprocessor communications system and is comprised of proprietary boards and cables that link the disk cache in an Icon computer to a pc connected to it. Each card in an Icon system can support up to six SMILE ports. SMILE, says Icon, provides four functions: virtual disk, virtual terminal, file transfer, and print spooling. According to Icon, SMILE is not intended to replace local area networks, but to enhance them. Novell's NetWare, for example, is said to run up to 30% faster on a system using SMILE.

For Sanyo, which began investing in Icon in '84, the MultiMicro/Mainframe family marks its entry into the international computer market. Sanyo will manufacture some components for the Icon systems and it holds the exclusive rights to market the systems in Japan. Icon will market the systems in the U.S. through var and direct sales channels.

If you'd like additional information on products covered in this issue's Off-line, please circle 221 on the readers' service card.

HARDWARE

Alliant's new FX/4 has a peak performance of 47.2MFLOPS.

Alliant Debuts Entry-Level Minisupercomputer

FX/4 offers lower-cost, expandable 64-bit system with faster processors.

BY THERESA BARRY

Alliant Computer Systems Corp.'s introduction of the FX/4 lowers the entry-level price of an expandable 64-bit minisupercomputer. The system incorporates new packaging technology, software improvements, and faster interactive processors.

The FX/4 provides one to four processors and is compatible with the vendor's existing FX/Series systems, the FX/8 and FX/1. Alliant says the four-processor FX/4 has a peak 64-bit performance of 47.2MFLOPS.

The starting price tag of the new system, $99,900, includes one 64-bit vector processor and an MC 68020 interactive processor expandable to four and six processors, respectively. The system also comes with a ¼-inch cartridge tape, a VME I/O chassis, a console video terminal, and a dot matrix printer. New packaging includes a VME bus, 32MB of memory, and 1GB of disk storage in a 43-inch-high cabinet.

The FX/4 supports Ethernet, TCP/IP, DECnet, DCL, X.25, Hyperchannel, Hasp, NFS, NeWS, NCS, and X-Windows. Languages for the system are Alliant's FX/FORTRAN and FX/Ada compilers, the standard Unix C compiler and a new Alliant C compiler, and Pascal.

Software enhancements include an FX/C compiler optimized for parallel execution and linear algebraic equation (which costs $15,500), and FX/Linpack and FX/Eispack libraries of scientific routines and subroutines ($2,000 each). The new packaging and faster interactive processors are included in upcoming versions of Alliant's existing FX/1 and FX/8 computers. ALLIANT COMPUTER SYSTEMS CORP., Littleton, Mass. CIRCLE **211**

Mac Graphics Board

RasterOps' board fits into a single slot of the Mac II.

The ColorBoard 1/104 is the first product in a planned series of high-resolution color graphics boards for the Apple Macintosh II from startup RasterOps Corp.

The new board provides a resolution of 1,024 by 768 pixels on a 24-bit color plane capable of displaying 16.7 million colors simultaneously. The pixel frequency is 60MHz. RasterOps says the ColorBoard 1/104 and all other ColorBoards are compatible with the Mac II and other NuBus-based products.

The ColorBoard 1/104 is available now and is priced at $2,795. RASTEROPS CORP., Cupertino, Calif. CIRCLE **212**

Multiuser Unix System

Microproject unveils system with AT&T's 32-bit chip set.

The Unicorn B/200 from Microproject International, a 30MHz multiuser Unix System based on AT&T's 32-bit WE 3220X chip set, has been introduced. Microproject International says the system supports 50 users and is object code and media compatible with AT&T's 3B computers. The Unicorn B/200 offers Unix System V/VME, release 3.1, with new features such as shared executable libraries, remote file sharing, media-independent networking, and Unix's streams communications interface.

The WE 3220X chip set on the VME cpu board includes a 30MHz WE 3220 microprocessor, a 3.5megaWhetstones WE 32206 math coprocessor, and a WE 32201 memory management unit/cache. The board also includes 4MB to 16MB of local memory. A 68020-based disk controller includes a 32-bit DMA controller, which moves data across the system bus at 26.7MBps, and 128KB of buffering. Firmware on board the 68020 translates generic disk access commands into commands for particular disk interfaces, which offloads the host of protocol conversion tasks, says the vendor. The disk controller is comprised of a motherboard and a daughterboard, which combined occupy one VME slot.

The 68020-based serial communications module is also a two-board set that occupies a single slot. Interfaces supported are RS232C, Centronics parallel I/O, and IEEE 488.

Standard configurations of the Unicorn B/200 include 4MB to 16MB of main memory, an SCSI interface, multiple hard disk drives with 85MB to 760MB of storage, and embedded SCSI or SA-450 floppy drives, two to 66 RS232C ports, a nine-track tape or streaming cartridge tape with 23MB or 60MB capacities, and TCP/IP Ethernet. Either 5-, 12-, or 21-slot backplanes are available. The system will be available in the second quarter of '88 and, depending on the configuration, will be priced between $20,000 and $45,000. MICROPROJECT INTERNATIONAL INC., Marina del Rey, Calif. CIRCLE **213**

150MB Disk/Tape System

Emerald Systems provides both media in one chassis.

The DOS 150-4000 is a combination of the company's 150MB ESDI hard disk and 150MB quarter-inch cartridge tape. It operates under the DOS operating system and most DOS-based LANs, says Emerald. It can also be used in conjunction with pre-installed hard drive systems, utilizing Emerald's optional DiskMeld feature, which enables it to meld the two hard drives into one unit. The DOS 150-4000 provides users with a disk access time of 16.5msec, with a backup speed of 5MB per minute on the tape drive. The 150-4000 is priced at $5,995.

Emerald has also increased the capacity of all of its quarter-inch cartridge tape backup subsystems to 150MB from 120MB and has increased the capacity of its LifeTape tape media products to 150MB from 120MB. EMERALD SYSTEMS CORP., San Diego, Calif. CIRCLE **215**

Multiuser Business System

General Automation computer supports 256 users.

General Automation has announced a 256-user Zebra 8830 multiuser business system. The company says it was designed for use with the Pick operating system. The Zebra 8830 is the first GA system to be based on Motorola's MC 68030 microprocessor.

The 68030 features high-speed static RAM and memory cache, says the vendor. The new system uses up to four 68010-based Terminal I/O Control Subsystems, each supporting up to 64 users and available with up to 16MB of high-speed ECC memory. Included is one or more intelligent 80186-based disk controllers with look-ahead cache memory and support of overlapped disk seeks; a high-performance disk subsystem; and a high-performance, half-inch dual-density 1600/6250 magnetic tape drive.

The 8830 system will be available next month. Prices will range from $215,000 to $350,000. GENERAL AUTOMATION INC., Anaheim, Calif. CIRCLE **214**

High-End Scanner

Recognition Equipment offers a multifont, high-speed OCR.

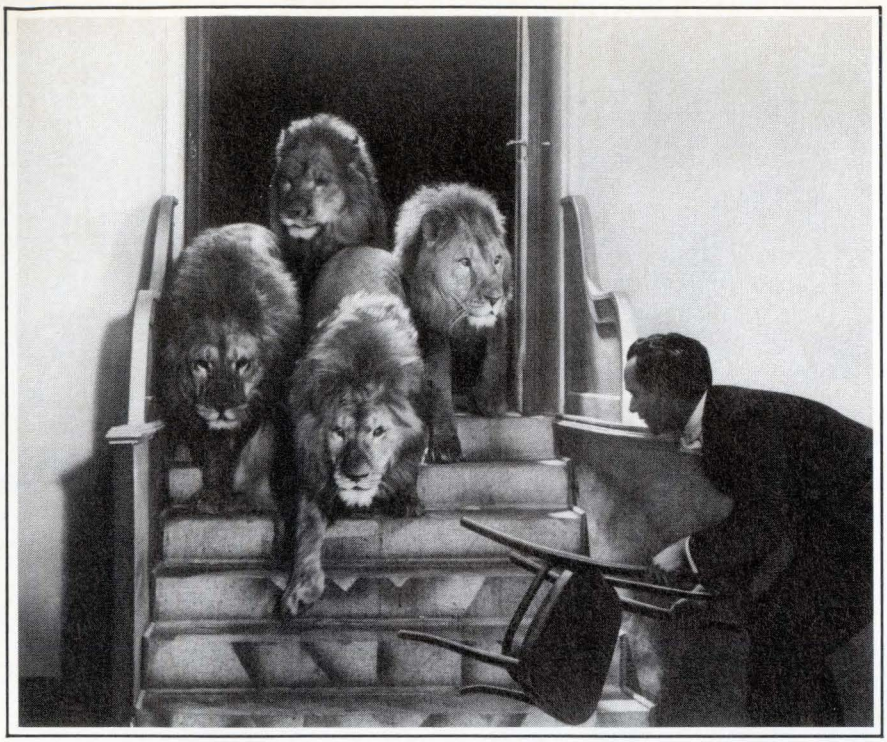
The Tartan XP 80 System from Recognition Equipment has been unveiled. It is designed to process large volumes of forms, says the company.

The new system, which is driven by a 32-bit processor, can read forms with single or multiple typefaces and prepared on a variety of typewriters and printers, and with controlled alphanumeric handprint (i.e., the little boxes on printed computer forms filled in by hand). The system can be tailored to read machine-printed and hand-printed characters intermixed on the same line. Microfilming and image capture features provide for audit trails.

Additional features include contextual, strip video data capture, which allows the selective capture of illegible

characters and field video for data correction and completion. The system's software includes a Unix-based, parameter-driven capture program and a menu-driven forms generator package.

The Tartan XP80 is priced from $285,000. RECOGNITION EQUIPMENT INC., Irving, Texas. CIRCLE **220**



With some 4GLs, training users can be a real challenge.

With FOCUS, users can have real success. Fast.

FOCUS is the ultimate in fourth-generation technology. It is designed to let users do useful work immediately.

For example, there is a window-driven point-and-pick interface that lets beginners generate a report or graph, make inquiries—even create an entire application—without learning any syntax. In fact, the system displays the syntax so the user can learn the language while creating the application.

Lots of Help for Users

Your programmers can create extremely easy-to-use, window-driven applications using FOCUS. Or casual users can help themselves to information through the English Query Language (EQL)—the self-explaining natural-language interface to PC/FOCUS.®

For anyone who wants to learn the FOCUS fourth-generation language, complete, professionally developed learning resources are available. Just take a look at the box to the right.

Other Environments

FOCUS runs in IBM's 370, PC and PS environments, on the DEC VAX, under Wang VS, and under UNIX. Learn FOCUS in any one of these environments and you can write an application in any other, and it will run in all of them.

Most Widely Used

Around the globe, more than 4000 sites have FOCUS installed, making it the most widely used fourth-generation language in the world. And we've been involved in training at every site.

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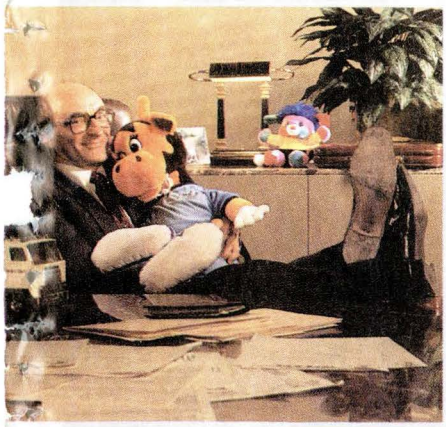
Circle 39 on Reader Card

Digital has it now.

Toys "R" Us, the world's largest, fastest growing toy specialty retailer, wanted to install a scanning-based sales capture and credit authorization system at 313 locations in only six months. "We do 50% of our volume in October through December," states Charles Lazarus, Toys "R" Us CEO, "so we wanted the system working in our major markets well before Christmas to get our people comfortable with it. Digital got it on-line by late August, and tailored their service solution to meet our needs."



"In just 6 months, Digital gave all 313 Toys 'R' Us stores a sales and credit system for Christmas."

Mr. Lazarus sees Digital's involvement as an integral part of the phenomenal Toys "R" Us success story. "Even though we're four times the size of our nearest competitor, and we stock over 18,000 different items, we move and make decisions faster. That's why we've grown more than 30% annually for the past nine years. Digital, their networking, and the information edge they give us, have played a vital role in that growth. They're our kind of company...a winner."

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UPDATES

THE THIRD-PARTY MAINTENANCE market is changing. Weaker organizations are either disappearing or are being absorbed by the stronger ones and equipment manufacturers find themselves in a defensive position, as the world of third-party maintenance becomes a more formidable contender in what's become a buyer's market. These are the findings of computer and communications market research firm Input, Mountain View, Calif. Input's recently published report is based on interviews with 200 third-party maintenance users, who revealed their views about, and requirements of, maintenance supplied by independent vendors and support from manufacturer-supplied organizations. It applies to the service of large and small systems, micros, and peripherals.

Not surprisingly, pricing is a big issue. For a while, data showed that pricing was not as important as quality and performance concerns, but the report reveals that now it's the top concern. It's the third-party maintenance suppliers that are currently in users' favor, says Input. According to the report, "Manufacturers will have to drastically improve user perceptions of either the performance of their service or the relative price of support in order to effectively compete with up-and-coming third-party operations."

Input says that the users surveyed also expect top performance from both third-party and systems vendors. Third-party maintenance organizations are "effectively targeting user (and potential user) demands and tailoring performance to meet them."

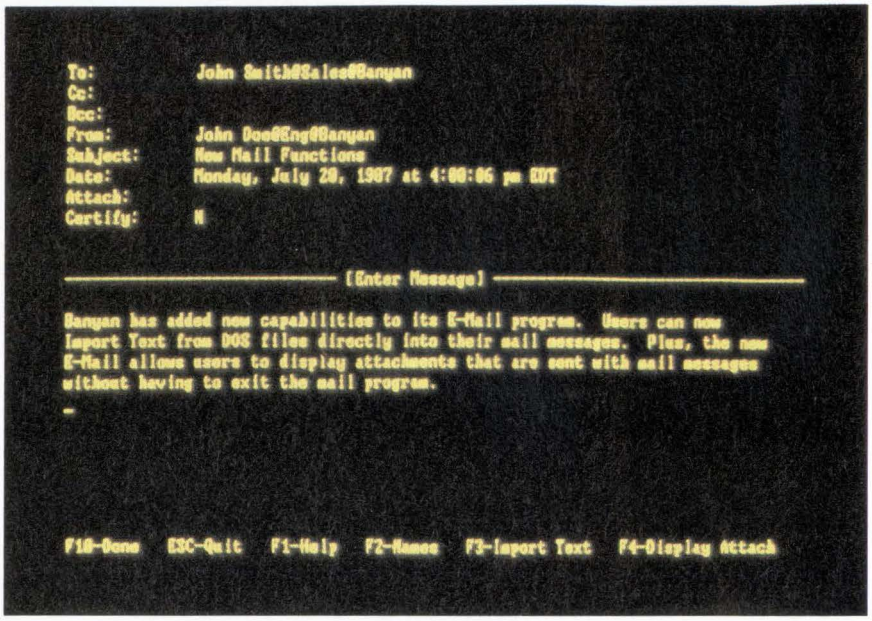
Third-party maintenance vendors are reported by users to have a two-hour edge over manufacturer-supplied support in their response and repair time. The improvements in turnaround were most notable in the areas of small and micro systems.

Vendor proximity to users' sites and the ability to service multivendor shops are not big concerns now among users, says Input.

Because of the falling profitability of hardware support, which is caused by decreasing prices and the increasing reliability of hardware products, Input reports that third-party maintenance vendors are venturing out of their traditional hardware realm and offering a variety of extended services, such as software support and network management. However, users are not willing to entrust such services to their third-party maintenance vendors, reports Input.

If you'd like additional information about products covered in this issue's Updates, please circle 222 on the readers' service card.

SOFTWARE



Banyan's VINES Now Supports TCP/IP

New release allows one network to carry traffic between dissimilar systems.

BY THERESA BARRY

Release 3.0 of Banyan's VINES network operating system was recently announced. The new version provides two TCP/IP options, one providing server-to-server communications, the other allowing a Banyan network server to act as an IP router. These options allow a single network to carry traffic between heterogeneous systems, says Banyan. The vendor will integrate the PC/TCP program from ftp Software, of Boston, but says release 3.0 will also work with other vendor's TCP/IP products. The company says the round-trip time to access file records has been reduced by 66% from that of release 2.1.

Two new local area networks are supported: Western Digital's StarCard Plus and Micom Interlan's NI5210. Banyan Mail, an e-mail package integrated into VINES, has been enhanced in functionality and speed, says the vendor. For connections to mainframes and minicomputers, users have the option of hot key switching between 3270 sessions and MS/DOS applications. Up to four simultaneous LU sessions are also possible. Asynchronous terminal emulation scripting has been added. VINES' new scripting language is compatible with Microstuf's Crosstalk XVI scripts. New system administration and management tools include a group move facility, which allows administrators to move groups of user profiles together with their e-mail files across the network. Full MS/DOS 3.3 support is included. Banyan says there are additional enhancements to the reliability and security features.

VINES release 3.0 is free to Banyan's support program customers and also to those customers who have bought a VINES system since mid-September of this year. Further pricing is available from the company. BANYAN SYSTEMS INC., Westboro, Mass. CIRCLE **269**

Micro to Mainframe

Simware's package provides diverse communication.

A micro-to-mainframe communications package that works over a variety of media and protocols has been released by

Simware Inc. The SimPC Master connects standalone and networked personal computers to IBM mainframes via synchronous or asynchronous communications. The package employs a common interface and full-screen transfer whether running over a 3270 communications card, an LAN, or an X.25 network. It also supports error-free file transfer between WKS and DIF files and TSO, CICS, and CMS mainframe applications. For the pc, the software is priced at $325 or $420 (Canadian) for a single copy. Site licenses are available, beginning at $10,000 for up to 50 copies. Mainframe file transfer modules are priced between $5,000 and $10,000, depending on the system. SIMWARE INC., Ottawa. CIRCLE **200**

Fourth Generation Language

Data Language makes Progress available on the DEC VAX.

Data Language Corp. has introduced a new version of its Progress fourth generation language and database management system for Digital Equipment Corp.'s VAX/VMS computers. The VAX/VMS version joins Unix and PC/DOS versions currently available. The software enables developers to build applications on a pc that can be recompiled and run on any of the three operating environments. Progress's relational database management system supports roll-forward and roll-back recovery and variable length records. Progress for the VAX is priced from $3,000, for the single-user VAXstation 2000, to $60,000, for the multiuser VAX 8800. DATA LANGUAGE CORP., Billerica, Mass. CIRCLE **201**

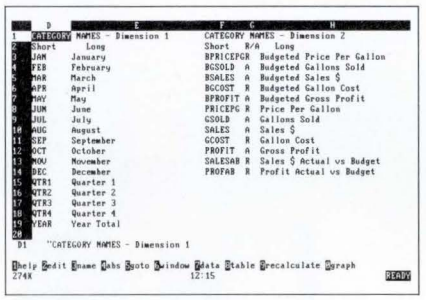
Business Applications

Paperback Software upgrades VP-Planner program.

VP-Planner Plus, recently introduced by Paperback Software International (PSI), is a spreadsheet, database, and report-generating program that is compatible with Lotus 1-2-3 release 2 worksheets. PSI also announced that it has removed copy protection from its entire product line.

Enhancements over the original VP-Planner include pull-down menus; a document processor for writing, editing, and formatting text within the worksheet; report generation capabilities, including worksheet ranges and scaled graphs within text printouts; and streamlined access to multidimensional database structures via a worksheet template. A new "autosave" feature allows users to select the time intervals for automatically saving worksheets on disk; a tools application command allows users to run external programs while executing macro sequences.

VP-Planner Plus requires an IBM PC, XT, AT, PS/2, or compatible with at least 384K of RAM, one diskette drive, and MS/DOS or PC/DOS 2.0 or higher. The price is



$179.95. PAPERBACK SOFTWARE INTERNATIONAL, Berkeley, Calif. CIRCLE **202**

Lotus 1-2-3 Add-Ins

Lotus provides faster recalculation, and help in writing macros.

Lotus Speedup and Lotus Learn are two add-ins for Lotus 1-2-3 release 2.01 that have recently been made available.

Speedup allows users to select a faster recalculation mode. With it, 1-2-3 will recalculate only those cells whose values have changed since the last recalculation. Learn provides an automatic keystroke recorder that makes it easier to write 1-2-3 macros, according to Lotus. Learn also works with 1-2-3 release 2.0.

Both add-ins, which are not copy protected, are available for $20 each to current 1-2-3 release 2.01 users. They both require an IBM PC, XT, AT, PS/2, or compatible. LOTUS DEVELOPMENT CORP., Cambridge, Mass. CIRCLE **203**

Mainframe Productivity

Trax Softworks brings pc-like productivity tools to IBM mainframes.

TopNotch is what the vendor is calling a desktop productivity tool for IBM mainframes. The package contains five accessories. The spreadsheet has over 50 functions and is similar to the calculator found on pc-based desktop programs. The appointment calendar is a personal timekeeper that beeps and displays a reminder at a specified time without disturbing the current display on the screen, says the vendor. The index file cards can be used for address files, project lists, and small databases and can be created and sorted by any key on the top lines of the cards. The notepad allows users to write, print, and send notes; data from other applications can be pasted into a note. The tool box provides for printing and transferring of data displayed on the screen.

TopNotch operates on IBM mainframes running VM/CMS. The product's price ranges between $8,000 and $15,000. TRAX SOFTWORKS INC., Los Angeles. CIRCLE **204**

Data Communications

MessageNet provides pc-to-VAX message transfer.

S&H Computer Systems Inc. has made available MessageNet PC, which allows microcomputer users to transfer messages and files directly to DEC VAX minicomputers and to pcs running MessageNet and also automates the use of Western Union Easylink and MCI Mail electronic mail services. S&H says the software automates and consolidates the process of transmitting messages and files.

MessageNet PC sends and receives files using one menu-driven interface for all datacom tasks. Sending a message or file entails specifying the recipient's name, the type of transmission route, and the time the message is to be sent. The vendor says the software handles everything else. All transmission routes included in the offerings of e-mail services can be used, including Telex, mailgram, telegram, regular mail, overnight letter, and cablegram.

Receipt of messages is automatic, says the vendor. MessageNet logs on to e-mail services to check for messages at times specified by the user and alerts users when files or messages are received.

Other features of MessageNet PC are a word processor, split-screen editing with cut-and-paste, a file folder system, an address book, mailing lists, and a calendar/reminder function.

MessageNet PC is available now. Including user interface, direct computer-to-computer file transfer, and gateways to MCI Mail and Western Union Easylink, the price is $185. Required are a pc with 512KB of memory, a hard disk, and a Hayes-compatible modem. S&H COMPUTER SYSTEMS INC., Nashville. CIRCLE **209**

PEOPLE

He's Not Bound By Conventional Images

Dennis Yablonsky may not fit the traditional mold of the corporate ceo, but one of his chief goals for the Carnegie Group does: make a profit.

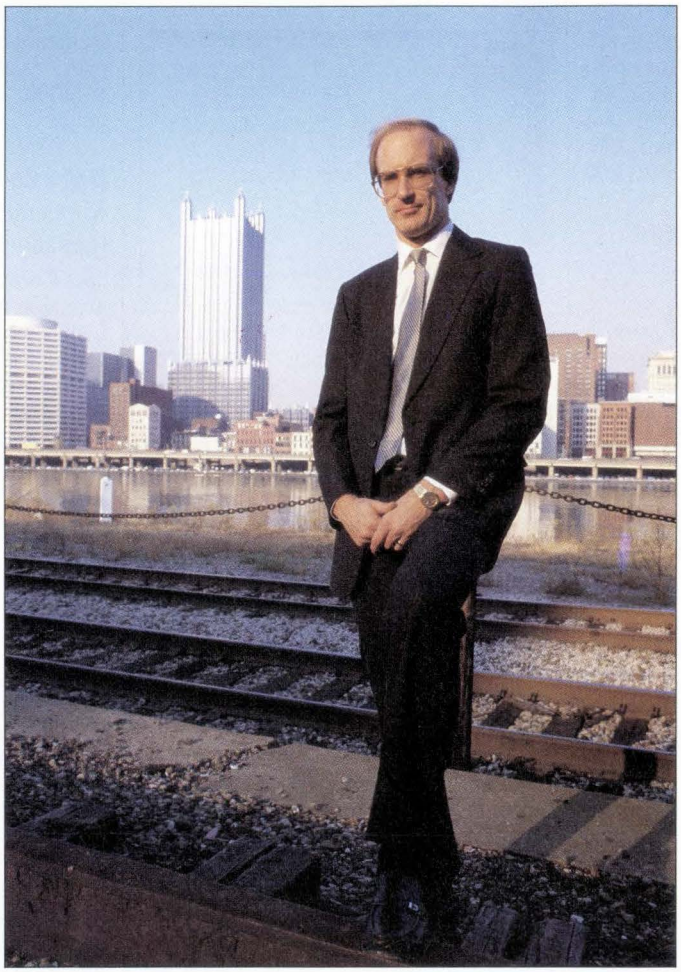
BY KAREN GULLO

The typical chief executive officer, as described in a recent *Business Week* article, is in his mid-50s, probably has an MBA from an Ivy League school, and plays golf.

Dennis Yablonsky, the new ceo and president of artificial intelligence software maker Carnegie Group Inc., just doesn't fit the mold. "I never have, so it doesn't bother me," quips the 35-year-old Yablonsky, who prefers racquetball to golf.

If Yablonsky fits any mold, it's that of the consummate Silicon Valley high-tech executive—young, aggressive, and moving up fast. The only difference is that instead of the Valley's infamous Route 128, Yablonsky, the son of Ukranian and Italian parents, first made his name in working-class Cincinnati as president and chief operating officer of mainframe software maker Cincom Systems. He now resides in Pittsburgh, which is not only headquarters of the Carnegie Group, but is his hometown as well.

The chance to be back on his home turf was one of the attractions his new position offered. "There's a high-tech renaissance going on here [in Pittsburgh]," says Yablonsky, "with lots of new companies starting up. I was intrigued to come back and be a part of that."



YABLONSKY: Not your typical chief executive officer.

Yablonsky's first orders of business at Carnegie are to determine the firm's focus and to make a profit. Cincom has sales of about $100 million; the three-year-old Carnegie Group has a fraction of that—$10 million to be exact—and it lost money in its first few years. Yablonsky says the company is breaking even now, and he expects it will turn its first profit next year. "When I joined Cincom, it was about the same size as Carnegie Group is now," says Yablonsky. (Carnegie has 140 employees; Cincom has over 1,500.)

Yablonsky resembles the traditional ceo profile in at least one respect—his career path was marketing. After graduating with a BS in Industrial Management from the University of Cincinnati, he joined Cincom as a programmer. Later, he became head of market planning and directed Cincom's education division and new channels marketing program. He was then named vp of marketing and sales, with responsibility for domestic and international sales and service.

Yablonsky feels that he is working with a different type of customer at Carnegie than he did at Cincom. There, he dealt with MIS executives or small groups of software experts within MIS. "Here," he says, "there's a little less MIS interaction. There's more interaction with groups of technical people in the manufacturing and engineering departments. MIS still plays a role in some cases to give a technical perspective.

"The people who have bought expert systems in the last three years were in highly technical research and development groups within companies. Now we're seeing a much higher level of business applications being addressed, and that's right. The technology is moving down to the business level."

As Yablonsky settles into his new surroundings at Carnegie Group, he's having no trouble feeling right at home in Pittsburgh. His extended family lives in the area, and he says he's happy that he, his wife, and their two small daughters, ages five and seven, are close to them again. "I had always hoped to get our children back into the city near the family," he says.

The Yablonskys had been involved in a parent advocacy progam in Cincinnati, devoting some of their free time to a child abuse prevention project. He hopes to find a similar activity in Pittsburgh.

Meanwhile, in addition to racquetball and softball in the summers, Yablonsky says he likes to work out three days a week, as he views exercise and sports as forms of stress management. And what about golf? Isn't that exercise fit for a ceo? Yablonsky laughs. Apparently he's in no hurry for that country club membership. "Maybe one of these days I'll take it up, but not yet." ■

CALENDAR

JANUARY

Computer Graphics '88.
Jan. 13-15, San Diego. Contact Carol Every, Frost & Sullivan Inc., 106 Fulton St., New York, NY 10038, (212) 233-1080.

Image Processing and Optical Disk Storage Conference.
Jan. 20-22, Phoenix. Contact Jean O'Toole, CAP International, 1 Snow Rd., Marshfield, MA 02050, (617) 837-1341.

CN '88 (Communications Networks Conference and Exposition).
Jan. 25-28, Washington, D.C. Contact Nancy Thayer, IDG Conference Management Group, P.O. Box 9171, 375 Cochituate Rd., Framingham, MA 01701-9171, (617) 879-0700.

FEBRUARY

IFIP Conference on Computers and Law.
Feb. 8-10, Santa Monica, Calif. Contact Michael Krieger, P.O. Box 24619, Los Angeles, CA 90024, (213) 208-2461.

Mexico ComExpo '88.
Feb. 9-12, Mexico City. Contact Bill Warnes, Marketing International Corp., P.O. Box 4749, Arlington, VA 22204, (703) 685-0600.

Usenix Winter 1988 Unix Technical Conference.
Feb. 9-12, Dallas. Contact Usenix Conference Office, P.O. Box 385, Sunset Beach, CA 90742, (213) 592-1381.

PTC '88 (10th Annual Pacific Telecommunications Conference).
Feb. 15-18, Honolulu. Contact PCT '88, 1110 University Ave., Suite 308, Honolulu, HI 96826, (808) 941-3789.

MARCH

FOSE '88 (Federal Office Systems Expo).
March 7-10, Washington, D.C. Contact National Trade Productions Inc., 2111 Eisenhower Ave., Suite 400, Alexandria, VA 22314, (800) 638-8510 or (703) 683-8500.

Connect '88 (Conference and Exposition for MIS/Dp Professionals).
March 8-10, New York. Contact Frank Palumbo, Cahners Exposition Group, 99 Summer St., Stamford, CT 06905, (203) 964-0000.

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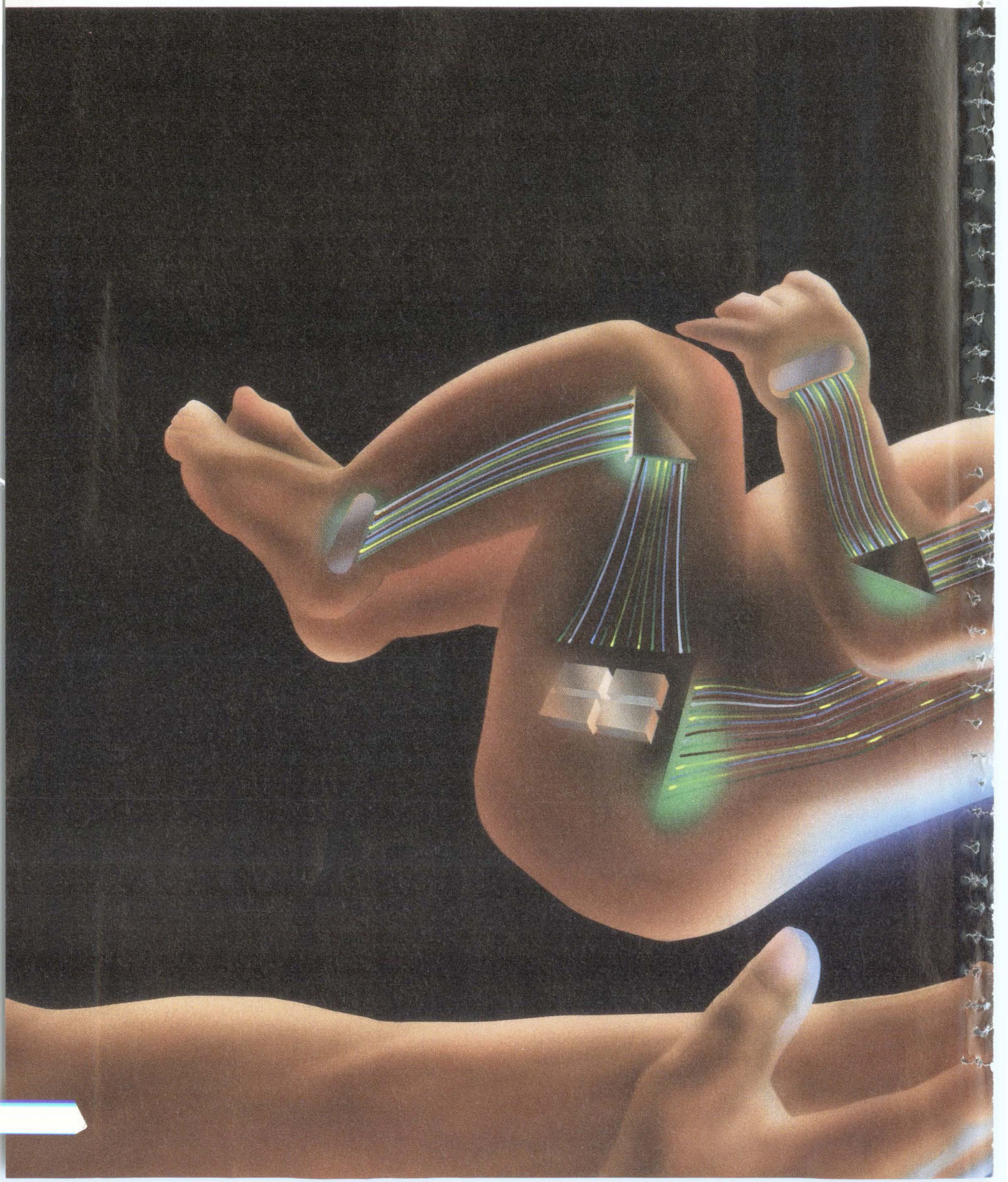

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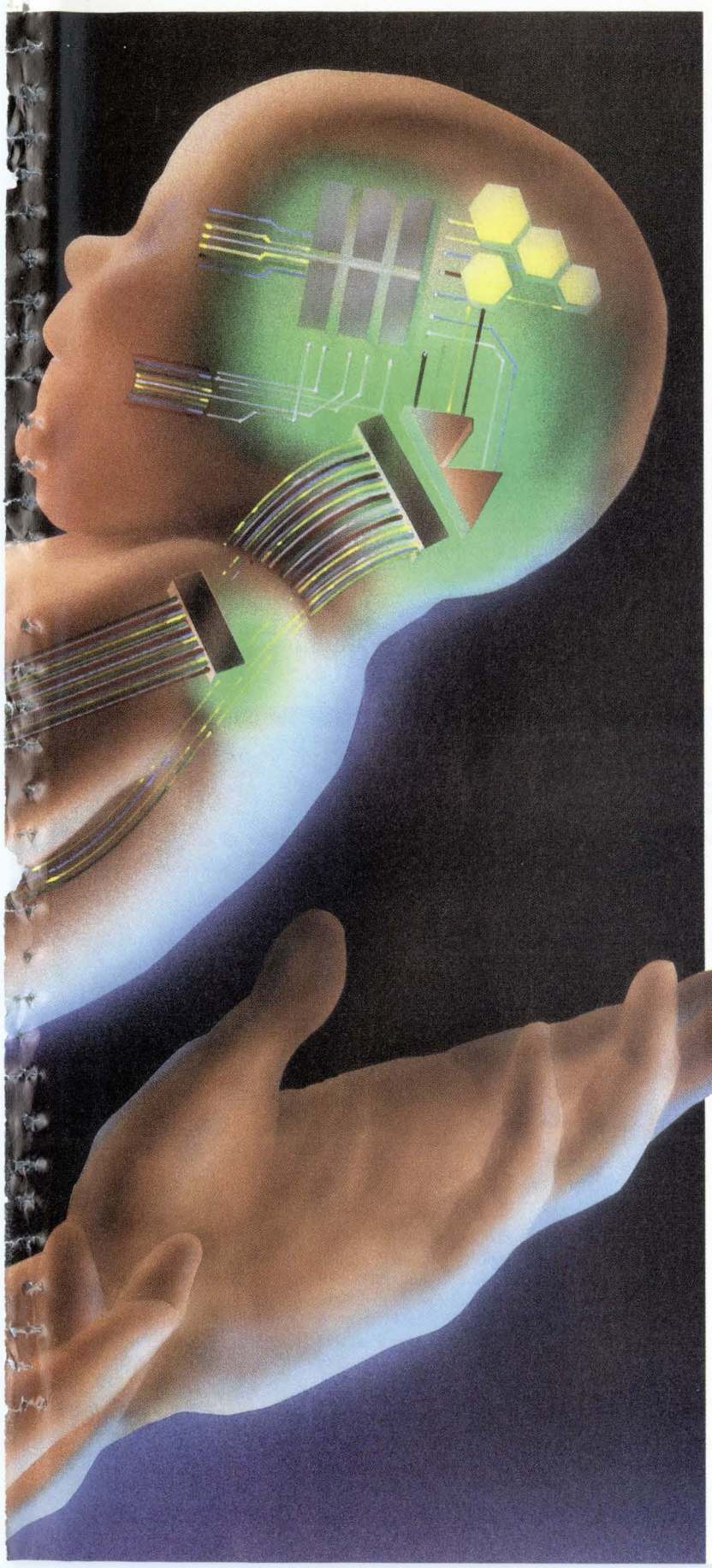

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Feb. 15	Jan. 27	Parallel and Multi Processing
Mar. 1	Feb. 11	Managing IS at Multinationals
Mar. 15	Feb. 26	On-Line Transaction Processing
Apr. 1	Mar. 11	Cutting Over New Systems
Apr. 15	Mar. 25	1st Quarter Update
May 1	Apr. 13	Supercomputers and Minisupercomputers

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Distribution

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Manufacturing

We are seeking individuals to maintain the manufacturing applications portfolio for Wang facilities worldwide. Using the entire Wang VS product line, you will perform system analysis, design, and programming. Your technical leadership and familiarity with SDM methodology will help us maintain good business relationships throughout the worldwide network. The ideal candidate should have 3-6 years of design and development experience including a background in COBOL, PACE, or AMAPS.

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SYSTEMS ENGINEER/MODELING

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- Requires experience designing and programming in "C" for VMS or UNIX environment
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- Involvement in entire software development cycle from design through beta tests
- Commercial experience required

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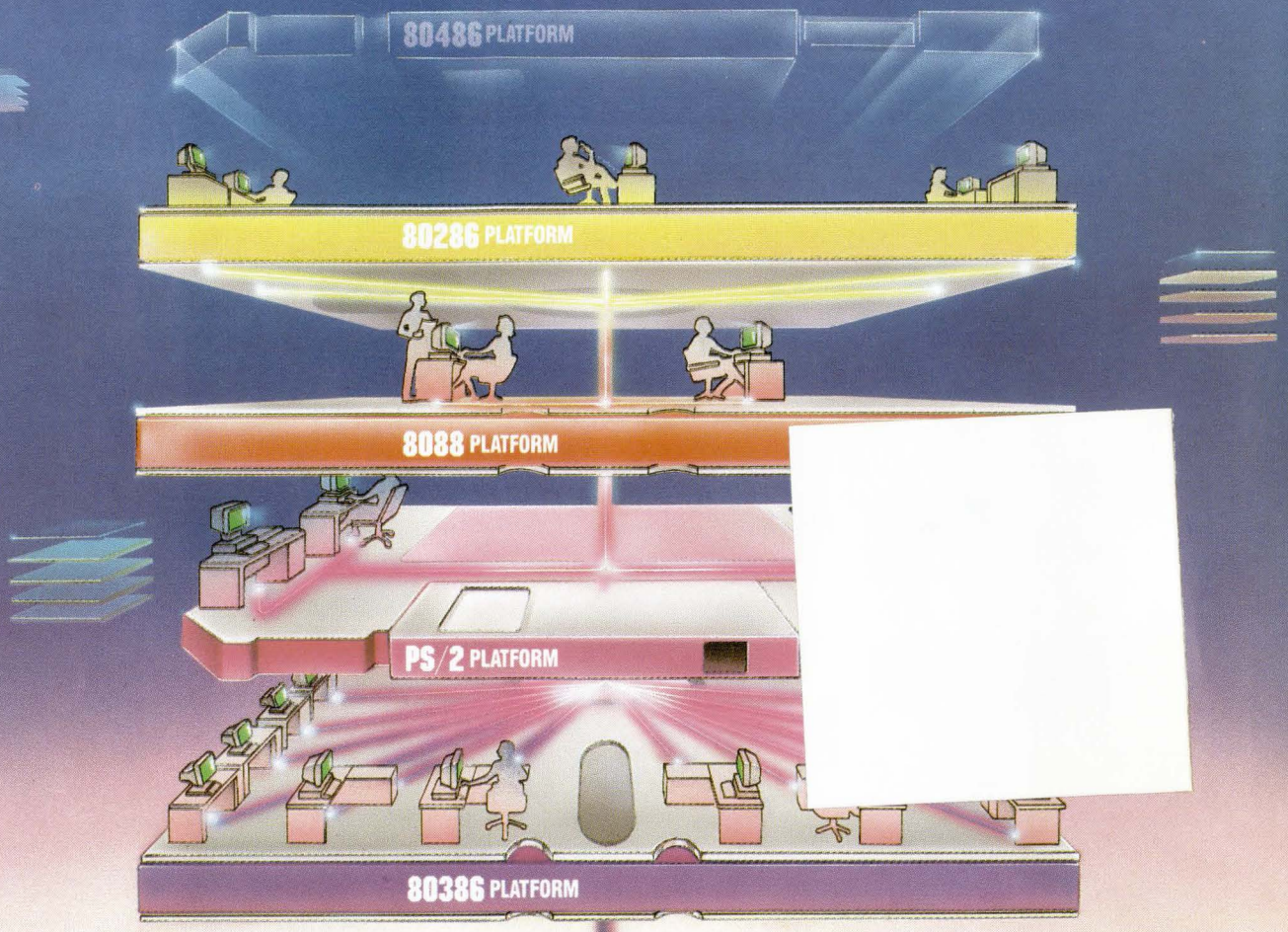

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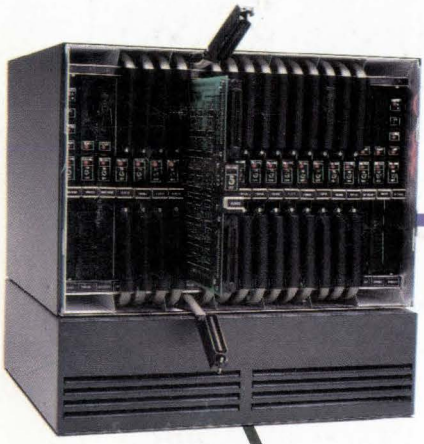

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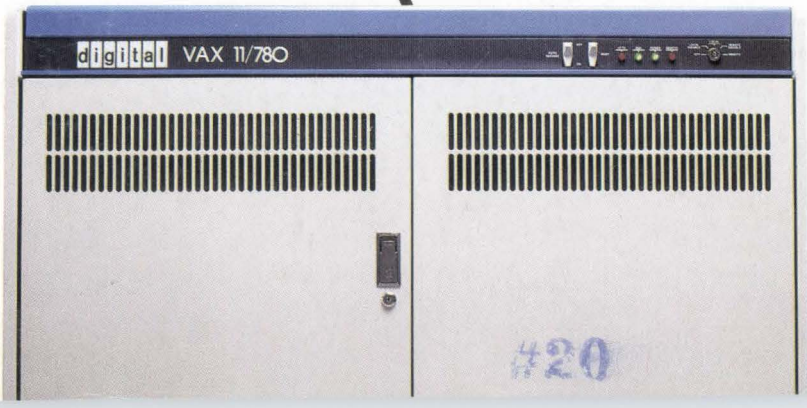

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