TOP OF THE NEWS

Case in point. The responsibility for educating judges and juries in computer-related lawsuits rests with lawyers and corporate businesses, a trial court judge said. Page 4.

Two early users of Smart Link, GE Software International Corp.'s micro-mainframe link, said the product is easy to use, but needs some improvements. Page 5.


IBM added a pair of high-end additions to its Series/1 line, boasting 50% more internal performance than the previous top-of-the-line model. Page 9.

New blend from the Highlands. A concerted effort by Scottish economic agencies has succeeded in attracting more than $1 billion in foreign high-tech investments in the past three years. Page 101.

Management Science America, Inc.'s decision to jettison its retail micro software business highlights the differences between marketing high- and low-end products. Page 12.

A truce in the feud between Big Eight accounting firms and a group of software vendors has been delayed pending congressional hearings on auditor independence. Page 15.

TOP OF THE NEWS

AT&T tariff draws fire

Users blast proposed discontinuance penalties on voice-grade private-line circuits

By Phil Hirsch
CW Washington Bureau
WASHINGTON, D.C. — Communications users groups have voiced strong objections to changes proposed by AT&T in its private-line tariffs.

Under one AT&T proposal submitted recently to the Federal Communications Commission, a user ordering nine or more voice-grade, private-line circuits could be charged as much as $1,016 per circuit if he canceled the order before service began. If the user discontinued the service less than one year after it began, the penalty could total $1,125 per circuit.

Under the other proposal, AT&T established new termination charges for its interstate voice-grade and Accessnet T.1 services. In each case, services that include local access would cost more than they do now, while those not including such access would cost less.

Objections to both proposals were filed with the FCC this month by the International Communications Association, representing many of the nation's major corporate communications users. Also opposing the proposed cancellation and discontinuance penalty charges was the Ad Hoc Telecommunications Users Group, a group composed of business communications users.

The proposed private-line termination charges, if authorized by the FCC, would go into effect Nov. 10, according to AT&T staff manager Doreen Gleason. The present termination charge for a voice-grade private line is $370.

Price, software, delivery delays hamper IBM XT 370 acceptance

By Paul Korzenowski
CW Staff

Handicapped by late deliveries, slow software development and a high price tag, the IBM Personal Computer XT/370 is experiencing difficulty securing a niche in most data processing departments.

That was the finding of Computerworld interviews with IBM Personal Computer XT/370 value-added resellers and MIS managers.

The microcomputer was introduced in October 1983, and shipments began in June 1984. The XT/370 provides a user with IBM's PC-DOS and VM operating systems, 256K bytes of random-access memory, up to 4M bytes of virtual memory and 10M to 20M bytes of hard disk storage.

Since its announcement, approximately half a dozen software vendors have revealed plans to tailor their mainframe packages to the XT/370. While the XT/370 can download and run most packages designed for IBM's VM operating system, some software suppliers are fine-tuning their wares to the XT/370's features.

Although this fine-tuning should be a relatively simple task, few vendors have completed it. They blamed shipment delays that left many without an XT/370 to test and forced them to alter original target dates.

See AT&T page 9

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See AT&T page 9

DP's newest fiefdom: micro support centers

By Paul Korzenowski
CW Staff

They go by many names—microcomputer support centers, corporate computer stores, information centers. No matter what they are called, they have two things in common: They are the latest addition to the typical data processing department, and they were spawned by a common need.

The common need is user support. "Users expected the same level of support for microcomputer products that they received from office automation suppliers," said Sally Huns, assistant vice-president at Manufacturers Hanover Trust Co. in New York.

While support may have been expected, it was not forthcoming, she added. So corporations are assuming the support role and are building central microcomputer support facilities. "It is more cost-effective to build a central facility than to have support costs duplicated by various departments," said Kevin O'Donnell, a vice-president at Manufacturers Hanover Trust Co. in New York.

"Once [he knows] how to use the micro, he asks, "How do I build a data base?''

—Vita A. Cassese, Pfizer, Inc.

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WALTHAM, Mass. — Nixdorf Computer Corp. last week announced the 8870 Micro 7, a low-end addition to the company’s line of microcomputers.

The unit is based on a proprietary Nixdorf microprocessor and comes with 256K bytes of main memory and a 514-in. 800K-byte floppy disk drive. A 10M-byte hard disk drive is also included, the vendor said.

The Micro 7 can simultaneously support two workstations: a master and a slave, the vendor said. The unit reportedly can also accommodate two workstation printers. Printers available with the Micro 7 include 100 or 150 char./sec models, a 210 char./sec inkjet model and a 40 char./sec letter-quality unit.

According to Nixdorf, the Micro 7 uses the Nixdorf Interactive Real-Time Operating System (Niros) and is software-compatible with larger members of the 8870 line. While users of other members of the 8870 line have the option of field upgrading to larger models, the Micro 7 is not field-upgradable, a spokeswoman said.

The unit features Nixdorf’s Termina
t Automatic Monitoring Operator System (Tamos), which reportedly controls and logs work performed on the system and automatically handles data backup. The Micro 7 uses the same versions of Niros and Tamos used on larger 8870 models, according to the spokeswoman.

The Micro 7 offers roughly the same processing power as the 8870 Model 15, but cannot support as many users or as much storage, the spokeswoman said. The Model 15 reportedly can support up to eight terminal and can accommodate 64M bytes of disk storage and 512K bytes of random-access memory. Other members of the 8870 line include the Models 35, 55 and 65.

Software packages written in Business Basic can be used on the 8870 Micro 7, according to the vendor. These include the vendor’s Com
cet applications package, which in
troduces database modules, and the vendor’s Loan Man
agement Information System, de
signed to handle consumer loans.

Nixdorf is also offering a remote support network for the Micro 7 that maintains and updates application and operating systems software and helps connect new customers with more than one 8870 system can use the remote facility for transmitting internal pro
gram modifications, the vendor said.

The 8870 Micro 7 costs $4,995 for a basic system including 256K bytes of random-access memory, a 10M-byte fixed media disk drive and a 800K-byte floppy disk drive. It is available immediately.

Nixdorf is located at 300 Third Ave., Waltham, Mass. 02154.
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- 55% in TTime;
- 75% in SIos.

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(2) THE BEST VM PRODUCTIVITY: SYBACK and SyncSort CMS have tremendous operational flexibility and user friendliness. They’re rich in features designed to reduce human intervention in backup and sorting:

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- SyncSort CMS—Sorts CMS, SAM (OS or DOS), or VSAM files • Can be invoked from COBOL, PL/1 or BAL programs • Dynamically allocates disk space • Selects relevant records for sorting • Reformats records on output • Performs summaries of designated numeric fields • Produces reports with pagination, headings and dates • Can often produce simple reports in one day rather than, say, five. Much more, too.

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Syncsort Incorporated 560 Sylvan Ave., Englewood Cliffs, N.J. 07632
Lawyers must assume teaching role in computer trials
Judge urges expert witnesses, detailed presentations to explain computerese to court

By James Connolly
CW Staff

BOSTON — Attorneys and expert witnesses in computer-related lawsuits have the responsibility to educate judges and juries as well as present their cases, according to a Massachusetts trial court judge.

Recalling the several computer-related trials over which he has presided, Massachusetts Superior Court Judge William G. Young offered his advice here last week to 50 New England lawyers active in computer litigation.

“I wish you would think of yourselves as teachers. Take a complex, scientific subject and teach it as well as possible. You’ve also got to have witnesses who can teach,” Young warned. He compared the lawyer’s need to explain to juries and judges, whom he described as “one-man juries,” to a journalist’s ability to explain a technical subject to a reader. The lawyer’s “fair translation” of technical terms need not sacrifice advocacy, said Young, who acknowledged that judges are laymen in the computer field.

Jury trials

Young, a veteran state court judge awaiting U.S. Senate approval of his appointment to a U.S. District Court judgeship, noted that only a fraction of all legal disputes, including computer cases, progress to a jury trial. But, he said, all cases have to be prepared with that possibility in mind.

Trial preparation involves using a full range of demonstrative aids, such as charts and enlarged photographs that illustrate, for example, what a microchip is, rather than just having a chip available for the jury to view.

Young warned the attorneys that they and their vendor and user clients should keep in mind two trends in case law: expansion of the law of res judicata and greater use of judicial estoppel.

‘Res judicata’

Expansion of res judicata — which prohibits trying the same issue twice — means that litigants who let an arbitrator decide a seemingly minor dispute to save legal fees may regret their decision when they later try to file a major case based on the same issue.

He said judges are refusing to hear the latter cases because the issues have already been decided.

Greater use of judicial estoppel — which prevents a litigant from taking opposing positions in similar cases — would be a factor in cases where companies sue to block spin-off firms, which, when successful a few years later, try to bar their own employees from starting spin-offs.

XT/370 from page 1

Of the few who have ported their software, only one — Mathematica Products Group Inc., in Princeton, N.J. — reported that an MIS department had purchased the microcomputer.

A number of reasons were cited why the machine has not captured the fancy of many MIS managers. First, it is rather expensive, with an $11,560 price tag for a 20M-byte system and an $8,995 price for the 10M-byte system. “The machine would be much more attractive if it was half the price,” said Dennie Nielson, MIS manager at North American Life & Casualty Co., an insurance company in Minneapolis.

Performance problems were listed as another deterrent to XT/370 sales. “The machine runs eight to 10 times slower than a mainframe,” said Kevin Winkler, senior consultant at Economic Sciences Corp., a Berkeley, Calif., software house. “If it takes 10 to 15 seconds to process data on the mainframe, it will take several minutes on the XT/370.”

Yet users seem satisfied with the machine’s performance. “When we purchased the machine, we were warned that it would be slow,” remarked Richard Zambelli, director of economic research at Weiss Research, Inc. in West Palm Beach, Fla.

“Generally, we’ve been satisfied with the machine’s response time. The only time there is a problem is when one tries to print,” said Nielson. “The machine performs well as a text editor, but can run a little slow when paging.” Paging refers to the technique of reading data from real (RAM) to auxiliary (harddisk) storage.

Limited storage capacity was also cited as an XT/370 shortcoming. When load the convolution and differential equations, and [Mathematica’s Ramis, a high-level language and data base management system] onto the system, we fill the hard disk,” maintained Earl Evans, manager of tax technical systems at Occidental Life Insurance Co. in Los Angeles.

“We tried to attach a tape backup system to the machine but were unable to get it to work. No one at IBM or the tape manufacturer seems to know why that happened. We are a month behind schedule because we can’t seem to get around the storage problem.”

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Early users praise Smart Link, call for enhancements

By Paul Gills

COMPUTERWORLD

Early users praise Smart Link, call for enhancements

By Paul Gills

When Mallory Timers Co. in Indiap"a-nagar, India, used Lotus Development Corp.'s 1-2-3 for budgeting last year, it found there was still one log-jam in the chain of productivity benefits—data entry.

"We were keying data in from general ledger reports, checking it against the report and then rekeying if there were errors," said Bill Vogt, manager of data processing. "Budgeting was still taking two to three months to complete.

"When I saw [ESI Software International Corp.]'s Smart Link, I saw the possibility of using it to get data out of the Software International general ledger for totaling and modeling on the [IBM Personal Computer] and then uploading it to the general ledger again." 

Useful in budgeting

Mallory, which became a beta test site for Smart Link, was one of two early users of the product interviewed recently by Computerworld. Mallory has installed two copies of Smart Link and its IBM 3081 and 3088 mainframes for budgeting this year with solid success, Vogt said. Not only does the link enable users to skirt the process of data entry, but it also allows them to spot irregularities in general ledger data by extracting fields into the 1-2-3 spreadsheet for comparison, he said.

Home Office Television (HBO) in New York, which was another early Smart Link user, has installed about 20 copies of the package to tie micros into a Software International general ledger. Smart Link is used basically for financial reporting by people in the financial operation, according to Dave MacLean, manager of financial information services at HBO.

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DEC single-user workstation aimed at technical users

MAYNARD, Mass. — Digital Equipment Corp. last week introduced the Vaxstation I, the company's first 32-bit single-user workstation. Based on the firm's Microvax I, the system reportedly will provide VAX resources, including high-resolution graphics and multiwindowing capabilities, to scientists, engineers and other technical personnel.

DEC predicted that typical applications for the new workstation would include computer-aided design and manufacturing, laboratory data analysis, process control and software development.

The Vaxstation I is "a full member of the VAX family," able to run a wide range of currently available software, said Norman Tripp, DEC product manager. He also emphasized the workstation's ability to link to other VAX systems in a distributed processing environment through Decnet/Ethernet networking.

"There's a very strong demand in our customer base for 'my own VAX,'" Tripp claimed, adding that the demand is part of a general shift toward distributed processing and away from time-sharing. "We're seeing an evolution from the generation when engineers queued up for a very expensive

DEC's single-user workstation, the Vaxstation I, according to DEC. The workstation reportedly supports the Graphical Kernel System (GKS) standard as its first graphics application interface language.

A starting configuration includes the CPU with 1MB byte of random-access memory (RAM), 1K by 2K bytes of bit-mapped video RAM, a model RX50 440K-byte, 5¼-in. diskette drive, a model RD52 31M-byte hard disk drive, monitor and mouse. Licenses for the Micro VMS operating system and workstation software are standard, as is the GKS interface, DEC said.

The Vaxstation's 18-in. monochrome monitor is said to feature a 60-Hz noninterlaced display with resolution of 960 by 864 pixels. The display shows full-page documents and multiple windows concur rently, with both DEC VT100 and Tektronix, 4014 terminal emulation.

Options include an additional 1MB byte of RAM, a Decnet/Ethernet interface and additional VAX/VMS software products, the vendor said.

Prices for the Vaxstation I begin at $82,095. Shipments of the product are scheduled to begin in December.

DEC is located in Maynard, Mass. 01754.

Bank's speech synthesizers greet financial managers' calls with daily balance

By Edward Warner

BOSTON — When corporate finance managers call the Shawmut Bank of Boston's Cash Management Services Department each morning, the voice that greets them — slightly nasal and metallic — is like music to their ears.

The voice the finance managers hear is the cash management department's speech synthesizer telling them their firm's exact account balance — the figure upon which their day's investment and check-writing decisions will be based.

Previously, the finance manager might have gotten a busy signal, as his call competed with the many other calls — 600 to 700 a day — coming into the department with the same request. Now, according to Peter Galligan, Shawmut Bank's assistant vice-president for corporate services, each incoming call from Galligan's customers using the service is routed to one of six speech synthesizers linked to a Digital Equipment Corp. PDP-11/70 minicomputer.

The call is answered immediately by the Dectalk speech synthesizer, also from DEC, and after the customer passes user number and password screening, the synthesizer gives him his balance as recorded on the PDP-11/70.

"Computeresque' but clear

The voice is "computeresque" but clearly spoken, Galligan said, and is remarkable because it is the only case of synthetic speech being used anywhere by a bank for account balance inquiries. Other banks, he explained, use digitized speech, which is said to be of impersonal and requires someone to act first as a narrator, speaking the words upon which the system will build its vocabulary.

The Dectalk system, he continued, needs no narrator and can be programmed for any of three male or three female voices. It can also speak with an accent and can be programmed to use only that accent when addressing a particular customer. He said the system is being considered for eventual use in a banking-by-phone program, which would allow outlying stores in a retail chain to punch in their night's deposits on a telephone keypad and have the stores' total deposits accumulated into the account of the chain's corporate owner by morning.

Aside from offering a service that some customers find attractive, Galligan said, Shawmut Bank benefited from the Dectalk system because it freed the department's employees from the burden of answering hundreds of daily telephone calls, most of which came just after the bank opened.

Units connected in parallel

Shawmut Bank's Dectalk system consists of six Dectalk synthesizers, each about the size of a typewriter and connected in parallel to a telephone line. When a call comes in and meets a busy signal at one unit, it is automatically transferred to the next unit in line. So far, Galligan said, most calls have gone no further than the second-in-line unit.

Shawmut Bank was one of the three first users of the Dectalk system, which was announced late last year. In the first quarter of this year the bank implemented a pilot program with one Dectalk unit serving 20 customers. The additional five Dectalk units were added in August, and, Galligan said, the system grew to its current 60 customers without any marketing by the bank.

During the pilot project, Galligan elaborated, users were given the option of having a male or female synthetic voice greet them each morning, but the customers had no preference.

DPMA conference set for Nov. 4-7

ANAHEIM, Calif. — A conference with exhibitions and workshops for business information managers, sponsored by the Data Processing Management Association (DPMA), will take place Nov. 4-7 at the Disneyland Hotel and Convention Center here, with optional postconference workshops on Nov. 8.

Prices vary. One full day is not more than $176, full meet price is not more than $415, and postconference workshops range from $65 to $90. More information is available from DPMA, P.O. Box 1091, Park Ridge, Ill. 60068.
Air-to-ground service lets air travelers phone home

By John Dix

OAK BROOK, Ill. — Beginning last week, passengers aboard several airlines found an oddity in their air- borne cabins: pay telephones.

Culminating nine years of research and development, Airfone, Inc. last week went on-line with a national air-to-ground telephone service that is initially available on 20 airlines.

The brainchild of John D. Goeken, founder of Microwave Communications, Inc. — now MCI Communications Corp. — and several other communications companies, Airfone, based here, is equally owned by Goeken Communications, Inc. and Western Union Corp., which bought into the company in 1981.

The service is presently available on carriers from Delta Air Lines, Inc., Trans World Airlines, Inc., United Airlines, Inc., American Airlines, Inc., Northwest Orient Airlines, Inc. and Republic Airlines, Inc., but will be expanded to other airlines as the wrinkles are ironed out and as demand dictates.

Users of the new service will be able to place calls, but not receive them because of airline fears that incoming calls would turn flight attendants into telephone operators. The service has a flat rate of $7.50 for the first three minutes and $1.25 for each additional minute, regardless of call destination.

System components include radio and telephone gear in the aircraft, a nationwide network of unmanned ground stations configured in a cellular fashion and central billing and monitoring computer hardware.

To use the service, customers insert a major credit card into one of typically four telephone stations on the aircraft. These stations validate the caller can use anywhere on the plane, explained Sandra K. Goeken, director of corporate affairs for the company.

When a call is placed, an on-board computer uses a patented process to search for the weakest usable pilot signal being broadcast by a ground station in front of the plane. Calls cannot be passed from one ground station's area of coverage, or cell, to another. By seeking a station in front of the plane, the maximum possible call duration is ensured. Goeken said that, depending on the plane's location, calls can be supported for up to 40 minutes.

Ground stations carry a complement of 900-MHz radio gear to communicate simultaneously with several aircraft at frequencies approved by the Federal Communications Commission for this service. Other

Prime cuts price of OA system

NATICK, Mass. — Prime Computer, Inc. last week cut the price of its entry-level 50 series Model 2250 superminicomputer by 18% to 25%. The company also cut by 25% the price of a 1M-byte memory expansion board used on some of its systems.

The 2250 now ranges in price from $29,900 to $52,400. It features from used on some of its systems.

The 2250 uses the firm's Primos operating system.

The 1M-byte memory board, the MMWI-1120, is the standard add-on memory product for the 50 series line. It uses transistor-to-transistor logic and is split into four layers on a four-layer printed-circuit board. Its price has been reduced from roughly $10,000 to $7,000.

Prime is located at Prime Park, Natick, Mass. 01768.
Plug low-cost ASCII printers into your IBM 3274 with InterLynx™/3287.

InterLynx™/3287 provides an economical printer attachment to IBM direct connect 3274, remote 3274/3276/4701 controller or integrated type "K" processor adapter.

Easy optioning via a front panel menu, no internal DIP switches, serial and parallel interfaces, and greater diagnostic capability are standard with InterLynx™/3287. A unique pseudo transparency option sends escape sequences to specialty printers, downloads Xerox 2700 typefonts, graphics output, bar code output, and bar code printers. Thousands of companies worldwide use Local Data protocol converters to expand their IBM mainframe communication capabilities. Join them today. Call for more information and ask about the free 30-day trial program (213) 320-7126. In Canada call (613) 740-9751.

"Your Lynx to IBM"

Staff limits necessitate software selectivity

Because staff is limited, the number of packages a corporate microcomputer facility supports has to be restricted. "We can only support half a dozen packages," according to Vita A. Cassese, director at Pfizer, Inc.'s Pharmaceutical Systems Division.

These packages tend to be horizontal programs such as word processing, data base management and spreadsheets, rather than vertical packages like a legal department word processing package. "There isn't a sufficient number of users to justify supporting a number of vertical packages," said Joseph Ceresky, system manager at Travelers Insurance Co.'s support facility in Hartford, Conn.

Choosing the packages and deciding when to replace an existing package presents a major challenge to each center. "We really have to keep our ears to the ground to keep pace with the industry," said Peter Hull, assistant manager at Manufacturers Hanover Trust Co.'s center. Devices that help Hull sort through the latest packages are magazine reviews, advice from the company's distributor, beta testing of new packages, attendance at trade shows and talking to personnel at other centers.

Primarily, these tools alert Manufacturers Hanover to the existence of interesting new packages. Once these packages are identified, a research team evaluates the programs. "We have four employees who evaluate and make recommendations concerning the various packages," Hull stated.

"Pfizer forces its employees to help in evaluating software. 'In return for support, we require that, periodically, a user evaluates a new program,' Ceresky stated. Occasionally, new packages replace existing programs. 'Users were having trouble working with a data base package,' he said, 'so, we replaced it.'"

SUPPORT from page 1

"There isn't a sufficient number of users to justify supporting a number of vertical packages."

— Joseph Ceresky,
Travelers Insurance Co.

Manufacturers Hanover Trust staffs (from left to right) Sally Hans, Peter Hull, Kevin O'Donnell and John Philips.

IBM-British Telecom net plans axed

LONDON — British Telecom's would-be joint venture with IBM to develop a countrywide data network here was officially axed by the British government last week (10/16).

The proposal from the UK's state-run telephone company and the American computer giant was rejected by Britain's Ministry for Trade and Industry, which felt that the combined strength of the two organizations would stifle competition in the emerging value-added network services marketplace.

Because of IBM's substantial contribution to the UK economy, it was said to be difficult for the government to rebuke the company's network proposal.

It is thought that IBM will soon obtain a special license to run its proprietary Systems Network Architecture (SNA)-based network. However, with the collapse of the joint venture, British Telecom's public-switched network, Packet Switch Stream, will be left to compete against the SNA network.
IBM rolls out high-end additions to Series/1 minis

RYE BROOK, N.Y. — IBM gave a boost to its Series/1 line of minicomputers with two high-end additions — the 4956 Model E and 4956 Model 60E — which are said to offer 50% more internal performance and memory capacity than previously used processor cards. Also, for the first time, IBM said it will allow Series/1 users to upgrade in the field to the newly announced model.

The 50% performance improvement was made possible by an enhanced processor card, which an IBM spokesman described as a fine-tuned version of previously used processor cards. Also, for the first time, IBM said it will allow Series/1 users to upgrade in the field to the newly announced model.

The proposed cancellation and discontinuance charges were designed to recover costs that AT&T has incurred because of the private-line service order backlog that has developed since divestiture Jan. 1, Gleason said. Customers, she added, have been placing duplicate orders and then canceling the extra ones when their needed services were turned on.

The proposed cancellation and discontinuance charges were designed to recover costs that AT&T has incurred because of the private-line service order backlog that has developed since divestiture Jan. 1, Gleason said. Customers, she added, have been placing duplicate orders and then canceling the extra ones when their needed services were turned on.

The cancellation/discontinuance penalty will become effective Nov. 11 if the FCC approves it. The key details of AT&T's proposal are:

- A service order would only apply to those customers who ordered nine or more private-line circuits activated within the same calendar month.
- The customer could cancel up to eight circuits and prematurely discontinue another eight within that same calendar month without being assessed a penalty.
- No penalty would be assessed if AT&T failed to provide service within the scheduled date.
- If the customer ordered a temporary circuit — for 30 days or less — he would be liable for a cancellation penalty but not a discontinuance penalty.
- The full cancellation penalty ($1,036 per circuit) would be assessed if a user canceled five days or more before service was scheduled to begin. The penalty would decrease as the interval between notification and scheduled date increased.

The two user groups contended that despite these qualifications, AT&T's proposal does not protect private-line customers sufficiently. A spokesman for the ICA said that AT&T has presented private-line rates, as well as charges for connecting local special access circuits, are likely to be revised before the end of this year, and the latter changes will cause further changes in AT&T's private-line rates this year. The commission should not permit [AT&T Communications] to make even piece meal changes of the type proposed here” until the underlying tariffs are stabilized, he argued.

IBM to supply software

The increase in memory capacity also doubles the addressable memory capacity of the newly announced Series/1 models from 512K to 1MB bytes. The spokesman said IBM plans to supply software to take advantage of the extended addressable memory. Current Series/1 programs will run without modification on the newly announced systems, IBM said.

The Models E and 60E (which includes an integrated 60M-byte disk drive) will be available in January. The Model E with 512K bytes of main memory costs $16,500. The Model 60E with 512K bytes of main memory costs $27,600. Users of the 4956 Model B can upgrade to the Model E for as little as $1,875. The monthly main-
Congress approves bills affecting high-tech market

WASHINGTON, D.C. — In the last few days of the 98th Congress, the legislators gave final approval to several measures that affect high-technology industries, including trade policy and data communications:

- Congress completed work on a huge trade bill that requires the president to encourage high-technology exports, gives the president five-year authority to eliminate duties on certain high-technology products (such as semiconductors) and makes clear that duty-free trade arrangements for developing countries will hinge on such factors as the beneficiary nation's treatment of U.S. exports, intellectual property rights and investment.
- Congress approved a bill that partially deregulates the cable television industry, but it allows cable operators to provide two-way data service only when regulated by the Federal Communications Commission.
- Congress approved, as part of the antitrust package, a measure that provides strong federal penalties for intentionally trafficking in counterfeit goods, such as personal computers, and knowingly using a counterfeit trademark.

Social programs gain aid of computer data bases

WASHINGTON, D.C. — Congress, in the closing days of its 1984 session, approved several pieces of separate legislation authorizing new computer data bases to aid in social programs:

- Congress created an Organ Program.
- Congress approved bills for establishing regional research centers to conduct applied research on robots and other advanced manufacturing technologies.
- It authorized about $10 million for a three-year study on the effect of automated manufacturing on workers and established a 12-member advisory committee on manufacturing technology.

The legislation was supported by the Robotic Industries Association (RIA), a trade group in Dearborn, Mich. [CW, Aug. 20]. Donald Vincent, RIA executive vice-president, said the federally funded research will take some of the research load off of U.S. robot makers, who are facing tough competition from Japan.

The legislative package also authorized $110 million for the NBS Institute for Computer Science and Technology [CW, Aug. 20] and $84,000,000 for the U.S. Department of Commerce to increase the availability of Japanese science and engineering literature to U.S. scientists.

Federal excise taxes to go to Treasury by way of EFT

WASHINGTON, D.C. — The U.S. Bureau of Alcohol, Tobacco and Firearms recently implemented a law that requires federal excise taxes on alcohol and cigarettes to be remitted to the Treasury via electronic funds transfer (EFT).

The bureau said it was implementing the Deficit Reduction Act of 1984, which requires the alcohol and tobacco industries to use EFT for excise tax remittances if the company's gross tax liability equals or exceeds $5 million a year.

The move is expected to save the government $8 million a year because EFT will place money in the Federal Reserve Bank of New York three to four days faster than paper check transactions, enabling the government to collect interest sooner, according to a bureau official.

The bureau explained that the transfer would occur from the taxpayer's commercial bank to the federal bank through the Federal Reserve System's Fedwire communications system.

SEC eyes computerized brokerage systems

WASHINGTON, D.C. — The emergence of computerized brokerage systems, in which investors are linked through personal computers to securities brokers for making on-line investments, is being monitored closely by the Securities and Exchange Commission (SEC) to prevent regulatory abuses.

In a policy statement published last week, the SEC said it supports the development of these automated systems for trading stocks and options, which ordinarily is done by telephone. At the same time, however, the commission warned operators of the computer brokerage systems to comply with SEC regulations that protect investors.

The SEC said the systems should indicate last-minute changes in securities prices and should ensure the privacy and security of customer accounts. Because the broker has less direct contact with customers, operators should make an extra effort to supervise their customers' trading activities and ensure that customers have the financial qualifications to make the investments, the SEC said.

ICCPI extends test deadline

CHICAGO — The deadline for registration for two examinations of the Institute for Certification of Computer Professionals (ICCP) has been extended to Nov. 2.

The tests are for the ICCP's Certificate in Data Processing (CDP) and for its Certificate in Computer Programming (CPP). The deadline was extended because the institute has appointed a new test administrator. Both tests will be offered Dec. 8 at sites around the world.

The CDP test is priced at $95. The CDP exam is priced at $120. Additional information and instruction manuals are available from the ICCP, Suite 1752, 35 E. Wacker Drive, Chicago, Ill. 60601.

DP association names president

BETHESDA, Md. — The National Association of Free-Lance Programmers (NAFLP) has appointed Dr. Robert B. Samworth as president and editor-in-chief of its newsletter, "Software Market Letter."

NAFLP, founded in 1982, is designed to provide free-lance programmers with information on how and where to sell original software. Membership fees, which cover the cost of the newsletter, are $55 per year.

NAFLP can be reached through P.O. Box 5797, Bethesda, Md. 20814.
Recent computer crime legislation viewed as first step
DP leaders feel government may expand law to deal with private sector computer crime

By Mitch Botta
CW Washington Bureau

WASHINGTON, D.C. — Leaders in the data processing community last week said they view the recent enactment of federal computer crime legislation, which mostly covers government computers, as an important first step that needs to be expanded next year to include private sector computers used in interstate commerce.

"A first step is better than no step at all. The inertia has been overcome, but it's far from an optimum step," commented Richard Cashion, assistant director of data processing at Tennessee Technological University in Cookeville, Tenn.

Cashion, who is chairman of the Data Processing Management Association's committee on computer crime, said Congress needs first to define computer crime properly and then expand the statute to cover the computer crimes that affect interstate commerce.

Earlier this month, Congress hastily enacted computer crime amendments attached to the continuing budget resolution [CW, Oct. 15]. The amendments make it a federal crime to gain unauthorized access to data stored in computers used by the federal government or to financial data protected by federal privacy statutes.

As reported, a compromise between House sponsors of H.R. 5616 and the Senate resulted in the deletion of provisions protecting computers used in interstate and foreign commerce.

Cashion said many DP managers want federal legislation to cover crimes that are unique to the computer age, such as theft of data and software, that are not outlawed by other statutes. Federal jurisdiction is appropriate for crimes affecting interstate commerce, he said, which includes data communications over interstate telephone lines.

Referring to the need to define computer crime carefully and to obtain better statistics, Cashion remarked, "It's like nailing Jell-O to the wall — we don't have a firm idea of what we're trying to legislate against."

William R. Moroney, president of the Electronic Funds Transfer Association, said he was delighted by passage of the measure. "There was serious concern that Congress would not enact anything this year... and that would send a very damaging message," he said.

Moroney observed that the provision covering financial data provides a balancing of penalties, since the financial institutions themselves would be penalized under existing law if they released the protected information.

Robert S. Willard, vice-president of government relations for the Information Industry Association (IIA), said he welcomed news that Congress put "something on the books" that specifically mentions computer crime. "It was about time Congress took some action to get it through the legislative pipeline," he said.

But Willard expressed disappointment that the measure was limited to government and government-related data bases, leaving IIA's members — who operate private information services — without federal protection. But he noted that key House and Senate legislators have vowed to hold hearings early next year on expanding the new law, "so this is only the beginning," he said.

Willard also commented on the way Congress attached the crime bill to a budget resolution passed just before adjournment, calling the process a travesty.

"It's a little bit disappointing that our government works this way," he concluded, after watching the legislative action from the Capitol galleries and on cable television.

Pushed by Rep. William J. Hughes (D-N.J.), chairman of the House subcommittee on crime, H.R. 5616 moved easily this summer to the House floor, where it was approved unanimously. But then it ran into Sen. Paul Laxalt (R-Nev.), Hughes' counterpart in the Senate, who indicated he wants more careful study of the issue next year.

In late September it seemed the bill would die on Laxalt's desk. But when the House and Senate sat down to reach a compromise on the budget resolution, Hughes insisted that it include the House-passed computer crime bill as said.

Faced with Laxalt's continued reluctance, Hughes opted for a compromise that discarded provisions of H.R. 5616 covering business computers and retained those covering government computers. The compromise budget resolution that emerged from the House-Senate conference, including the remaining computer crime amendments, was passed by the House Oct. 10 and by the Senate Oct. 11.

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MSA's scrapped micro venture seen as mart barometer

By Paul Gillin
CW Staff

ATLANTA — Management Science America, Inc.'s (MSA) decision to put its retail microcomputer software business on the auction block should have little effect on current mainframe customers and may, in fact, help rid the company of the earnings doldrums that have plagued it for more than a year.

However, MSA's failure to overcome the prolonged earnings slump of its micro subsidiary points to the ineffectiveness of mainframe software sales techniques in the volatile micro market. MSA's move may prompt circumspection from other mainframe software vendors considering moves into the micro arena.

Those were among the reactions of analysts and observers interviewed by Computerworld here following MSA's recent announcement that it plans to sell or spin off its retail micro software business. The move primarily affects Peachtree Software, Inc., the business software subsidiary that MSA acquired three years ago. MSA's three-year foray into that market has run into difficulties, owing in part to recent weakness in that market and to MSA's self-imposed difficulties in running two different software businesses profitably.

When it released preliminary earnings estimates for the third quarter ended Sept. 30, MSA, admitted, "The prime factor in the company's recent failure to recover from its recent weakness, and in the company's loss (of approximately 11 cents per share) was the performance of its retail microcomputer software subsidiary." MSA now estimates its earnings per share for the year will be below the 63 cents earned in 1983.

MSA Executive Vice-President Dennis Vohs said it has become increasingly difficult for the company to juggle the interests of micro and mainframe businesses when the two are trying to appeal to different audiences. "There's just not enough common strategy between the two," Vohs said.

"We have situations in which we give our employees bonuses twice a year, and this year with the [micro] market down, we didn't give those bonuses," Vohs said. "Since the [Peachtree] people are part of MSA, it's hard to single them out. It's those kinds of conflicts and strategies that made us think the retail side could do better on its own."

MSA has already been approached by companies interested in acquiring parts of Peachtree, Vohs said, but he declined to name any of the companies. Vohs also said that IBM's recent 30-pack-entry into the microcomputer software arena (CW, Oct. 1) had no impact on MSA's performance.

MSA has reaffirmed its intentions to continue selling Peachlink, its micro-mainframe communications software product, and to provide links between MSA's mainframe software and Peachtree products. Furthermore, Vohs said, jettisoning Peachtree's retail business would not necessarily mean that the company would stop selling Peachtree software.

"In the corporate area, we will continue to sell, and we are doing a lot of activity in this area," Vohs said. MSA reportedly has set up a micro distribution division as a prototype to test the viability of large-scale distribution. However, Vohs said, nearly 100% of Peachtree's revenues currently come from retail sales. He said MSA would not make a long-term commitment to sell Peachtree products.

Analysts were largely unshaken by the announcement. "They need to do something with the business—either shore it up or get out of it," said Kenneth Burke, an analyst at Alex. Brown & Sons, Inc. "It was a different business from their core strengths in commercial and industrial-type marketing on their mainframe products. They just couldn't take the strengths in one and apply them to the other area."

Burke said MSA will probably be more successful selling Peachlink and other products that relate to its traditional business. "You are not going to find, in my estimation, the mainframe vendors successful in selling micro products unless they can provide some leverage through their mainframe sales force," he said.

Burke estimated MSA would show a year-to-date before-tax operating loss of $12.2 million, of which more than $11 million would be attributable to Peachtree.

Curt Monash, an analyst with Paine Webber, Inc., said the decision could have positive long-term implications for the company. Noting that MSA stock fell only 1 1/4 points in the two days following the Oct. 11 announcement, he said, "I think investors were encouraged by the fact that MSA recognized the problem and that there was some action taking place."

"Peachtree in a sense took investors' eyes off the ball," he continued. "MSA is really a mainframe computer software company. Although returning to the mainframe business will slow MSA's growth rate, it should maintain the firm's long-term viability, he said.

Peter Bartolik, Computerworld's senior editor of computer industry, also contributed to this report.
CW AT UNIX EXPO

By Charles Babcock
CW New York Bureau

NEW YORK - "I'm a frustrated end user," said Ralph I. Squire, an educational director at the Rochester Institute of Technology, voicing a complaint shared by many at Unix Expo in New York last week.

Those attending the three-day trade show on AT&T's operating system were often looking for a new solution to an old problem — a shortage of computing power for their application. And they were looking to Unix for a solution, usually with the help of their MIS departments — but sometimes without it.

Squire helped run 150 seminars at the Rochester, N.Y., school last year without the aid of a computer. He wants to update his mailing list of conference attendees, compare mailing lists and do targeted mailings. But his mailing list software cannot perform these functions, even after being rewritten from a program for a Xerox Corp. Sigma 7 to one for the IBM 360, again for the IBM 370 and twice more through succeeding IBM mainframes.

"It will cost us more to update the program again than it would to buy a new system," he explained. If he can get a small, multiuser Unix system, the mailing list will be updated one more time and become transportable to future mainframes, he said.

“We're trying to get away from the back-office environment," said Joel W. Miller, an analyst at the investment house of Lazard Freres & Co. in New York, who was shopping for an intraoffice Unix system with which investment analysts could do spreadsheet functions and graphics. Lazard Freres' marketing staff cannot perform the financial modeling it wants to on the in-house IBM languages, and its data processing capacity is already split between company computers and time-sharing.

So Miller is shopping for a Unix system that will give his marketing staff its own capability to make quick presentations to customers — money managers, pension fund managers and other institutional investors. He plans to buy a system before the end of the year.

At the venture capital firm of Enventure Capital Group in Buffalo, N.Y., company officials are so impressed with their office Unix system that they are looking for start-up Unix software firms in which to invest.

Unix system links offices

Gregory C. Koch, vice-president for both in-house information processing and software investment, said his firm uses a Unix system to tie together three offices in different states.

Installed on a Convergent Technologies, Inc. Megafame superminicomputer, Convergent's Unix System Five allows employees working at different locations to do spreadsheets, accounting and portfolio management tasks and then exchange data with the home office.

"We have a small data processing department," Koch explained. With just one programmer and one data entry clerk, it was important that non-DP professionals be able to learn the basics of the system, he added.

Enventure was willing to invest in a Unix system because Convergent "is working very closely with AT&T, and [AT&T is] a company that can stay around until the next century," he said.

At Link Flight Simulation division of Sinter Co. in Binghamton, N.Y., Gould, Inc. is installing a pilot Unix system for top administrators and their staff. Although Link's data processing is done on IBM mainframes, Unix already had a foothold among the engineers at the site who were familiar with Perkin-Elmer Corp.'s licensed version. Some engineers urged that Unix be enlisted for an administrative decision support system, said Gould's Richard A. Larson, and Link's management information services director agreed.

An MIS supervisor will set up the Unix environment in which a cluster of eight terminals will run data base management programs, electronic mail, electronic calendars and spreadsheet calculating, according to Gould's Richard A. Painter. A Gould PS 3000 file server and applications processor along with PT 100 smart terminals will make up the hardware. Because it is Unix-based, the system will be able to communicate with the IBM mainframe system, too, Painter said.

Operating system of the future

Although some attendees at the conference criticized the lack of business programming in Unix, several program developers said they had concluded that Unix was the operating system of the future and had started work on applications programs a year or 18 months ago.

One developer, Clifford N. Cary of Creative B&D, Inc. in Hanover, N.H., said Unix "has got five years, at least, as an industry standard." Cary said he has reservations about Unix because the different versions have trouble communicating with one another.

Unix is also getting a boost from the National Aeronautics and Space Administration, which had contracted with Mitre Corp.'s Houston division to rewrite space shuttle and other programs in Unix.

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Articles must be typed, double-spaced and range in length from four to six pages. Artwork, such as charts, graphs and photographs, is also welcome.

Authors should include a brief biography and a telephone number at which they can be reached. The deadline for submissions is Nov. 5.

If you have a story to tell or any questions to ask, direct them to Janet Fiederio, Special Reports Editor, Computerworld, 576 Cochituate Road, Box 889, Framingham, Mass. 01701.

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OCTOBER 22, 1984

COMPUTERWORLD
Memory, support should top Unix buyer's checklist

By Charles Babcock
CW New York Bureau

NEW YORK — The AT&T Unix operating system offers hardware independence to users who adopt it, but finding the version of Unix that is right for you may prove difficult, said a Unix marketing expert last week.

Ray A. Jones, compiler of the "Unix Software Directory" and owner of Onager Publishing of San Jose, Calif., told a seminar at the Unix Expo in New York last week that the Bell Laboratories operating system "comes in 28 flavors."

William J. Klinger, business planning manager for AT&T Technologies in Summit, N.J., later said that AT&T is making a major effort to establish Unix System V as an industry standard.

But buyers also have System III, Version 6 and Version 7 from Bell Labs, plus two versions, 4.1 and 4.2, published by Berkeley Software Distribution, Berkeley, Calif. In addition, independent software developers have their own licensed versions, although none of them are allowed to use the name Unix, Jones said.

Amdahl Corp., Digital Equipment Corp., IBM and 126 other hardware manufacturers listed by Jones all sell versions of Unix, and each will catalog the Unix software that runs on its equipment, he said.

Moving toward System V

Those interested in a Unix system should first determine the version of Unix they wish to use, Jones said. Version III was the first one that AT&T would support. Most manufacturers are now moving toward System V, he added.

The 1976 Version 6 is used on some large mainframes, while the Berkeley versions offer numerous embellishments and enhancements.

"Of the 129 manufacturers that I know of, only six use Unix from Berkeley Software Distribution," Jones said.

System V, however, has more Berkeley enhancements than Version 7, he added.

The top three sellers of Unix systems in 1983 were Altos Computer Systems, Inc., Research Shack Corp. and Fortune Systems Corp., Jones said. Klinger said he has seen figures indicating AT&T will be among the top three in 1984, its first year of postbreakup operation.

For such purposes as real-time data acquisition or industrial control, only two or three versions of Unix are available. One is produced by Charles River Data Systems, Inc. of Framingham, Mass., and another is made by Masscomp Co. of Littleton, Mass., Jones said.

Response time will also dictate what type of hardware a buyer gets. Unix systems require large amounts of memory to store the operating system. Jones uses a Callan Data Systems, Inc. processor with 21M bytes of disk drive storage. The Unix system with applications programs take up 16M bytes, he said.

Beware of the amount of advertised storage on a hard disk system, he warned. Vendors like to talk about unformatted space; after formatting, a 10M-byte disk drive may have 8.4M bytes.

When shopping for a disk drive, try to find one with the shortest average access time. They range from 18 to 190 msec.

A buyer should look beyond his initial purchase to see what support exists for the system. Does the seller have a 24-hour 800-Wats telephone number that users can call for support? Does the manufacturer acknowledge that it is still trying to get bugs out of the software and that it will make upgraded versions available? Does the manufacturer publish a newsletter on the product? Is there a users group? What kind of system training is available to users?
Big Eight, software, service firms postpone truce
Congressional hearings to probe auditor independence in systems development business

By Peter Bartolik
CW Staff

MIAMI — An attempt to declare a negotiated truce to the years-long dispute between the Association for Data Processing Service Organizations (Adapso) and Big Eight accounting firms was postponed recently due to the prospect of Congressional hearings.

Adapso members have carried on a bitter war during the past two years to have culminated in a motion declaring Adapso’s intention not to enter into an adversary relationship with those firms. According to the chairman of that committee, David Campbell of Computer Task Group, Inc., the motion was placed on hold because Rep. John D. Dingell (D-Mich.) directed the staff of a congressional oversight committee to conduct preliminary hearings into auditor independence.

Campbell said it is more than likely that Adapso members could end up testifying before that committee in a manner that could be considered detrimental to Big Eight firms.

Campbell said that the Adapso committee did not initiate the congressional probe, and he predicted, “I’d guess in 12 months from now, we’ll be working together with Big Eight firms on such issues as certification.”

There is no current prohibition to Big Eight members joining Adapso, but the firms involved in the negotiations wanted a declaration that Adapso would not turn around and continue the dispute.

“They [the firms] felt it would be inappropriate to join [Adapso] and pay dues at the same time we were trying to raise funds to initiate adversarial proceedings.”

He also said the committee had commissioned two studies during the past year, one to determine the attitudes of companies obtaining auditing and systems development services from Big Eight firms and the other to examine specific situations that might be considered inappropriate.

Preliminary results of the studies, Campbell said, indicated that customers are satisfied with Big Eight services and, “there was no specific situation that we felt clearly called for an aggressive, adversarial approach” by Adapso.

The committee, according to Campbell, believes the Big Eight firms are in the systems development business to stay. Additionally, he said, there would be benefits from an Adapso-Big Eight relationship such as agreement on certification issues and a grievance board to settle disputes.

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AT&T exec calls for Adapso help in lifting regulations
Claims government's regulatory provisions prohibit competition, restrict growth

By Peter Bartolik
CW Staff

MIAMI — AT&T Chairman Charles Brown last week called on members of a computer industry association to help lift regulatory restraints that he said are hampering the telecommunications giant.

At a lunchtime address to the 61st Management Conference of the Association of Data Processing Service Organizations (Adapso), Brown said the remaining vestiges of government regulation of the former monopoly are keeping long-distance telephone rates high.

The Second Computer Inquiry decision rulings are redundant and causing AT&T a great deal of expense, Brown said. "I see no need for something inserted in a monopoly environment to be in existence in a nonmonopoly environment," he said.

Continuing a theme he has aired in recent months, Brown said AT&T should be further deregulated to enable the intent of its consent agreement with the U.S. Department of Justice to move the company into a competitive environment.

"I'm not calling for a blank check, but government policy prevents full competition," he said. Brown reminded Adapso members of the organization's support for telecommunications deregulation and urged them to seek further government deregulation.

"It is time to do something about the regulatory remnants of divestiture," Brown said. "It is preventing us from lowering long-distance telephone rates by as much as 30% to 40%.

Brown said AT&T just recently lost a very large contract to a foreign competitor because it was forced to waste time determining what it could and could not do under current regulations.

Conceding AT&T created "some snafus" during the first nine months of divestiture, Brown said the company's massive private-line backlog is starting to turn the corner, and he expected the problems to be resolved either late this year or early next year.

Brown was particularly critical of government requirements that it stay in business areas it considers unprofitable. "You don't see any of AT&T's competition going in where they see no chance of profits. AT&T is not invulnerable," he said.

Brown claimed the restraints on AT&T restrict general business growth: "Rules that impede us also impede you," he warned.

Brown also called for computer industry activity in urging the government to stimulate research and development and set foreign trade rules "in a sensible fashion."

Brown urged the computer industry executives to consider the impact of new technology on society as a whole. "We have to face up to the fact that a great many people are apprehensive about the new technology," he said.
Computer registration checks uncover voting fraud

By Donna Raimondi

CHICAGO — On March 20, Irene Brewster of 6132 S. Bishop St. here did her civic duty by voting in the presidential primary in the 39th Ward. She was now listed 1.6 million voters in Chicago and 1.2 million in suburban Cook County, Ill.

Precise Data Service, Inc. of Willowbrook, Ill., a direct mail and print shop, manipulated the list data, generated reports for precinct-by-precinct information and helped with mailings. The company fed the lists into its Magnus Computer Systems, Inc. Model 34 computer running under Dearborn Computer Corp.'s operating system for one month and a half after the election.

The staff at Precise Data wrote software that picked 879,000 voter names based on research by the committee, Andersen said. The committee then sent a letter to each of the 879,000 chosen registrants with instructions to postal workers not to forward the letter.

Of those letters, 80,000 came back as undeliverable, according to Andersen. Further research by the committee showed that 56,000 of these addresses were deceased or listed as living at nonexistent addresses, vacant lots or old, burned-out buildings. The other 24,000 were returned from locations from which people had moved and left no forwarding address.

"It stands to reason that 80,000 people didn't move one and a half months after the election," said Bridget Maloney, ballot integrity coordinator for the committee. Cook County has the worst voter fraud record of any county in the country, she said, and the motto here is "vote early and vote often."

'Dead or not, he'll vote'

Maloney pointed out that 30%, or 270,000, of the 900,000 who voted in the southwest side of Chicago are inaccurate. "In Chicago, if your name's on the roll, dead or not, he'll vote," she said.

The committee matched names on the 80,000 returned letters with the voter registration list to see how many of that number had voted in the March primary, Andersen said. Of the 20,000 who voted, Andersen picked 50 random voters and upon checking with mailings, discovered that 23 were from vacant lots or houses that had been empty for five years or more, he said.

Precise Data searched the 1.6 million registered Chicago voters for same name, same birth date information, Andersen said. "Maybe 1% of this number could be unique and match, but 24,000 people on the voter rolls who registered more than once — up to seven times, in fact," he said.

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DEC, Cullinet pact gives VAX users IBM system access

Digital Equipment Corp. and Cullinet Software, Inc. have announced a joint agreement to develop products that will permit users of DEC's VAX operating system to access IBM mainframe systems through Cullinet's Information Database. The agreement is similar to a recently announced arrangement that will give users of Data General Corp.'s CEO system an easy connection to IBM's mainframe systems via Cullinet's Information Database. DEC and Cullinet said they will work jointly to develop products for "environments where IBM and DEC products coexist" and market the completed products.

Lax security blamed in theft of micros

By Donna Raimondi

BERKELEY, Calif. — Thieves who ripped off $82,000 worth of microcomputers at the University of California here had their job made easier by a lack of adequate security.

Ten IBM Personal Computers disappeared from the physics department's Birge Hall computer room one night late last month, according to Detective Greg Folster of the university's police department. The room's door lock and an additional combination lock showed no signs of forced entry, he said.

Professor Howard Shugart, vice-chairman of the physics department, discovered the theft on Sunday morning when he went in to load software on the computers, which were used for simulation experiments by his undergraduate physics students the next day.

The equipment, obtained through a three-year, $10 million grant from IBM, had been set up a week before the theft, Shugart said. The university's security department surveyed the setup and recommended procedures to protect the equipment, he added. Shugart ordered devices to bolt the micros to their tables, but a mix-up somewhere in the purchasing process prevented their timely delivery, he said.

The room's locks were also due to be changed in a few days, he added, in compliance with the security department's recommendations.

"We lose one or two [microcomputers] every week," Folster said, which has led to a key and knew the combination lock's code. He questioned the 20 people enrolled in the course, discovered the heist had a key and knew the combination lock's code. He questioned the 20 people enrolled in the course, discovered the

DEC officials refused to say when the first application software to permit its VAX family of users to work in the IBM mainframe environment will be available.

Information Database permits users to gather and organize information retrieved from IBM mainframes into a workstation environment by providing "intelligent data communications" with the mainframe, according to Cullinet. Leverage DEC's strengths

A DEC release said the joint agreement will leverage DEC's strengths in distributed processing with Cullinet's strengths in data access to IBM mainframes. Al Davis, DEC Information Systems Division product manager, said the development would be devoted primarily to designing an interface of the VAX operating system into the Information Database software. DEC is located at 146 Main St., Maynard, Mass. 01754. Cullinet is located at 400 Blue Hill Drive, Westwood, Mass. 02090.
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Court hears plea for data base services' press freedom

WASHINGTON, D.C.—The credit reporting firm Dun & Bradstreet, Inc., facing $350,000 in legal damages for reporting the false bankruptcy of a Vermont building company, has appealed its arguments before the U.S. Supreme Court for the second time.

The Supreme Court, in an unusual second round of oral arguments, questioned Dun & Bradstreet's attorney, Gordon Garrett, on whether the libel case brought against the firm by Greenmoss Builders, Inc. had to prove actual damages.

Questioned by Chief Justice Warren Burger on the extent of First Amendment freedom of the press defense that Dun & Bradstreet claimed, Greenmoss attorney Thomas F. Heilman said, "Credit reports are not opinions but facts. They therefore do not need First Amendment protection." Burger replied to that statement with a question: "What facts don't deal with creditworthiness? The media don't have an incentive to libel."

Firms such as Dun & Bradstreet that market credit reports and other electronic data bases that inform users about other concerns are involved in "commercial speech," not in traditional information disseminated by a free press, Heilman countered. "[Dun & Bradstreet] does have a primary interest in the products it creates, and it accepts the consequences of what it does. It's the cost of doing business. "Credit reports assist private economic decisions, not public opinion," Heilman said.

Dun & Bradstreet's defense before the high court a second time challenged the existence of damages by an erroneous report it had published on the bankruptcy of Greenmoss. D&B said it would be willing to return to the Vermont Court of Appeals to retry the issue on the existence of damages if they occurred. The Vermont Supreme Court found that Dun & Bradstreet was an organization not entitled to the traditional freedom of speech accorded the press or a "nonmedia defendant."

The Vermont court instructed the jury that actual libel had occurred as a result of the erroneous report, Heilman said. However, no evidence had been submitted in court to prove this, Garrett said. "Damages have to be proved, the jury can't be told that damages can be presumed," said Garrett in Dun & Bradstreet's defense.

The Supreme Court justices in their questions from the bench seemed perplexed at finding a distinction between a media and nonmedia defendant as far as First Amendment protections were concerned. "What's the difference between them, and what should the defense be for a nonmedia defendant?" Burger asked.

Dow Jones & Co. and the Information Industry Association have taken an interest in the case and have filed briefs supporting Dun & Bradstreet.

Asia meeting for DEC users reslated for '85

MACAO, China — At the suggestion of the China Digital Equipment Corp. Users Society, Dexpa Asia—the first Asian exposition and conference for DEC computers and compatible users—has been rescheduled for April 30-May 2, 1988.

The show had been scheduled for Nov. 28-30, 1984, but was postponed when officials of the delegation from the People's Republic of China said they wanted to increase their delegation from 300 to 350 DEC users.

About two dozen companies have been assigned exhibit space for the show. Admission to the exposition is expected to be about $2, but conference fees have not been set, according to organizers.


NCC '84 papers available


Session papers are divided into 10 areas. The divisions comprise the following: hardware and architecture, software, office automation, graphics, personal computers, information processing, data base management, artificial intelligence, communications, and educational and social issues.

Afips members can purchase the proceedings for $40. Nonmembers must pay $80 for the report. There is a $3.50 charge for any order that is not prepaid.

For more information, Afips is located at 1899 Preston White Drive, Reston, Va. 20191.
DETROIT — It appears that General Motors Corp., one of the world's largest companies—may soon become the world's biggest service bureau client if stockholders approve the auto giant's merger plans and the transfer of its data processing work load to Electronic Data Systems Corp. (EDS).

EDS, a Dallas-based computer services company, will "ultimately assume responsibility for GM's worldwide DP and communications activities," the automaker informed shareholders recently.

To facilitate that, GM intends not only to shift as many as 10,000 of its DP workers to the payroll of EDS [CW, Oct. 1], but also to transfer the bulk of its DP equipment and assets to its prospective subsidiary on the basis of intercompany, interest-free loans. EDS will then contract with GM to provide integrated DP and communications services at rates "consistent with those charged by EDS to its other customers."

That service arrangement will be initiated immediately following stockholder approval of GM's planned $2.55 billion buy out of EDS, an EDS spokeswoman told Computerworld last week. If endorsed, the merger will make EDS a wholly owned subsidiary of the world's largest auto manufacturer. It would also allow EDS to use the transferred GM workers, equipment and data processing technology to service its new and existing clients and to venture into new markets.

According to proxy materials mailed to EDS and GM stockholders, "EDS will continue to develop new lines of business, including those which will be based upon existing GM data processing technology, to be marketed by EDS to outside customers....Although the assumption of GM's DP activities by EDS represents a substantial commitment by EDS, the availability of GM's existing data processing resources is expected to enable EDS to develop and expand both existing and new lines of business for non-GM customers."

The spokeswoman said the merger will enable EDS to enter into the manufacturing and robotics systems arenas on the basis of GM's extensive and costly research and development in those areas in the recent past. "We really do not have any manufacturing or robotics business, but we are in systems design," she said. "We can take the existing technology GM has and translate that into new ventures."

Representatives for GM and EDS declined to speculate either on the value of the GM equipment and assets to be transferred or on the contractual value of the DP services to be provided by EDS. But the companies said the assumption of GM's DP responsibilities would substantially increase EDS' volume of business and its revenues, which were nearly $800 million for its last fiscal year. While the merger proposal provides that GM common stock holders will not reap any direct benefits from EDS' ballooning revenues, the $76 billion automaker assured shareholders that the DP and communications savings involved make the merger desirable.

"I would hope that they save at least as much as they paid for us," the spokeswoman said. GM's annual DP costs have been estimated to run as high as $6 billion.

The merger proposal calls for EDS to convert GM's currently decentralized DP operations into "an integrated computer facilities network," with the aid of GM's personnel, facilities and equipment. The spokeswoman said the conversion will call for EDS to implement compatible computer systems, which will be linked via the EDS-Net nationwide telecommunications network, which would allow all of GM's manufacturing and dealership organizations to share information.

"It will allow all dealers and manufacturers to talk to each other in the same language," she said. "The process of ordering a car would be integrated from the very beginning, from the time someone sits down to order a car all the way to the delivery of the car."

She said the transferred GM DP and communications workers will probably be assigned to an unnamed special group within EDS. EDS currently maintains five specialized internal groups—Insurance, Finance and Industrial, Government, Health Services and International—that coordinate the company's activities in a variety of business spheres.

Asked what non-GM projects the transferred GM personnel would be responsible for, the spokeswoman said, "that would depend entirely on where the opportunities are."

A GM DP worker, who asked not to be named, told CW that the automaker's information processing personnel are apprehensive about the transfer. "It comes down to the fact that most of us aren't so much concerned about what we will be working on at EDS, but about how this move will affect each of us personally — in the wallet so to speak. A lot of us stayed with GM despite other opportunities because we thought it was a pretty stable place to work. We see now that is not the case."

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Sperry users meet slated for November

ATLANTIC CITY — A conference is being held at the Resort International Casino Hotel here Oct. 31-Nov. 2 for users of Sperry Corp.'s Sperry 1100 computer systems.

The 1100 Data Center Management Conference is designed for Sperry 1100 managers, directors and vice-presidents of MIS.

The conference will focus on data processing management issues and concerns and will give practical information for making management decisions, solving management problems and planning data center growth, according to the sponsor.

Conference topics

Topics will include: communications network management, charging for computer resources, capacity planning from a corporate viewpoint, user satisfaction, fourth-generation languages in the Sperry environment, Sperry's Mapper and its impact on programmer productivity and 10 commandments for successful DP operations.

Keynote speaker will be Earl C. Joseph, president of Anticipatory Sciences, Inc. Joseph is credited with the design of five major Sperry computer systems in his 32 years with that company, according to the sponsor.

The registration fee for the conference is $795 in advance and $850 on-site.

More information can be obtained from the sponsor, Datametrics Systems Corp., 9840 Main St., Fairfax, Va. 22031.

User services focus of Nov. 11 conference

RENO, Nev. — The Special Interest Group for University and College Computing Services (SIGUCCS) will hold its 12th User Services Conference Nov. 11-14 at the Reno Hilton here.

This year's conference, sponsored in conjunction with the Association for Computer Machinery (ACM), will address "Users Services, 1984: Ending or Beginning?"

A series of tutorials will be held Sunday Nov. 11 on topics such as data communications basics, customer service techniques, tutorials, design preparation and delivery and interviewing and selecting consultants.

Registration is $125 for ACM and SIGUCCS members who register before Oct. 14 and $155 after that date. Early registration for nonmembers is $165 and $15 for students. Registration for individual tutorials is $50 each.

More information is available from the University of Nevada System Computing Center, Computer Center Building, Reno, Nev. 89557.

Two to share $5,000 prize from SIM

CHICAGO — Two information executives will share a $5,000 prize for their first-place win in the Society for Information Management's (SIM) 1984 Paper Competition. The two received the award for their description of a program they developed to speed the definition of a management information system project, said the chairwoman of the SIM awards committee, E. Nancy Markle.

The winners, announced at a SIM conference here recently, are John Batiste, an information systems consultant with A. O. Smith Harvestore Products, Inc. in Brown Deer, Wis., and John T. Jung, director of management information systems at Chubb & Sons Insurance, Warren, N.J.

Second place in the competition, which included a $2,000 prize, was shared by three entrants: Michael Shank, Andrew C. Boynton and Robert W. Zmud. Shank is executive vice-president of Financial Institutions Assurance Corp. in Raleigh, N.C., and Boynton and Zmud are both from the University of North Carolina School of Business, Chapel Hill, N.C.

The Batiste and Jung paper, titled "A Structured Approach for Determining MIS Project Definition," explained how the two have "taken an approach to defining systems and shrunk it from months to weeks," Markle noted. Project definition, she explained, is the period during which the business function to be automated is laid out in step-by-step fashion.

Third place in the competition, which included a $1,000 prize, went to Omar A. El Sawy, an assistant professor in the school of business administration of the University of Southern California.

Markle said papers are now being accepted for SIM's 1985 competition. Papers must describe a management information system, an approach to developing information systems, a technique for improving MIS activity or the management of the MIS activity. Papers may be sent to SIM, Suite 600, 111 East Wacker Drive, Chicago, Ill. 60601.
Office politics blocks OA implementation

By Edward Warner
CW Staff

CHICAGO — With nearly every corporate department
claiming authority over a key portion of the office auto-
mation (OA) plan, business consultant N. Dean Meyer
said he believes the biggest roadblock to OA implemen-
tation is office politics.

Meyer, president of N. Dean Meyer and Associates, Inc.
of Ridgefield, Conn., told a gathering of information man-
gers at a recent conference of the Society for Informa-
tion Management here that "no matter what we give to
[those implementing OA], we're stepping on somebody's
toes."

He claimed that "these unhealthy relationships are de-
signed into an organization," but that it is the MIS execu-
tive's responsibility to bridge the relationships when in-
troducing OA.
The MIS manager's best tool for this task, Meyer said,
is the use of a team of in-house business consultants who

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Bernie Boor, Consultant and Author
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Generation counting useless in research: IBM exec

By Kathleen Sullivan
CW West Coast Bureau

SAN FRANCISCO — It is time to stop counting computer generations and to abandon the term "fifth generation." That was the message Lewis M. Branscomb, vice-president and chief scientist at IBM, delivered to an audience at the annual conference of the Association for Computing Machinery, held here recently.

"Whatever value this phrase has had in stimulating attention to the ultimate commercial promise of computer science ideas, which are generally referred to as artificial intelligence, I think it has outlived its usefulness," Branscomb said.

Instead, computer scientists should talk about the various components that make up advanced research in computer science, including symbolic processing, expert systems, image and speech processing, robotics, parallel processing, high-speed scientific computing and advanced data base structures, he said.

Adopt official terminology

Although the term fifth generation generally refers to the set of advanced computer science research projects now underway in Japan's Institute for New Generation Computer Technology, even the Japanese do not use the term, Branscomb said. Their project is officially named "Research for Basic Computer Technology," he noted. American computer scientists should adopt the official Japanese terminology, he said.

But the U.S. should not copy the Japanese model for stimulating research activities in computer technology, which "places great emphasis on far-reaching goals as a means of concerting action and building consensus," Branscomb said. Each nation must choose its own path, based on its own culture and traditions, he added.

"Our tradition is to foster the richest possible variety of possibilities for the evolution of each person's plans into private goals," he said. "We put special reliance on our universities to be fertile ground for a great variety of visions. We rely on new venture formation and on corporate fundamental research to translate those visions into reality," he added.

Science is international, and so are many of the companies in the information industry which employ scientists from many countries, he said. Siemens Corp., for instance, has a laboratory in Princeton, N.J., where American scientists work on knowledge-based systems, he said.

This work, which transcends nations and nationalities, benefits everyone by adding to the body of world scientific literature, Branscomb said. "Let us cooperate among scientists, compete among companies and respect the duty of sovereign governments to create the environment in which science flourishes and trade is free and fair," Branscomb said.

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Financial industry fertile ground for expert systems

By Kathleen Sullivan
CW West Coast Bureau

SAN FRANCISCO — As a result of deregulation and intensifying competition, the financial services industry is ripe for the installation of expert systems — computer programs that perform a specialized professional task at the level of a human expert.

That was the assessment of Sandra Cook, manager of financial expert systems at SRI International, Inc., a Menlo Park, Calif.-based research institute. Cook spoke before a seminar audience at the annual meeting of the Association for Computing Machinery held here recently.

An expert system includes a knowledge base of facts, assumptions and beliefs, as well as methods of reaching a diagnosis, interpretation or solution to a problem; a knowledge base management system, which organizes, controls and updates the stored knowledge and initiates searches; and an inference engine, which works with the information in the knowledge base.

According to Cook, several financial expert systems are now under development, but none have been completely fielded to date. SRI International, for instance, is designing a prototype system that will handle letters of credit and document processing, she said.

In order to decide whether a particular application is appropriate for the development of an expert system, Cook suggested that the problem must meet a number of criteria, including the following:

- No algorithmic solutions exist that can handle the problem.
- A poor decision will have a significant impact in terms of financial cost, resource consumption, time delay or risk.
- It is likely that a nonexpert will make a poor decision. The machine's expertise must be significantly higher than a nonexpert's, she noted.
- The problem to be addressed must be relatively static compared with the time it takes to analyze the problem. For example, an expert system will not meet the needs of a nuclear plant operator, who is faced with a meltdown in three minutes, if a system takes 18 minutes to pinpoint the problem, Cook said.
- The knowledge domain must also be relatively static. If it is subject to rapid change, professionals should think twice about developing an expert system for the application, Cook warned.
- Finally, an application requires a political climate that is friendly to the new technology.

According to Cook, the back office is the most appropriate place to begin in the financial services industry. An expert system can be used to automate a number of services, from processing letters of credit, to receiving and paying account reconciliations, to replacing the current procedures for credit

See EXPERT page 31
Long-term research key to quest for next generation

By Kathleen Sullivan
CW West Coast Bureau

SAN FRANCISCO — If computer scientists hope to realize their dreams of designing fifth-generation computers — machines that incorporate artificial intelligence and allow computers to understand natural language, make deductions, draw inferences and solve problems — they must get off their "moon shot mentality" and focus on long-term research.

Speaking at the annual gathering of the Association for Computing Machinery (ACM) held here recently, Michael Dertouzos, director of the Laboratory for Computer Science at MIT, urged his audience to adopt a long-term orientation in the quest for the next generation of computers.

"We must get off the moon shot mentality," Dertouzos said. "The moon shot dealt with a mature technology and every step was known. The only objective was to do it well. But here, [in AI] we're still exploring. We must stop and turn over stones — look them over, evaluate and choose."

Term refers to Japanese efforts

For its three-day conference, the ACM had chosen "The Fifth-Generation Challenge" as its theme. Dertouzos explained that for many people, the term "fifth generation" referred to the efforts of the Japanese to design the next generation of computers.

Three years ago, the Japanese announced the beginning of a 10-year research program, a joint effort by government and industry, to explore new computer technology.

"To me, however, fifth generation means long-term research, 10 to 15 years out," Dertouzos explained.

C. Gordon Bell, chief technical officer for Encore Computer Corp., echoed Dertouzos' remarks. Typically, Bell said, a significant invention in the computer industry is not translated into something useful until 10 years after its introduction.

"Evolutionary, not revolutionary"

"The whole process is evolutionary, not revolutionary," he added. However, he warned that today's scientists and engineers are not heeding this historical lesson. "We're not following the evolutionary approach. We're trying to go ahead and build new computer structures. Only a small number of these projects are worthwhile, he said.

According to Bell, research efforts in the U.S. are lagging behind. "We're not doing what we need to do to get to fifth-generation computers," he noted.

Lewis M. Branscomb, IBM's chief scientist, had another warning for the ACM gathering. Although he noted that research in AI has yielded "impressive progress" so far, he said patience and determination would be required to achieve further gains. But, he cautioned, computer scientists should paint a more realistic picture of the work ahead.

"The extravagant statements of the past few years have become a source of concern to many of us who have seen excessive claims by researchers in other fields lead to unreasonable expectations by the public," Branscomb said. He noted that this could lead the government lead-

ers who control support for these projects to become disenchanted.

Edward A. Feigenbaum, a professor of computer science at Stanford University and coauthor of the book The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World, said that previous work in computer design could be divided into two eras. The first era, the last 35 years — has been defined by computers that performed calculations and managed data processing.

According to Feigenbaum, the industry is now in a state of transition into the next era, which will encompass symbolic processing. "There's a vast open area of computing to be filled in the second era," he observed.

The Japanese have targeted fifth-generation technology because they understand the economic potential of new technology in information processing, Feigenbaum explained.

He cited a recent Arthur D. Little, Inc. study, which predicted that the market for AI, including hardware, software and services, would reach $5 billion to $10 billion by 1990. Within five years, this market will grow to between $30 billion and $70 billion. By the year 2000, it will reach the $50 billion to $110 billion range and make up about 20% of the total computer industry market, according to the study.
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Japanese hotel boasts 45-second automated check-in
Computerized front desk processes reservations, issues key cards, handles payments

By Susan Blakeney
CW Staff

TOKYO — A hotel with a 45-sec-
ond check-in time? If that sounds too good to be true, weary travelers are advised to check out the 25-story high-technology Shinjuku Washington Hotel, which opened for business here last December. The hotel introduced an automatic front desk system that processes reservations and payments, issues magnetic guest cards and dispenses receipts as well.

The automated machines were made by Omron Tateisi Electronics Co., Japan's largest manufacturer of automated teller machines. The system, whose technology permeates all hotel operations, was four years in the making, said Katsuo Kojima, a hotel spokesman.

A lobby of computer terminals

Upon arrival, Kojima said, the guest is greeted by a lobby of computer terminals. The menu-driven system initially displays a woman bowing in welcome. The guest enters his reservation number or personal information if no reservation had been made. The guest then pays for his accommodations in advance ($80 per night per single room) plus a refundable deposit to cover extras such as pay movies or drinks. The machine assigns the guest a room and issues a magnetic card.

In addition to serving as the guest's key, the card activates the lighting, television and air conditioning in the room when inserted into a console in the guest's room, Kojima added.

When checking out, the guest inserts the card into a terminal in the lobby and a final room tab is calculated. If the guest's deposit exceeds the final bill, the machine processes a refund. If the guest owes additional money, the machine accepts either cash or credit cards.

The system automatically changes the door codes after each check-out so the old cards cannot reopen them. The machines can read the denominations of bills inserted and is even capable of making change, Kojima said.

The hotel, which has a capacity for more than 2,000 people, is staffed by 130. While nonautomatic check-in is available to handle any special problems, Kojima estimated that more than 60% of its guests utilize the Shinjuku's automatic system.

"It's like . . . a giant video arcade," Kojima said.

EXPERT from page 29

scoring on consumer loans.

Those companies that are considering the installation of an expert system should choose their first application with care, Cook said. She suggested that the initial application should be developed in conjunction with a vendor to increase the chances of a successful system.

The financial services arena provides a favorable environment for expert systems because of the nature of the industry, Cook said. In general, there is a shortage of experienced personnel available for making sound business judgments, she said. Yet, the quality of decision making in the financial services market has a "direct impact on the bottom line." An expert system can help leverage scarce financial and technical expertise, Cook said.

An expert system can constitute a "secret weapon" in a bank's arsenal of corporate competitive strategies as it faces off against new rivals in the financial services arena, because the systems can help cut costs. "And cost reduction is crucial to their corporate survival," Cook said.

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Japan embraces trend toward self-contained systems

By Luc Sala
Special to CW

TOKYO — Datashow Japan once again made clear that microcomputers and office automation systems in Japan follow a different course from the rest of the world. Japan’s development of more lean and more toward complete systems, which are as yet unsuitable for the U.S. and European markets.

This does not mean that the Japanese export of micros is nonthreatening, because Japan does have the production capacity and cost structure to make lower-priced products for these markets. But it does imply that Japan will not compete on the leading edge of technology and is limited to more standard and well-accepted products.

Japan has departed from the mainstream of IBM, AT&T Unix-, Microsoft Corp. MS-DOS-type systems in Japan follow a different course from products that emphasize integrated software. At Datashow, a number of personal-computer-aided design systems were on display, as well as noiseless thermal typewriters, word processing firmware and scads of small portable (even miniaturized) systems.

The trend in Japanese microcomputers is toward functional integration of hardware (as opposed to software). Systems are being built together to include printers, monitors and disk drives — preferably all in a single housing. Everyone must have his own peripherals in Japan, unlike in the Western world.

This does not mean that the Japanese export of micros is nonthreatening, because Japan does have the production capacity and cost structure to make lower-priced products for these markets.

MONTREAL — Four Montreal-area men who allegedly made $20,000 worth of long-distance telephone calls with the help of a “blue box” microcomputer program have been charged with theft of services in Canada’s first such case involving a computer.

They were charged under a law that normally holds for blue-boxing, but, at least from what the police tell us, they are the first in Canada to have used a computer to defraud us,” said a spokesman for Bell Canada Telephone Co. A blue box is a device used to generate the 2,600Hz tones utilized in Bell Canada and AT&T networks, according to the spokesman.

The spokesman said the fraud was uncovered when Bell Canada’s computerized tracking system showed disproportionate numbers of long-distance calls coming from the young men’s homes. Those calls were made toll-free after the men allegedly modified the software in their modems to dial toll-free numbers automatically and take control of the switch. “Once they had that control, they could route the call to any place in the world,” the spokesman said.

The hackers reportedly made most of their calls to computer bulletin boards throughout the U.S. and made apparently unsuccessful attempts to access academic and corporate data bases.

The four, college students aged 18 to 20, were arrested earlier this month when police, accompanied by Bell Canada computer experts, raided their homes. The raiders seized several Apple Computer, Inc. Apple IIe personal computers and Novation, Inc. Apple-Cat modems that allegedly were modified to generate the 2,600Hz tones.

The Bell Canada spokesman said technicians are now working to establish court-admissible proof that the modified modems were keys to the fraud.

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**AUSTRALIA**

**SYDNEY** — Sources here say that Digital Equipment Corp.'s long-awaited announcement of Venus will happen soon. The Venus system will offer the capacity to handle 4 million instructions per second and four times the power of the vendor's VAX-11/780, according to a spokesman. It will reportedly compete against the IBM 3083/E system and provide about twice the processing power of IBM 3083/E. The system is expected to cost approximately $625,000.

**HONG KONG**

HONG KONG — A top IBM official warned against software piracy here during the recent Southeast Asia Regional Computer Conference. "Southeast Asia is the fastest growing market in the world," said George Conrades, IBM's Asia/Pacific vice-president, "but we must ensure an environment where innovation, creativity and investment are protected and encouraged." Conrades emphasized the importance of copyright, while cautioning against restrictions on open international trade.

**Canada**

OTTAWA — "Building a new Canada" was the theme of the Conservative election campaign that resulted in the election of Prime Minister Brian Mulroney. Technology development in Canada is going to be of much higher priority than it was during the Pierre Trudeau years, according to Mulroney, who hopes to boost R&D funding from a current level of 1.3% of Canada's gross national product to as much as 4%.

**CHINA**

BEIJING — Sperry Corp. has signed an agreement in principle to manufacture a new computer system based on its Mapper fourth-generations software here. The pact was collectively penned with the China International Trust and Investment Corp., China Computer Technical Service Corp. and the Wuxi Computer Factory, according to a Sperry spokesman.

**JAPAN**

TOKYO — In the wake of several automatic translation system announcements, Hitachi Ltd. has announced the development of a Japanese-to-English translation system called Athene/E. The system can reportedly translate scientific and technical documents at a rate of 60,000 words per hour.

**SWEDEN**

STOCKHOLM — Ericsson Information Systems, Inc. has become the latest large vendor to try its luck in the personal computer marketplace. The company unveiled the IBM Personal Computer-compatible Ericsson Personal Computer, based on the Intel Corp. 8088 microprocessor, which features extensive communications facilities and promises to cost 10% less than the IBM Personal Computer.

**ENGLAND**

LONDON — The British government is reportedly preparing to discontinue financial support for domestically produced software under its Software Products Scheme (SPS). Software companies around the country are up in arms over the news and vow to "fight to see it retained." SPS was initiated in 1972 and has allocated over $45 million in grants to subsidize indigenous software development and marketing efforts.

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Page 40
By Gary Livingston

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**After training . . .**
Management cannot afford downtime at functional levels when micros become integral to the workplace.

Page 43
By Steven Hochberg

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**Three systems**
If off-the-shelf courses meet your requirements, they are much more cost-effective than authoring your own.

Page 46
By Marsha Seidman
Perfect for micros

Imagine a project involving hundreds of thousands of dollars in hardware and software and hundreds of people who are barely computer-literate from dozens of educational and sociological backgrounds. Consider the limited resources that are available to train these individuals and the pressure of project deadlines.

These are the typical personal computer implementation training problems most organizations face today. The traditional classroom or one-on-one training approach, while still the most preferred, is impossible in this environment.

Because of the high costs of instructors and limitations on students' time, organizations are increasingly turning to computer-based training (CBT) to meet their personal computer training requirements.

With CBT installed on the personal computer, students receive one-on-one instruction. They go through the material at their own pace. The computer routes students through various instructional sessions, simulates actual applications, provides drill and practice and tests the student for mastery.

Instruction is available to students at almost any time. They are freed from taking a few days off from work to attend classes. Students can spend as much or as little time each day as necessary to cover the material. Since hundreds of students can take a course at the same time, it is easy to train a large audience in a short period.

For example, classroom instruction on a given topic might take five days to teach, and the class size might be limited to 20 people. If you have one instructor and 600 people to train, it will take 30 weeks or more than seven months to train everyone. With CBT, the course can easily be distributed and everyone trained within one month.

All students receive the same basic information and are mastery-tested to make sure they know the material at a specified competency level. With some CBT systems, student records and test data can be reported on and analyzed.

There are three basic types of CBT delivery methods for the personal computer. The easiest is the purchase of off-the-shelf CBT courseware. The personal computer's operating system is all that is needed to run this courseware.

This courseware is the least expensive option, and it is ready to use. Because of the nature of the courseware code, customization of the courseware is impractical or impossible. The courseware does not include student record keeping and tracking mechanisms. Students are simply given their test scores as they complete the course.

The second major CBT delivery method entails the purchase of off-the-shelf courseware that runs on a presentation system. The necessary components are the CBT courseware, a presentation system and the operating system.

Courseware that requires a separate presentation system is generally expensive. Presentation systems offer various degrees of record keeping and testing capabilities. This facility generally goes under the term "computer-managed instruction." Computer-managed instruction is often the most unrecognized yet most vital part of CBT. The importance of monitoring student progress, checking on mastery fulfillment, examining courseware testing effectiveness and evaluating course content make computer-managed instruction a valuable resource.

The third major CBT development and delivery method is the combination of a CBT authoring language, a presentation system and the personal computer's operating system. With the added dimension of an authoring system, courseware can be developed from scratch, or off-the-shelf courseware can be modified.

Authoring opens up a new dimension in CBT. It means that courses can be constructed to meet specific training requirements. One should not hesitate to get into courseware authoring, but developing good courseware takes careful planning and skill.

Authoring languages

Authoring languages available today run the gamut from complex programming languages to easy-to-use, menu-driven systems. One should carefully consider selecting an easy-to-use authoring language, since one of the most expensive aspects of developing courseware is the authoring time requirement.

Before starting to author courseware, courseware developers should consider how much time and the overhead costs involved should be estimated and compared with the time involved in using a traditional training methodology.

CBT training is now becoming the predominant training mode in the
OCTOBER 22, 1984

CBT is not always a cure-all. It is a necessary training tool, but it must be of good quality, cost justifiable and supported through other activities.

Quality considerations

Quality is one of the key elements to consider when using CBT to train individuals on personal computer use. Not all CBT courses are of equal quality. In the early days, the courses developed were basically page turners.

During its infancy, CBT was basically the automation of text books and test questions. The student read the text shown on the screen, progressed through the material by reading screen after screen and then was tested. This process made for boring instruction.

As CBT progressed, courses began to include simulations that actually showed applications and concrete, real-life examples. The student was drilled and became active in the learning process. The use of advanced graphics and illustrations are further enhancing today’s CBT courses.

Care must be taken when purchasing CBT courses or creating them. Students must not only receive instruction that enables them to perform a given set of tasks, but the instruction must be exciting and appealing. Creating interest in the instruction is especially critical when personal computers are being implemented with audiences that are skeptical of the technology. If these students do not find the instruction exciting and practical, they not only will reject the CBT course, they will reject the personal computer as well.

Know target audience

All CBT courses should be piloted with a test group from the targeted audience prior to the full release of the course to others. The difference in audiences has a lot to do with CBT’s effectiveness and acceptance.

A CBT course might work very well with managers but not be effective with professionals in another area. The key is to know your target audience. Do not assume all groups and levels within the organization have equal levels of education and common interests. It is also important to consider the level of acceptance or resistance the audience has toward the personal computer and its use.

Tailoring the course to your own requirements can help you meet specific needs within target audiences when an off-the-shelf course is too generic. This tailoring is achieved by developing additional CBT modules or by actually changing the course itself.

Changing the course is not possible in some situations because of the nature of the CBT software. In addition, courses that are altered are usually not under manufacturer’s warranty once they have been altered. It is best to check with the manufacturer before altering any course.

Quality CBT courses are important. These steps will help ensure quality:

- Know the specific training requirements of your target audience.
- Have trained CBT personnel examine the course prior to piloting the courseware and face it with them.
- Understand your audience’s level of resistance or acceptance to the personal computer.
- Pilot test the course with a group from the target audience.
- Accept, reject or modify the course to meet the requirements of the particular audience.

CBT courses that teach almost any personal computer topic are now available. Hundreds of courses are advertised. Software manufacturers have even begun to bundle CBT courses with their products. The personal computer user not only gets the software but is given the training with the package.

Providing quality training to the personal computer software user has become a priority for software manufacturers. Those software companies that will be successful are those that are best able to deliver training on their product with a minimal amount of student time required.

Purchasing personal computer software for $400 or $500 is of little concern when the cost in student time to learn how to operate the software might be $1,200 to $2,400 per person. If a CBT course comes with the software, obviously this reduces the need to purchase other CBT courses or support materials.

However, do not assume that the courseware you receive with the software is high quality, meets audience needs or has adequate depth of coverage on the topic. Most CBT courses that come with personal computer software are comprehensive in nature but do not provide in-depth information on specific topics.

Generally, courses that can be purchased off the shelf have similar characteristics to their bundled counterparts. The costs for these off-the-shelf courses usually run from $40 to $100.

Some courses cost as much as $400. Price is no guarantee of quality, and many of the inexpensive CBT courses are the best value.
Dollar for dollar, CBT for the per-  
sonal computer is a great value. It  
generally costs three to four times as  
much as the average text book, yet it  
provides the student with individual-  
ized interactive instruction. In ar-  
areas where the student requires spe-  
cial attention, CBT can drill the  
student on the topic until the materi-  
al is mastered. Studies have shown that CBT gen-  
erally reduces student learning time when compared with text books or  
live instructional methods. The sav-  
ings in learning time can be reduced  
by 10% to 40%. This translates into a  
considerable dollar savings and often  
more than offsets the additional up-  
front CBT costs.

Copy License

One thing to remember is that  
each course you purchase is copy-  
righted and often protected. If you  
have a large audience to reach you  
you will need to purchase multiple copies  
of the course. This increases the cost of  
training and can cause minor log-  
istical problems if you are support-  
ing remote sites. If you require many  
copies of a specific course, go direct-  
ly to the manufacturer, not the dis-  
tributor, and request a special multi-  
ple copy license.

If you decide to author your own  
CBT courseware, be sure to consider  
all the overhead costs involved. The  
costs of the authoring system, pre-  
sentation system and courseware au-  
thoring time should all be taken into  
account.

Usually, CBT is most cost-effective  
when the audience requiring training is large, and you need to  
train people at remote sites. Don’t fall into the trap of discounting CBT  
because it sometimes costs a bit more  
than other training methodologies.  
In some instances, a guarantee of  
student mastery and consistency in  
training outweighs the additional  
training costs.

Need for support

One of the biggest mistakes made in  
using CBT is placing the sole respon-  
sibility for teaching the materi-  
al to the student on CBT without any  
outside support. Typically, an orga-  
nization acquires hardware and soft-  
ware for its staff. Next, CBT courses  
are obtained, distributed to students  
and then students are left to fend for  
themselves. This approach makes for  
under-utilized technology. It leads to  
necessary user frustration and can  
ev en result in the rejection of the  
technology. To really use CBT effec-  
tively requires user-area support  
staff who can provide assistance or  
answer student questions.

Help desks, hot lines and knowl-  
edgeable staff in remote sites are  
critical. CBT will cover the major job  
of teaching the material, but stu-  
dents always have some questions.  
These questions must be answered  
correctly and in a timely manner by  
someone in charge.

Another problem with this ap-  
proach is that in cases where CBT  
courses are computer-managed in-  
struction record-keeping capabili-  	ies, students often simply skim  
through the material or fail to com-  
plete the course. Since there is no  
record keeping on student progress  
or completion, students can easily  
avoid completing the training.

Employees are usually not at  
fault. Managers and supervisors are  
generally guilty of not letting the  
staff complete the course or even get  
started.

Computer-managed instruction  
provides a basis for the development  
of an accountability system for en-  
suring the students complete the  
course within a specific time frame  
and achieve mastery level. It does little good to have hun-  
dreds of people using CBT courses  
who will never complete the materi-  
al. If the student’s use of technology  
is cost-justifiable and important to  
the organization’s productivity, then  
it is essential that there be some  
guarantee that the training is com-  
pleted.

Cure for anarchy

Making employees and manage-  
ment accountable at their perform-  
ance review for training is the cure  
for training anarchy. Only when  
training is viewed as important  
enough to be measured and evaluat-  
ed will it become important.

On-the-job skills reinforcement is  
another area where CBT requires  
support. If CBT is used to train a  
person on personal computer usage  
and the employee returns to a work  
area where the use of the technology  
is not encouraged or reinforced, he  
soon loses that skill.

Workers must not only be permit-  
ted to acquire specific skills, they  
must be placed in an environment  
that supports the use of these newly  
acquired skills.

Simply passing out personal com-  
puters and providing quality train-  
ing is not enough. Positive encour-  
agement and reinforcement is  
required. Students must not only be  
familiar with personal computers and  
their applications, they must be giv-  
en opportunities to use these skills.

The use of CBT in training person-  
nel in the use of personal computers  
is essential. The key is not whether  
CBT is going to be used but how it is  
going to be managed. It is not a quick  
fix. Those who have sought to use it  
this way have found their careers  
shipwrecked.

The winners are those who have  
carefully considered the costs, evalu-  
ated their needs and made a commit-  
tment to make their CBT training  
count.

About the author

Gary Livingston is president of  
Livingston & Associates, a consult-  
ting firm located in Cleveland, Ohio.  
The company specializes in consult-  
ing on CBT, the information center,  
data processing training and techni-  
cal writing.

"Instead of one computer for design,  
one for database management, and one for  
text processing, why can’t we get all our  
engineers to use a single system?"

"This company’s marketing decisions are  
too big for one little spreadsheet. I need  
total decision support if I’m going to meet  
my revenue goals. And I need it now. Or  
after lunch, at the latest.”
After training

End-user microcomputer support is becoming a major issue for corporate managers. For both the microcomputer coordinator whose responsibilities include acquisition, implementation and training and the corporate manager who has seen the influx of microcomputers within his operating unit, a new question of support has developed. That question concerns post-training support.

Managers are finding that the concept of hardware is getting easier to digest. The microcomputer is not as intimidating as it once was. You can find them within any department, and they are becoming a necessary part of employees' daily duties. The acceptance of the hardware concept by corporate managers translates into larger budget appropriations for microcomputers and greater willingness by end users to use these newly acquired machines.

With increasing budgets and two years of microcomputer management experience, it would appear that management is ready for each new stage of users. Once again, simply publish the corporate standards for software, make a training facility available, hook up the answering machine, and these users will be off and running.

Sure the same problems will exist. One user wants to use this data base program because he has become familiar with it through his kid's system at home. Ten percent of the users will not be able to attend any of the scheduled classes because of conflicts. The microcomputer manager will find at least 100 calls to return by the time he comes back from his 10 o'clock coffee break, that is if he was lucky enough to get a break.

Operational support

What about all those users from the last two years who are facing a set of completely different problems? These users, who understand the microcomputer and exploit its effectiveness as a productivity tool, face the problem of finding operational support. Operational support can be critical to the daily responsibilities of any department. Management cannot afford to experience downtime at functional levels when the microcomputer has become an integral part of the workday.

The need for operational support at the microcomputer level is really no different from the support that traditional data processing departments provide for the mainframe users. However, there seems to be a psychological barrier to the development of the necessary support at the microcomputer level. The key to management's reluctance in this area is simply a matter of size. Microcomputer software is not viewed the same as mainframe software because of its perceived inability to accept time and size and the vendor's willingness and ability to provide initial assistance.

Unlike mainframe software, microcomputer software is physically transportable; but the modifications to the software for application purposes are just as sophisticated on the micro as the mainframe. Once modifications are made to the micro software, someone must be responsible for that application, especially if there are multiple users.

Managers who have passed the buck to outside parties such as the manufacturer or local source have forgotten or not realized that the value of third-party support really ends at the training level. Third-party expertise cannot be expected to extend to the operational factors that were considered in modifying the software.

Budget syndrome

Those managers who recognize the correlation between the complexity of the application and the diminishing value of third-party support must now overcome the budget syndrome. The actual dollar investment in support has generally been based on a percentage or some formula of the total project.

A cost comparison between a microcomputer-based project and a mainframe project can easily distort management's view toward investing in microcomputer support. The fact that a large base of microcomputers has been installed and the additional cost for most micro-based projects is directly related to the quantity of software to be purchased. A standard formula for determining the actual dollar amount for support will produce a series of unwanted headaches.

In the case of micro-based projects, many companies have instead used the size of the targeted end-user community as a measuring stick for determining the amount of money to be allocated for support. This approach provides a more effective basis for budgeting purposes; however, it leaves management with two issues to be considered. First, who will be responsible for the support function of this particular project, the microcomputer coordinator or the departmental manager who has authorized the project? Second, what is the proper ratio of support people to end users that should be followed?

The first issue is common in corporations that strategically use information technology as a weapon in the marketplace. The microcomputer has given many corporations access to new markets by creating diversified services or augmenting existing revenue-generating activities.

One major pharmaceutical distributor, for example, is making inroads of its larger accounts with an IBM Personal Computer to help in the ordering process. This service has proved to be a value-added feature by decreasing the buyer's inventory carrying costs.
through increasing the distributor's response time.

Taking this idea one step further, the distributor created an insurance claim processing service that utilized the newly installed base of IBM Personal Computers. This strategy has resulted in a significant percentage increase in revenues from both a stronger account basis and a new revenue-generating service.

The implementation of these types of programs has generally been handled by a strategic marketing or product development group. Whether the microcomputer group was involved depended upon the strength of the department that initiated the project.

Many times there is a need for technical collaboration. However, in the long run it is considered advantageous to have the microcomputer group, which is primarily an internal department, return to its primary function of supporting the corporation's users.

The issue of support in this example now extends to users outside the corporation. It is for this reason that the marketing-oriented department has been given full responsibility in order to respond to market influences and technological factors simultaneously.

**Cost control**

The strategy of cost control through automating operations addresses the second issue. Cost control is primarily an internal function, and many areas have acquired microcomputers for this purpose. Once such operational functions as financial reporting, interoffice communication, and manufacturing control become more dependent on the microcomputer, system maintenance will be critical to everyday operations.

Unlike the mainframe applications, hardware downtime is not as critical because of the availability of other stand-alone units. However, the main emphasis from an operational standpoint is in the area of monitoring users and not necessarily maintaining the equipment.

The term "micro" itself implies smaller applications and results in several applications being applied by several individuals at several locations. Unfortunately, this means that users must be provided with differing levels of instruction.

Because so many variables have entered the computing environment, a greater amount of control must be administered. Control, in this sense, is simply a function of adequate support, and support is a function of people.

Once management identifies the need for a support staff, whether for internal operations or newly created marketing programs, it must tackle the issue of how many people are needed to support the user community. The first consideration depends upon the current support structure within the organization. By examining the two most common structures, the informal network or the formal support group, a differing set of philosophies surfaces.

Two philosophies play an important factor in determining the direction that corporations will take in establishing their support programs. The proactive approach is where the user community dictates the direction of microcomputer usage; the authoritarian approach is where the corporation provides the foundation.

The informal network is most common in companies where "micro gurus" from throughout the organization took charge of microcomputers from the beginning as a secondary responsibility to their duties within their own departments. User groups began to form through which many of these gurus came forward.

At the same time, it was not uncommon to hear of a financial analyst or personnel administrator being elevated to microcomputer manager. Although some formality in support was developing, the user groups acted as the primary support...

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We believe that anyone who has an IBM product will want to have blue chip service...
network. This proactive approach has been quite effective, however, as the issues of standards and networking have become prominent.

As the size of the user community has grown, the gurus have not been able to support the microcomputer program as a secondary responsibility. Thus, the need develops for increasing the ratio of support staff to end users.

Now politics becomes a factor. Will the gurus accept positions as full-time support specialists without distorting their perception of their own career paths? What is the cost to the corporation for removing them from their functional responsibilities?

In the case of supporting the marketing programs, an argument in favor of formally supporting these end users with the appropriate experts is easily made. As a revenue-generating activity, justification is easy, and a career path can easily be identified. However, in support of the operational functions, some sort of designated staff needs to be carefully developed.

In order to develop cost-effectively a support program to assist the operational functions, a set of standards is needed. For those organizations that have already taken an authoritarian approach, a general support plan has been a key element in taking control of the user community. The idea of support has been effectively used to implement a standards program, especially where there are many remote users without access to assistance. A published list of products is made available to the end-user community, and it is made known that the corporation will provide the necessary assistance on these products and these products only through some sort of "help desk." If the user chooses to go his own way in his particular project, he must be prepared to go elsewhere for assistance.

The concept of the information center fits in nicely with the development of a microcomputer support program. Such centers have helped the end-user community evaluate software packages and provide troubleshooting assistance.

Although it is becoming very costly, management has staffed these centers on a rotating basis to prevent ambiguous career paths. Even with the incorporation of microcomputers into information centers, a deficiency still exists. Support seems to end at the user's application.

An attempt to solve this problem could very well result in the development of whole new departments just to support individual applications. Given management's overall view on microcomputer expenditures, this development could result in tremendous justification problems, especially with the existence of a microcomputer department, a training group and now an information or microcomputer center.

What does tomorrow's technology and its users have in store for today's microcomputer manager? Obviously, there will be a tremendous investment in the area of end-user support. Investments made to support mainframes have been around for years. However, these investments will not be seen until the corporation defines the microcomputer as an extension of the mainframe with the same capabilities.

About the author
Steven Hochberg is the Midwest regional director of the Microcomputer Managers Association. Chapters are currently active in Chicago, Detroit, St. Louis, Minneapolis and Cincinnati.

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Blue chip service from IBM.
Three systems for mainframe

Compatibility between CBT systems is one of the major factors to consider in choosing a system. Compatibility is especially important if you plan to take advantage of the many off-the-shelf CBT courses currently available.

If off-the-shelf courses meet your requirements, they are much more cost-effective than authoring your own. However, you must make sure that the courses you wish to use have been authored in a language that can be presented with the presentation system you plan to install (see Figure 1 on Page 48). There are three instructional systems for the IBM mainframe. A complementary micro system currently exists for each system or one is being planned. The three systems are IBM's Interactive Instructional System (IBS), Goal System International, Inc.'s Phoenix and Boeing Computer Services Co.'s Scholar/Teach 3 (S/T3). Features of the three systems are summarized in Figures 1 and 2.

IBM's Interactive Instructional Systems include the Interactive Instructional Presentation System (IIPS), which executes on IBM 30 series, 4300 and mainframe-compatible systems. The package includes extensive administration features. Only courses written with the Interactive Instructional Authoring System (IIAS) or Personal Computer Instruction System (PCIS) can be presented on the Interactive Instructional Presentation System.

The Interactive Instructional Authoring System executes on IBM's 30 series, 4300 and compatible mainframes. Courses authored under the Interactive Instructional Authoring System can be presented with the three mainframe presentation packages and the Personal Computer Instructional System for the IBM Personal Computer.

The Personal Computer Instructional System, the latest addition to the IBM Instructional Systems, operates on the Personal Computer and is compatible with the Interactive Instructional System mainframe. Features of the three systems are summarized in Figures 1 and 2. Courses can be authored and presented interchangeably on either the mainframe or the Personal Computer. For example, courses can be written using the Personal Computer and presented via the Personal Computer or mainframe.

Goal System International's Phoenix System includes the Phoenix Authoring System, which executes on the IBM 30 series, 4300 and compatible systems. Courses authored with Phoenix can be presented on either the Phoenix mainframe or PC Presentation System. The Phoenix Presentation System also executes on the IBM 30 series, 4300 and compatible systems. The mainframe Phoenix Presentation System can present courses converted from the Interactive Instructional Systems as

When it comes to the demand for human resource management software, data processing has a problem...

A problem of balancing everyone's needs and getting the over-all job done within budget.

Now what if...
- There were 4 software packages that fully integrated to meet all your human resource management needs in payroll, personnel, benefit plan, and claims processing programs.
- And these packages were completely on-line, real-time, and adaptable to meet your ever-changing business requirements.
- And this adaptation, including small and major modifications, was done by the user by modifying entries in the tables that define program logic, data structures, etc.
- And these packages operated with all major DMBS' and TP systems common to IBM and IBM compatible mainframe environments.
- And these packages could quickly adapt to new environmental offerings such as IBM's DB2.
THE BIG THREE IN BUSINESS SOFTWARE. BEFORE YOU BUY, SEE HOW THEY RUN.

Run their general ledger. Their payroll/personnel. Their entire product line of financial and human resources software. Run the packages on your mainframe and ink them to your PC's. Run them together and see if they work together.

You may well conclude: "that even though each of the big three has succeeded in business, only one of them has succeeded at integrating business application software.

And if your company size is $100 million in sales or more, this discovery could spare you the pain of much lost time and money over the next few years. Because when you acquire a half dozen systems that fit together in name only—but not in fact—you face six times the training, six times the delay and six times the anxiety.

We believe your evaluation will show you this:

Two companies offer the mere appearance of integration. An agglomeration of business applications linked superficially. Through a web of hinges, patches, bridges, shadow files and masks lurking just below the surface.

While one offers the real thing, Millennium. A true family of systems in which the whole works as smoothly as any part. In which every package has the same query mechanism, the same report writers, the same screen generation, the same on-line documentation, security and real-time capabilities.

So that when the packages are put together, there are absolutely no borders between them. They fit like pieces in a jigsaw puzzle. Making the most efficient use of all your data processing resources.

There's even a Millennium application development tool, so you can create new systems as you need them. Without slow, expensive programming.

Millennium means integration in fact. Not just in name. And it is available only from McCormack & Dodge.

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well as those written under the Phoenix Authoring System. The Phoenix Presentation System includes administrative features.

The Phoenix Micro System was announced for the fourth quarter of 1984. This stand-alone micro presentation version of Phoenix will present courses written under the Phoenix Authoring System on the mainframe.

Boeing Computer Service's S/T3 includes the S/T3 Authoring System, which executes on the IBM 30 series, 4300 and compatible systems. As with Phoenix, courses authored with S/T3 can only be presented using the S/T3 Presentation System. The S/T3 Presentation System can be purchased separately from the S/T3 Authoring System. It can present courses converted from the Interactive Instructional Systems as well as those written with the S/T3 Authoring System.

The S/T3 Micro System will provide upload and download capability from the mainframe to the micro and vice-versa. Courses written on the S/T3 Micro System can be presented on the mainframe using the S/T3 Presentation System; courses authored on the mainframe using the S/T3 Authoring System can be presented on the S/T3 Micro Presentation System as long as each course can be contained on a single diskette.

Menus for learning

The availability and comprehensiveness of menus also influences selection of a CBT system; however, the importance of menus is often underestimated.Menus are most effective not for authoring but for learning how to author. For the inexperienced author, menus provide excellent training. Prompts help teach users keyword parameters essential for authoring.

This method is especially useful for novice authors or for individuals who will write only one course. However, as authors gain experience, it is far more productive for them to concentrate on creating the course rather than inputting it. In other words, the ability to batch input becomes more important. Batch input allows a course to be developed off-line using a powerful text editor on the mainframe (such as IBM's Xedit or BBF) or using an editor such as Micropro International Corp.'s Wordstar on the Personal Computer. The source is then batched directly into the authoring system. There are obvious advantages to batch to batch. For example:

- A data entry person can enter the course material into a text editor much faster and more economically than an author can use a menu-driven authoring system.

- A Personal Computer text editor can access a spelling routine.

- The availability and comprehensiveness of menus also influences selection of a CBT system; however, the importance of menus is often underestimated.

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Before TEMPLATE, graphics software that ran on mainframes and minis and micros all looked like this.

Which is to say, nonexistent. Some manufacturers make graphics software packages for mainframes. Others for minis. Still others make it for micros. But no one made high-level graphics software that ran on all three.

TEMPLATE just changed all that. By becoming the only high-level graphics software available on micros, minis and mainframes. And it took our extensive experience in graphics software to do it.

Now all computer-using design engineers and scientists can utilize the industry's finest software. And bring mainframe applications right to the bench. Or vice versa. Which means TEMPLATE's device-intelligence and computer-independence is even further enhanced. And you get the graphics functionality for mechanical and electrical CAD, scientific analysis, seismic work, VLSI, and molecular modeling that puts TEMPLATE in a class by itself. In any environment, whether it's batch or interactive, 2D or 3D.

TEMPLATE features table-driven architecture, 3D software display lists, metafile capability over 250 user-callable FORTRAN routines, workstation model, post processing capability, run-time selection, and complete support functions.

So when you're looking for graphics software that'll run on all your computers, call Megatek.

And find out all about TEMPLATE. The product that just gave micros, minis, and mainframes a new computer graphics image.

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IBM's dowry, AT&T's thorn

The groom is middle-aged, clean-shaved, close-shorn. The bride is young, free, almost countercultural. The wedding will be on Wall Street. IBM's proposed purchase of Rolm Corp. may affect the shareholders of AT&T more than the owners of either IBM or Rolm stock. While AT&T fends off Judge Harold Greene with one hand and gropes for a salable technology with the other, IBM is poised to take a giant step into the future.

IBM is the largest computer vendor in the world. And Rolm is no small potatoes in the private branch exchange arena. Once the marriage is consummated, IBM will possess a dowry of PBX technology second to none. Suddenly, an IBM Cabling System based on twisted pairs makes a great deal more sense.

Ever since the dust settled around the advent of the Personal Computer and its siblings, IBM watchers have had little to do other than speculate about the long-awaited Sierra line — the anticipated next generation of IBM mainframes — and about IBM's network schema. In the 10 years since its debut, Systems Network Architecture has come to dominate the world of protocols, even to the extent of making negligible the efforts of national and international standard-setting bodies like the International Standards Organization and Ansi. When IBM sneezed SNA, these august bodies sat up and took notice.

For years, IBM has dominated the DP market. There was a short spell when things got interesting in the microcomputer segment, before IBM had a presence there; but within two years of the introduction of its Personal Computer, IBM was at the top of the charts across the board again.

But these days, IBM is in a different kind of game. The Japanese are making an all-out, government-backed effort to change the rules of the game, and that's at the place where computers and communications meet.

Now there are two powerhouses on the same block. Each one is coming with a strong, viable corporate culture that sets it apart from almost any other corporation in the country. Each is coming from a corporate tradition and a corporate stance grounded on the concept of service. Each is starting from a dominant, saturated position in its market. Each had only one other place to go for the big bucks — the other guy's turf.

AT&T threw its first punches with the Net 1000, the System 85 and its personal computer from Olivetti Corp. IBM countered with its Cabling System and now with the acquisition of Rolm. The announcement of a local-area network, long awaited, may be only a short time off.

AT&T, still involved with the courts, is operating under a disadvantage. Its every move is scrutinized by lawyers and judges. IBM has successfully skirted any real entanglement in the legal process since the U.S. government dropped the antitrust case two years ago; IBM can act unhampered by a court, letting the market be the judge and jury of its actions.

However the battle turns out — and we're making no predictions here — it is about to begin. Whether the computer industry and DP users will be any better off from it is a question with which everyone is still wrestling.

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LETTER

Recollecting from government

I was interested in the article "Red tape, competition hurt federal DP recruitment" [CW, Oct. 10]. I am a principal in an exclusive technical recruiting firm specializing in DP personnel and have "worked" the Washington, D.C., area for many years.

In compensation matters, with only very few exceptions, we find government employees' salaries to be leading rather than following the pack, and they are higher than those generally found in the business sector. Combine the salaries with the well-known generous government benefits package, which includes good working hours, a very liberal vacation and pension plan, and you've got a lot of talented people who can hardly resist the call of the public sector.

As a recruiter, I find the only people who are recruitable in government are the short-timers who are frustrated with the bureaucracy, the attitude of their fellow employees and/or the often antiquated systems and equipment.

Though few will state openly, it is interesting to note that many firms have an unwritten rule that they will not hire someone out of government. Interesting?

Tom Kay
Saltm, N.J.
Election update

As voters go to the polls in the Midwest and Far West knowing what the various pollsters are saying about what's happening in the East before it's all over, they might be disposed to vote by pollster results rather than on the issues — Americans may be for the underdog all-right, but never for the dead dog.

Crosscurrents in data center employee relations

Fringe benefits and the tools of the trade. But aren't there indicators in the winds that suggest at least the sense of change, where demand for DP personnel — at least for the journeyman Cobol programmer vintage — tends to be ebbing, rather than flowing? Are there not suggestions that the continuing rise in salaries may be tapering off a bit? Let me recite a few possibilities:

Aren't there indicators in the winds that suggest demand for DP personnel — at least for the journeyman Cobol programmer vintage — tends to be ebbing, rather than flowing?

- The gradual emergence of the new procedural languages have substantially cut development time and, just as important, requirements for maintenance resources.
- The recession during 1981-1983, which surely contributed systems, in the generic sense — which the center placed into its backlog, but never entered its system. We encouraged the distribution of the processing work load formerly processed at a few central sites.
- Lesening in demand for DP resources
- It is not my conclusion that the real DP work load is getting any less, rather the myriad of smaller projects — those amenable to solutions by distributed systems, in the generic sense — which the center placed into its backlog, but never entered into the active work queue, are being eliminated. In this sense, there is a perceptible lessening of demand for DP resources.
- It seems to me that if a trend indeed develops which signals a significant leveling off of a need for personnel, then the DP personnel may take another look at negotiating powers and check into the pros and cons of forming a bargaining unit. And why not? Wouldn't they be following in the footsteps of loosely parallel situations in the auto and mining industries?
- The high cost of maintaining systems that are difficult to modify, such as the (and I use quotes for UAW terms, parentheses for DP terms): "Automation" (unprotected systems), "computer software," "wage stability" (salary caps), "foreign competition" (industry competitive forces) and "employment security" (downgrading of jobs and layoffs)?
WHAT'S THE BEST WAY TO SAVE PDN CONNECT CHARGES?

TAKE A T.I.P. FROM DCA.

Our new Terminal Interface Processor can interface up to 32 asynchronous devices on a single X.25 connection. Reliably, quickly, and at substantial cost savings. And, since it’s built with our exclusive Integrated Networking Architecture, it can be upgraded to a DCA Series 100 Statistical Multiplexer—easily and inexpensively—when a private-line network becomes more cost-effective.

Our T.I.P. operates in accordance with current CCITT standards of the X.25 family. It features full 18-parameter X.3 PAD support. And it connects directly to async ASCII terminals. Or via dial-up or leased-line modems.

If you’re suffering high PDN connection charges, our T.I.P. is the best tip anyone can give you.

For more information, write:
DCA, 303 Technology Park,
Norcross, Georgia 30092. Or call toll-free: 1-800-241-5793.

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ELECTION from page 51.

... have to do a lot more muzzling to give Westerners a chance to feel they’ve participated in an election that wasn’t already over.

For example, we’d have to suspend telephone service, our airlines and our computer time-sharing networks, not to speak of all communication abroad. And for what? Just so our Western citizens were provided with the thrill of casting their national election votes with the feeling that those might make a difference in who was elected.

Providing everyone west of our Eastern seaboard with a ticket to go east for election day won’t work either. Of course, we could start balloting in the Midwest, say at daybreak in Winfield, Kan., but the long lape in time as the sun raced across the Pacific Ocean, China, Europe and the Atlantic to our eastern shore would create a two-day voting process and, I suspect, two elections. As voters go to the polls in the Midwest and Far West knowing what the various pollsters are saying about what’s happening in the East before it’s all over, they might be disposed to vote by pollster results rather than on the issues — Americans may be for the underdog alright, but never for the dead dog.

Location-independent election system

A location-independent national election system is required, and the technology to implement it is here — so why not get on with it? Polling places could be provided with automatic polling machines much the same as banks are providing us with automatic teller machines. Americans could be given a 24-hour time period to key in their vote whether in the East or West or somewhere in between. We could get rid of the political hacks that run the polling places just as we’ve relieved ourselves of the need for tellers. We could eliminate the anomaly of the electoral college which was, as everyone knows, put in place with less than pure purposes in mind.

Since the press would not enjoy the advantage of knowing exactly where and when our votes were being cast, early predictions of victory would be less likely to be accurate, and voters would be spared the disincentive to vote that our current system provides our Western citizens.

Also, this would allow us to clean up our ballot to enable our national elections to take place at different times than those on local issues. Thus, the negative effects of combining so many issues on one ballot could be avoided. Voting by registration card similar to our bank credit card would relieve us of all the ceremonial flimflam that accompanies today’s voting process and would make it a lot easier and, of course, more private.

No doubt the system I propose has its problems too. But compared with the current system, it’s certain to reinvigorate our interest in voting. And in a few years when home computers are available everywhere and on-line as are our telephones today, we can eliminate the need for paid political analysts to tell us our opinion of who won during televised debates, the likes of which we’ve recently seen.

Voting on each debated issue, we could provide a real-time opinion of each candidate’s capacity to govern or not and, by the number of votes, an indication of whether anyone’s watching anyway.
IBM unveils version of TIF for MVS/TSO environment

WHITE PLAINS, N.Y. — IBM's Information Systems Group has announced an IBM MVS/TSO version of The Information Facility (TIF) application development software.

According to a spokesman, TIF MVS/TSO is functionally similar to the existing IBM VM version of TIF, but operates in the MVS/TSO environment with IBM's ACF/ VTams. The addition of this version is said to provide a TIF product line that addresses the VM/CMS and MVS/TSO departmental-size systems as well as central host computers and the IBM Personal Computer XT/370.

Users can create applications containing TIF commands in one environment that are portable to another environment using the same applications and data. TIF is said to provide users with an environment that allows for the creation of applications without the need to write programs. Applications generated by TIF cover a broad range of functions from simple applications using system defaults to complex user-customized applications. For simple applications, users need only specify information through full screen menus.

Lifting the fog on subject data bases

TIF generates application specifications including default screen designs and report layouts. If the user requires additional application tailoring or functions, the generated specifications can be modified to provide complete control of screen design, report layouts, application flow and the addition of arithmetic and program logic, IBM said. Both a menu-level and a command-level interface are provided with the system and any TIF function is accessible through either menu or command. TIF also provides three sets of menus, each of which provides access to TIF functions.

TIF MVS/TSO features include the ability to create applications tailored to unique needs, interactive information management facilities, facilities for user definition and entry of data and built-in report generation, analysis and data selection functions. The initial license charge for TIF MVS/TSO is $4,000, with an additional monthly license charge of $1,000.

More information is available from IBM, Information Systems Group, National Accounts Division, 1153 Westchester Ave., White Plains, N.Y. 10604.

primarily in the development and maintenance of applications and in lessening the need for data synchronization. But there is a paradox: a TIF agreement on subject data base utility is widespread, there is very little agreement on exactly what a subject data base is. The confusion stems from the fact that subject data bases are so intuitively appealing.
To stay ahead, your business needs more than office automation. It needs business graphics, communications, word processing, personal computing and data processing working together in one simple system.

Our Personal Productivity Center is the single solution for both the office automation and data processing sides of your company. Built around the powerful HP 3000 computer family, it integrates the information your people need to work more productively.

The HP 3000 provides an interface for a wide variety of workstations, peripherals and personal computers, including our Touchscreen Personal Computer and The Portable, as well as IBM PCs. That way, you can use the built-in capabilities of the personal computer and also interact with the powerful HP 3000, without having to learn DP commands.

You can do word processing, report writing, business graphics, spread sheet analysis, and all the other functions of office automation. You can send electronic mail and integrate text with graphics. Then, on the same system, handle data entry and retrieval, data base management, even accounts payable and general ledger.

The Personal Productivity Centers can...
change and grow with you right up the line, because the HP 3000 family's compatibility makes it easy to upgrade and add new systems. Without recompiling, or any software conversion at all.

Interconnecting these systems is simple, too, thanks to HP AdvanceNet. The Centers themselves are joined in an office network. Then, the HP 3000 computers can be linked with systems in other buildings, or at the other end of the earth. As well as with your mainframes.

To keep everything working smoothly together, we offer worldwide support that was rated #1 in a Datapro poll. Our wide range of services can be closely matched to your needs and budget.

And the best news is that Personal Productivity Centers provide a very economical way of doing business. So if you want one system to raise productivity, instead of two, call your local HP office listed in the white pages. Ask for a demonstration of the Personal Productivity Center. Or write for complete information to Susan Curtis, Hewlett-Packard, Dept. 003204, 19055 Pruneridge Ave., Bldg. 46T, Cupertino, CA 95014. In Europe, write Michael Zandwijken, Hewlett-Packard, Dept. 003204, P.O. Box 529, 1180 AM Amstelveen, The Netherlands.

You'll see why the most productive business is a united one.
IBM enhances design and modeling hardware, software

WHITE PLAINS, N.Y. — IBM has announced a series of products and enhancements to its hardware and software for engineering design and modeling.

Major features include three-dimensional modeling capabilities for the Computer-Graphics Augmented Design System (Cadam) licensed program, a version of the Computer-Graphics Aided Three-Dimensional Interactive Application (Catia) licensed program and improved telecommunications facilities for operations using the IBM 5080 workstation.

Three major enhancements to the IBM 5080 Graphics System were announced. They are remote attachment over teleprocessing lines, an IBM 3270 data stream capability added to the IBM 5088 Graphics Channel Controller/5085 Graphics Processor link and support for attachment of the 5080 system to the IBM Cabling System.

The 5088 Remote Controller Model 1R and remote 5085 V.35 attachment single workstations offer new configuration flexibility, according to IBM. Only one modem is connected to the 5088 Model 1R and the V.35 interface. The 5085 workstations can be attached up to 5,000 meters away, IBM said.

Same physical connection

With the 3270 Mode Shared Attachment, graphics and 3270 data stream applications may use the same physical connection between the 5080 or 5085 and both local and remote modes. The 5088- to-5085 serial link connection is used for 3270 model attachment. The 3270 support provides a facility for job initiation for IBM’s engineering modeling systems.

A 5085 Graphics Processor costs $15,000 with additional charges of $1,000 for V.35 attachment (planted installed) and $3,500 for V.36 Remote to Local attachment. A 5088 Channel Controller costs $13,000 for a 16-terminal version and $20,000 for a 32-terminal version. The 5088 Remote Controller costs $7,800.

The Cadam 3D Interactive program, which enhances Cadam, is said to allow easier construction, modification, analysis and display of three-dimensional geometry. Both three-dimensional and two-dimensional models share similar modes of operation, IBM said. Any view of a three-dimensional object from any angle can be specified. A model may contain both 2-D and 3-D geometry. The product carries a one-time, single-user charge of $35,000.

Cadam Version 2 Release 1 is said to be an interactive, high-function three-dimensional geometry, solid modeling and drafting system for computer-aided design and manufacturing applications. The software consists of 12 enhanced programs including three with new three-dimensional capabilities: Advanced Surfaces, Solids Geometry and Basic 3D Design.

The three-dimensional design capabilities of Cadam can be used to display shapes on an IBM 5080 more realistically than before, to translate them into a prototype through Catia’s numerical control techniques and to create final drawings with Catia’s new drafting module.

For the entire package of 12 programs, the initial charge for a single license is $18,240. The monthly charge is $7,150.

IBM also announced Computer-Aided Engineering Design System Modeler, a program that permits designers and engineers to construct solid three-dimensional models that can then be analyzed on the screen for aesthetics, space, weight and performance characteristics. A broad library of geometric construction aids are provided. An initial license charge costs $7,200 with a monthly charge of $1,240.

IBM’s National Accounts Division is at 1133 Westchester Ave., White Plains, N.Y. 10604.
Study sees 35% growth in manufacturing systems mart

By Donna Raimondi
CW Staff
FRAMINGHAM, Mass. — The manufacturing information systems market jumped from $1.82 billion in 1982 to $2.45 billion in 1983, and International Data Corp. (IDC) predicts that the market will sustain a 35% growth rate for the next few years before tapering off toward the end of the decade.

Rapid market growth spurred an intensely competitive vendor environment, according to IDC's recently released "Manufacturing Information Systems Overview."

Manufacturing systems based upon Material Requirement Planning II (MRP II) methods showed signs of moving toward smaller systems in 1983 and also exhibited a trend toward rapid growth of microcomputers in manufacturing. Software costs in the software/hardware cost ratio climbed to 27% in 1983 from 13.5% in 1982, according to the report.

The overview also showed that minicomputer-based systems presently dominate the market (71.9%), followed by mainframes (19.6%) and microcomputers holding the smallest share (8.5%).

Independent vendors

While IBM systems account for 50.3% of the U.S. manufacturers' worldwide installed base, the marketplace is rapidly becoming dominated by independent software vendors. These vendors have garnered over half of the installed systems base and represent the fastest growing segment: 50% since 1982. The microcomputer segment of the market is represented in its entirety by independent software vendors.

The largest user industry is electronics/instruments, which accounts for 25.7% of the market, followed by automobiles and parts, at 11.2%; machinery/tools and aerospace/defense, both at 10.7%; and fabricated metals at 10.5%.

The "Manufacturing Information Systems Overview" gives IDC's Continuous Information Services clients an annual review of the market for manufacturing planning, control systems and software. It is the result of telephone research conducted from February to April this year. IDC surveyed 119 independent software suppliers and 10 hardware vendors selling integrated manufacturing/MRP II packages.

The price of the "Manufacturing Information Systems Overview" is $1,000. More information is available from IDC, 5 Speen St., Framingham, Mass. 01701.

NEW LIFE FOR 1401 PROGRAMS

CS-TRAN converts your 1401 OBJECT programs to COBOL for the mainframe or mini of your choice.

CS-TRAN is the ONLY translator that accepts your OBJECT programs, patches and all, yet allows you to include actual COBOL paragraph names and record definitions.

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MEET THE FAMILY

The 3B2, 3B5, and the AT&T Personal Computer make up the new AT&T family of flexible business computers.

The AT&T 3B2 is one of the most advanced super microcomputers you can buy today. It packs all the power of a much larger system in a size small enough to sit on your desk top. This UNIX* System V based multi-user, multi-tasking computer can accommodate up to 18 terminals.

For larger family gatherings, the AT&T 3B5 minicomputers make great hosts, because they can accommodate up to 60 users.

And meet the new AT&T Personal Computer. What makes it special is its ability to combine high performance with excellent graphics capabilities, an adjustable display monitor, and non-glare screen. Its flexibility allows it to operate as a stand-alone unit or as part of an integrated computer network. And its compatibility allows it to run most popular business software, including most available MS-DOS** applications.

THE FAMILY THAT WORKS TOGETHER

One big advantage of AT&T Computers is that when there's work to be done, everyone pitches in.

Each family member works together in a coordinated system, making tasks easier

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and users more productive. All AT&T Computers are based on our Information Systems Architecture, an open, communications-based structure that can accommodate and integrate not only our products, but also those of other manufacturers.

Another reason AT&T family members work so well together is our unique PC Interface. It bridges the MS-DOS and UNIX Operating Systems, allowing you to use your PC as part of a larger 3B network. Several PC users can thus share peripherals and files stored on the central 3B2 machine.

Yet another reason AT&T Computers are such a close-knit family is our UNIX System V Operating System, developed by AT&T Bell Laboratories. It's an operating system so flexible, it's rapidly becoming an industry standard. And because UNIX software is upwardly compatible, 3B2 software can run on 3B5 computers, thus protecting your investment and eliminating costly and time-consuming retraining.

**THEY GET ALONG FAMOUSLY WITH MOST EVERYONE**

AT&T Computers get along so well with each other, they can't help but get along with just about everyone else. The AT&T Information Systems Network links AT&T Computers with those of other manufacturers. It's a flexible, cost-efficient link between terminals, workstations, and computers of all sizes. This local area network allows you to connect departments, buildings, industrial parks, or even campuses. And gives you fast response time and centralized administration and control.

Regardless of the equipment you might own or acquire, with AT&T Computers it will be like one big happy family.

**BUILT-IN RELIABILITY AND SERVICE**

Judging by the way they're made and cared for, this family will be around for generations. AT&T Computers meet the toughest design standards and most rigorous testing procedures.

And should you ever require service, we offer around-the-clock maintenance, and one of the industry's largest service forces.

For more information call your AT&T Information Systems Account Executive or 1 (800) 247-1212. Then make arrangements to meet the family: the 3B2, 3B5 and the AT&T Personal Computer. When it comes to meeting your needs, AT&T Computers couldn't be more compatible.
Tandem tool enhanced

CUPERTINO, Calif. — Tandem Computers, Inc. has announced a series of enhancements to its Enable program generator, said to automatically generate programs for user interaction with a Tandem data base.

According to a spokesman, Enable users can now generate programs that can access many different data base files simultaneously. Enable-generated programs can also link different parts of a data base to create more sophisticated applications without user programming.

Other enhancements reportedly include improved control of the terminal screen layout in Enable applications. In addition, different fields within the screen can now be suppressed for security or to leave a clear view of data, according to the spokesman.

The enhanced version of Enable is compatible with Tandem's Nonstop II and Nonstop TXP systems and can be ordered separately or as part of Tandem's Encompass data base management system. Enable is priced at $1,500 per processor with a $55 basic monthly maintenance charge. Encompass, including Enable, is priced at $8,000 per processor with a $265 monthly maintenance charge.

Tandem is located at 19333 Valico Pkwy., Cupertino, Calif. 95014.

AT&T unwraps transaction support packages

MORRISTOWN, N.J. — AT&T Information Systems has announced two packaged applications for network services directed at supporting the transaction needs of domestic and international business. The services are applications that reside on AT&T's Net 1000 network.

AT&T Mortgage Services allows banks and mortgage and real estate companies to obtain current mortgage rates and prices for borrowers and prequalified borrowers and enables them to send loan applications for approval, the firm said.

AT&T Interchange Services is said to provide for host-to-host and terminal-to-host electronic data exchange in industry-support ed formats. An additional feature maintains product catalogs on the network, allowing users to search for items and place orders directly to the vendor on a nationwide basis using existing industry standards, according to the company.

The AT&T Mortgage Services are priced from 50 cents to several dollars per transaction, depending upon functions. Prices for the AT&T Interchange Services vary up to $1 per transaction, depending on the volume.

More information is available from AT&T Information Systems, 100 Southgate Pkwy., Morristown, N.J. 07960.

Finally there's a foolproof way to protect software against unauthorized duplication. The technology is all on the disk itself.

The new Prolok" disk doesn't need add-on hardware. Instead each diskette is marked with a unique, physical "fingerprint." No two are alike. A precise description of the individual print is encoded magnetically. The fingerprint AND the description must match exactly before the software is decrypted and released to the system. No match, no access.

Finally there's a foolproof way to protect software against unauthorized duplication. And the technology is all on the disk itself.

The new Prolok™ disk doesn't need add-on hardware. Instead each diskette is marked with a unique, physical "fingerprint." No two are alike. A precise description of the individual print is encoded magnetically. The fingerprint AND the description must match exactly before the software is decrypted and released to the system. No match, no access.

Its genius is its simplicity and familiarity. Prolok looks like an unprotected disk, loads like an unprotected disk, works like an unprotected disk. The user feels immediately at home and in command. It's as easy as A->PROLOK B: filename.

But Prolok is more than a normal system utility. However, to be read they must be accompanied in the system by the original Prolok disk.

Prolok puts the casual copier—and even the deliberate pirate—out of business. It barely

PROLOK. SOFTWARE
Supercalc3 integrated with CAI package

JERICHO, N.Y.—Computer Associates International, Inc. (CAI) has announced the integration of its Supercalc3 spreadsheet as an option to run in the CA-Calc window of its CA-Executive integrated IBM Personal Computer software.

According to a spokesman for the company, the option gives CA-Executive users a more powerful spreadsheet as part of the integrated software package, which features a microcomputer-mainframe link. Supercalc3 includes CAI's Fastmath feature and supports the Intel Corp. 8087 and 80287 math processors. The maximum spreadsheet size is 0,990 rows by 127 columns, and it supports data bases of up to 9,908 records.

It also includes the Sideways feature, which allows users to print wide reports without cutting and pasting. Also featured is Supercalc3's sparse matrix memory manager.

The Supercalc3 option to CA-Executive is priced at $175 per copy for one to nine copies, $150 for 10 to 99 copies and $125 for more than 100 copies. Computer Associates International is located at 125 Jericho Tnpk., Jericho, N.Y. 11753.

Gcos version introduced

WALTHAM, Mass.—Honeywell, Inc. has announced a new release of its Gcos 6 MOD 400 operating system for use on its Microsystem 6/20 and other DPS 6 series minicomputers.

Release 3.1 is said to support the C programming language. Program development software enhancements include a menu-oriented utility for the definition and administration of terminal forms, increased user registration and password protection safeguards.

Executive enhancements include accounting reports, an abbreviation command processor and improved support memory systems with a capacity of more than 2M bytes, the company said.

Other reported enhancements are systemwide accounting of resource utilization, a menu interface for user login and the ability to share up to 16M bytes of main memory among users.

Honeywell has also announced the Asynchronous Communications Facility, which reportedly gives users interactive access to tele-type-compatible systems and allows users to tie into commercial data base services.

The office automation additions (OAS Release 3.0) include an 80,000-word spelling verifier and corrector, enhanced electronic mail capabilities, improved bisynchronous and IBM Systems Network Architecture-based communications and document transfer capabilities with IBM hosts and enhancements to Infocale, Honeywell's electronic spreadsheet.

Primary license fee for the Microsystem 6/20 and DPS 6/40 system is $1,375; each additional license fee is $1,030. For the DPS 6/45, the end-user annual primary license fee is $2,500, and each secondary annual license fee is $1,875. Honeywell is located at 200 Smith St., Waltham, Mass. 02154.
DATAPoint Corp.

Datapoint Corp. has announced Dosmerge software that allows two separate versions of Datapoint's DOS to be merged in the Datapoint Attached Resource Computer (ARC) local-area network on Datapoint's 1560 series applications processors. DOS.D — for processors based on Datapoint proprietary computers — and DOS.H — for computers based on commercial microprocessors — can be brought together into one network. DOS.H applications processors will have access to larger file servers and other services available through DOS.D.

Dosmerge has a first-time license fee of $1,500, which is waived if hardware is bought. The package is available at no charge to ARC system software subscribers.

Datapoint, 4725 Datapoint Drive, San Antonio, Texas 78284.

Pennington Systems, Inc.

Pennington Systems, Inc. has announced that its screen form package is available for Digital Equipment Corp.'s RT-11 operating system on DEC's PDP-11 computers.

Pennington/11 for RT-11 is $1,500.

Pennington Systems, Building G, 65 S. Main St., Pennington, N.J. 08534.

VAX/PDP 11

PROFESSIONALS

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Candidates should possess an IBM PC and wish to move files between the PC and DEC Machines. Your goals should include accurate terminal emulation and file-transfer capabilities.

In return, Polygon offers the industry's best VT100 emulation and error-free file-transfer capabilities.

There are a variety of additional opportunities for candidates seeking asynchronous and synchronous capabilities on mini, micro, and mainframe levels.

Candidates should contact Polygon's Department of Sales Recruitment. Phone calls please!

Representatives from Polygon will be available to speak with prospective candidates personally at COMDEX Fall, Las Vegas Convention Center - Booth 4300.

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One perfect action creates a perfect reaction that grows and grows.

A pebble dropped into the water creates circle after circle, each growing from the one before it—and each one reaching out farther than the last.

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The determination of what is not agreed upon best begins with a discussion of what is agreed upon. It is generally agreed that a subject data base is the result of a data modeling or data analysis effort. Data analysis identifies such things as entities, attributes and keys. It is generally agreed that a subject data base is structured according to data, not applications. The old batch philosophy of creating one or more master files is generally agreed that a subject data base is structured according to data, not applications. The old batch philosophy of creating one or more master files for every new application is the very antithesis of subject data bases.

It is generally agreed that subject data bases contain related data. The keys relate to the attributes and the attributes are all of the same general classification. Unrelated data is not found in the same subject data base. And it is generally agreed that subject data bases form a basis for a conceptual design of the data. At the physical or implementation level, there may be many variations of data base design, all based upon and conforming to the subject data base design.

Where are the areas of disagreement? At the moment of designing subject data bases, what rules are there to determine what data belongs in what subject data base? As a simple example, given two subject data bases — part number and supplier does the number of parts supplied belong in the part subject data base or in the supplier subject data base? In both? In neither? In any case, it is ambiguous where the attribute belongs. What would be useful are some rules or guidelines to determine the boundaries of a subject data base.

Guidelines for subject data bases

There are at least three intuitively appealing— and somewhat related — ways to create guidelines for the organization of data into subject data bases: by functional usage, by the natural relationship of data and around the fundamental entities of the corporation.

The major areas of functional usage are determined, either directly or indirectly, during the process of data modeling. For most corporations, the major areas of functional usage are fairly obvious. For example, in banking, the areas might be account activity, customer activity and fund/serve activity. While these activities are distinct at a global level, as details are taken into account the distinctions tend to blur. Another shortcoming of division of data along major functional lines is that the data still tends to be organized along application lines.

The second notion for organizing subject data bases is along lines of a natural relationship of data. But this notion is inadequate, because taken in the abstract, there is no such thing as a natural data relationship. For example, consider the relationship between a person and a Social Security number. It can be argued that this is a natural relationship. But what if the system being built is for Social Security numbers that have not yet been assigned?

The relationship between data elements is formed by the context of usage, not by any mystical relationship. A third notion as to how data should be divided into subject data bases is by the fundamental entities of the corporation. While certain entities may be easily identifiable, what are the dividing lines between a major entity and a minor one? The discussion soon degenerates into one of ambiguity.

In practice, subject data bases have no rigorous rules for the inclusion or exclusion of data elements, despite the origin of rigorous methods of data and process modeling. The result is that in practice, judgment is the ultimate basis for deciding the boundaries of subject data bases.

But is the lack of rigor in the determination of what data does and does not belong in a subject data base really important? Ironically, in light of what purpose subject data bases ultimately serve, the lack of rigor is probably unimportant. Rigor is important only in the cases where subject data bases are frivolously defined around something other than the very broad, primary divisions of the corporation's data. In other words, if subject data bases are anywhere closely associated with the major data divisions of the corporation, then their exact contents are not terribly important.

Not result

This means there may be many different, valid combinations of what subject data bases should look like. At first glance, this result is surprising and intuitively unappealing, but only until the original purpose of building subject data bases is considered. The net result of data analysis and subject data bases is the minimization of the redundancy of data definitions. Once these are minimized, great benefits in development, maintenance and data synchronization are reaped.
Finally, there's one software vendor offering a sophisticated software information network capable of meeting all of your corporate, departmental and personal information software needs—The New Cincom Systems. Organizations around the world are discovering that working with Cincom's integrated family of products enables them to greatly improve both performance and productivity. Here are just 10 of the many reasons why you should be considering the New Cincom software information network for your company:

#1 Relational Data Management Technology
Powerful relational data management technology forms the "nucleus" of our software information network. Using a unique "Logical View" concept, all applications operate directly with "derived relational tables." As a result, we can provide complete data structure independence, as well as the high performance needed for today's production environments. This relational technology is the nucleus of both our TIS family of information products for IBM users and our ULTRA INTERACTIVE DATA BASE SYSTEM for DEC VAX users.

#2 Fourth Generation Application Development
The perfect complement to our relational data management technology is our industry acclaimed 4th Generation application development system, MANTIS. In more than 1,500 complex production environments, MANTIS is dramatically reducing the application backlog through its powerful ability to "prototype, refine and commit the application to production in one interactive sitting.

#3 Manufacturing Control Software
CONTROL: MRPS is our sophisticated manufacturing control system that is fully integrated with our relational data base.
technology. A complete closed-loop system, MRPS is improving the productivity and profitability of over 125 IBM and DEC VAX manufacturing environments around the world.

#4 Financial Control Software
CONTROL: Financial is our sophisticated financial accounting and control system which molds to the way you do business. Integrated directly with MRPS, CONTROL: Financial includes Accounts Receivable and Credit Management systems with Accounts Payable soon to follow.

#5 Advanced Network Management
NET/MASTER™ is one of the most recent additions to the New Cincom family of integrated products. Very simply, NET/MASTER is an advanced network management system that takes the complexity out of managing a sophisticated IBM computer network and lays the groundwork for distributed data base processing.

#6 The Interactive Mainframe—Micro Link
Further expanding the capabilities of our software information network is PC CONTACT, our mainframe-micro link which enables users to interactively upload/download data between the mainframe and IBM PC's. PC CONTACT gives the PC user the ability to access multiple file types stored in the corporate data base for Decision Support manipulation.

#7 Micro Decision Support Software
For comprehensive micro-level Decision Support we offer SeriesOne™ SeriesOnePlus includes file management, spreadsheet, graphics, reporting and word processing components that are all integrated through a unique "BUS" architecture. Because the system is designed exclusively for business situations, SeriesOnePlus complements any mainframe-micro network strategy.

#8 Mainframe Decision Support Software
The recently introduced MANAGE USER SERIES™ provides powerful Decision Support capabilities for the mainframe user. The MANAGE USER SERIES combines graphics, spreadsheet, text processing and application development tools to enhance the use and display of corporate data.

#9 Client Support
The one thing that isn't new about Cincom is our unrivaled commitment to service, support and user education. When you choose Cincom you can be assured of the highest caliber of support.

#10 Software Excellence
Why the New Cincom? Well, we like to think of ourselves as the New Cincom because every product in our software information network has been released since 1981. And, quite frankly, we believe our new products provide the highest degree of reliability, integration, performance and value in the industry. As proof, look at our sales. From 1982 to 1983, TIS sales rose 136%, MANTIS sales rose 50%, and MRPS sales rose by 45%. For even more proof we invite you to personally compare our products with what our competitors are offering. Then you'll understand why the words "Excellence in Software Technology" fit so well under our name.

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Cincom Systems
Excellence in software technology.
AI from page 53

linear, predefined programming structure. In most cases, it draws on a knowledge base which, unlike a data base, contains data and rules for using it.

Paul Bassett, vice-president of Netron, Inc., a Toronto-based maker of computer-aided programming software for data processing, said a true AI system should be able to reach conclusions based upon incomplete or contradictory information. "What seems to be common to all efforts is coping to some degree with ambiguity," he said.

Dr. Larry Harris, president of Artificial Intelligence Corp., the Waltham, Mass.-based originators of the Intellect natural language query system, said the rules of an AI-based program differ markedly from the rules of a conventional program. "In a normal language where a statement is followed by another statement, there's an implicit assumption that one rule leads to the next one," he said.

"In a rule-based environment, there's no [chronological] association between one statement being required to execute the next one. It's simply a different way of instructing the machine."

Languages such as Lisp and Prolog were specifically designed for rule-based programming, although AI can technically be implemented in any language. A number of vendors are now selling technologies that can be used to develop expert systems. Some are even available for the IBM Personal Computer.

But the key word here is "develop." In most cases, AI cannot be retrofitted onto existing systems using traditional structured programming.

However, a lot of what is being passed off as AI software today consists mainly of conventional packages with some more sophisticated data base searching and matching routines tacked on. That doesn't mean these systems are bad — they simply aren't AI.

"I think [AI] will be one of the most abused terms in the business in short order," Harris said. "There are relatively few commercialized AI products out there right now, although there are quite a few coming.

Companies such as Human Software Corp. and Mindware, Inc. may make an argument for having Personal Computer-based AI products. But while their offerings are certainly unique and interesting, they are rudimentary implementations of the technologies AI researchers perceive as true expert systems.

AI is on the brink of becoming commercially popular. But be wary of believing that something is AI-based just because the vendor says so. AI is still in the future. And no amount of marketing fanfare will overshadow the real thing when it comes along.

Is your system truly AI-based?

How do you tell if an artificial intelligence system really uses AI? It's not easy, but there are some basic guidelines you can use.

Paul Bassett, vice-president of Netron, Inc., a Toronto-based maker of computer-aided programming software for data processing, said there are two fundamental questions you can ask to determine whether a system is AI-based.

"You should ask, 'Under what circumstances can the system be wrong,'" he said. "If the answer is 'never,' then you're probably being given a line."

But if the vendor admits that the system can be wrong you should ask why, he said. "If it is because of the nature of the problem itself, then it might be AI," he said. "But if it's something the designers say they could improve upon, I'd say it's not."

AI systems must be able to reach incorrect conclusions based upon their own knowledge base, he said. Problems should not be correctable by redesigning the system differently.

Dr. Larry Harris, president of Waltham, Mass.-based Artificial Intelligence Corp., developer of the AI-based Intellect natural language query system, outlined three features that must be present in knowledge-based systems and three for natural language query systems. He said knowledge-based systems should:

- Address problems that were previously insolvable by computer.
- Explain their actions. Any knowledge-based system should be able to navigate back through its decision path and point out the factors that contributed to its conclusions.
- Allow for direction from the user. Users should be able to add temporary rules to the knowledge base interactively.

Natural language query systems, according to Harris, should:

- Aim for fluency. The systems should be committed to understanding a broad variety of wordings and should tolerate ambiguous words or phrases.
- Support the user's conceptual view. A person should be able to use the system without having to know anything about the underlying data structures.
- Include readily invoked data manipulation capabilities. Statistical and logical operations should not require a separated and more complex query language.
System enhances PBX, Centrex

By James Connelly
CW Staff

SUNNYVALE, Calif. — David Systems, Inc. has announced products that can be used to enhance existing analog private branch exchanges (PBX) and Centrex systems with data capabilities.

Together, the products compose what the company calls the Information Manager, which will be sold through the divested Bell operating companies and other distributors beginning in February.

The Information Manager is said to enable users that have older analog PBXs or Centrex voice services to use the twisted-pair wiring of these systems for data applications at speeds up to 2M bits/sec.

The major system component is the David Manager, a switch that forms the heart of the system. This switch sits between the PBX or Centrex system wiring block and David Sets, telephones that are available in three models ranging from a basic eight-function key set to an executive display set with 15 additional keys.

Reportedly, up to 64 David Managers are now supported, and the 2130 series is available in stand-alone models and card versions. The 2130 series accepts most analog modem extensions.

The 2130 series is intended for use in both point-to-point and multipoint operating environments.

The single-unit price for the stand-alone 2132 is $1,066, and the 2132C card version costs $1,500, the company said.

Codex is located at 20 Cabot Blvd., Mansfield, Mass. 02048.

BOCs seek FCC aid in face of growing bypass threat

By Phil Hirsch
CW Washington Bureau

Last month, several of the divested Bell operating companies submitted studies to the Federal Communications Commission that purport to show that bypass is growing rapidly. The reports' message was that if the commission does not come to the rescue, rates imposed on other customers will go through the roof.

In particular, the carriers want the FCC to slap a $4, or higher, monthly surcharge on each residential and single-line business telephone line. The FCC also wants to do this. Both argue that the increased revenue would permit utility companies' rates to drop and thus would reduce the bypass threat to manageable levels.

However, Congress, consumer groups and many state regulators vigorously oppose that idea. Early this year many were "sueded" the commission to defer the residential/single-line business user's surcharge.

The whole matter is going to come up again in December or early next year. If, as seems likely, the opponents have not changed their minds, the FCC is likely to look for a compromise, the commissioners, like most bureaucrats, value pragmatism far more than principle.

One possible alternative would be to let the divested Bell operating companies expand their present markets — Centrex, for example — and enter new markets — like packet-switched network services, thus providing additional revenue. That would allow reduction or possibly elimination of the proposed residential/single-line business surcharge.

At first glance, this solution seems to be perfect for corporate communications users: Message Toll Service/Wates rates are reduced because the operating companies' revenues from other sources are increased. Enhancements are added to Centrex, making this low-cost service even more cost-effective.

However, as pointed out by the International Communications Association (ICA), a major corporate communications users' group, the price of equivalent PBX-based transmission services.

Nata's request to split Centrex could raise costs, reduce availability

The North American Telecommunications Association (Nata) has asked the Federal Communications Commission for an order forcing Mountain Bell and Northwestern Bell Telephone Companies to change the way they market Centrex, or what they call Centron, services. The request poses an interesting question for users.

According to Nata, the two telephone carriers are now able to cross-subsidize Centron and gain an illegal advantage over independent private branch exchange (PBX) manufacturers, which make up the association's membership.

A key point not emphasized in the petition is that the price of Centron services is substantially less than the price of equivalent PBX-based transmission services.

Communications costs are going up faster than communications budgets in most companies, as was pointed out by four managers who spoke at Nata's recent annual convention in Washington, D.C. There is increased pressure to stretch dollars.

If the FCC wanted to help users in this area, it could issue a decision saying, in effect: "We know that an enhanced service, and under the Computer Decision II, the [divested Bell operating companies] have market enhanced services through separate subsidiaries. But, as we made clear in that decision, our basic goal is to promote the availability of efficient, reasonably priced telecommunications services and equipment to customers. So in this case, we will disregard the separate subsidiary requirement."

Essentially, the FCC used this same logic last year.

See NATA page 80
DISTRIBUTED LOGIC CORP.
Optimux/16DMF

Distributed Logic Corp. has announced its first communications product, an asynchronous controller designed to connect terminals, printers and other communications equipment to Digital Equipment Corp. Unix-based computers.

The Optimux/16DMF+ is said to operate with DEC PDP-11 and VAX-11 systems, providing the capabilities of DEC's DMP32 and DIII11 sub-systems while permitting connection of 16 peripheral devices through a single backplane slot.

It reportedly offers software-selectable data transfer rates from 50 bit/sec to 34.8K bit/sec, and the selection of different transmit/receive rates for each of its 16 channels.

The controller features bidirectional data flow control that is said to virtually eliminate data loss under high transfer input applications and a multivoid direct memory access burst mode that reduces Unibus overhead during output operations, the company said.

Available immediately, it costs $3,000.

COMPUTERWORLD
OCTOBER 22, 1984

COMMUNICATIONS

VOICE

The Optimux/16DMF+ is designed to connect terminals, printers and other communications equipment to Digital Equipment Corp. Unix-based computers.

T-BAR, INC.
CSM 3200 series

T-BAR, Inc. has announced its CSM 3200 series of computer matrix switches said to save floor space and use circuitry that reduces operating power by as much as 50%.

The CSM 3232 is available in matrix sizes ranging from two-by-four to 32-by-32 at prices ranging from $39,000 to $78,500. The CSM 3202 is priced from $15,325 to $24,800.

PROTOCOL CONVERTERS

KAUFMAN DATA COMMUNICATIONS, INC.
Series 8800

Kaufman Data Communications, Inc. has announced an Ascii-to-IBM Systems Network Architecture (SNA)/Synchronous Data Link Controller (SDLC) protocol converter.

Two models of the Series 8800 are available: the Model 8814 with six 19.2K bit/sec Ascii ports, expandable to 12 ports; and the Model 8830 with eight Ascii ports expandable to 24.

Both models have two SNA/SDLC ports and emulate IBM 3270 cluster controllers. Each port can reportedly support 32 logic units, enabling a single Ascii port to handle multiple devices, such as terminals with attached printers.

The units are said to be permanently programmed with protocols for 15 commonly used terminals, printers and personal computers and can be programmed by the user for other protocols.

Prices range from about $4,000 for the Model 8814, with six ports to about $10,000 for a 28-port Model 8830.

Kaufman Data Communications, 145 E. Dana St., Mountain View, Calif. 94041.

MULTIPLEXERS / MODEMS

COMMUNICATIONS DEVICES, INC.
Modem Use Monitor Model 01-10-0269

Communications Devices, Inc. has announced a device to monitor the use of up to 64 modems.

Called the Modem Use Monitor Model 01-10-0269, the device listens to the carrier detect lead of up to 64 modems and reportedly generates a graphic display of usage statistics on a dot matrix printer. This display is said to contain status data on each modem to help locate inoperative telephone lines and faulty modems.

The device was designed to help network planners add more facilities before the need becomes critical.

It costs $8,200.

Communications Devices, One Forstmann Court, Clifton, N.J. 07011.

LOCAL-AREA NETWORKS

INCYTE

Incyte, a unit of the Schlumberger Ltd. CAS Division, has announced its Inplant local-area network. Incyte was designed for use primarily in factory automation applications where dissimilar devices must be connected to a Digital Equipment Corp. VAX-11 under DEC's VMS.

The network combines off-the-shelf components and Incyte software, Incyte is designed to allow manufacturers to retro-fit existing systems.
Now MARK V from Informatics makes CICS application development and maintenance a simple affair. Its unique non-procedural methodology shortens every stage of the cycle, pleases programmers and users alike.

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**COMMUNICATIONS**

continued from page 72

shelf hardware from Ungermann-Bass, Inc. with Inplant proprietary software. It uses Ethernet, broadcast and fiber-optic cabling. Inplant is said to allow connection of more than 1,000 terminals and other devices to a VAX-11. The VAX-11's I/O processing is offloaded to the network's microprocessors, improving the host's performance by 15% or more, the vendor said. A basic configuration of 12 interconnections is priced at about $750 per port. Incyte, 4 Main St., Los Altos, Calif. 94022.

DAVOX CORP.

Color workstations; file server

Davox Corp. has introduced four color workstations for its Davoxnet network, along with a file server that reportedly allows the IBM Personal Computer XT to act as the repository for all personal computer software in the network. The workstations are said to offer low-profile keyboards and integrate voice and data. They reportedly can be linked in a Davoxnet network either via coaxial cable in the 2900 series, or via twisted-pair wiring in the 3900 series.

Davoxnet reportedly integrates voice and data communications in a local-area network operating at 400K byte/sec using existing, twisted-pair wiring. It is compatible with nearly all existing private branch exchanges and will interface to all IBM mainframes, Davox said.

The file server reportedly allows users to request software and have the software loaded onto any personal computer in the network. Multiple users reportedly may request the same software and run it on distributed personal computers at the same time. The file server is priced at $995. The workstations are priced as follows: Model 2911, $5,600; Model 2921, $4,700; Model 3911, $5,915; Model 3921, $6,015.

Davox, 4 Federal St., Billerica, Mass. 01821.

**CYB SYSTEMS, INC.**

Unite series

CYB Systems, Inc. has announced its Unite series of Unix network servers. The series is intended for small to medium size organizations that want to provide their users with access to Unix applications. The servers are said to be able to run applications on their personal computers' DOS or log on to Unite as a terminal and use the server's Unix software. Running under AT&T's Unix System V, the Unite series includes five models based on Motorola, Inc. MC68000 microprocessors and using the Intel Corp. Multibus.

A Unix-based network can accommodate up to 32 personal computers, or up to 1,024 with an Ethernet option. A personal computer needs a serial I/O port and 128K bytes of random-access memory (RAM). Communications speeds are 9.6K bit/sec using twisted-pair wire and 10M bit/sec using Ethernet.

While operating under DOS, micros reportedly can send mail to other Unite-networked computers, post messages on a bulletin board or spool print requests. Under Unix, users reportedly can read and edit data files created under DOS or use eight options from a windowed screen menu. The Unite series models are the Unite 29i, which holds up to 1.5M bytes of RAM and 40M bytes of disk storage, supports one personal computer and costs $8,995; the Unite 39i, which can be similarly configured for four users at $9,995; the Unite 89i, which costs up to 2.5M bytes of RAM and 108M bytes of disk storage for eight users at $10,995; the Unite 64, which offers 8.5M bytes of RAM and 168M bytes of disk storage for 16 users at $10,995 and 23 users at $12,995.

CYB, 6440 Highway 290 E., D-111, Austin, Texas 78723

**KIDDE AUTOMATED SYSTEMS, INC.**

Modern M-1

The Comptrol Division of Kidde
Automated Systems, Inc. has announced a modem designed for use in Megalink Communication Control Systems, Computrol's industrial and commercial local-area networks. Modern M-11, which measures 2 by 2-1/4 inches, can be used with IEEE 802.4-compatible token-passing bus networks and provides two-way transmission of asynchronous data over coaxial cable at data rates of up to 2M bit/sec over 50,000 feet, according to the company. It costs $85.

Computrol, 15 Ethan Allen Highway, Ridgefield, Conn. 06877.

KORSMEYER ELECTRONIC DESIGN, INC.
The Solution

Korsmeyer Electronic Design, Inc. has announced an AT&T Unix III-based time-sharing service that allows subscribers to utilize Unix by modem from more than 300 cities. The Solution can be accessed via GTE Telenet Communications Corp.'s Telenet, according to Korsmeyer Electronic Design.

It is said to supply programming languages and to ease design of languages. System highlights reportedly include Unify, a data base system, on-line Unix manuals and Usenet, a networked bulletin board updated with 170 articles per day and consisting of more than 190 categories with postings from more than 860 Unix sites.

Fees start at $8.95/hour plus 5 cents per CPU second from 8 p.m. to 6 a.m. weekdays and all day weekends and holidays. The minimum monthly usage charge is $10, and there is no surcharge for 1,200 bit/sec access.


RCA GLOBAL COMMUNICATIONS, INC.

RCA Mail

A fully integrated electronic mail service for intraoffice use has been introduced by RCA Global Communications, Inc. RCA Mail is part of an electronic message service with access to RCA Globalcom's domestic and international telex network. It is designed to work with asynchronous terminals using a 300 to 1,200 bit/sec modem.

Organizations using the system pay a $140 monthly subscription fee, 5 cents for every 1,000 characters transmitted.

Continued on page 78

TO: J. Barry, VP eet Interactive Products Division Harris Corporation 16001 Dallas Parkway, P.O. Box 809022 Don Mills, Ontario M3B2T3

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HARRIS

For your information:在全国, Harris...
Thanks to Honeywell computers, 30,000,000 Americans know the VA cares.

Working together, Honeywell and the Veterans Administration have built one of the largest computer systems in America. And one of the most appreciated.

The system is called TARGET, and this year alone it will help to disburse some 14 billion dollars in benefits to more than 30 million veterans and their families.

There's more to TARGET than sheer magnitude, however. There's performance. This system was specifically designed to provide fast and uncomplicated service—and that's just what it does. The VA is one government agency that runs like clockwork.

3000 terminals, no waiting

On-line access means instant control of 15 million records. Retrieval is so quick that a file stored in Chicago can be on a CRT in Miami faster than a claims developer could pull it from a stack on his desk.

This speed enables the VA to serve a veteran from whatever office he walks into. Questions that once took weeks to answer can now be resolved in minutes.

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The development of TARGET is a good example of Honeywell/customer teamwork.

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What emerged is a system that routinely processes 200,000 complex transactions a day. A system that offers access to any file through any terminal. A system that makes a giant job look easy.

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For information on how a Honeywell computer network can work for you, call 800-328-5111, ext. 2722. (In Minnesota call collect 612-870-2142, ext. 2722). Or write Honeywell, Information Systems Division, 200 Smith Street (MS 440), Waltham, MA 02154.

Together, we can find the answers.

Honeywell
Continued from page 75

mited and from $4/hour to $14/hour for usage time. According to the company, after three months, there is a minimum usage fee of $500.

COMMUNICATIONS

RCA Global Communications, 60 Broad St., New York, N.Y., 10004.

TEST EQUIPMENT

PHOENIX MICROSYSTEMS, INC.
Model 1500; Model 5500; Model 3250

Phoenix Microsystems, Inc. has announced two communications test devices and a matrix switch, all of which are said to feature data inter-
face flexibility as well as remote control.

The Model 1500 portable test set reportedly has bit error-rate testing, trap and polling capabilities at up to 112K bit/sec and the ability to simu-
late data communications equipment, such as modems, or data terminal equip-
ment.

It comes with standard RS-232 support and optional modules to sup-
port CCITT V.35, RS-449 and other standards. It costs $1,995 and is available now.

The Model 5500 is said to be a high-speed bit error-rate test and phase jitter test set for checking lines operating between 50 bit/sec and 13M bit/sec, including T1 and TIC systems.

Standard interfaces are the RS-232 and IEEE-488; optional modular in-
terfaces include V.35, RS-449, T1/TIC and T1 Framed. Available now, it costs $5,995.

The Model 3250 is a transparent, nonblocking matrix switch designed to connect up to 16 RS-232, V.35, RS-
449 or other interfaces. It reportedly supports up to 112K bit/sec per port and allows any terminal connected to any port to communicate with the other 15 terminals.

It will be available in late October at a base price of approximately $2,500 with the standard RS-232 sup-
port.

Modules will be available for the other interfaces.

Phoenix Microsystems, P.O. Box 4206, Huntsville, Ala. 35802.

RACAL-MILGO, INC.
Communications Management Series
TCM-7

Racal-Milgo, Inc. has announced test control modules that are said to provide installed modems with diag-
nostic capabilities.

The Communications Management Service (CMS) TCM-7 reportedly was designed to provide greater network control in the wake of the AT&T di-

It electrically surrounds modems to provide performance and alarm in-
formation to central site operators and to give users centralized control to detect and diagnose problems at remote sites, according to a vendor spokes-
man.

The CMS TCM-7 reportedly can be installed with existing modems in single-vendor or multivendor net-
works operating at 1,200 to 16.8K bit/sec and can be used in either point-to-point or multidrop configu-
ration.

Scheduled to be available this month, it costs $450, according to the vendor spokesman.

Racal-Milgo, 8600 N.W. 41st St., Miami, Fla. 33166.

FCC from page 71

group, there is a dark side to this bright picture.

ICA was talking about the effects of allowing the divested Bell operat-
ing companies to provide end-to-end protocol conversion, but its remarks apply equally to letting those same carriers offer enhanced Centrex di-
rectly, at rates capable of being sur-
reptitiously cross-subsidized.

"Such practices would result in such a large cost advantage to the [di-
\[divested Bell operating companies] that alternative suppliers of enhanced services would be forced out of the marketplace," ICA reported. "Not only would service diversity suffer, but the [divested operating compa-
\[nies] ultimately would be able to ex-
ercise their monopoly power to raise ... rates to an unjustified level."

DAVID from page 71

can be interconnected to provide a range of 48 to 8,000 nonblocking ports. Each device contains an Intel Corp. 80186 processor and up to 20 interface cards providing links to the Centrex or PBX system and to the digital telephone sets. Each interface card can support 24 lines, David Sys-
tems said.

Data devices can be attached to the system through RS-232 inter-
faces on the David Sets. The link be-
 tween the manager and the tele-
phones, dubbed the David Link, is said to operate at 2M bit/sec, provid-
ing simultaneous voice, circuit-
switched data and packet-switched data. The link is achieved over a sin-
gle twisted-pair telephone wire at distances up to 2,000 feet.

The Information Manager is avail-
able in voice only (for a user that wants to upgrade for electronic tele-
phone functions), data only and voice/data configurations.

According to the vendor, the prod-
ucts can be used as a local-area network using Ethernet device adapters.

David Systems said suggested pricing, which is dependent on the desired features, is $400 to $800 per station for data only and $1,400 to $1,400 for voice and data. An entry-
level voice/data system for 48 users is expected to cost approximately $48,000.

David Systems is located at 701 E.
Evelyn Ave., Sunnyvale, Calif. 
94086.
Making multi-vendor office systems work together requires just one thing.

Soft-Switch.

The idea seems simple enough: connect all of your office systems so that documents can be freely interchanged for editing, storage, display, and printing. That includes word processors, PCs running word processing packages, and mainframe terminals accessing DCF and PROFS.

Many vendors claim to connect multiple vendors’ equipment through “protocol translation.” And connect they can, but not communicate. To really communicate requires transforming the document coding so that it is fully editable at the receiving system.

Soft-Switch is compatibility

ITI's Soft-Switch is a program product for your IBM mainframe (MVS or VM) that allows users to send documents to other users with document translation performed automatically, to store documents in host libraries, and to retrieve documents from these libraries.

Soft-Switch communicates with IBM, Wang, Xerox, and NBI. It communicates with the MultiMate word processing program on the IBM PC, with DCF and with PROFS; with the IBM 6670 laser printer, and with standard hard copy printers.

Soft-Switch is totally consistent with evolving standards for office systems. In fact, Soft-Switch integrates multi-vendor office environments by first translating a document into IBM's level 3 Document Content Architecture (DCA), and then into the exact format required by the receiving workstation.

Soft-Switch solves today’s problems

Let’s say an analyst prepares a document on his PC with MultiMate. He executes Soft-Switch (which executes in the PC, as well as in the IBM host) and specifies distribution to his secretary’s Wang word processor and to the 6670 laser printer down the hall. Soft-Switch provides the micro/mainframe link, transports the document from the PC to the IBM host, translates the document from MultiMate format to DCA, translates the DCA format to Wang’s WPS format and the IBM 6670 laser printer OCL format, and routes the documents to their final destinations.

Soft-Switch: a path to tomorrow

Already installed at many FORTUNE 100 companies, Soft-Switch integrates the technologies of protocol translators, text management systems, micro/mainframe links, message switches, and electronic mail systems to provide organizations with integrated office systems.

It's a product you need today, and will, no doubt, need even more tomorrow. To learn more about how Soft-Switch will make your multi-vendor office systems work together, call TOLL FREE

1-800-227-3800 Ext. 7028
The Communications Industry

Communications Commission's Second Computer Inquiry cannot be tolerated. Calling it selective regulation, Procknow said that no longer exist.

Technology is more important than regulation to the communications industry, and therefore should be regulated according to the specific circumstances of the communications sector.

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New Midwest Regional Office

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IBM

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800 824-1220, In California 800 822-1220
Tandem presents workstations said to combine micro, terminal

By Jeffry Beeler

CUPERTINO, Calif. — Tandem Computers, Inc. recently complemented its line of transaction-processing-oriented mainframe computers by introducing two new products, the LNO1B and the LNO1S. The printers are targeted toward computer-aided design and business graphics applications markets. These include manufacturing and engineering firms, government agencies and research laboratories, DEC said.

The LNO1B features 16 resident label fonts and support of DEC's Remote Graphics Instruction Set and California Computer Products, Inc. plotter-type graphics. It enables users to print out a page of plot-quality images at speeds of 12 page/min, the company said. A DEC software package called Plotin, which runs on DEC's VAX/VMS operating system, provides the LNO1B with graphics functions. The LNO1S has 12 resident text fonts in four weights and supports the Tektronix, Inc. 610A and 4014 graphics protocol. The company said. The LNO1S is said to have full bit-map capability via an external controller.

DEC unleashes laser printer for graphics

MAYNARD, Mass. — Digital Equipment Corp. announced its first laser printers said to be designed for high-resolution graphics applications requiring variable fonts capabilities.

The LNO1B and the LNO1S, the company said, are targeted toward computer-aided design and business graphics applications markets. These include manufacturing and engineering firms, government agencies and research laboratories, DEC said.

The LNO1B features 16 resident label fonts and support of DEC's Remote Graphics Instruction Set and California Computer Products, Inc. plotter-type graphics. It enables users to print out a page of plot-quality images at speeds of 12 page/min, the company said. A DEC software package called Plotin, which runs on DEC's VAX/VMS operating system, provides the LNO1B with graphics functions. The LNO1S has 12 resident text fonts in four weights and supports the Tektronix, Inc. 610A and 4014 graphics protocol. The company said. The LNO1S is said to have full bit-map capability via an external controller.

Burroughs' Prograph hits market

DETROIT — Burroughs Corp. has announced the Prograph GP 2000, a graphics system featuring the company's 48-bit display processor. The unit can accommodate up to 2.2M bytes of random-access memory and one or two 160M-byte disk drives.

Software is available for graph, map, document, font and symbol creation, as well as picture storage and retrieval, the company said. The Prograph can accommodate a variety of I/O devices including digitizing tablets, plotters, ink-jet printers and 35mm film recorders.

The system includes a software processing unit, a peripheral processing unit, disk processor, I/O port module, main memory, 160M-byte disk drive, power supplies, cooling fans and an operator readout panel. Required peripherals include an operator console and a Burroughs 9488 streaming tape drive. The company's GP 300 color display system, a channel processor and a digitizing tablet are also available.

The GP 2000 system starts at $70,000.

Burroughs is located at 1 Burroughs Place, Detroit, Mich. 48232.

Report finds survival of fittest persists for disk storage start-ups

By John Desmond

NORWALK, Conn. — The optical and magnetic disk computer storage business is experiencing an unusual flood of new entrants, and not all of them will survive in the increasingly competitive market, according to a recently released report from International Resource Development, Inc. (IRD) here, a market research and consulting firm.

Most of the start-up firms are targeting areas of new development, such as thin-film rigid disks and perpendicular recording — in which particles are aligned in a perpendicular fashion to fit more information on the disk — for floppy and rigid disks. IRD claimed nearly one-third of some 30 companies in the thin-film disk business are independent firms established specifically to produce that medium.

A number of these companies lack sufficient financing, and the report predicted many will either go out of business or be acquired in the next several years. Some companies do attract financing, such as Applied Information Memories, a thin-film disk manufacturer that received nearly $20 million from investors including General Electric Co., the report said.

IRD analyst Joan de Regt predicted the companies that do survive will make it big because some are established disk suppliers are ignoring the direction of the market and allowing young companies to carve out a share of it.

The report cited Dysan Corp., a leading supplier of rigid disks, for not pursuing the manufacture of thin-film disks. The report stated the company's strategy was to carve out a share of the disk's reliability when manufactured in high volumes, and Dysan management maintained that improvements will occur in oxide disks to close the price/performance gap with thin-film disks. Disagreeing with Dysan management, the report stated, "This stance ... is becoming less tenable as each day goes by, and more and more drive manufacturers are using thin-film disks."

The report predicted that Dysan will be forced to enter the market late.

IRD further predicted that thin-film disks will make up 18% of the total U.S. market for rigid disk drives this year and that the share will expand to 84% in five years. Among reasons cited for the growth is the surge in demand for the 5¼-in. and 3½-in. disk drives, which are expected to be prime candidates for higher density and more durable thin-film disks. This segment's share of the total market is expected to increase from one-third in 1984 to one-half by 1989 and two-thirds by 1994.

See BD page 86
China
Computerworld

The only specialized computer publication written exclusively for the People's Republic of China (PRC).

The PRC is a huge country which now has a rapidly growing installed base of computers. Government plans call for extensive use of computers in the PRC's technological modernization and annual EDP expenditures are expected to grow into the billions of dollars through the 1980's.

A good deal of this money will be spent on foreign computer equipment. The purchase decision makers for this equipment will be using China Computerworld to help them choose the products and the companies they need.

China Computerworld is a joint venture of the Ministry of Electronics and Computers and CW Communications Inc. It has a total paid circulation of 35,000. An additional 50,000 copies are distributed throughout all provinces in the PRC and pass-along readership is over 500,000. China Computerworld readers include the key government officials and computer managers who have EDP purchase decision authority.

China Computerworld is a newspaper published twice a month on the eighth and the twenty-third. Its tabloid format and pertinent editorial offers you a unique vehicle in which to introduce your products and services.

If you are using a DEC 10 or 20 now but see VAX version available late 1984.

ATTENTION R CUTS CODE 80%!

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ATTENTION R can cut your code up to 80%. ATTENTION R's 4th generation language incorporates a unique concept that models the various data processing components. These models use 80% less code than required by FORTRAN or COBOL.

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If you are using a DEC 10 or 20 now but see a VAX in your future, rest easy. ATTENTION R is migratable software. DEC 10/20 today, VAX tomorrow. A syntactically identical version makes migration easy; special pre-release pricing makes it affordable.

*VAX version available late 1984.

For more information send to: 20370 Town Ctr. Lac., #130, Capertino, CA 95014
408/257-7700

NATIONAL INFORMATION SYSTEMS, INC.
Q. Can a cabling system untangle telecommunications?

A. With all the various devices a company uses to process, move and store information, it’s easy to lose sight of one important element—the need to connect all these devices together. That’s where a uniform, structured cabling system fits in. But are you just substituting one set of wires for another? Here are some questions and answers that might help you better understand the role a cabling system can play both in solving your telecommunications problems today and in protecting your telecommunications investment for tomorrow.

Q. First of all, just what is a cabling system?

A. A cabling system is designed on a “wire-once” concept. Just as electrical wires are run in buildings today, a cabling system is a permanently installed set of wires that connects the computers, terminals, workstations, telephones and PBXs within a large office building or a campus. This cabling system should also be the foundation for local area networks of the future.

Q. Aren’t my computers and telephones already hooked up to a cabling system?

A. It’s not so much a cabling system as it is a bunch of cables. Look above the drop ceilings in most office buildings, and you’ll discover miles and miles of all kinds of cable. And much of it, strangely enough, is unused. The reason for this waste is that few devices (i.e., telephone, terminal, personal computer, etc.) use the same type of cable. Consequently, when a new device is installed or when one is moved from one office to another, it’s quicker, easier and cheaper to reroute the old cable. This is not to suggest, however, that running a new cable is quick, easy or inexpensive. Relocating just one terminal can cost as much as $150. Not to mention a week or two of downtime while the wiring gets done. And when you think about how often office workers move from one workplace to another, you can see that we’re talking about a considerable expense.

Q. How can a cabling system help solve my wiring problem?

A. Once installed, a cabling system can make wiring for a new or relocated terminal as easy as moving a plug from one socket to another. The IBM Cabling System calls for the one-time installation of a single cable running from each workplace, inside the walls, and into a central “wiring closet.” In the office, that cable terminates in a standard faceplate on the wall, not unlike an electrical outlet. In the wiring closet, the cable terminates in a patch panel that can connect it to any number of devices.

The installation of the IBM Cabling System should be considered if you’re adding a number of new workstations, installing a PBX, doing a major renovation or building a new office building. In many cases the “wire-once” benefit will cost-justify the IBM Cabling System in five years.

Q. How do the telephone and the IBM Cabling System work together?

A. The IBM Cabling System can be used for data only, or for both data and voice. When the voice capability is used, the voice wires are separated from the single cable in the wiring closet and run to a telephone switching system. Several major PBX manufacturers have tested their PBXs and telephones with the IBM Cabling System. They report that the voice wires fully support their PBX features and transmission speeds.

Q. How can the IBM Cabling System help me today?

A. Currently being installed in office buildings, the IBM Cabling System can connect most of the available IBM data devices, such as personal computers and workstations, small and intermediate computers. We expect that it will also connect many devices made by other manufacturers.

Q. How will the Cabling System help answer my telecommunications needs of the future?

A. The quality and reliability of the IBM Cabling System enable it to transmit data at very high speeds. This makes it the ideal foundation for IBM’s planned general purpose local area network (LAN). This LAN, utilizing a “token-ring” technology can be implemented gradually to connect different workstations, departmental systems and large processors. So by investing in the IBM Cabling System today, you’ll not only save money on current installation and rewiring costs, you’ll also be better prepared to meet your telecommunications needs of the future.

Q. How do I go about getting the IBM Cabling System?

A. There are a number of design and installation companies that can plan your cabling system and do the actual wiring. The cable and accessories are available through authorized distributors. Your IBM marketing representative can provide you with the names of these companies. The cable and accessories can also be ordered directly from IBM.

Q. Where do I go from here?

A. Installing the IBM Cabling System today is really installing the foundation for your company’s future in telecommunications. So you’ll want to plan quite thoughtfully. We can help. If you’d like a free copy of the brochure, “The IBM Cabling System,” call 1 800 IBM-2468, Ext. 90, or return the coupon.
THE HARDEST-WORKING
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COULD ASK FOR.

You may not work for a global business with four billion customers and the world’s biggest inventory. But you can still give your executives an easy way to get at corporate data through their PCs. Without your getting snowed under with requests for information. It’s the new R:base™4000.

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The new R:base offers greatly expanded programming capability that lets your users do complex processing. Post transactions. And update multiple files from one input form. There’s even a new applications diskette, with sample mailing list, inventory management, and prospect management applications. Of course, R:base still lets your managers tap billions of records. Open 40 files at the same time, and handle up to 400 fields. And sort it all out before they know it.

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The self-guided tutorial makes learning — and using — R:base a snap. Especially when it’s combined with Clout™, a software program that lets users ask questions of the database in their own words. The result? You’ll spend less time training managers and more time doing the bigger, more DP-intensive jobs.

“AVOID THE RUSH. CALL NOW FOR A DEMO.”

If you’d like to try R:base, we’ll send you a full demo/tutorial (with Clout as well) for only $1,545 for the 4528T and $1,700 for the 4528V. Delivery is scheduled for the first quarter of 1985. Prices for the Dijit 1 range from $5,000 to $7,500. Delivery is scheduled for the first quarter of 1985.

LASERGRAPHICS, INC.
UL-100 printer rasterizer options

Lasergraphics, Inc. has announced two options for its UL-100 printer rasterizer product line based on the Motorola, Inc. 68000 microprocessor. The company also announced a $2,000 price cut on the original model. The company sells the UL-100T, UL-100B, UL-100A and UL-100P rasterizing units to drive Tektronix, Inc.’s 4611 and Benson, Inc.’s Colorscan printers as well as Advanced Computer Technology, Inc.’s and Printcolor Corp.’s ink-jet color printers.

The basic UL-100 costs $3,500, the company said, and the purchase of one option is required on each unit.

The company previously offered the U1100 with 110,000 polygon and vector vertices designed for graphics on mainframes, including those from IBM, for a price of $9,950, the company said.
If you’re not in Computerworld’s next two special reports, look at the issues you’ll miss

November 26
Data Communications Terminals
In this issue, users and vendors will comment on how terminals are making computers more responsive to organizational needs. Topics include: how to get the most out of dumb terminals; an update on smart and intelligent terminals; and guidelines for determining terminal needs and selecting the equipment to meet them.
Closes November 9

December 31 & January 7
'85 Forecast
Our annual review and forecast issue. We'll examine some of the major events of 1984, and explore what lies ahead in 1985.
Closes December 14

Call the Sales Office nearest you to reserve space in any of our upcoming issues. You'll find the numbers listed below.
Or, if you prefer, fill out the coupon below and return it to: Ed Marecki, National Sales Director, Computerworld, 375 Cochituate Road, Box 880, Framingham MA 01701.
Do it today. The sooner we hear from you, the sooner you'll hear from our readers.
STD 1600 can be leased or purchased. Mitron's STD 1600 provides compatibility with AT&T's Unix operating system. Resolution on the 19-in. CRT is 1,024 by 1,024 pixels, and it can display eight colors simultaneously. The price of the CAE 2000/660 as a stand-alone workstation with 2M bytes of main memory is $92,400, the company said. CAE Systems, Inc. has announced that the CAE 2000/660 design automation system is now bundled with Apollo Computer, Inc.'s Domain DN660 color workstation. The system had been bundled previously with Apollo and Sun Microsystems, Inc. workstations and Digital Equipment Corp. VAX-11 superminicomputers. The CAE 2000/660 can operate in a stand-alone configuration or as a node in CAE's Worksystem distributed network environment for team engineering. CAE 2000/660 software is said to use color for multiple wave forms, for matching nodes on a circuit diagram to wave forms or for highlighting. Key data can be highlighted in each window with color as well, the company said. The CAE System comes with either 2M or 4M bytes of main memory and can support up to 24 concurrent processes, each with 256M bytes of virtual address space, the company said. The CAE 2000/660 runs AT&T's Unix operating system. Resolution on the 19-in. CRT is 1,024 by 1,024 pixels, and it can display eight colors simultaneously. The price of the CAE 2000/660 as a stand-alone workstation with 2M bytes of main memory is $92,400, the company said. CAE Systems, 1333 Bordeaux Drive, Sunnyvale, Calif. 94089.

Marketing

CAE SYSTEMS, Inc.
CAE 2000/660

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Mitron's STD 1600 provides an efficient method for sending and receiving data anywhere in the world. STD 1600s can communicate with each other and with other companies' bisynchronous terminals and computers. The STD 1600 solves machine compatibility problems. It transmits data reliably without mailing tapes. It can communicate offline to relieve an overworked computer. STD 1600s transfer data at speeds up to 56KB. Double-buffering eliminates delays caused by read/write cycle times. The STD 1600 can be leased or purchased.

MITRON'S
STD 1600 TRANSFERS DATA AT 56 KB OFF-LINE TAPE-TO-TAPE

Since 1969, Mitron's magnetic tape systems have been used in a wide variety of data communications applications. Let one of our Applications Engineers explain how you can connect the Mitron STD 1600 to your system or data communication network. Call 800-638-9665. (In Maryland, call 301-992-7700.)

MITRON Systems Corporation 2000 Century Plaza, Columbia, MD 21044

COFFEE BREAK

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CAE 2000/660

Mitron's STD 1600 provides an efficient method for sending and receiving data anywhere in the world. STD 1600s can communicate with each other and with other companies' bisynchronous terminals and computers. The STD 1600 solves machine compatibility problems. It transmits data reliably without mailing tapes. It can communicate offline to relieve an overworked computer. STD 1600s transfer data at speeds up to 56KB. Double-buffering eliminates delays caused by read/write cycle times. The STD 1600 can be leased or purchased.
You don’t have to be an Einstein to realize that numbers are only part of the data your organization needs in order to be effective. As often as not, the information you need consists of a few key phrases buried inside a mountain of written documentation.

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But with INQUIRE/Text, it’s easy. Powerful search commands zip through everything from research reports to correspondence—extracting vital information faster and more accurately than ever before.

The result is a quantum leap in the quality and diversity of online information available for decision support. For the first time, textual information can be retrieved and manipulated as easily as numeric data—with an output of up-to-date, integrated management reports.

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And no wonder more and more people everywhere are seeing text management as an indispensable element of the Information Center.

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For more information call or write Infodata Systems Inc., 5205 Leesburg Pike, Falls Church, Virginia 22041, telephone (800) 336-4939. In Virginia call (703) 578-3430. Telex: 899125
product line, said Gerald Held, the firm’s director of strategic planning.

Unlike the 6530 series terminals, which provide an 80-col. display, the workstations support a 132-col. output, Held said. The 6540 line also reportedly comes with a smooth-scroll capability.

As an IBM terminal, the workstations emulate a 3270 and can communicate indirectly with 3030, 3080 and 4300 processors through Tandem mainframes, Held said. The 6540 machines thus duplicate an IBM communications capability that Tandem first made available to its users last February.

When operating as a stand-alone micro, the workstations reportedly offer twice the performance of the original IBM Personal Computer. Held attributed the edge in processing speed to the 6540’s 8-MHz Intel Corp. 8086 microprocessor, which is said to outperform its 8088 counterpart in the Big Blue product.

At present, the 6540 family consists of two models — the 6541 and 6546. Both models incorporate a 12-in. monitor and accommodate 265K to 649K bytes of main memory. The two 6540 series members also use a fanless cooling system to minimize noise and support bit-mapped graphics with resolutions as high as 800 by 300 pixels, Held said.

The main difference between the 6541 and 6546 lies in their external storage, Held said. While the former is configured with two 360K-byte floppy disk units, the latter comes with just one such module plus a 10M-byte Winchester system.

To induce organizations to buy the Dynamite products in volume, Tandem is offering users financial incentives in the form of free hardware, Peterson said. Users who acquire 100 or more of the workstations will receive 2M bytes of main memory for their Tandem mainframes at no charge.

For 200 or more 6540s, the deal sweetener increases to 4M bytes, and companies that buy the workstations in volumes of at least 500 will be given a free 4M-byte TXP mainframe, Peterson said.

Prices for the 6541 and 6546 start at $2,995 and $3,995, respectively. The Models 5540 and 5541 dot matrix printers, meanwhile, cost $595 and $895, respectively.

The 6541 is available now, while shipments of the 6546 begin in December.

Tandem is headquartered at 19333 Vallco Pkwy., Cupertino, Calif. 95014.
a string of problems with its IBM 3380-compatible disk drive, CDC made its second quick exit from the PCM business when the company said it was getting out of the peripheral business.

That move did turn some heads — particularly those of the CDC sales force who apparently had no idea the company was even considering bagging the peripheral group. CDC customers also were taken aback by the announcement.

In 1982, Memorex Corp. merged with Burroughs Corp. To date, Memorex has retained much of its original charter, as a supplier of IBM-compatible products.

However, some analysts see the potential for that situation to change, especially in light of the higher research and development costs associated with keeping up with IBM peripheral technologies.

Still committed

So far, however, Memorex still says that it is committed to the IBM-compatible business.

One marketing executive recently expressed hope that Memorex can clean up in the wake of CDC's exit from the marketplace.

In 1983, Magnuson Computer Systems, Inc. was in the limelight when it filed for Chapter 11 protection from its creditors. While it vowed to make a comeback, Magnuson foundered for about a year, then was absorbed by Storage Technology Corp. as a part of STC's Global Ultimacc Systems, Inc.

The interesting thing about this relationship was that STC was Magnuson's last and, as far as anyone can tell, only customer in its final months. Now, the remnants of Magnuson form Global Ultimacc's processor manufacturing facility.

Big plans

While it was thinking of buying Magnuson, STC also apparently had big plans for getting into the upper end of the IBM-compatible processor business as well.

A limited partnership prospectus that was developed by Smith Barney Harris Upham & Co. dated June 29, 1983, stated that STC was seeking to raise $20 million to develop a Cmos-based line of processors employing very large-scale integration. The line was to compete with IBM's 3080 series.

That project failed within months. Now, with STC's expected poor third-quarter showing, it is unlikely the company will be embarking on many new, risky IBM-compatible ventures.

In addition to STC's losses and CDC's departure from the marketplace, the past two years have seen a lot of activity in the PCM arena. Technical troubles with its dual-processor, fault-tolerant 4480 and IPL Systems on the brink of disaster. The company appeared to be saved in the nick of time when it struck up a neat deal with AT&T.

Throwing in the towel

Gene Amdahl, who left the company which bears his name to build a bigger IBM-compatible mainframe, formed Acays Corp. — a short-lived firm which later became known as Trilogy, Ltd. Amdahl recently threw in the IBM-compatible towel when nagging technical problems on Trilogy's wafer-scale technology caused repeated delays in the mainframe project.

The original Amdahl Corp. has been increasingly influenced by Tokyo-based Fujitsu, Ltd., which recently purchased a controlling interest in the company. Interestingly, Fujitsu moved its line of supercomputers into the U.S. market, via the Amdahl product lineup, shortly after buying a controlling interest in Amdahl.

Spartacus Computers, Inc., in what can only be described as a cameo role in the PCM saga, announced a short-lived line of 4300-compatible systems, which never really made it to the marketplace. The company is now trying to develop a line of communications products for IBM mainframes, Personal Computers and non-IBM workstations.

Cambex Corp., perhaps the only PCM not to suffer some trauma in the past two years (mainly because it is too tiny), eliminated some of its older processors from its lineup, but is still offering the same basic 4300-compatible product line.

There you have it, the trials and tribulations of the IBM PCMs. Is the end near? Will all the PCMs go belly-up? Will Gene Amdahl ever get the money to start another company? Will Burroughs convert Memorex into a captive R&D facility for storage products? Will the Japanese wind up buying all the failing U.S. PCM's and turning them into one giant, fabulously successful company? Will IBM beat everyone into submission?

The answers to these and other important IBM-related questions undoubtedly await all of us in the months to come. Stay tuned.
GO FOR THE BEST, REGARDLESS OF COST EVEN IF IT'S CHEAPER.

<table>
<thead>
<tr>
<th>Display</th>
<th>THE LEADING EDGE™ PERSONAL COLOR FXD</th>
<th>THE IBM XT WITH COLOR OPTION</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Full color display standard</td>
<td>Color monitor—$680, Color controller—$244.</td>
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<tr>
<td>Memory</td>
<td>256K Standard</td>
<td>256K Standard</td>
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<tr>
<td>Speed</td>
<td>7.16 MHz and 4.77 MHz Standard</td>
<td>4.77 MHz Only</td>
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<tr>
<td>Expandability</td>
<td>Expandable to 640K</td>
<td>Expandable to 640K</td>
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<td></td>
<td>No additional boards</td>
<td>Must add two boards</td>
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<tr>
<td>Graphics</td>
<td>Capability Standard</td>
<td>With Color Monitor and Color graphic board</td>
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<tr>
<td>Ports</td>
<td>Both Parallel and Serial Standard</td>
<td>Serial Standard, Parallel optional—$75.</td>
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<tr>
<td>Expansion Slots</td>
<td>7 slots Standard of which 3 remain open after expansion to 640K</td>
<td>8 slots Standard of which 1 remains open after expansion to 640K</td>
</tr>
<tr>
<td>Warranty</td>
<td>One Full Year parts and labor</td>
<td>90 Days parts and labor</td>
</tr>
<tr>
<td>Support</td>
<td>Lifetime no charge toll-free hotline Standard</td>
<td>None on hardware, software optional at $50 per call.</td>
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<tr>
<td>Service</td>
<td>Nationwide Service Centers</td>
<td>Nationwide Service Centers</td>
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<tr>
<td>Price</td>
<td>$3,995 Complete (Standard 10 MB Hard Disk Configuration)</td>
<td>$5,459 Configured as 10 MB Hard Disk</td>
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There are some people who wouldn’t buy a Rolls Royce for a buck-ninety-five if it didn’t come with a hood ornament. Mercifully, there are other people: those who purchase things (like computers) because of logic, rather than insecurity.

For those, we offer this chart showing how the Leading Edge Personal Color FXD Computer differs from the IBM® XT, not a self-serving litany of trivial distinctions, but a straight-up comparison of basic things of righteous concern.

After you read it, bear in mind that any consequent action you take requires only admirable lack of cowardice.
Eastman Kodak produces slides from micro graphics

ROCHESTER, N.Y. — Eastman Kodak Co. has announced a series of products that transform microcomputer graphics into presentation-quality slides. The products are the Instagraphic Copy Stand, the CRT-Slide Imager, the Instagraphic Slide Mounter and Instagraphic Color Slide film.

Kodak officials stated that the products were designed for managers, many of whom make as many as eight business presentations each year. Yet only 2% of the slides use microcomputer graphics, according to Kodak.

The firm estimated that in 1988 this market will produce 894 million slides, and 6% of the slides will utilize personal computer graphics.

The Kodak Instagraphic Copy Stand is said to transform hard copy into slides. A user places any type of output on the Instagraphic Copy Stand and sets the mechanism to one of four sizes of paper. A light indicates when the camera is correctly placed, and the user can then take a picture, Kodak said. The exposed film reportedly can be loaded into the Kodak Instagraphic Slide Mounter and a slide can be produced in 15 minutes.

The Kodak CRT Slide Imager reportedly allows a user to take a picture of a screen display. It consists of three parts: adapter, light shield and camera mounting bracket. Four adapters fit 9-, 12-, 15- and 19-inch CRTs, according to the vendor. The light shield prevents light from ruining a picture and positions the camera, Kodak said.

The mounting bracket is said to fit most 35mm cameras.

The Kodak Instagraphic Slide Mounter

Developer urges software designers to learn from filmmaking techniques

By Kathleen Sullivan

LOS ALTOS, Calif. — Ask Paul Heckel about the principles of software design, and he will launch into a discussion on how D.W. Griffith, the American director, revolutionized filmmaking with the release of Birth of a Nation in 1914.

Heckel urged Kodak to get down to specifics about the process of creating friendly software, and he will quote architect Frank Lloyd Wright, who said, "The two most important tools an architect has are the eraser in the drawing room and the sledgehammer on the construction site."

Heckel pointed out. They understand who software programmers to study is filmmaking. Directors employ a variety of skills that would serve the software designer well, Heckel pointed out. They understand who their audience is, they know how to at

Software Publishing releases enhancements to PFS series

MOUNTAIN VIEW, Calif. — Software Publishing Corp. has announced enhancements to its PFS:Write, PFS:File, PFS:Report and PFS:Graph software products running under Microsoft Corp.'s MS-DOS operating system.

The new release of PFS:Write reportedly provides this: new features of text to be indented inside a document and right margins to be justified during printing. It is also said to permit selection of PFS:Proof, the firm's proofreading software, directly from the PFS:Write menu.

The new features of PFS:File reportedly include a key for quick copying of identical dialog boxes from a previous form and the ability to do automatic calculation in a file or to generate a "quick list" of information from a file.

PFS:Graph's new features are said to include support for the Hercules Computer Technology Graphics Card, used for viewing charts on monochrome monitors. PFS:Report enhancements, meanwhile, reportedly allow users to print only the report's totals, rather than all its data, and also offer invisible columns to permit users to perform calculations on values in one file and display only those results of their report.

PFS:Write, PFS:File and PFS:Graph are priced at $140. PFS:Report is priced at $125, according to the vendor.

Additional information can be obtained from Software Publishing, which is located at 1801 Landings Drive, Mountain View, Calif. 94043.

IBM Personal Computer gains interface, application system

BOCA RATON, Fla. — IBM has announced a conversational program interface and an interactive application development system for the IBM Personal Computer.

According to an IBM spokesman, the EZ-VU Runtime Facility provides a conversational interface between the user and an application program. It receives commands and information through predefined screens and transfers the information to the Personal Computer application program. It returns information from the application to the user.

The EZ-VU Runtime Facility's display services allow a previously defined panel to be displayed upon request, and its select services allow a hierarchy of selection panels to be displayed or dialogue functions to be invoked. In addition, variable services allow dialogues to define and to use constants and to provide a high-level interface to IBM DOS functions.

The software supports programs written in IBM Personal Computer Cobol, Fortran, Interpretive Basic, Compiled Basic, Pascal and Macro assembler.

IBM's EZ-VU Development Facility is said to provide a program developer with the ability to develop more sophisticated, interactive Personal Computer applications with less coding effort. It can also be used to provide a consistent interface to the end user. The IBM spokesman said the EZ-VU Runtime Facility is required for integration of applications with the EZ-VU Development Facility.
**DBMS offered for IBM micros**

NEW YORK — A multiuser relational data base management system (DBMS) for the IBM Personal Computer XT and Personal Computer AT has been introduced by Dynamic Microprocessor Associates, Inc.

The data base manager, Formula IV, is said to allow several users to access the program via either terminals or personal computers attached to a Personal Computer's serial ports. Formula IV offers record locking and file sharing and can provide three users simultaneous access to the same Formula IV application.

The software runs under IBM's PC-DOS 2.0 and is said to offer an on-screen, dual-window text editor that displays a report page as it will be printed. In addition, context-sensitive Help screens and an English-based query language reportedly are provided.

Formula IV permits the creation of reports containing 12 files, with up to 90 million records and 280 fields, according to the vendor. Once the system requirements are entered, the software's application generator reportedly can automatically establish reports, files, sorts, updates, menus and data-entry procedures.

Formula IV is priced at $695. Additional details are available from Dynamic Microprocessor Associates, 545 Fifth Ave., New York, N.Y. 10017.

**Do you want to run C or Pascal Software Packages on the 370?**

Then get the IBM 370 Compiler...

from Whitesmiths, Ltd.

**Software Connections unveils enhanced electronic mail package**

SANTA CLARA, Calif. — Software Connections, Inc. has enhanced LAN-Mail Monitor, an electronic mail package designed for local-area networks that support microcomputers from IBM, Compaq Computer Corp., Eagle Computer, Inc. and Texas Instruments, Inc.

The package reportedly allows users to send memos, transfer files and share peripheral devices. Enhancements include an edit and forward feature that allows one person to take a letter or memo from an author, make comments on it and return it to the author, the company said.

A key word search capability assists users in locating memos dealing with a specific subject, composed by a certain author or mailed on a specific date, according to the vendor. Another feature is said to allow single-station users to call in from a remote location and read memos or send letters to other users.

LAN-Mail Monitor reportedly has added a menu-driven interface and a forms option that allows a receptionist to create a phone message form for recording incoming calls.

The software is available in two forms. A local-area network version supports up to 25 users and costs $745. A remote network version, which supports up to 10,000 users and includes modem software for communication over phone lines, sells for $1,195, with single-user options priced at $105 each.

Software Connections is located at 2041 Mission College Blvd., Santa Clara, Calif. 95054.

**SOFTWARE**

C. ABACI

Scientific Desk for IBM Personal Computer

C. Abaci has introduced a version of Scientific Desk for IBM's Personal Computer running IBM's Professional Fortran.

Scientific Desk, a utility, features a library of callable subroutines, a set of problem-solving environments and a friendly user interface, C. Abaci said.

The product reportedly features mathematical functions such as arithmetic and error analysis, elementary and special functions of mathematical physics, interpolation and solutions to nonlinear equations. Problem solvers are said to allow solutions to eigensystem analysis, linear algebraic equations, matrix and vector arithmetic, statistical inference and estimation problems.

Scientific Desk costs $420.

C. Abaci, 208 St. Mary's St., Raleigh, N.C. 27605.

TYMSHARE, INC.

Acustar for IBM Personal Computer XT/370

Tymshare, Inc. has released a version of the Acustar marketing decision support system that runs on an IBM Personal Computer XT/370.

Designed for consumer goods companies, Acustar provides access to a number of syndicated and internal data sources, according to the vendor. Typical applications are said to include brand reviews, promotion evaluation and planning, test market tracking and forecasting. Results reportedly can be displayed in reports or color graphics.

A standard configuration of Acustar, which includes 20M bytes of hard-disk storage, monochrome monitor, graphics printer, security board, 1,200 bit/sec internal modem, IBM's PC-DOS 2.1 and VM/PC operating systems and Tymshare's microcomputer-to-mainframe link costs $50,000.
Digital Research, Inc. has announced a version of DR Draw designed for Corona Data Systems, Inc. microcomputers. DR Draw produces graphics with better resolution than those designed on an IBM Personal Computer, the vendor said. DR Draw reportedly has a resolution of 640 by 325 pixels on all Corona personal computers except the Model PB400, where it provides a resolution of 640 by 400 pixels.

DR Draw is said to enable a user to combine text and graphs in organizational charts, flow charts, technical drawings, maps and logos. DR Draw, including Digital Research's GSX graphics system extensions to Microsoft Corp.'s MS-DOS operating system, is priced at $295. Digital Research, F.O. Box 579, Pacific Grove, Calif. 93950.

HAYES MICROCOMPUTER PRODUCTS, INC.

Hayes Microcomputer Products, Inc. has announced six application templates that work with Hayes' Please, a data base management system, for the IBM Personal Computer with IBM's PC-DOS operating system. They include Cash Flow, Inventory, Invoices, Ledger, Payroll and Stocks.

Cash Flow helps estimate monthly cash requirements, plans for discounted payments, maintains a monthly check register and tracks expenses, according to the vendor. Invoices reportedly monitors inventory data and flags items that have dropped below reorder point. Invoices is said to produce daily or weekly invoices from sales data.

Ledger provides monthly or year-to-date operating income before taxes at department or regional levels, Hayes said. Payroll reportedly generates detailed and summary payroll reports, summarizes payroll by expense code and prints worksheets for quarterly payroll reports, W2 forms and annual 1099 reports.

Stocks records stock and bond purchases and sales while monitoring current portfolio value and commission costs, according to the vendor. Each template costs $29.95. Please sell for $45.40. Hayes Microcomputer Products, 5923 Peachtree Industrial Blvd., Norcross, Ga. 30092.

RAND GROUP, INC.

Rand Group, Inc. has released version II of Rand-Micas, a structural analysis and design package that runs on IBM's Personal Computer XT or Personal Computer AT with IBM's PC-DOS. The package is used for frame and finite element structural analysis and design, the vendor said. It provides six model types, including plane stress, thin plate, axisymmetric, solid and thin shell.

Rand-Micas can process linear static, nonlinear static and dynamic analyses, according to the vendor. It produces six standard model analyses with strain, stress, gap and hook elements and uses a large library of general finite elements. The cost of Rand-Micas ranges from $6,000 to $10,000. Rand Group, Suite 114, 17430 Norcross, Ga. 30092.

AUTODESK, INC.

Autodesk, Inc. has released a version of its Autocad drafting software for use with the IBM 3270 Personal Computer/G and 3270 Personal Computer/GX microcomputers running under IBM's PC-DOS.

The computer-aided design package is designed to take advantage of the 3270's graphics technology. The 3270 G/GX version of Autocad reportedly supports IBM's Picture Interchange Format micro-mainframe protocol and uses the enhanced workstation capacity for high-speed picture regeneration and character generation.

The price of Autocad for the 3270 G and 3270 GX is $1,000 for the basic package, with two advanced drafting extensions priced at $500 each. Autodesk, 2653 Bridgeway, Sausalito, Calif. 94965.

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Operating System

Continued on page 94
has introduced Straight Talk communications software for the Apple Computer, Inc. Macintosh microcomputer. Straight Talk reportedly can automatically guide the user through the initial data base setup procedures and into the program itself. It also allows the user to communicate with other Macintosh computers via a modem, according to Dow Jones. Straight Talk is priced at $79. Dow Jones, P.O. Box 300, Princeton, N.J. 08540.

GOOD SOFTWARE CORP.
Let's Talk
Good Software Corp. has introduced its Let's Talk communications software package for the IBM Personal Computer, Radio Shack Corp.'s TRS-80 and 2000 and Compaq Computer Corp. microcomputers. Let's Talk reportedly permits conversational interaction and direct connection between personal computers using standard telephone service and modems. The package also allows files to be transferred to and from attended and unattended personal computers at 300, 1200 or 2400 char./sec., according to the vendor. No size limitations are made on data file transfers, Good said. Transferred files reportedly may be renamed. Let's Talk is priced at $179. Good Software, Suite 600, 12900 Preston Road, Dallas, Texas 75230.

CALIFORNIA BUSINESS ON THE MOVE

Pacific Bell presents two of the most important new breakthroughs in the field of communications technology: Fiber Optic Services and the Digital Termination System

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OCTOBER 22, 1984

MICROCOMPUTERS

FORTE DATA SYSTEMS, INC.

Forté PJ

Forté Data Systems, Inc. has introduced Forte PJ, a hardware package needed to drive it, costs $1,195. Forte Data Systems, 2805 Fortune Drive, San Jose, Calif. 95131.

FTC COMMUNICATIONS, INC.

Message Handler

FTC Communications, Inc. has introduced Message Handler software, which allows an IBM Personal Computer or compatible machine to function as a Telex terminal. Message Handler reportedly includes foreground and background operations. The software handles inbound and outbound calls simultaneously, allowing a user to send and receive messages while working on a spreadsheet or other programs, the vendor said.

AAR TD

New York in less than a minute, but with Forte PJ, a user reportedly can toggle between a Microsoft Corp. MS-DOS operating system and mainframe modes. Forte PJ, including the board and software needed to drive it, costs $1,195.

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ConTEL-CODATA

SYSTEMS CORP.

PC Works/Softgram

ConTEL-CODATA Systems Corp. has announced two software packages, PC Works and Softgram, that link its Motorola, Inc. 88000-based microcomputers running PCATAs’ to an IBM Personal Computer.

CONTROLLERS

The enhancement consists of the Application Programming Interface (API), a file transfer facility that allows applications running on the IBM Personal Computer to exchange data with applications running on an IBM mainframe, the vendor said. Adaptana 3270, a communications package that runs on the IBM Personal Computer.

Network Software Associates, Inc. has enhanced Adaptana 3270, a communications package that runs on the IBM Personal Computer. The enhancement consists of the Application Programming Interface (API), a file transfer facility that allows applications running on the IBM Personal Computer to exchange data with applications running on an IBM mainframe, the vendor said. Adaptana 3270 runs on an IBM PC-DOS compatible system. Adaptana 3270 reportedly emulates the IBM 3274 Model 51C control unit and 3278 terminal.

Continued on page 96
Continued from page 95
Network Software Associates, 19491 Sierra Soto, Irvine, Calif. 92715.

3COM CORP.
Etherseries support for IBM Personal Computer AT

3Com Corp. has announced that its Etherseries will support the IBM Personal Computer AT under Microsoft Corp.'s MS-DOS 3.0 on the 3Com local-area network, an Ethernet-based system.

Etherseries support, 3Com said, will allow customers to link the Personal Computer AT to products from multiple vendors for sharing software, diskettes and printers and to send electronic mail, all via the 3Com network.

Etherseries software is also said to permit the use of the Personal Computer AT as an Etherseries network server and as a fully functional workstation.

The Etherseries upgrades, offering Personal Computer AT support, are priced as follows: Ethershare, $80; Etherprint, $49; and Ethermail, $75.

3Com, P.O. Box 7390, 1365 Shorebird Way, Mountain View, Calif. 94039.

STORAGE
EMERALD SYSTEMS CORP.
Back Up & Restore Utility

Emerald Systems Corp. has announced Back Up & Restore Utility (BRU), a series of hard disk drive and 14-in. internal tape drive systems for the IBM Personal Computer AT.

BRU expansion systems range from 40M to 280M bytes of hard disk storage and reportedly function 30% faster than the AT's hard disk device. The 60M-byte tape unit fits in the AT's enclosure and takes only 12 min to back up 60M bytes of data, according to the vendor.

BRU is said to provide menu-and-command-driven file management and 4M bytes of disk caching that can be configured by the user.

The tape units cost $1,950, while prices for the disk drives range from $4,350 to $11,850.

Emerald Systems, 4001 Moreno Blvd., San Diego, Calif. 92117.

AQUIX ADVANCED SYSTEMS CORP.
AQMS 513

Aquix Advanced Systems Corp. has announced AQMS 513, a hard disk subsystem designed for the IBM Personal Computer. AQMS 513 consists of a 14-in. hard disk with a capacity of 411M bytes of storage and a 160M-byte streaming tape drive, the vendor said.

The product reportedly provides an interface between IBM's PC-DOS operating system and the storage system and is recommended for incorporation into local-area networks.

AQMS 513 costs $23,995.

Apush Advanced Systems, 140 Adams Blvd., Farmingdale, N.Y. 11735.

1ST INTERFACE, INC.
Cartridge tape subsystems

A series of 5/4-in., half-height removable cartridge tape subsystems for the IBM Personal Computer has been offered by 1st Interface, Inc.

The units, in a range of storage capacities from 10M to 60M-bytes, were designed to interface with standard Winchester and Shugart Corp. SA 450 diskette drives as well as 1st Interface's Winchester Diskettes, the vendor said.

The 10M-byte unit is priced at $1,045, the 45M-byte unit at $2,095 and the 60M-byte unit at $2,695.

1st Interface, 2111 Os- borne St., Canoga Park, Calif. 91304.

STRUCTURED SOFTWARE SYSTEMS, INC.
MSROM

Structured Software Systems, Inc. has enhanced MSROM, an interface for Hewlett-Packard Co.'s 9845B/C desktop computer.

MSROM enhancements reportedly allow the 9845B/C to interface with a number of disk drives including HP's 9122, a 3/4-in. microfloppy, the 9130 series of Winchester disks, the 7940 Winchester family and the 9414 streaming tape drive. The product is said to work with any disk drive that can accept HP's Command Set/80 or Subset/90 protocols.

MSROM costs $600.

Structured Software Systems, 1072 Irick Road, Mount Holly, N.J. 08060.

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In heavy network traffic, high performance isn't a luxury.

If your networking plans include more than five or six PCs, high performance isn't a luxury. It's critical.

The Net/One Personal Connection* packs the microprocessing power to offload all networking functions, so it doesn't eat up the host CPU's resources. That frees up a work station that other systems require simply to do their work's work.

At stations on the net where this additional intelligence isn't required, plug your newest, most economical Personal Connection board into the PC, and bring your cost-per-connection down to where it would be tough to justify buying anything less. The full network functionality is all there with either of the two interface boards. But now, with the option to pay for only as much intelligence as you need at each station, we've made it possible to have a real network at PC network prices: Primshare,* Mailshare,* Diskshare,* access to the corporate network—everything.

Net/One* is the general purpose local area network system that can turn all the equipment you have now, no matter what makes it, into a fully functional, high performance network. Broadband, baseband, fiber optics. Mainframe to mini to micro. Local to remote.


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Control Data Corp. has introduced its Control Data Storagemaster 745 cartridge streaming tape system for backup storage of IBM Personal Computer and Personal Computer XT systems.

The CDC Storagemaster 745 is said to be compatible with IBM and Storagemaster fixed-disk systems, providing data integrity as files are transferred from hard disk to backup storage. The Storagemaster 745 reportedly stores up to 45M bytes of data using %-in. tape cartridges.

Three of the storage system's software commands are said to simplify its use and to provide a means to back up files, restore files, read directory information from tape and determine tape cartridge condition.

The CDC Storagemaster 745 is priced at $2,495.

Control Data, Storage-master Marketing, 2200 Berkshire Lane N., Plymouth, Minn. 55441.

IBM

The system's screen editor reportedly provides full screen support allowing the user to create and modify screens interactively with program function keys. Screens may be designed in color, monochrome or with levels of emphasis. Field definition allows various editing, translating, verification and range checking to be performed by the EZ-VU Runtime Facility. A sample panel facility allows the user to create similar panels from previously defined panels.

The EZ-VU Runtime Facility is priced at $55, and the EZ-VU Development Facility is priced at $130.

IBM can be reached through P.O. Box 1328, Boca Raton, Fla. 33429.

Slides

($75) allows a user to place processed film from a Kodak Instagraphic Copy Stand or CRT Slide Imager into a slot, press a handle and produce a trimmed, mounted, 2- by 2-in. 35mm slide.

Kodak Instagraphic Color Slide film is used with the products, and a 10-picture roll costs $13. The Kodak Instagraphic Copy Stand costs $549. The Kodak CRT Slide Imager's light shield and mounting bracket costs $339; 9-, 12-or 13-in. adapters cost $40, and a 19-in. adapter costs $50. All products will be available in the first quarter of 1985, Kodak said.

Eastman Kodak is located at 343 State St., Rochester, N.Y. 14650.

At IBM, you're not limited to a daisy wheel printer, or an ink jet, or a color ink jet, or a thermal, or a laser, or a Selectric, or a band, or an electro-erosion,
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IBM PRINTERS

Finishing Touch

Yet MIS managers seem to possess an unwavering faith in Big Blue. Time after time, they stand in the way of creating their own computer systems. All this time, they ignored IBM's exceptional products that can do so much to speed the process of creating. Their response: "I'm waiting until IBM announces its line before buying microcomputers."

To these managers, the first step in making their dreams a reality is to choose a computer. Yet the second step, choosing the right printer, is critical to the overall success of the project.

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So when you need to choose a printer, consider IBM. For we have the best choice of printers available, the range of capabilities to meet even the most demanding requirements.

IBM things work visually.

But more importantly, managers may find more new problems than solutions.

FILM from page 91

tract and maintain their viewers' interest, and they realize the importance of using visual images and metaphors to communicate a message.

Griffith's Birth of a Nation provides an instict both another and existing vendors. Despite these limitations, most people think the recently announced products will be successful simply because they carry an IBM logo and the accompanying security blanket of IBM's exceptional support and service.

But in the Personal Computer arena, is IBM support and service reality or myth? Many microcomputer managers claim IBM Personal Computer service stops when the machines are dropped at the loading dock, and corporations often turn to dealers or in-house support staffs to configure and test the machines.
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Industry-rich glen boon to Scotland’s growth

By James Connolly

GLASGOW — After almost a decade of lobbying overseas and developing property at home, the agency charged with building Scotland’s industry has found that diversification and spin-off support companies are keys to the computer industry’s success.

To the Scottish Development Agency (SDA), which runs a program called Locate In Scotland (LIS), success means more than having attracted £1 billion of foreign electronics investment in three years. It means more than having some 300 electronics companies locate in its Silicon Glen.

The nation of whisky, tartans and highland preserves has seen its traditional employers — coal mines, steelworks and shipyards — linger near death. The government learned by experience that development involves more than having a computer company install an assembly line in a government-owned factory and then watching the firm move along when a new suitor appears or a product line collapses.

“We’re most encouraged by the increasing depth of some operations, and we hope it continues,” Hewlett-Packard Ltd. is doing all of the research and development for its Scottish operation right here. [Motorola, Inc.] is doing [its] Europe marketing from here, and [Digital Equipment Corp.] has started doing very large-scale integration work in addition to [its] assembly,” noted Mike Sandys, senior project executive for SDA.

According to Sandys, that type of integration lends a greater sense of commitment to an American company’s presence in Scotland, although the agency recognizes that most industrialists use assembly — where most jobs are unskilled and low paying — as a first step into a new country.

It is the more sophisticated operation that creates better jobs for skilled or educated workers, such as engineers, according to SDA officials. The agency recognizes that most in­dustrialists use assembly — where most jobs are unskilled and low paying — as a first step into a new country.

For SDA, foreign investment to spur Scottish entrepreneurs to start their own businesses, supporting and sometimes competing with the American, German, English and Japanese manufacturers’ Scottish operations.

Lessors wary of ties with IBM Credit

By Peter Bartolik

NEW YORK — The Computer Dealers and Lessors Association (CDLA) recently moved toward closer relations with IBM Credit Corp. and other nonindependent participants in the burgeoning third-party computer market.

At its annual meeting here, the 240-member association voted against a motion to tighten restrictions on IBM Credit’s use of the association’s CDLA-Net, an electronic network for equipment trading.

CDLA members also voted for a straw poll measure to grant associate memberships to so-called “captive credit corporations,” such as IBM Credit, a soon-to-be-formed AT&T Credit Corp. and other units performing leasing and financing activities for such companies as Digital Equipment Corp., Burroughs Corp.’s Memorex Corp. subsidiary.

The vote was taken at a time when leasing the market is growing rapidly, with leasing an estimated $100 million of equipment being put out on leases each month. Many CDLA members said they are concerned about what will happen when IBM Credit leases begin to terminate and a flood of used equipment enters the resale market.

On the issue of offering some type of membership to captive credit corporations, Forsythe said the straw vote was to get a sense of the membership, a mechanism will still have to be established by the CDLA board of directors. As one industry source familiar with both IBM Credit and AT&T’s plans for a credit corporation said both desire membership in CDLA, but have not been willing to request it for fear of being voted down.

In another straw vote, the membership supported the creation of a new type of associate membership for financial corporations and banks, which have been playing an increasing role in lease transactions, either by bankrolling purchase equipment or investing in tax-leveraged leases. Forsythe said the CDLA is anticipating triple growth in the leasing and dealing industry by 1986 and is concerned about financing that growth. The motion was offered because current CDLA rules require dues based on gross revenues, which would make membership too expensive to banks, Forsythe said.
NEW YORK — The third-party leasing industry is growing at a national rate of 30%, but participating companies are diversifying away from the central processor market, according to a survey released here recently.

The survey results disclosed at the annual meeting of the Computer Dealers and Lessors Association showed that third-party companies are aggressively pursuing peripherals and other markets as the CPU market matures.

The survey, by International Data Corp. (IDC), revealed that 25% of the 73 companies who participated have offered software leases, and another 10% plan to do so.

The leasing and brokerage companies generated 73% of their revenues from buying, selling or leasing peripherals and only 24% of revenues from CPUs, IDC said.

The third-party companies are losing market share in the CPU market, which is the most mature segment of the leasing industry and is growing at only 6.5% annually, according to IDC. The third-party lessors have begun concentrating on peripherals to make up for a loss of opportunities in the mainframe market, IDC said.

Only 4% of the respondents said they deal primarily or only in non-IBM equipment, according to the survey. With the large concentration on IBM equipment, the potential impact of a rapidly growing IBM Credit Corp. was seen as severe or significant by 53% of the respondents. IBM Credit Corp., founded just two years ago, will generate an estimated $312 million in revenues this year, with a 92% increase in lease values this year and 50% increase next year, IDC said. The third-party industry as a whole is expected to grow at 30% a year through 1987, IDC said.

The participants in the survey all reported 1984 revenues of less than $300 million, with 32% reporting revenues in the $1 million to $5 million range. The top five leasing companies in the industry did not participate in the survey, IDC said. Only 10% of the participants said they primarily market to the Fortune 500 companies, but 92% said their primary market is the Fortune 1,000 companies.

Insurance as protection

Concerning residual values — the projected value of equipment when its lease term is ended — 14% of the companies said they utilize insurance to protect themselves against lower than expected residual values. Another 10% of those who do not presently obtain such insurance said they are planning on considering insurance.

Despite periods of bad publicity and skepticism from investors, the third-party industry has grown at an astounding rate, IDC said. Companies participating in the industry are projected to have revenues of $7.6 billion this year and $9.8 billion in 1985, according to IDC. The value of equipment involved in transactions this year was estimated by IDC at $36.8 billion.

Business this year was rated good to excellent by 91% of the respondents, and 94% said next year will be the same. However, 41% said they believe they need to diversify to stay competitive, and 62% said they need to be more creative to remain competitive.

Lessor asserts 'nichemanship' key to future

By Peter Barton

NEW YORK — Centron DPL Co., a Minneapolis-based leasing company, has carved a niche for itself by dealing in equipment that has to be reconfigured for each customer.

"I call them snowflakes because there are no two alike," Robert Miller, the company's executive officer said during a recent interview at the annual meeting of the Computer Dealers and Lessors Association.

The primary business of Centron DPL is the leasing of IBM 3705s and 3725s front-end controllers. Between 1981 and 1983, the company experienced a 300% revenue increase from about $2.5 million to $15.6 million.

Controllers are configured in modules to fit particular needs, and Centron DPL maintains its own technical center to reconfigure equipment according to the needs of the end user.

"The concept of nichemanship, as we call it, is that it is going to take [in the leasing industry] in the future," declared Miller, who started the company in 1979 in partnership with William Runumler, Centron's president.

A particular line of the niche identified by Centron DPL is that, unlike mainframes, the 3705 through 3708 series have been around for 10 years. "The controller, like tape drives, tends to last a lot longer," said Centron page 125.
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SCOTS from page 101

Two examples of start-ups cited by SDA are Rodime Ltd. and Prestwick Circuits Ltd. Rodime, a Winchester disk drive manufacturer founded by former Burroughs Corp. employees, has expanded its sales and manufacturing operations into the U.S. market. Prestwick Circuits, located in the Scottish west coastal town of Irvine, recently announced a £13 million, 200-job expansion made possible by a contract to supply printed-circuit boards for IBM's Personal Computer AT, which is being assembled for European distribution at Greenoch.

One building block for Scottish-owned businesses is Prime Minister Margaret Thatcher's mandate to SDA and other development agencies throughout Britain, calling for the agency to take on a commercial role. That policy allows SDA to invest in new domestic ventures, taking up to 29% equity in a company.

To attract international investment, the LIS program has four offices in the U.S., competing with agencies in Wales, Ireland, England and Northern Ireland. All of those agencies offer packages such as capital grants, customized factories and tax breaks, as well as an entry into the duty-free European Economic Community and labor that is less costly than in the U.S. But Scottish officials claim that they have the advantage of a population trained in what historically have been engineering-oriented universities and technical colleges.

SDA also claims an advantage in having shifted its focus away from courting all foreign companies to lobbying the health care industry, oil companies and electronics firms. While SDA itself does not offer grants to foreign investors, it does provide what it calls "one-door service," helping a foreign company find government financing of up to 25%, private funding and factory sites, said Colin Williamson, project administrator for LIS.

Prime industrial sites, which make SDA Scotland's biggest industrial landlord, are concentrated in Scotland's five new towns and selected development regions throughout a central belt stretching from south-west of Glasgow to the Kingdom of Fife, north of Edinburgh.

The new towns were established in farmlands throughout the UK after World War II, when the government wanted to shift the population from war-ravaged cities to suburbs.
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Frank Giannantonio
Director of Information Services
Avon

There are few companies that understand the critical importance of communication better than Avon. So when it came time to choose an office automation system, the company evaluated all three leaders in the field. The ground rules were these: The system would have to use personal computers as universal workstations, for professionals, managers, secretaries and administrative staff alike.

It would have to network the variety of computers made by other companies which Avon was already using.

It would have to be elegant both in physical design and in ease of use.

The one system that perfectly matched Avon’s needs was Digital’s VAX™ computer - the best-selling 32-bit computer in the world - with ALL-IN1™ office management software.

"IT DOES EVERYTHING WE WANT IT TO: PERSONAL COMPUTING, OFFICE AUTOMATION, EVERYTHING."

Frank Giannantonio explains. "The key was this: were we able to do more with this system than any other one? Would it let us communicate with our other systems better than any other one? And the answer both times was "Yes."

The 200-plus employees linked to the system at the Rye, N.Y., data processing headquarters have access to every function necessary to do their jobs effectively via a single workstation at each desk.

A plain English, menu-driven format appears on screen, so people can incorporate timesaving applications into their daily work routine. These include, among others, word processing, electronic mail, desk management tools and graphics.

Giannantonio elaborates. "You can come in in the morning, turn on your personal computer, and go right into the ALL-IN1 system. From any of the various kinds of personal computers we use. "The communications capabilities are very significant."

In addition to enormously enhanced individual communications capabilities, VAX computer power makes a vast difference in the way people communicate with each other. For example, scheduling meetings.
“You don’t have to call up somebody and say, ‘I’d like to reserve the conference room.’ It gets done automatically. The secretary just keys it in, and checks the time against everyone’s schedules.”

"PRODUCTIVITY GAIN IS JUST ABOUT 53%."""

Menus and operating commands for these and other applications have been engineered in a consistent format, often requiring just two keystrokes to complete a function. Tasks can be performed without interruption. In preparing reports, for example, users can reference a chart on screen and then return directly to the report.

Not surprisingly, with fewer interruptions and immediate access to important information, the VAX system streamlines office efficiency.

"If you get in and just as quickly get it back:"

There are other savings that are harder to quantify. "Like the fact," Giannantonio says, "that now I get information sooner. Which means I can make decisions sooner. Information flows very quickly - very quickly."

Some Avon managers are connected to the VAX system from their homes. So if they've been away on a business trip or a vacation they can key into the system and know what's been happening even before they come back to the office. No more wasted time trying to catch up.

Time itself is being redefined. Through DECnet™ networking software, Avon plans in the very near future to link its Rye headquarters and domestic branches with its overseas offices. One of Avon's London managers was quick to see how a VAX computer could make the difference in time zones between his office and New York work to Avon's advantage.

"His first comment when he saw the system," says Giannantonio, "was 'I now have the opportunity to prepare a lot of information for New York during the first five hours I'm in, so that when you come in, you instantly know exactly what's happening in the European area.'"

"Of course the same is true," Giannantonio adds, "in every one of our other locations. "This is a great vehicle. It's going to bring our international companies closer to the home office. It's going to tie the Avon world closer together.""
EDINBURGH — The founders of a software house traveled from here to London to ask venture capitalists to supplement their own £50,000 in start-up funds. They returned with £80,000 in investments but still needed another £40,000. So the principals of Office Workstations Ltd. (OWL) took on a final investor that was not only Scottish, but was Scotland itself.

The Scottish Development Agency (SDA), a decade-old government arm that coordinates industrial investment in Scotland, became a 22% partner in the new company in exchange for a £40,000 grubstake. The government investment in OWL, which plans to market high-resolution graphics and publishing software, came about under the British government's plan to commercialize operations like SDA.

"SDA is changing its thrust. We have £30 million to invest, but it has to be on a purely commercial basis. We've got to be able to make some money on it," said Emris Inker, a spokesman for SDA. Inker noted that indigenous companies are not eligible for the outright government grants that foreign firms use for construction and equipment when they move to Scotland. Inker said that approximately 50 companies, about 12 of them software houses, have SDA as an equity partner.

But while OWL is a Scottish company, its Scottish managing director, Ian Ritchie, noted, "We have to think of ourselves as a U.S. company, targeting the U.S. The world's business microcomputer market is U.S.-based. The [UK] has a heavier concentration of home computers but isn't enough of a factor in the business market."

He added, "In SDA, we have a sympathetic investor. We got a software start-up in the ground in just eight months. Without [its] support, we never could have done it."

Ritchie, a former product line manager for ICL Co. and technical director of ESI, Inc., said his company is targeting a market where the high-powered workstations, including some of those of ICL/Perq Systems, AT&T and Hewlett-Packard Co., are just entering the market and are untested.

Publishing package
The company expects the workstation software to be available to large users and OEMs in the summer of 1985 and is working on a publishing package for the Apple Computer, Inc. Macintosh.

Target users are software developers who would need the packages for software documentation.

Ritchie said the first round of investments should carry OWL until its first sales are made. He reported that there are no special provisions calling for OWL to buy out SDA's share and that SDA would be treated as any other partner in case of a sale or merger.

Investments in Silicon Glen
A listing of some of the expansions and new ventures related to investments by foreign companies in Scotland's Silicon Glen:
- Hewlett-Packard Ltd. announced a £12 million expansion of its South Queensferry facility used for developing and producing communications test products.
- NEC Corp. announced a £75 million expansion of its Livingston very large-scale integration (VLSI) production, test and assembly plant.
- Motorola, Inc. and National Semiconductor Corp. are nearing completion of expansions of wafer fabrication plants that will produce 6-in. wafers next year.
- IBM reported that its Personal Computer AT will be produced for European distribution at its Greenock factory.
- SCI UK Ltd. and Prestwick Circuits Ltd. were named to supply components for the IBM Personal Computer AT.
- Apollo Computer, Inc. announced a 150-job assembly plant for its workstations in Livingston.
- Digital Equipment Corp. is building a VLSI facility at the Ayre plant, where it now assembles PDP-11 minicomputers and microcomputers.
- Harris Systems Ltd. announced a £3.6 million Irvine facility in which it will manufacture private branch exchanges.
- Wang Laboratories, Inc. has begun shipment of processors and minicomputers from its year-old Sterling plant.

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House, Senate compromise to devise microchip bill

By Mitch Bette
CW Washington Bureau

WASHINGTON, D.C. — The U.S. Congress gave final approval last week to a compromise version of the Semiconductor Chip Protection Act, which will protect microchip designs from piracy for 10 years.

The legislation had broad support from the semiconductor industry and Congress [CW, June 25], but the House and Senate had taken different legal approaches to protecting the microchip "masks." House-Senate negotiators produced the compromise bill that was passed by the Senate on Oct. 3 and by the House of Representatives on Oct. 9.

"The result is a bill that breaks new ground by providing strong protection against the unauthorized copying of the design of [a] semiconductor chip," commented Sen. Charles McC. Mathias Jr. (R-Md.).

The final legislation provides special legal protection that is similar to copyright and which accords the owner of the chip design the exclusive right to make, import and distribute that design for 10 years, Mathias explained. The protection begins when the design is registered with the U.S. Copyright Office.

The compromise provides full protection for chips marketed after enactment of the bill; chips marketed after July 1, 1983, also receive the protection, but distribution of chip copies in existing inventories is permitted for a two-year period with payment of reasonable royalties.

The legislation does not explicitly protect chips designed before 1983, such as the 1962 generation of 16-bit microprocessors, but it states that any existing legal protection afforded those chip designs is retained. Owners of chip masks can publicize the new protection by affixing the symbol "M" surrounded by a circle, or the words "mask work." Enforcement of the antipiracy legislation will be handled by private civil litigation in federal district courts, sponsors said, with a penalty of up to $250,000 in fines.

House-Senate negotiators last month reconciled the differences between the Senate bill, which was based on copyright law, and the House bill, which carved out new legal protection for microchips that is similar to copyright.

At the insistence of the House negotiators, who argued that microchips do not belong under copyright law, the final bill creates a special legal protection called sui generis — a Latin phrase meaning "a thing unto itself" — for chip masks.

The legislation was generally supported by the electronics industry, including the Semiconductor Industry Association and the American Electronics Association (AEA). "We see it as an important protection for something that, for a long time, has fallen through the cracks," commented William N. Bartalone, AEA's manager of government affairs.

"And, it proves that [Congress] sees that as the technology advances, the laws must be revised," he added.

In congressional hearings, electronics industry officials testified that legislation is needed because overseas competitors can copy a family of microchips for about $100,000, whereas it costs the original developer about $80 million for R&D.

Paul G. Zirkowski, president of the Information Industry Association, said an important trait of the legislation is that it does not alter the traditional copyright protection given to the computer software and data bases that are stored in the chips.

Government awards Zenith micro contract

GLENVIEW, Ill. — Zenith Data Systems Corp. said recently that it has received a $90.8 million federal contract for high-security personal computers. The contract, said to be the largest of its kind ever awarded, Zenith will supply approximately 10,500 desktop systems to the U.S. Air Force, Navy and Marine Corps over a five-year period, the company said.

The microcomputers are versions of Zenith's Z-150 Personal Computer, modified to meet government Tempest security standards.

Two versions

Two versions will be supplied, one with dual 5¼-inch floppy disk drives and one with a floppy disk drive and a removable cartridge Winchester drive. Tempest-tested color and monochrome monitors are included in the contract, according to Zenith.

The Thassic Z-150, introduced last February and is said to be compatible with IBM Personal Computers. In October 1983, the Air Force and Navy awarded Zenith a $29.3 million contract for the vendor's Z-100 computers.

Shipment for this earlier contract have exceeded the originally estimated quantities, Zenith said.
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Dysan Corp. reportedly has laid off hundreds of workers as part of a major corporate retrenchment designed to curb its financial losses. The San Jose Mercury News, San Jose, Calif., reported that 500 workers, most of them employed at Dysan’s headquarters here, received layoff notices on Oct. 11 and 12. A spokeswoman for Dysan last week declined to confirm or deny the report.

On Oct. 9, the magnetic disk manufacturer announced plans to cut last year’s $35 million research and development budget in half, halt construction of several new facilities, stop development of products peripheral to its basic product line and sell its interest in at least six affiliate companies, according to the company spokeswoman.

Dysan lost $15.8 million on sales of $52.1 million in the quarter that ended Aug. 4, and will sustain “a substantial write-off in the current quarter,” the spokeswoman said.

Dysan’s strategy of funding start-up magnetic media companies, coupled with the changing nature of its main line business, put the company in trouble, said John Lauritz, an analyst at Dataquest, Inc., a San Jose market research firm.

“With its seedling strategy, Dysan essentially became a venture capitalist, and venture capitalists don’t always get winners,” Lauritz said.

He said Dysan’s investments in affiliates were made to stimulate new technologies, enabling it to sell new proprietary products.


According to market research analyst Bill Frank of San Jose-based Infocorp, some of the affiliates were successful — notably Seagate Technology, Inc., a Scotts Valley, Calif., disk drive maker that generated more than $300 million in sales after receiving Dysan financing.

But many Dysan affiliates floundered, he said, such as Applied Peripheral Systems, a disk drive maker in San Jose, Dataek Corp., a Los Gatos, Calif., manufacturer of magnetic disk heads and Westford, Mass.-based Tabor Corp., a 3¼-in. disk drive manufacturer.

Dysan would like to sell its six non-profitable affiliates, the Dysan spokeswoman said.

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Adapso loses Citicorp challenge

WASHINGTON, D.C. — The Association of Data Processing Service Organizations, Inc. (Adapso) recently lost a court challenge to Citicorp's establishment of a general-purpose data processing subsidiary.

The U.S. Court of Appeals here denied Adapso's appeal of a 1982 decision by the Federal Reserve Board, which granted Citicorp's application to form the Citiguard subsidiary, and amended Regulation Y to expand the types of services bank holding companies can market publicly.

Jerome L. Dreyer, president of Adapso, said the association, which includes most of the leading independent data processing firms, will not further appeal the decision.

"When we began our challenges to bank involvement in computer services, the data processing and banking world were a lot different," Dreyer said. "Financial institutions seem to be undergoing a sort of de facto deregulation, and the entire atmosphere appears to be contrary to placing restrictions on financial institutions competing in other areas."

AMD profits up 246% from 1983

SUNNYVALE, Calif. — Advanced Micro Devices, Inc. (AMD) recently reported second quarter profits of $42.1 million, or 72 cents per share, up 246% from the year earlier profit of $12.1 million, or 21 cents per share.

Sales revenues for the quarter ended Sept. 23 were $257 million, more than double the year earlier figure of $128.4 million.

With six month revenues at $491.3 million, W. J. Sanders III, president and chief executive officer of AMD, said the company still expects to meet its fiscal year target of $1 billion in sales even though a boom in semiconductor industry orders in the first half of the year subsided when microcomputer vendors revised their shipment estimates downward.

HP, SBL collaborate

PALO ALTO, Calif. — Hewlett-Packard Co. and Santa Barbara Laboratories, Inc. (SBL) recently announced the signing of a letter of intent providing for technical collaboration. HP also agreed to acquire a minority equity position in SBL.

Under terms of the proposed relationship, HP will purchase and resell SBL's Centerpoint 1000 Executive Information System on an O.E.M. basis. The parties said they predict that SBL products will be adapted to work with HP's office automation products.

Also under the arrangement, SBL will provide consulting services to HP, and SBL will be entitled to purchase HP equipment. Financial terms of the arrangement were not revealed.
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Lotus consents to settlement in 1-2-3 copying suit

By Christine McGeever
Special to CWt

CAMBRIDGE, Mass. — Lotus Development Corp. will receive an undisclosed sum in settlement of a $1 million software-copying suit against Health Group, Inc. of Nashville.

While discussing the suit with Lotus, Health Group acknowledged that its employees had copied Lotus' 1-2-3 spreadsheet program, according to Lotus. Health Group refused to comment on any aspect of the suit.

Lotus charged in the suit that the hospital management firm copied the program without authorization. The suit was filed in U.S. District Court in Nashville on July 2 and was settled in August, according to Lotus attorney Bernard J. Bonn, a partner in the Boston law firm Testa, Hurwitz and Thibeault.

According to Lotus, Health Group officials said the company's managers were unaware that lower level employees were copying the program. Lotus said most cases of corporate unauthorized copying occur among lower level employees and added that those responsible for the copying were terminated. All unauthorized copies of 1-2-3 were destroyed and replaced with legitimate programs, Lotus said. Health Group employs 5,000 people.

Also as part of the settlement, Health Group is now subject to a consent decree that prohibits the company from "making or using unauthorized copies of the 1-2-3 program and related materials in the future."

"The settlement implies that if [Health Group] are going to have multiple users, they are going to purchase multiple copies," said Lotus President Mitchell D. Kapor.

Prompt corrective measures

Health Group, he added, took prompt corrective measures. Kapor said that Health Group tried to stop the copying before Lotus sued.

Lotus filed a similar suit in early 1984 against Rixon, Inc., a Silver Spring, Md., data communications firm that manufactures products for mainframes and minicomputers.

The $10 million suit was considered a test case because it was the first that sought damages against a company for copying software for internal use.

The suit charged that Rixon distributed 13 unauthorized copies of 1-2-3 to its domestic branch offices. The suit ended with a similar court-ordered consent decree and a settlement of an undisclosed sum.

McGeever is a reporter for Infoworld, a Menlo Park, Calif.-based personal computing weekly.

Lotus names chairman, chief exec

CAMBRIDGE, Mass. — Lotus Development Corp. recently named cofounder Mitchell D. Kapor to the new positions of chairman and chief executive officer.

Kapor, who has been president of the business software firm since 1982, will be succeeded in that job by Jim P. Manzi, currently vice-president of marketing and sales.

"These new positions anticipate the needs and challenges of the organization as it grows to a large company and are logical and natural changes," Kapor said.

"This new division of responsibilities between Jim Manzi and me will allow me to focus on Lotus' strategic and product development direction," Kapor said. "Jim will have specific responsibility for managing the company's daily operations."

Manzi used to work as a management consultant for McKinsey & Co. in New York.
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Computer Industry

U.S. R&D, production sites mark Epson market refocus

By Jeffrey Beeler

TORRANCE, Calif. — A Japanese supplier of personal computer systems and peripherals has launched a new phase in its American marketing strategy by announcing plans to establish its first three U.S.-based research and production facilities.

During an Oct. 10 press conference at the headquarters of his company's U.S. subsidiary, Epson Corp. chairman Ichiro Hattori announced the official opening of a research and development center already employing 50 people in Palo Alto, Calif. Hattori also disclosed his company's plans to form a software development company in neighboring Mountain View and a 100,000-sq-ft manufacturing plant outside Portland, Ore., where Epson will produce dot matrix printers for U.S. use.

Together, the three facilities mark the first time in its history that Epson will develop and manufacture products inside the U.S. In the past, all the firm's hardware and software production activities have been centralized in Japan, although its U.S. marketing efforts have long been conducted through its U.S. subsidiary, Epson America, Inc.

Epson's Palo Alto-based R&D center, the Advanced Products Division, will "research and evaluate long-range hardware and software needs in the American market," Hattori said. "This research will have a strong influence on future products built by Epson in the U.S. and Japan." In addition to monitoring U.S. computer industry trends, the center will define new products for Epson and often will design their prototypes.

By contrast, the company's first U.S.-based software development facility, Ascent, Inc., will write business application packages for Epson's desktop and portable personal computer families, Hattori said. Ascent is also expected to modify its parent company's existing software to operate on competitive microcomputers.

The Oregon manufacturing plant, meanwhile, "will make Epson that much more a part of the American community," Hattori said. It will also give Epson America more local control over its products and the greater capacity and shorter lead-times that come with local production.

Scheduled to start production sometime next year, the Oregon plant will be joined in the future by a second U.S.-based manufacturing site, which will produce Epson personal computers, Hattori said.

For Epson, the benefits of forming the three domestic installations are threefold: proximity to target markets, access to Silicon Valley technology and an expanded software repertoire, said Jack Whalen, Epson America's executive vice-president.

Far from signaling an abrupt shift in the Japanese vendor's marketing strategy, the emergence of the three domestic organizations is merely an evolutionary step toward Epson America's ultimate goal of becoming "a complete, vertically integrated U.S. company," Whalen said.

Although Epson is probably best known for its dot matrix printers, the company also produces a line of microcomputer systems, including the desktop Model QX-10 and the Geneve, a portable introduced in July. The firm's personal computer family also includes the QX-16, which made its debut Oct. 10 and supports both CP/M and MS-DOS.

At present, Epson's microcomputer systems are aimed primarily at consumers and users in small businesses. "But we feel we have an imperative to establish a presence in large corporations," Whalen said.

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COMPUTER INDUSTRY

Update on high-tech waste seen needed in Bay State

By John Desmond
CW Staff

BOSTON — Massachusetts is not keeping reliable and up-to-date records of hazardous waste generation and disposal by high-technology companies, according to a report released recently by the Task Force on High-Tech Toxics.

The task force report was written by Kenneth Geiser, an assistant professor of urban and environmental policy at Tufts University; Rand Wilson, an organizer for the Communications Workers of America; Richard Bird, technical assistance director of the National Campaign Against Toxic Hazards; and Leslie Kochan, a research associate for the Clean Water Action project. The most recent comprehensive report on high-tech hazardous waste generation was done in 1976 by GCA Corp. at the request of Massachusetts water pollution control authorities, the task force found.

That GCA study estimated that industries classified as high-tech produced 2.7 million gallons of hazardous waste per year, or 12.9% of the state's total production.

The task force report called this estimate "seriously out-of-date" and limited to a small sample of firms. A more recent update by GCA estimated that in 1983 the state's high-tech industry generated 20.2% of the state's total hazardous waste.

A 1983 collaborative study by groups including the Associated Industries of Massachusetts and the Massachusetts Audubon Society found that only five of the state's 35 semiconductor firms were filing the annual reports on waste generation required by state law. As evidence of poor waste disposal practices, the task force report listed several high-tech firms that have been contributors to sites cleaned up with money from the Environmental Protection Agency Superfund.

These included Raytheon Corp. and Digital Equipment Corp., which contributed to the cleanup of a toxic waste site in Lowell, Mass., the report stated.

The report quoted a Massachusetts Department of Environmental Management official, who had estimated that 50,000 tons of hazardous waste annually are flushed down sewer pipes and not treated. Reports on groundwater pollution from a high-tech industrial park in Burlington, Mass., found corroded lines leading "from some of the high-tech plants, indicating that 'corrosive chemicals were dumped into the lines,'" according to the report.

Data base needed

The report recommended that Massachusetts commission a comprehensive report on toxic chemical use, waste generation and related health consequences. "Without such a data base and periodic updates, neither those involved in managing high-tech firms nor those who are concerned . . . can confidently estimate the serious risks involved," the report asserted.

Christopher Anderson, a spokesman for the Massachusetts High-Technology Council, concurred with the estimate that companies in the field are producing 20% of the hazardous waste generated statewide, and he supported the thrust of the task force report. "Anytime an attempt is made to raise public awareness, that is good," he said of the issue.

But at present, Massachusetts has no hazardous waste dumping site. "The state needs a place to site [dump] this material correctly," he said, adding that the industry has offered to consider for new or expanded high-tech plants communities willing to host a hazardous waste disposal site.
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earned one of the top positions in the industry, and that status is what the CDLA attempted to address in its recent annual meeting.

Should IBM Credit participate in the CDLA’s electronic trading net, and should IBM Credit and similar captive credit corporations be encouraged to seek membership in CDLA? CDLA members do not want to give IBM Credit any more of an edge, but they also do not want to cause IBM Credit to go out and establish separate market channels over which it would have total control.

IBM Credit is presently the only captive credit corporation that threatens the health and sanity of third-party dealers and lessors, although AT&T’s expected entry could add a different dynamic. It has been widely claimed that IBM salesmen receive financial awards to steer business to IBM Credit, although some third-party participants claim the salesmen are going to benefit whether the user leases through IBM Credit or an independent.

Growing 30% annually

And IBM Credit is certainly leasing a lot of machines, if the $100 million-a-month figure is accurate, but it is not yet enough to blunt a third-party market that is heavily focused on IBM equipment and is growing at an annual rate of better than 30%.

But at some point, the equipment that IBM Credit has put out on 36-month leases is going to come back into the market for resale. That process will begin next year as IBM Credit’s first leases expire, but it will really pick up steam the following year and after.

In the leasing business, much of the profits are made when the equipment leases expire; the equipment — after being largely paid off by lease payments, investment tax credits and depreciation credits — is then reconditioned and remarketed used machines, and some third-party participants have even questioned certain economic policies upon which IBM Credit is present-ly basing its lease rates. But as IBM has shown many times over the years — even more dramatically over the past two years — it follows very few losing propositions.

Even though the third-party market is growing at a rate almost double that of the computer industry as a whole, the CDLA suspects that this market could be as successful in the used market as it is presently in the leasing market is very troubling to CDLA members. They may not want to play in a totally different league.

DEFENSE


"The need for such a joint effort became recognized as one way to stop the escalating cost of software deve-loped for the Department of Defense," said V. Edward Jones, a TRW executive who will serve as director of the executive committee studying the plan.

Jones noted that the cost of software development has been rising, while hardware development costs have been declining. "A joint re-search effort may reduce these costs and solve the problem of efficiently producing complex software systems for the Department of Defense and remaining competitive with foreign competition," he said.

Similar joint ventures have already been formed — among them the Microelectronics and Computer Technology Corp., a 19-company con-sortium based in Austin, Texas. The U.S. Department of Justice has per-mitted that venture to proceed, although it has raised some questions about joint research and development efforts by competing firms.

Antitrust liability reduced

Last month, the U.S. Congress approved legislation that reduces the antitrust liability for joint research ventures by high-technology firms. Edie Cartwright, spokeswoman for TRW, declined to say whether there was a connection between announce-ment of the consortium plan and Con-gress' action. She said the companies have been discussing the idea since early this year.

The initial planning site will be a TRW facility here.

Each of the participating compa-nies is putting up $50,000 to fund the project through the planning stage. It has yet to be determined how much money would be needed if the consor-tium was chartered, according to Cartwright.

The planning will involve working out business, financial, legal and technical arrangements. The group will also consider where to locate a permanent site. Some of the criteria for site selection will be the availability of computer professionals, support from local educational institutions and governments, as well as factors such as living costs, community interest and quality of life.
Shugart reduces work force, cites stiff market competition

SUNNYVALE, Calif. — Shugart Corp., a Silicon Valley disk drive maker, last week announced plans to lay off 250 nonproduction employees in response to deteriorating profit margins.

"The disk drive market is very tough, and we have to reduce our overhead expenses," said Shugart President William Bayer. "We're having a margin, not a shipping volume, problem though," he said, claiming that last month's shipping volume reached an all-time high.

Bayer said competition in the disk drive marketplace has caused prices to drop and margins to decay. "There are 70 or 80 companies in this business, and there's only room for 10 or 15," he said.

Some industry analysts have blamed a soft personal computer market for the slump in the disk drive industry, but Bayer disagreed, claiming that the market is "in correction following an oversupply. The [personal computer] market will be back up by Christmas." Shugart, which reportedly posted a $50 million loss last year, has reduced its work force by 1,000, largely through attrition. The company now employs about 1,800 persons in California, Mexico and Europe.

Once the world leader in floppy disk drive production, Shugart began to lose market share in mid-1982, when 5-1/4-in. disks replaced 8-in. disks as the industry standard, analysts said.
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Day & Zimmermann, Inc., currently serving major clients in Saudi Arabia, is seeking qualified professionals for the following positions:

- Project Manager
- Applications System Manager
- Contract Manager
- Systems Analyst
- Contract Administrator
- Analyst/Programmer
- Administrative Coordinator
- Technical Writer
- Operations/Systems Coordinator
- Word Processor Analyst

Candidates should possess a BA/BS Degree, IBM, COBOL—Business Applications Experience, DOS/VSE or MVS, JCL required. Selected candidates must be available to work in Saudi Arabia and the United States.

We offer generous salary and fringe benefits programs. In addition, while in-Kingdom, free housing, transportation, R&R leave, foreign service premiums and bonuses are provided.

Send resume and salary history to:

Mr. Stephen E. Foell
Day & Zimmermann, Inc.
1118 Market Street
Philadelphia, PA 19103

Equal Opportunity Employer M/F

Project Management/ Systems Analysis

Gas Research Institute is at the forefront of new generation Wang VS systems development and sophisticated office automation systems technologies. Functional departments utilize sophisticated data processing support through an on-line real-time system and personal computers.

Position will assume responsibility for the design of new information systems to meet existing and future data processing needs, coordinate project development with outside consultants, as well as involvement in systems analysis and programming.

Requirements include five plus years’ DP experience primarily in systems analysis with on-line real-time systems. Knowledge of COBOL and DBMS required, experience with telecommunications and Wang VS systems desirable.

For consideration, forward resume complete with salary requirements to: E.L. VOLK, Dept. CS11, GAS RESEARCH INSTITUTE, 8600 West Bryn Mawr Avenue, Chicago, IL 60631. An equal opportunity employer M/F/H.

INSURANCE

SOFTWARE SALES

Property/casualty insurance software leader seeks a degreed software sales professional.

A willingness to travel extensively plus a minimum of two years successful software sales experience, preferably in property/casualty insurance, will qualify you for this highly-paid, ground-floor opportunity.

If you have above-average energy and drive, and are able to close a sale, please reply in writing to James W. Mitchell, Vice President-Personnel or call (414) 458-9131.

EDP/People

With competitive salaries, the fast paced "in the know" environment of Robert Half of Dayton are exciting opportunities for energetic, seasoned PDP 11/44/45 professionals. As one of the nation’s largest recruitment firms, we offer a variety of positions in the information sciences.

Applications Analyst...1BM with measurements...

If you are interested in advertising with Computerworld, but don’t know how to do it, give us a call! We will be glad to send you our current rate card, which explains sizes, costs, deadlines and requirements. All you have to do is ask! Our toll free number is 800-343-6474, in Massachusetts call (617)879-0700, just ask for the Classified Advertising Department. Or, you can look for our classified order form located in the classified section of Computerworld. Fill it out, attach your ad with a check, and return it to us. Computerworld Classified Advertising, 375 Cochituate Rd., Box 880, Framingham, MA 01701.
**SYSTEMS DEVELOPMENT**

Datacare, a leader in developing online interactive systems for healthcare, continues to expand its system development staff. Immediate openings in management and staff positions for technically-oriented professionals. Successful candidates we seek must have experience in one or more of the following areas.

- Healthcare systems analysis
- Healthcare systems design
- Interactive online IBM systems environment
- Programming language BAF/COBOL
- Data communications - CICS
- Systems programming - DOS/VSE
- IBM - Series 1 with RPS

We offer an excellent compensation package with growth potential. For an interview, please send your resume and salary history to:

Personnel Director
P.O. Box 8217
Roanoke, Virginia 24014

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**Human Resources Information Systems Professionals**

Combine your FOCUS experience and your administrative skills in an exciting career with an information technology leader.

Harris is a Fortune 200 corporation with sales of $2 billion and Florida's largest industrial employer. Government Systems is a division of the largest systems and services company in the world. It produces custom communication and information processing equipment for the U.S. Government as well as a variety of commercial applications. We presently have an opening for a Human Resources Officer in our Government Systems Division.

As our Personnel Data Base Administrator, you will support the entire Sector by coordinating and administering all aspects of the IDMS Personnel Data Base. Employee records on over 9,000 active employees are maintained in our system, which utilizes IBM 3801 hardware, FOCUS processing, and an IDMS data base.

Responsibilities will include developing complex programs (and others, as needed), training new users, and working with MIS to develop major system enhancements. Special projects and ad-hoc reports you develop will be presented and discussed by top management.

Qualification applicants should have three to four years of application programming experience in FOCUS, SASH, or IDMS, experience, and exposure to human resource functions, programs, and systems. Strong analytical and communication skills are also needed. Ability to work with a diverse user base and a strong understanding of human resource management is essential.

Harris offers an excellent compensation/benefits package, a formal merit review program, and a beautiful Melbourne, Florida location. Melbourne offers an attractive cost-of-living with affordable housing and no state or local income taxes. Send your resume in confidence to: Janice J. Brauns, Harris Corporation, Melbourne Support Operations, P.O. Box 37,901, Melbourne, Florida 32901.

We are an equal opportunity employer M/F/IV/V.

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**Systems Professionals ... Get On-Line With An Expanding System In An Expanding Company**

The Sisters of Charity Health System is a network of 11 hospitals and facilities located throughout the South and Southeast. Our expansion and conversion to a larger, more sophisticated computer system operation has created a number of challenging opportunities for highly motivated systems professionals, preferably possessing some prior experience gained in a patient care support environment.

**Capacity Planning Analyst/Systems Programmer**

This key position requires a degree in Mathematics or Computer Science, possessing a minimum of 6 years data processing involving operations, systems programming, and performance analysis. A background of working a knowledge of SASH, RAMS, and FOCUS, experience in hardware configuration, and performance analysis of large COBOL and IMS systems is essential.

**Data Base Specialist**

The professional we seek must possess a minimum of 2 years in a data base administration group and experience in hardware interfacing in SQL and CICS/ IMS. A background to include knowledge of LCC 10 and/or interlink helpful.

**Programmer Analyst**

Selected candidate will be degree in Mathematics or Computer Science and possesses a minimum 4 years maintenance and development experience using extensive COBOL. Experience with financial and on-line systems is essential. Knowledge of report writer (SASH) would be a plus.

These challenging positions offer a salary commensurate with stability and experience as well as an excellent compensation package. Qualified applicants are encouraged to forward resumes indicating salary history, in complete confidence to: Manager of Support Services, Sisters of Charity Health System, 1777 Watkin Rd., Suite 211, Dallas, Texas 75231.

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**DATACARE**

**EMPLOYMENT SERVICE FOR PROGRAMMERS AND ANALYSTS**

National Openings With Client Companies and Through Affiliated Agencies

Scientific and commercial applications • Software development and systems programming • Telecommunications • Control systems • Computer engineering • Computer marketing and support

Call or send resume or rough notes of objectives, salary location restrictions, education and experience (including computers, modes, operating systems, and languages to)

RSPV SERVICES, Dept. C

Suites 700, One Cherry Hill Mall
Cherry Hill, NJ 08002

(609) 487-4466

From outside New Jersey, call toll-free 800-828-0150

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**FIELD ENGINEERS**

Dataserv Computer Maintenance is expanding nationwide. We have immediate openings now!

These are key positions and provide excellent opportunities that could lead to further promotion. In a fast growing company, we offer excellent salary, fringe benefits and an incentive compensation plan unmatched in the industry.

Your potential for personal advancement with our $130 million company is the greatest now as we expand.

Positions now available in:

- Decatur, IL - Field Engineer
- Rockleigh, NJ - Field Engineer
- Indianapolis, IN - Field Engineer
- Minneapolis, MN - Field Engineer
- Los Angeles, CA area - Technical Support Specialist

Immediate opening for a Technical Support Specialist for the support of IBM 3663 Grocery Scanner Systems. IBM 3651 Controler experience is a definite requirement.

Additional Management openings:

Regional Manager: Computer Maintenance

This person will manage our maintenance operations in the Midwest region. Experience in maintenance management is required, preferably with involvement in data centers. Residence in the Minneapolis area will be required.

Salary range $49,000 to $55,000 annually.

National Manager: Computer Maintenance

This person will manage our data center maintenance operations in the U.S. Experience in maintenance management is required, preferably with involvement in data centers. Residence in the Minneapolis area will be required. Duties will also include providing assistance to the vice president of field engineering.

Salary range $49,000 to $55,000 annually.

Dataserv will have additional openings soon for experienced Field Engineers and technical specialists in major cities throughout the United States. If you're considering a change, contact us for a review of our company and your career goals.

For immediate confidential consideration call 619-933-5757 or TOLL FREE - 800-358-6729 or send resume to: B.A. Walters, Dataserv Computer Maintenance, P.O. Box 3003, Hopkins, MN 55343.

An Equal Opportunity Employer M/F
Security Kernel Development and Verification

We are looking for several experienced technical people to contribute to the development and formal verification of a new security kernel— a Trusted Computing Base that will be a candidate for a Class A1 evaluation from the DoD Computer Security Center.

The computer science or sufficient equivalent background and experience to understand the principles underlying secure system design.

The emphasis of our group is development, not research. We have a running prototype Kernel in hand, and the members of our development group have completed initial training in formal specification techniques and language. We intend to apply the concepts of secure system design and verification to build real secure system products that can have an impact in the marketplace.

We are located in the suburbs of Boston. Interested candidates should send their resume to CW-B4086, Computerworld, Box 880, Framingham, MA 01701.

'Unix is a trademark of System Development Corporation.'

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**Security Kernel Development and Verification**

**Position:** Security Kernel Developer

**Responsibilities:***
- Develop and verify a security kernel for a Trusted Computing Base (TCB) that will be evaluated for a Class A1 security level.
- Work closely with other team members and developers.
- Contribute to the design and implementation of secure system components.

**Qualifications:**
- A degree in computer science or related field.
- Experience in operating system design and implementation, and security.
- Familiarity with formal methods for specifying and verifying system properties.

**Benefits:**
- Competitive salary.
- Comprehensive benefits package.
- Opportunities for professional development and growth.

**Contact:**
Send your resume to SecurityKernelDept@TeamTech.com.
SYSOREX INTERNATIONAL is involved in an exciting automation project for the Saudi Arabian government. At the present time, the project is in the physical design phase. The systems architecture is based on local area networks and a distributed mainframe. To help us in this project we need a top flight:

NETWORK SYSTEMS PROGRAMMER

The person we are seeking should possess:

- A solid background in telecommunication software on large scale IBM systems (SNA/VTAM/MVS).
- Experience in the design of telecommunication systems.
- Any additional knowledge of local area networks and/or digital PBX technology would be advantageous.
- Customer service, with strong communication skills, both written and oral. College degree.

We believe this position offers challenge, career growth and a significant financial opportunity to the right individual. This position reports to the Section Head of Technical Support in the Technical Services Branch.

We offer an excellent benefit package including: medical, life, accidental death, disability and profit sharing plans. We will additionally receive 25 working days vacation, 15 holidays, free room and board (at a home return travel, paid relocation expenses, plus eligibility for present Federal Employees Travel Service.

Please send resume, with present salary to Personnel Dept.

**OCTOBER 22, 1984**

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**SYSOREX INTERNATIONAL**
Senior EDP Auditor

Large electric utility corporation with centralized data center and four remote sites is seeking an experienced Senior EDP Auditor. Job responsibilities include:

- Participate in development of annual EDP Audit Plan
- Prioritize and schedule assigned audit projects
- Plan and accomplish or supervise accomplishment of assigned audit projects
- Review fieldwork performed by subordinates
- Prepare or review resulting audit reports.

Should have professional certification and B.S. in Computer Science or business related field with minimum of three years experience in auditing facilities for instructional, research, and administrative functions. Required experience includes system development using both assembly-level and high-level languages, and supervisory experience in coordinating all enhancements to the telecommunications network on central large-scale IBM mainframes and distributed smaller processors running MVS/ESA and VAX/VMS. You must have 3 years related experience and in-depth knowledge of ACF/VTMAD, MSF, ACF/DFP, Telecommunications monitoring, and CMS/OS/MVS operating systems. A BS in Computer Science or Electrical Engineering is required. Masters degree is a plus.

Harris offers a comprehensive salary and benefits program, as well as relocation assistance to our headquarters in Orlando, FL. Send resume with salary requirements to:

Resumes are handled in confidence.

Sr. Telecommunications Systems Programmer

Harris, a Fortune 200 corporation with sales of $2 billion, is a leading producer of state-of-the-art communications, information processing and microelectronic products for the worldwide information technology marketplace. We have an immediate requirement for a Sr. Telecommunications Systems Programmer in our Corporate Information Processing Center in Melbourne, Florida.

In this capacity, you will be responsible for the installation and maintenance of ACF/VTMAD, ACF/DFP related management network software, CICS, IDMS/DC, and other data communications software. You will also be responsible for recommending, planning, and coordinating all enhancements to the telecommunications network on central large-scale IBM mainframes and distributed smaller processors running MVS/ESA and VAX/VMS. You must have 3 years related experience and in-depth knowledge of ACF/VTMA, MSFP, ACF/ICF Telecommunications monitoring, and CMS/OS/MVS operating systems. A BS in Computer Science or Electrical Engineering is required. Masters degree is a plus.

Harris offers a comprehensive salary and benefits program, as well as relocation assistance to our headquarters in Orlando, Florida. Here you will find a delightful year-round climate, a beautiful ocean setting, affordable housing within minutes away from your job, and no state income tax.

For confidential consideration, please forward your resume with salary requirements for Susan Standing, Harris Corporation, Dept. CW, 1025 W. NASA Blvd., Melbourne, FL 32903. We are an equal opportunity employer M/F/H/V.

IF IT'S HAPPENING IN ELECTRONICS, IT'S HAPPENING AT HARRIS.
NCR is a marketing-oriented, $3.7 billion computer company that knows exactly where it's going. We are launching an exciting new venture and we are assembling a top marketing team to not only take us into Pharmacy Management Systems, but make us the industry leader.

To qualify, must be a pharmacy/POS specialist with at least 2 years experience installing and tuning CICS in an MVS environment. Initial task will be the installation of CICS 1.6. Experience in data processing, preferably 5 of 11/780's and 11/750's. U.S. Citizenship required. For more information, call David Shouse at (303) 497-7339.

IDMS SYSTEMS PROGRAMMERS
Washington, D.C. Area

Opportunities exist for applicants with 5-10 years data processing experience, an indepth knowledge of IDMS/DB, DC, IDD: ADS/O, OLE, OLM, CULPRIT and IDMS utilities. For more information call Fred Mitchell at (202) 382-0534.

If unable to call, send your resume in strict confidence to: Charles B. Cagle, Director, Human Resources, Vanguard Technologies Corporation, 9504 Lee Highway, Department 131, Fairfax, VA 22031. An Equal Opportunity Employer.
For the first time, MIS managers and software publishers will be able to easily produce custom reports showing which programs best meet particular requirements, based on the extensive, detailed test data available only from Software Digest. The ticket: $1500 to $3500 per application, or $9500 per year—a significant commitment, but a good investment when compared to the time, money and effort that this service can save large users of personal computers.

At Ryder Truck Rental, we are setting some trends by providing our MIS professionals the front-line responsibility for integrating micro, mini, maxi, and mainframe systems. IMS, VSAM, DB2, DBMS, IMS or DB2, and all other major systems and software programs. We exceed the performance requirements of our business. Proudy, we are a subsidiary of Ryder System (which was named Florida's 1983 Company of the Year). We are the largest, full-service truck leasing and rental operation in the world. We are dynamic, people-oriented and on the fast track to success.

We offer an outstanding compensation, company paid benefits and relocation package geared to attract top-notch professionals with top-notch computer companies.

We represent banking and financial institutions throughout the U.S. If you have 2 or more years experience in a Burroughs or IBM environment, give us a call or send your resume to: Mr. David Morgan, 32015 S. Wilmington Ave. Suite 101, Carson, CA 90745 (213) 546-0925 or (714) 739-0747

President, Computer Manufacturer, Dallas. developing and implementing corporate strategy on manufacturing, engineering, marketing and finance. Specialize in management information system design, implementation, development, and control. Strong background in finance, computer software. Call (800) 224-8800 for an employment application.
Dillingham Maritime has an opening in our Seattle M.I.S. department for a Systems Programmer. Responsible for systems software installation and maintenance, system tuning and performance management, data com and program development support.

Qualified applicants will possess a minimum of 3-4 years experience with IBM operating systems software, preferably DOS/VSE, CICS, VTAM/NCP and DL1.

Competitive wage and fringe benefits package includes relocation allowance. Send resume with salary history in confidence to: Mr. Ken Carnahan, Director, Human Resources, Dillingham Maritime Co., 660 West Ewing, Seattle, WA 98119, EOE. m/t/h.

Bell Atlanticom Systems, Inc.

SYSTEMS PROGRAMMER

November 5 & 6, 1984
4 pm - 9 pm both days
Hillcrest Function Center
Waltham, MA

This fall, SoftFair '84 returns to Boston. Many of the area's top flight companies will be at SoftFair offering exciting career opportunities to experienced software professionals in a variety of Software Engineering, Scientific and Business Applications areas related to: DEVELOPMENT, SUPPORT, IMPLEMENTATION, TRAINING, QUALITY ASSURANCE, SALES, MARKETING, and MANAGEMENT. Come in, meet these companies, and get a really good view of the software marketplace...

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If you can't attend SoftFair '84, send a resume with cover letter, in complete confidence, stating which companies you'd like to have receive your resume, to Dave Callahan, Software Career Link, Dept. CW 1022, 67 South Bedford Street, Burlington, MA 01803, or for more information call (617) 239-5153.


Data Processing Opportunities at Rohr...

Current implementation of a new manufacturing control system has created new development assignments for:

Senior Programmer

This position requires an individual with a Bachelor's degree plus at least 4 years experience including financial applications experience. Requires knowledge of large scale IBM mainframes and MVS/3800 and on line, as well as familiarity with COBOL, C/C++, and IS/OS.

Sr. EDP Auditor

Requires an individual capable of providing top-notch support to EDP internal audit department. Will work with both EDP and business department personnel to evaluate internal control in new systems, existing systems and computer facilities. 8 degrees in accounting, computer science of business plus at least 3 years EDP auditing experience or an equivalent position having a major auditing environment. Also requires proficiency in 370 and MVS/3800 processing. Full travel involved.

Teleprocessing Coordinator

Requires 3-5 years experience with transmitting data communications systems. Will prepare budgets, specifications, specifications, develop computer programs and support end users in computer operations. Must have 4 degrees in electrical or data-related field.

Rohr offers a competitive salary and excellent benefits package for qualified persons and is an equal opportunity employer.


SoftFair '84

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500 DP Openings

Burlington, MA 01803

The Software Professionals' JOB FAIR

105 Center, Princeton, NJ 08540. An equal opportunity employer.
NEW 4381 INSTALLATION

The following expert staff are required to form the technical nucleus of the newly expanded Computer Department of the Royal Oman Police. Micros, Minis and Word Processors are already in use and an IBM 4381 has recently been installed.

The Royal Oman Police is an expanding and progressive Force with wide ranging responsibilities, including Customs and Immigration.

A) OPERATIONS MANAGER $36,854 tax free

Minimum of 8 years experience of which at least 3 years must have been spent as an Operations Manager in an on-line, real-time environment using MVIS, TSO, IMS, CICS, and JES 2. Experience in installation planning an advantage as would be a knowledge of SNA and PL/I.

B) PROJECT LEADER $36,854 tax free

Minimum of 8 years IBM experience of which at least 3 years must have been spent as a chief systems analyst or project leader in an on-line, real-time environment using MVIS, IMS, CICS, and COBOL. Database design experience an advantage, as would be a knowledge of SNA and PL/I.

C) SENIOR ANALYST/PROGRAMMERS $29,000 tax free

Minimum of 5 years IBM experience of which at least 3 years must have been spent designing and programming online applications in a CICS/1 environment using COBOL, including at least one major project from design to implementation.

D) SENIOR SYSTEMS PROGRAMMERS $29,000 tax free

Minimum of 5 years IBM experience of which at least 3 years must have been spent in a systems support role in an on-line, IMS, CICS environment. Experience of SNA an advantage.

These appointments are family status and offered on contract terms of service for an initial period of 2 years. The salaries shown above are calculated at current exchange rates and are inclusive of an "end of contract" payment of 20% of the amount shown per annum. Other benefits include furnished, air-conditioned accommodation, car, medical treatment, and 60 days leave per annum for the Operations Manager and project leaders (45 days for the others).

Interviews will be held in the U.S.A., around the third week of November.

Applications with detailed curriculum vitae attached should be forwarded not later than 1st November to:
Inspector General of Police and Customs, Attn: Assistant Inspector General (P), C/o. Gregg International, P.O. Box 11618, Kansas City, MO 64138. Tel. 816-358-4925.

Acquire one of the most demanded & rewarding programming skills in America. A complete & practical guide to CICS command level programming. It’s based on CICS latest version 1.6, examples are written in COBOL, with special emphasis on VSAM. It covers virtually every CICS technique you’ll ever need.

Minimum of 8 years IBM experience of which at least 3 years must have been as a chief systems analyst or project leader in an online realtime environment using MVIS, IMS, CICS, and COBOL. Database design experience an advantage, as would be a knowledge of SNA and PL/I.

To: CCD Online Systems, Inc.
1367 Crested Butte Drive
Dallas, TX 75203

(Allow 1 or 2 weeks for delivery)

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DEPARTMENT HEAD - COMPUTER SCIENCE

Applicants must be able to teach Telecommunications, COMMAND level CICS, and operating systems. Minimum qualifications: Master’s in computer science and two years administrative experience.

INSTRUCTOR - COMPUTER SCIENCE

Applicants must be able to teach Data Base, PL/I, and/or Assembler. Minimum qualifications: Bachelor’s in computer science and three years instructional or applications experience.

Salaries commensurate with experience. Apply Lincoln University, Perkasie, PA 18944. Tel. 215-363-6000. Ask for our resume bookouth or for our resume bookouth or for our resume bookouth or for our resume bookouth.

If you don’t have an advertising agency to supply us with copy, layout and order, or camera ready mechanical, stat or film negative of your ad, just call one of our ad-takers at 1-800-343-6474. They will be glad to take your ad and typeset it in available fonts at no extra charge. If you have lengthy ads that require logos and artwork, just send a clean typewritten copy of your ad to the classified advertising department at COMPUTERWORLD (telecolor service is available); and size you want; and, if you want your company logo to appear in your ad, please be sure to include a camera-ready copy with your insertion order. You should also supply any special borders, headlines and artwork that you want in your ad. Our Art Department will follow your suggested layout as closely as possible if you wish to send one.

Ad closing is every Friday, 6 working days prior to issue date.

Rates: Open rate is $128.10 per column inch. Columns are 2" wide. Minimum ad size is 2 column inches (1 column inch by 2 inches deep), and costs $256.20 per insertion. Additional space is available in half inch increments. Some sample sizes and costs are shown.

1 col X 4" - $ 512.40
2 cols X 4" - $1024.80
2 cols X 5" - $1281.00
2 cols X 8" - $2049.60

Discounts are available when you run more than 35 column inches of advertising in a year anywhere in Computerworld. Box Numbers are available, $15 per insertion.

To reserve space for your ad, or if you’d like more information on Classified advertising in COMPUTERWORLD, call our office nearest you.

Boston - (617) 879-0700 or (800) 343-6474
San Francisco - (415) 421-7330
Los Angeles - (714) 556-6480

TELECOPIER SERVICE

(617) 879-0700 or (800) 343-6474
ext. 451 or 410

Cynthia J. Delany, Classified Operations Manager

COMPANY

Achiver's Only Position immediately available for an individual to gain experience in a state-of-the-art (primarily IBM oriented) developing and implementing on-line business applications at THE PENNSYLVANIA STATE UNIVERSITY in the office of the Vice Provost for Business. Enjoy a stimulating university environment, educational opportunities, pleasant community, excellent schools, liberal fring benefits and an attractive salary.

Requirements include a Bachelor's Degree or the equivalent and a minimum of 1 to 4 years of effective experience in programming and systems design.

Send a letter of application, resume and salary requirements to:
Employment Division
117 William Blvd., Box 1174
University Park, PA 16802
Application Deadline, November 1

An Equal Opportunity/Affirmative Action Employer

IT'S EASY TO ADVERTISE IN COMPUTERWORLD. IF YOU DON'T HAVE AN ADVERTISING AGENCY TO SUPPLY US WITH COPY, LAYOUT AND ORDER, OR CAMERA READY MECHANICAL, STAT OR FILM NEGATIVE OF YOUR AD, JUST CALL ONE OF OUR AD-TAKERS AT 1-800-343-6474. THEY WILL BE GLAD TO TAKE YOUR AD AND TYPESET IT IN AVAILABLE FONTS AT NO EXTRA CHARGE. IF YOU HAVE LENGTHY ADS THAT REQUIRE LOGOS AND ARTWORK, JUST SEND A CLEAN TYPED COPY OF YOUR AD TO THE CLASSIFIED ADVERTISING DEPARTMENT AT COMPUTERWORLD (TELECOLOR SERVICE IS AVAILABLE); AND SIZE YOU WANT; AND, IF YOU WANT YOUR COMPANY LOGO TO APPEAR IN YOUR AD, PLEASE BE SURE TO INCLUDE A CAMERA-READY COPY WITH YOUR INSERTION ORDER. YOU SHOULD ALSO SUPPLY ANY SPECIAL BORDERS, HEADLINES AND ARTWORK THAT YOU WANT IN YOUR AD. OUR ART DEPARTMENT WILL FOLLOW YOUR SUGGESTED LAYOUT AS CLOSELY AS POSSIBLE IF YOU WISH TO SEND ONE.

If you don't have an advertising agency to supply us with copy, layout and order, or camera ready mechanical, stat or film negative of your ad, just call one of our ad-takers at 1-800-343-6474. They will be glad to take your ad and typeset it in available fonts at no extra charge. If you have lengthy ads that require logos and artwork, just send a clean typewritten copy of your ad to the classified advertising department at COMPUTERWORLD (telecolor service is available); and size you want; and, if you want your company logo to appear in your ad, please be sure to include a camera-ready copy with your insertion order. You should also supply any special borders, headlines and artwork that you want in your ad. Our Art Department will follow your suggested layout as closely as possible if you wish to send one.

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Boston - (617) 879-0700 or (800) 343-6474
San Francisco - (415) 421-7330
Los Angeles - (714) 556-6480

TELECOPIER SERVICE

(617) 879-0700 or (800) 343-6474
ext. 451 or 410

Cynthia J. Delany, Classified Operations Manager
Sr. Data Base Administrator
San Francisco Bay Area

American President Lines, Ltd., an international transportation corporation, has an opportunity for a senior level data base administrator to join our corporate data base staff.

Successful candidate must have significant experience in physical and logical data base design, Cullinet products installation/support, and IDMS internals and performance tuning.

We offer excellent salary commensurate with your experience and outstanding company benefits: Relocation provided. For immediate consideration, please send your resume in confidence to: M.G. Daglow, Management Recruiting, 1850 Franklin St., Oakland, CA 94612. Responses will be limited to request for interview. We are an equal opportunity employer.

SOFTWARE ENGINEER: Master of Science in Computer applications with one year of experience. To design and implement high performance data base applications utilizing industry standard components. Ability to analyze applications using knowledge of runtime programming, multi tasking, data communication, and document generation. In-depth knowledge of Cullinet system. Prior experience must include multi-programming, multi-tasking and data acquisition. Must know MVS/IDMS. An equal opportunity employer. Contact: M.G. Daglow, Management Recruiting, 1850 Franklin St., Oakland, CA 94612. Responses will be limited to request for interview. We are an equal opportunity employer.

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