Users of 8100 led down path

IBM will port DPPX to 9370

By Jean S. Bozman

IBM will port the DPPX operating system for its 8100 distributed processing systems to run in native mode on the IBM 9370, the company confirmed last week. But 8100 users seeking a speedy migration path will have to wait at least two years.

Although no public announcement has been made, a company spokesman confirmed that an evaluation of DPPX/SP executing on the IBM 9370 was successfully concluded. "We are proceeding with development, which is expected to take at least two years," the spokesman said.

That two-year development effort may not be enough to retain the loyalty of 8100 users, many of whom, according to a recent survey, are evaluating or planning migration to other alternatives (see story page 91).

IBM said it decided to retain DPPX/SP as a full-function product for centrally managed distributed networks. The spokesman added, "We believe that DPPX/SP is a state-of-the-art software product that provides high levels of function and capability."

Central-site management DPPX allows central sites to monitor remote 8100 sites and, if necessary, to shut them down. For this reason, some industry analysts believe that DPPX will strengthen the role of central-site management in a distributed network of IBM 9370s.

In a speech to the User Group last spring, an IBM executive said the company planned no further迁移 efforts at this time. Unfortunately for DPCX users, the spokesman said last week. While the 8100's days appear numbered, the IBM 8100 is still in production, the IBM spokesman said last week.

Users can buy 8100 hardware, software and applications from IBM until an unspecified time. After that time, alternative is available, the company said. In addition, users may buy older 8100 models, including 8130s and 8140s, from third-party re-sellers or vendors, industry analysts said.

The fate of the DPCX operating system appears tied to the remaining lifespan of the 8100. In its presentation to Guide last spring, IBM said DPCX would not be functionally enhanced in the future. Unfortunately for DPCX users, said a company spokesman, "We believe that DPPX/SP is a state-of-the-art software product that provides high levels of function and capability."
Fannie Mae system wins out

Fixed 1,500 software bugs before start-up

By Mitch Bette
WASHINGTON, D.C. — Despite 1,500 software bugs that had to be fixed and a cost overrun of $25 million, the Federal National Mortgage Association, commonly called Fannie Mae, successfully cut over to its new Laser Reporting data base system in October and has achieved three months of smooth operations, according to a major user of the system.

Skeptics had doubted the $50 million system would work because of the numerous software bugs in the complex Cobol software and the lack of a backup system [CW, Aug. 11]. The skeptical atmosphere a year ago, is echoed in statements by programmers at Fannie Mae as well as outside mortgage lenders who traded data to the company.

"A lot of them are amazed that we got it installed, but they acknowledge that we got it in, it works and it's costing a creditable job," said Richard Leegant, senior vice-president for mortgage administration at Fannie Mae and the major in-house user of the system. Laser Reporting provides monthly updates on two million loans, based on monthly accounting reports filed by 600 lenders.

Leegant reported that the error rate for Laser Reporting was 2% in its first month and was subsequently reduced to 1.5%. He attributed the successful installation to a pilot test that essentially put the system through a dress rehearsal and numerous 10-hour days spent by teams of users and programmers aiming to meet the Oct. 1 deadline for start-up.

Leegant said the pilot test ran for four months with 10% of the loan data while the old exception system was still running. "So when we went live with Laser, there were no surprises, because we had run the equivalent of a parallel system for several months with a substantial volume of loans," he said.

Furthermore, he said, virtually all of the 1,500 software bugs were minor. Most of the bugs took only four to eight hours to fix, Leegant added, noting that a recent audit showed that 99% of the Cobol was structured code.

MAP/TOP users group signs COS for financial assist in development

By Rosemary Hamilton
PHOENIX — The complex and expensive task of establishing networking standards for the factory floor and office environment has prompted a users group to seek both technical and financial assistance from the Corporation for Open Systems (COS), an independent group made up primarily of vendors.

The Manufacturing Automation Protocol/Technical Office Protocol (MAP/TOP) Users Group officially agreed last week to sponsor a June 1988 demonstration of MAP/TOP Release 3.0, an independent group made up primarily of vendors.

According to Charles Gardner, chairman of the MAP/TOP Users Group Meeting Committee, COS will take development and financial responsibility for approximately 40% of the user effort, which in the estimated will have a total cost of between $15 million and $20 million.

The MAP/TOP Users Group, which is an international group of vendors and users whose goal is to accelerate the establishment of computer and networking standards.

A COS spokesman said the organization did not know what the total cost of MAP/TOP test development would be but estimated that COS's portion would represent a $3 million to $4 million investment. She also said the 40% portion assigned to COS by the users group is still being worked out.

"It may have been possible to do it on our own, but it would have been hard for us to figure all these costs by ourselves," Gardner said.

Despite this alliance, the MAP/TOP organization found itself unable to ready all the necessary tests by the original target date in November for the debut of MAP/TOP Release 3.0.

According to Tony Durham, a users group member who serves as MAP liaison to the General Motors Corp. advanced engineering staff, when the delay has nothing to do with the development of the MAP/TOP Release 3.0 specifications, which he said will be ready by year's end.

MAP and TOP are sets of emerging standards that are based on the International Standards Organization's Open Systems Interconnect seven-layer networking model. MAP, whose major backer is GM, was designed for the factory floor; TOP, whose primary promoter is Boeing Computer Services Co., was to be MAP's counterpart in the office environment.

MAP/TOP Release 3.0 is an originally scheduled for public introduction at the Autofact '87 trade show, which will take place in November. Unlike the MAP demonstration at the Autofact '86 show, which Gardner characterized as a prototype version of future products, the users group wanted the Release 3.0 demonstration to show product-level components.

To achieve this, the users organization decided that a whole series of tests would be needed. All suppliers, including hardware and networking vendors, will be required to pass the conformance tests to ensure that their products adhere to the MAP/TOP Release 3.0 specifications.

When the users group announced the Autofact '87 debut of Release 3.0 last September, it was negotiating with COS to join in what was then described as the 1987 MAP/TOP Enterprise Networking Event. As negotiations proceeded, "we realized that the testing program time line did not follow the original projection," GM's Durham said.

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January 19, 1987
You say you've always had very simple tastes? All you ever wanted was the best?

Well, step into our showroom and kick a few tires! We'll show you two programs that are the Ferrari and Lamborghini of VM programs.

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Forever upgrades Multimax parallel processor

Designed as general, not specialized, system

By James Connolly

MARLBORO, Mass. — Acknowledging it is depending on software developers to produce commercial data processing Unix software that can be optimized on parallel processors, Encore Computer Corp. last week introduced a parallel system designed to give twice the performance of the firm's first processor.

Senator President James R. Pimpa said the Multimax 320, unlike many other parallel processors, is designed as a general-purpose computer rather than as a specialized scientific system. "We believe general-purpose parallel processing is an emerging trend," Pimpa said. He cited data base management as one of the key markets for parallel systems.

The basic difference between the Multimax 320 and the year-old Multimax 120 is the use of a National Semiconductor Corp. 32332 processor in the newer system rather than the 32202 in the Multimax 120. The Multimax 320 uses Encore's 100M byte/sec. Nanobus system bus and EPROM-based operating system, which were introduced with the Multimax 120.

However, the Multimax 320 will run a version of UMAX designed to be compatible with AT&T Unix System V.3 or the University of California at Berkeley Unix Version 4.3.

Encore claimed the 32332 processes up to 2 million instructions per second (MIPS). The Multimax 320 houses up to 10 processor cards, each with two microprocessors, for a maximum performance of 40 MIPS, compared with 15 MIPS for the Multimax 120, Pimpa said. The processors can share 128M bytes of main memory and 1000 bytes of storage. Encore also announced a mass storage device that said to increase I/O to 60M byte/sec.

Scheduled to be available in April, the level-4, 4-MIPS Multimax 320 costs $131,000. Additional processor cards cost $29,000 each.

Pimpa reported that Encore has installed 40 Multimax 120s, with about 30 of those being delivered to research centers and the remainder being used in commercial fields, including the commercial scientific area.

"If all of those 40 machines are revenue-producing machines for Encore, that's an interesting development. That means they have been more much aggressive than I expected," noted Item President Omri Serlin, a Los Altos, Calif.-based observer of the parallel processing industry.

Serlin said several parallel processor makers have been trying to drive into the commercial market, particularly in the data base area, but that packages such as database will require heavy modification by Encore before they are suited for parallel processing.

Serlin and Thomas Willmott, vice-president of International Data Corp., a Framingham, Mass.-based market research firm, said Encore has made progress in reducing expenses. Willmott said Encore was hurt by the resignation of cofounder Gordon Bell last year but that Bell was instrumental in developing the Nanobus, which the company can build upon for several years.

Willmott said a downside of the Multimax 320 is the machine's continued use of National Semiconductor chips when many Unix systems are running Motorola, Inc. microprocessors.

-- Computerworld

Forecaster predicts fizzle

From page 1

Just Groucho Marx's former PR man.

Whether he's servicing coaches or fans, Goode relies on the same 80-page computer printout, a compilation of 170 something football variables.

Each week, he trundles down to the nearby Unicomp computer center to log his weekly stats through a Univac 1106 computer. He claims to have finished a book on the game, "The Greek is an interesting person, but you could write the world's thinnest book on what he knows about football. That's a quote." Indeed.

What Goode does is a sea of numbers, many of which are said to flow from differential variables. For example, consider his most significant stat of all, the difference in the number of running plays.

He bases his Giants-by-four pick in this Sunday's Super Bowl XXI on this key category.

The league leads the executive in executing more running (or road, football parlance) plays than their competition. This year they averaged 16 more rushing plays per game than the opposition.

Denver, on the other hand, is not a strong rushing team, averaging a relatively paltry 1.4 rushing-play advantage against the competition.

"I'm surprised to find Denver with five first downs on the ground against the Giants," Goode notes.

"They have to try to win.

But be careful there, Bronco quarterback John Elway, because if you throw more than two interceptions, you have committed what Goode calls "a fatal error in computerese," meaning your chances of winning are

-- Computerworld

The Giants' Lawrence Taylor

extremely remote.

"The Giants' Lawrence Taylor is a defensive force, shake you, and well, you are at the inexorable Goode conclusion: The Giants shall triumph on the ground, while the Broncos fill the air with footballs.

True to form, Goode won't bet on the game. But he does gamble in the stock market. "The last few days have shaken up the market," he recently told me. "I'm thinking about buying my wife a T-Bird."

-- Howard, editor of Network World, a CW Communications publication.
NAS improves AS/XL channel rate with dyadic processor

By Jeffry Beeler

MOUNTAIN VIEW, Calif. — National Advanced Systems Corp. (NAS) last week plugged a hole in its largest mainframe family by introducing a dyadic processor that reportedly provides a performance compromise between IBM's 3090 and 33% faster AS/XL series of IBM-compatible machines. The company also doubled the channel throughput from a maximum of 3M byte/sec. to support the AS/XL family's improved channel rates.

The introduction enables the semicon ductor disk subsystem with the addition of a second controller option, the 7970-3. Rounding out its suite of announcements, NAS disclosed its intention to make expanded memory available as an option on all its AS/XL-series models, including the just-announced AS/XL 70. Support for expanded memory will begin during the third quarter.

Reaction favorable

Among industry analysts, reaction to last week's NAS moves was generally favorable. New York investment banking firm Kidder Peabody & Co. Vice-President Adam Cuhney said he expects the announcements to appeal strongly to the company's target customers.

"During fiscal 1987, NAS has been nothing short of phenomenal in its ability to attract new accounts," Cuhney said; the latest additions to the AS/XL line will almost certainly make the increased speed possible sells for $87,750.

IBMer seeks to selling NAS a customer. During the system announcement, however, NAS claims to have noted a sharp upturn in the number of users who want more power than a 3090 Model 200 can deliver but who are unwilling to jump to a Model 400. So to provide such users with a happy medium, the vendor decided to create a deliberately degraded version of the AS/XL 80, according to Carl Claunch, director of NAS systems marketing.

The result is the AS/XL 70, which outperforms the AS/XL 60 by 20% to 40% but offers only 60% to 80% as much internal throughput as the AS/XL 80, Claunch said. Although both of NAS's Sierra-class dyadic mainframes boast identical channel and main memory capacities, the AS/XL 70 holds just half as much channel and dynamic working storage — 128K bytes and 512K bytes, respectively, as the AS/XL 80.

Configuration options

For any given top-of-the-line NAS mainframe, users will have the option of configuring up to half their available channels for 6M byte/sec. operation. The twofold improvement in the AS/XL's data rates necessitated the introduction of the 7970-3 controller, which moves up to 6M byte/sec. In extending the increased channel speed to the 7800 semiconductor disk subsystem, NAS expects to halve the mainframe line's I/O response times and double its I/O transaction rates, according to Minh L. Le, director of the firm's peripherals marketing.

The AS/XL 70, which holds up to 256M bytes of main memory, costs $5.28 million in a minimum configuration of 32 channels and 64M bytes. Customer shipments of the machine will start by the end of the current quarter.

Support for the semiconductor disk subsystem's 6M byte/sec. channel transfers, by contrast, will begin in April. The 7970-3 controller that makes the increased speed possible sells for $87,750.
Wang moves to beef up its application development system

Package easier to use, extends current features

By Rosemary Hamilton

LOWELL, Mass. — Wang Laboratories, Inc. last week rolled out a new release of its Professional Application Creation Environment (PACE) software that increases the package's basic functionality, such as its ability to integrate PACE data with software applications from Wang and other vendors.

PACE 2.0, a set of software application development tools built around a relational data base management system, is available now with license fees starting at $1,83,000. Current PACE users under service contracts can upgrade without charge; users without contracts can upgrade for fees starting at $850. "Now I can just hop out of PACE and into the host language interface environment." Ano claimed the VS 7110 provides up to three times the power of a VS 300, gave the software high marks. "It enables us to talk from the base out in about half the time we would take coding it in Cobol," he claimed.

PACE 2.0 expands integration beyond Wang Word Processing to WP Plus and increases the Wang Office electronic mail functions for the PACE environment, according to Judy Cole, a PACE product manager.

The application development components include PACE Data File and PACE Programming functions, such as more flexible relationship definitions to define fields.

The data dictionary has an expanded number of rules that can be applied to enhance production of data and ensure data consistency.

The decision support component of the system now includes such features as the ability to merge a spreadsheet with a query or data file at runtime.

Wang takes offensive

From page 1

The VS 7000 systems include a top-of-the-line VS 7310-300 product comparable to the earlier high-end VS 8000 but with room for conversion to a dual-processor 7320 when that product is shipped later this year. The other three VS 7000 systems — the VS 7110, VS 7120 and VS 7150 — reportedly provide gains of up to three times in the performance of the VS 85 and VS 100. The older systems will continue to be marketed, according to Wang officials.

During the announcement, Wang President Frederick A. Wang said the firm will expand its sales force, particularly with personnel experienced in vertical markets, and will improve its consulting and customer support.

Wang reported that orders for the VS 300 rose in late 1986, but he said that the balance of orders has been tilted too far toward lower end systems such as the VS 60 and VS 65.

"What we really have to do is leverage the momentum we have going. I don't mean the host momentum but the order-rate momentum," Wang said. He charged there is still a misconception on the part of some observers that Wang is a word processing company and said the VS series was designed as a distributed DP system 14 years ago and continues to serve in that role.

The new VS models use the same hardware architecture, based on Wang's CP6 67.7M byte/sec. system bus, and operating system — Wang VS Release 7 — as the VS 300.

Noting that Wang recently eliminated bugs in VS Release 7 in order to introduce the VS 300 run program, analyst John McCarthy of Cambridge, Mass.-based Forrester Research, Inc. said, "The announcement is important for Wang because it puts the problems of the VS 300 behind them and lets them define the architecture that does work." McCarthy and other analysts said they are not seriously Changed, but when asked if the announcement was a message rather than the technical capabilities of the systems. To him, the announcement is important for Wang because it puts the problems of the VS 300 behind them and lets them define the architecture that does work. "What we really have to do is leverage the momentum we have going. I don't mean the host momentum but we order-rate momentum," Wang said. He charged there is still a misconception on the part of some observers that Wang is a word processing company and said the VS series was designed as a distributed DP system 14 years ago and continues to serve in that role.

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McCarthy said, the message was that Wang wants to differentiate clearly the VS product line from competing DEC and IBM lines. He said the VS 7000 systems appear to be more reliable and easier to produce and upgrade than the earlier systems.

"The most interesting thing from my point of view was the positioning of the products and the way Wang is putting on a new and fresh face and telling the world how they want to be perceived as a DP company. In terms of the VS line, it is rejuvenated but not seriously changed," said Richard Mikita, director of processor programs at International Data Corp., a market research firm in Framingham, Mass.

Van Weathers, director of the business computer group for Dataquest, Inc., a San Jose, Calif.-based market research company, said the significant performance gains in the VS 7000 should help the company boost its lagging high-end sales.

One market research firm that was less positive about the announcement was the Yankee Group in Boston.

"Some of the things they didn't talk about or elaborate on are most important," said industry analyst Irene Costello, noting that the most important products are the VS 7320, the resource sharing facility and the VS virtual machine environment.

She said one subject Wang should have addressed was a continuing public perception that Wang's service and support are poor.

One Wang customer reported he was pleased with the announcement, even though the new products will have minimal impact on his company. "Now I want to see what comes next," said Neal O'Brien, director of systems and programming at Mony Financial Services in Syracuse, N.Y. O'Brien, whose company uses numerous smaller VS systems, said he hopes the high-end activity signals moves throughout the rest of the Wang product line, particularly with minicomputer and personal computer integration.

Unfamiliar with details

Most MIS managers questioned about the announcement said they were unfamiliar with the details. However, Philip D. Dowlin, director of information services for Midcon Services Corp., was present for the introduction and reported his company has received a VS 7150. He said the installation went smoothly.

The three VS 7100 systems are housed in a 36- by 36- by 25-in. cabinet designed for an office environment. Each system features a minimum memory of 4M bytes, with expansion capability to 16M bytes, and supports up to 128 users.

Wang Vice-President Harold P. Ano said the active users supported without performance degradation, depending on the application mix, are 35 to 70 for the VS 7110, 50 to 70 for the VS 7120 and 60 to 120 for the VS 7150.

Ano claimed the VS 7110 provides 11M instruction per second of performance of the VS 85, while the VS 7150 provides up to three times the power of the VS 100. The price, from $90,000 for the entry-level VS 7110 to $220,000 for a fully configured VS 7150.

The VS 7310-300 provides the performance of a VS 300 but is housed in a 36- by 48- by 25-in. cabinet with space for a second processor.
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1-CWX-870119
ANSI's SQL standard differs from IBM's, other versions

By Charles Babcock

The standard for Structured Query Language (SQL) published by the American National Standards Institute (ANSI) differs slightly from IBM's and other marketplace versions of the relational data base access language, according to members of the panel that authored the standard.

SQL is used as the data access and manipulation language for IBM's DB2 and SQL/DS relational products as well as for relational products from Oracle Corp., Relational Technology, Inc., Informix Software, Inc. and Uni-

Applications written in ANSI-standard SQL that take advantage of its extensions could not be run against DB2, said Phil Shaw, editor of the ANSI X3H2 Committee document that was published as the standard.

Shaw is a senior programmer with IBM's General Products Division in San Jose, Calif.

On the other hand, if the applica-

tion were restricted to the SQL commands common to the ANSI standard and IBM's version, it would execute correctly with DB2, he added.

Standard debated, approved

The publication of the standard in December represented the final step in the approval process that began in October 1982. The X3H2 panel is a technical committee of the ANSI X3 Committee, which is responsible for standards supervision. Both commit-

tees debated and approved the stan-
dard and submitted it for public re-

view before publication.

Publication of an SQL standard, however, will not halt developments in the language, according to X3H2 Committee-Vice-Chairman Carol D.

Joyce, data base management systems development manager at Relational Technology.

"We are going on with extensions to SQL and will continue to do so for the foreseeable future," Joyce said. These extensions include a scrollable cursor that could go backward to FETCH a previous row as well as for-

ward for the next row, a constraint of the current forms of SQL, she said.

When approved, the new version of SQL will be announced as SQL2.

Major differences

The major differences cited by Shaw and Joyce between the ANSI standard and IBM SQL are the follow-

ing:

• IBM SQL requires the words integ-
er and decimal to be spelled out in proper case.

• In IBM SQL, a column is con-

sidered as unique in a clause in the CREATE INDEX statement; the ANSI standard allows the clause to be spec-

ified as unique in the CREATE TA-

ble statement.

• In IBM SQL, a UNION cannot be

performed without first removing duplicates; in the ANSI standard, the UNION statement is allowed to remove duplicates by invoking an ALL option.

• Reserved key words differ be-

tween IBM and other implementations and the ANSI standard; users will need to define key words that go beyond those in the standard to take advantage of features in ven-

dors' implementations.

"Shaw said most of the differences between IBM SQL and the ANSI standard are no greater than the differ-

ence between IBM SQL and another vendor's version of the language. Joyce said work on an Internation-

al Standards Organization standard has proceeded in step with the ANSI committee's work and that at this point, the two standards remain identical. Feedback from European users was incorporated into the final version of the ANSI standard, she said.

1-2-3 sue! Lotus vs. clones

From page 1

Software's VP Planner and Mosaic's Twin, which have a look and feel very similar to that of 1-2-3. "While imitation is the sincerest form of flat-
tery, in these two cases it happens to-

be the sincerest form of theft as well," claims Jim Marzi, Lotus chair-

man.

But, says Adam Osborne, presi-

dent of Paperback Software, "1-2-3 was nothing but a copy and extension of VisiCalc [the first electronic spreadsheet, produced by the former Software Arts, Inc.], while VP Planner is a massive improvement over 1-2-3." Officials of Mosaic were un-

willing to comment.

Osborne says a countersuit will likely be filed. "Clearly, what they are after is restraint of trade," he says, "to make sure that nobody can com-

pete and drive down their prices," he charges.

Users undeterred

Despite the charges, users of VP Planner vow to continue with the product. "Lotus should be competing with 1-2-3 and not competing in the court," says Joe Plaing, planning offi-

cer for California First Bank in San Francisco, who says VP Planner is supple-

ing 1-2-3 for his uses.

For Lynne Hughes, a financial analyst with McDonnell Douglas Tymenet in Santa Monica, Calif., VP Planner is better than 1-2-3. "I don't think Lotus will win. Lotus doesn't have a lot of VP Planner's features," Hughes says.

Although some suits, which seek $10 million from each firm for puni-

tive damages, threaten the survival of the defendants whose sales pale in comparison with Lotus's, the biggest impact may be on the entire software industry and user community.

If Lotus prevails in the suits, ob-

servers say, software developers may be forced to make applications different simply to stay out of court, at a major cost to increased educa-

tion. In fact, if the courts were to have fully protected the look and feel of software, 1-2-3 might never have been developed, some argue.

"Should the world not have had 1-2-

3? Should Mitch have been afraid?" asks Dan Bricklin, president of the Software Garden, co-author of Visi-

calc and former Lotus employee.

According to Bricklin, Mitch Kap-

or, the former chairman of Lotus and co-author of 1-2-3, was beta-test-

ing versions of VisiCalc while devel-

oping 1-2-3. Bricklin sold Software Arts, the firm he headed, to Lotus, along with the rights to VisiCalc, which is not now marketed by Lotus.

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The implications are horrendous. But others, such as Peter Marx, a partner in the Boston law firm of Gar-

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Javelin approach

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IBM finds friends in bid to influence standards bodies

From page 1

Groupe Bull, under the auspices of the French standards organization, will propose that elements of IBM's peer-to-peer networking protocol, LU6.2, become part of OSI transaction processing specifications that the subcommittee hopes to hammer out by June. An earlier IBM proposal to include elements of LU6.2 in the American National Standards Institute's (ANSI) OSI recommendations was rejected.

The subcommittee, an organization of 21 representatives from standards bodies in Europe and North America, will meet in Paris to discuss at least two rival proposals defining basic transaction processing services, such as how to send and receive data, perform updates and send acknowledgements and error messages.

One set of specifications that does not conform to LU6.2 was co-authored by John Neumann, vice-president of Siemens, and submitted by ANSI; the other, submitted by the IBM-Siemens-Bull triumvirate, is an exact replica of LU6.2, Neumann claimed. "There is going to be a fight," he said.

Short vs. long run

While an IBM victory should benefit suppliers in the short run, in the final analysis, the industry — and ultimately the users — would lose out, according to Connecticut Mutual Life Insurance Co. data processing officer William Burroughs.

"In the long run, companies will be paying for IBM's protocols. 'IBM is the tax collector,'" Burroughs said. "But if the users in the short run, in the final analysis, the insurance company has made a tax hurdle decision over the $25.2 million liability projected by STC and much less than the $640 million that the Internal Revenue Service credited STC owed in back taxes, interest and penalties [CW, Dec. 15]."

"The 22.8 million includes $20.2 million STC between 1977 and 1984 and $2.7 million owed by its subsidiary, MicroTech, Inc. STC Chairman Roy Poppa said the company was pleased with the decision. "

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ReaSon #2: ARRAY PROCESSING OPTIMIZES ACCESS TO LARGE SETS OF DATA.
Relational DBMSs have always dealt with logical sets of data. But they manipulated only one physical record at a time. V5 eliminates overhead by physically delivering arrays of hundreds, even thousands, of records at a time.

ReaSon #3: PARALLEL-PROCESSING OPTIMIZES COMPUTER RESOURCE USAGE.
V5 is 100% re-entrant shared code, and ORACLE’s parallel-processing architecture fully exploits modern dyadic and quadratic processors from IBM, and other multi-processing computers such as those from DEC and Stratus. So ORACLE uses all the MIPS in parallel-processor configurations.

ReaSon #4: MULTITABLE CLUSTERING OPTIMIZES JOINS.
ORACLE stores data from different tables on the same physical disk page. This technique—called multi-table clustering—permits you to access data from multiple tables in one disk read operation. Clustering improves ORACLE performance on all multi-table operations, such as join queries, update transactions, etc.

ReaSon #5: HIGH-SPEED RELATIONAL SORT FACILITY OPTIMIZES DATA AGGREGATION.
Ad hoc relational queries frequently request that data be grouped, ordered or otherwise sorted. V5’s internal sort facility performs aggregation and elimination early, faster than previously thought possible.

ReaSon #6: EFFICIENT ROW-LEVEL LOCKING OPTIMIZES TRANSACTION THRUPUT.
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**Wordstar upgrade bids to win back market**

By Peggy Watt

SAN RAFAEL, Calif. — Die-hard Wordstar users say they are glad to get an upgrade after more than three years, but Micropro International Corp.'s efforts may be too late to glean enough new users to return the flagship product to its former status.

Wordstar 4.0, announced last week and scheduled to be available in February, features more than 125 enhancements, including an UNDO command, macros, path support for subdirectories, some calculation features, more printer drivers and some on-screen text formatting, according to Micropro and early evaluators.

The new version also includes a 220,000-word Word Pinder thesaurus from Microlytics, Inc., an 87,000-word spelling dictionary, enhanced Mail Merge and indexing programs. Specialized legal, medical and financial dictionaries are available separately.

A single-user version is $495, and a local-area network file server version is $585, with node versions for $180 each.

Upgrades will be available for $89 to Wordstar users, who must report their software's serial number but need not return the disk. Those who bought Wordstar after Dec. 1, 1986, will receive a free upgrade.

Even Micropro President Leon Williams expects the first takers to be the Wordstar faithful rather than new users.

"There are a lot of users out there who haven't gotten much software from us lately," he says. "We're still in the process of getting our Lotus upgrade from a year ago."

"Back to the market"

"I think it's going to put them back in the market," says John Conrad, systems analyst for Pacific Bell in San Francisco, which has nearly 3,000 Wordstar users.

"We reluctantly stayed with Wordstar over the past years because, while it lacks some features, it is one of the most compatible for ASCII conversions or imports to and from spreadsheets," he says. But industry analysts who approve of the new features also say the update may be too late.

"Micropro has a tough row to hoe," says Bill Higgs, software analyst for InfoCorp, a Cupertino, Calif., market research firm. "If users are still with Wordstar, they're probably hard-core and will upgrade. I think Micropro will probably have a pretty healthy conversion rate. But the new customers will probably not be enough to vault them back to number one."

Micropro is beckoning new buyers with a rebate offer of $100 cash back or $300 worth of utility programs, including Borland International, Inc.'s Sidekick and Ready from Living VideoText, Inc.

The new features, while substantial, are limited enough to keep from infringing on Wordstar 2000, Micropro's high-end word processing package, Higgs adds. "They don't want to cannibalize that product."

The caution of protecting Micropro's other products cripples Wordstar, according to Tim Bajarin, vice-president of the microcomputer research division of Creative Strategies Research International in San Jose, Calif.

"They haven't really taken it to third-generation word processing" by adding sophisticated page formatting and publishing features, Bajarin adds. "I think that's a mistake. Wordperfect, Microsoft Word and others are leapfrogging Wordstar. We should have had this upgrade a year ago."

**CEO deserts Datapoint**

By Clinton Wilder

SAN ANTONIO — Struggling Datapoint Corp. suffered another setback last week when President and Chief Executive Officer Edward P. Gistaro resigned unexpectedly, citing personal reasons.

A corporate statement said Gistaro, 51, declined to discuss his future plans.

Gistaro had been with Datapoint for 13 years, and he had also served on the company's board of directors for 10 years.

**Interim CEO named**

Executive Vice-President and Chief Operating Officer Doris D. Bencisk, 55, was appointed interim CEO until a permanent replacement is named by Chairman Asher B. Edelman.

Bencisk joined Datapoint in 1982 after holding positions at Data General Corp. and Honeywell, Inc.

Gistaro's departure came less than two months after John L. Hale unexpectedly resigned as president of Intelogic Trace, Inc., which was Data-point's former service division that Edelman spun off as an independent company in 1985 [CW, Dec. 8].

Datapoint reported a loss of $4.5 million on revenue of $71.4 million in its most recent quarter that ended Nov. 1.

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3017-6783
Enmasse aims Unix systems at commercial DP market

By James Connolly

ACTON, Mass. — Enmasse Computer Corp. is expected to introduce its second generation of Unix-based systems this week with the announcement of a multiprocessor designed to support more than three times as many users as Enmasse's 1-year-old ECS1000.

The Acvation-based company is scheduled to announce the ECS2000 at Uniforum 1987, the International Conference of Unix Users in Washington, D.C.

Like the ECS1000, the ECS2000 is based on Motorola, Inc.'s 68020 microprocessor. However, the newer system reportedly features backplane and memory controller modifications designed to provide full 32-bit processing and data flow, rather than the 16-bit data flow of the ECS1000.

Tom Perry, Enmasse vice-president for sales and marketing, said the new system will carry a list price of up to 120 user connections to each application processor in the ECS2000, compared with 32 connections per application processor in the ECS1000. Application processors and user connections reportedly can be added in increments. With the connection of up to 24 application processors to the central file processor, the ECS2000 supports up to 2,880 users. Enmasse claimed the ECS2000 performs an aggregate of 200 million instructions per second (MIPS), but Perry said the processors perform about 6 to 7 MIPS on a single job.

The ECS1000 reportedly can be upgraded to an ECS2000 in the field. The ECS2000 runs EOS, which is Enmasse's version of AT&T Unix System V.2.

An entry-level, eight-user ECS2000 configuration costs $29,900 and includes 6M bytes of memory, a 172M-byte disk drive, a cartridge tape drive and an EOS license. Support for more users can be added in eight-user increments at a cost of $400 per user. Perry said a mid-range system would cost $60,000 to $120,000 and a high-end system could cost more than $1 million.

Firm readies automation tool

Targets burgeoning computer-aided mart

By Mitch Betts

WASHINGTON, D.C. — A veteran California software firm will leap into the computer-aided software engineering (CASE) market this week with the first in a family of products for automating the software development process for general business applications.

Caseware, Inc. will introduce Amplify Control, a Unix-based software development environment for large systems, at Uniforum 1987, the International Conference of Unix Users.

Users, here.

Officials said the product automates the management and organization of software development and will be followed by integrated modules that automate software design, project management, documentation, support and software building.

The CASE market, which analysts expect to grow to nearly $1 billion in 1990, is predicated on the MIS manager's interest in improving programmer productivity and reducing the costs of software development and maintenance.

David W. Bernhardt, president of the Costa Mesa, Calif.-based firm, said in an interview that Amplify Control is the first CASE product for general business systems, rather than vertical markets.

Initially, Amplify Control will run on Sun Microsystems, Inc. Sun-2 and Sun-3 workstations and is intended for producing software in the C language. It will be modified to run on other workstations and to develop code in other programming languages, the vendor said.

Amplify Control integrates several of the software development tasks — such as the coding, testing and debugging cycles and configuration management — into a uniform environment.

The environment features the use of windows, a mouse and a graphics-oriented user interface so users can graphically navigate through the software system by viewing structure diagrams and then access source code directly through these diagrams, according to the vendor.

Other features include a version control facility, automatic generation of Unix "make files" to update software development information, a structure diagrammer and a security facility, the vendor said.

Version control major concern

Bernhardt said that version control is one of the biggest concerns of MIS managers because of the high cost of distributing software that contains errors.

"It only takes one file that is not updated properly for you to have a bad release. If you've ever been on the receiving end of a bad release, you know how bad it is. If you've ever been on the giving end, it's a nightmare," Bernhardt said.

The next module to be released, Amplify Design, will enable programmers to create and link data flow diagrams and structure diagrams but cannot translate diagrams into code, Bernhardt said. The last module, Amplify Build, is expected to use artificial intelligence techniques to generate code and will be released in two to three years, he said.

Amplify Control will be licensed to end users at a cost of $7,800 per workstation CPU, with volume discounts available. Shipments are scheduled to begin in early April.

Until last month, Caseware was known as Computers West, Inc., an applications software developer founded in 1976. Bernhardt changed the name to reflect the firm's new thrust into the CASE market.

Sun, Applix, Televideo prepare Unix introductions for conference

Major hardware and software vendors are expected to announce significant Unix-oriented products at this week's Uniforum 1987, The International Conference of Unix Users in Washington, D.C. Below are a few announcements unearmarked last week.

Sun Microsystems, Inc. will introduce an expandable, low-end monochrome workstation and a 141M-byte disk drive on Tuesday at Uniforum 1987.

The Sun-3/140M, with a base price of $10,900, contains 4M bytes of main memory and can accommodate up to 282M bytes of local mass storage. Last year, the vendor introduced the Sun-3/50M, a low-end monochrome workstation that could be purchased as a diskless system or as a hard-disk version with a 17M-byte capacity.

Beyond expanded storage capacity, the workstation has been designed to allow users to add up to four optional Sun boards.

The 141M-byte disk drive will be offered with all Sun-3/50 and Sun-3/100 systems and costs $6,900. A mass-storage subsystem version, which would include a 60M-byte 14-in. cartridge tape, costs $8,900.

Sun will offer a packaged version of its 3/50M with the new disk drive for $15,150. The 71M-byte hard-disk version introduced for $13,900 last February.

PC-As is an optional feature of the Alis system that lets users of IBM PCs and compatibles access Alis's integrated office automation software.

You can run part of Alis on your DOS PC and part of Alis on your host and get access to a full work group computing environment," said John Butler, vice-president of sales and marketing for Applix.

A full system, such as NCR Corp.'s Tower family, Digital Equipment Corp.'s VAX family or a workstation file server, is required to run an Alis-PC. The PC is linked to the host through Ethernet.

Televideo Systems, Inc. will announce this week three computers that can act as multi- or single-user systems.

The firm will formally unveil the Telexin 386, which serves eight to 12 users and is three times as fast as the IBM Personal Computer AT, a company spokesman claimed.

Telexin 386 is based on the Intel Corp. 80386 microprocessor and will come standard with 2M bytes of random-access memory, expandable to 16M bytes, and expansion slots, the spokesman said.

The system will also include a version of Unix and Merge 386 from Microport Systems, Inc., which gives users the ability to toggle between Microsoft Corp.'s MS-DOS and Unix applications and run those applications concurrently.

All three announced systems will come standard with serial and parallel ports, a proprietary monitor, hard disks, a 14-in. high-resolution graphics monitor, a 1.2M-byte floppy and MS-DOS 3.1.

In a move aimed at tapping the software market for the large base of Intel users, Applix, Inc. will announce PC-Alis this week.

PC-Alis is an optional feature of the Alis system that lets users of IBM Microsystems, Inc. will introduce an expandable, low-end monochrome workstation and a 141M-byte disk drive on Tuesday at Uniforum 1987.

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Beyond expanded storage capacity, the workstation has been designed to allow users to add up to four optional Sun boards.

The 141M-byte disk drive will be offered with all Sun-3/50 and Sun-3/100 systems and costs $6,900. A mass-storage subsystem version, which would include a 60M-byte 14-in. cartridge tape, costs $8,900.

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PC-Alis is an optional feature of the Alis system that lets users of IBM
Alliant boosts performance with enhancements to FX/8

By Donna Raimondi

LITTLETON, Mass.— Alliant Computer Systems Corp. last week announced enhancements to its FX/8 parallel processing systems that are said to improve performance up to 56% on some applications and to improve performance up to 400% in disk I/O throughput over the existing one.

Alliant said to improve performance up to parallel processing systems that are announced enhancements to its FX/8 scientific system. These enhancements include a new version of the FX/Fortran compiler, disk striping, and a four-times-larger — now 512K-byte — and more advanced cache memory, according to Alliant.

The disk-striping feature seems to have generated the most interest in users. “It’s very important for image processing applications,” said FX/8 user Keith Miller, manager of the computing technology section at The Analytic Sciences Corp. (TASC) in Reading, Mass. The ability to transfer data in parallel will allow overlapping pictures on top of other pictures.

Disk striping is an operating system feature that distributes individual files across up to four disks, each with its own controller, and allows access to all disks in parallel. Alliant said four-way striping provides a 400% improvement in disk I/O throughput over the existing one.

Chips updated

A new interactive processor — the unit that executes interactive jobs and performs I/O and operating system functions — contains Motorola, Inc. 68020 chips instead of the previous processor’s Motorola 68012 chips and will deliver twice the computational performance of the older processor at the same price, Alliant said.

The increased cache allows up to eight computational elements (the parallel processor units) to deliver more of their peak performance when executing a single large job in parallel.

For Miller, whose FX/8 has three computational elements and four interactive processors, the enhancements could speed up jobs. When TASC got the FX/8 in July, it discovered speedups from four to 30 times that of the Digital Equipment Corp. VAX-11/780 it had before. “A 512K-byte cache would help us. If there is a bottleneck in the machine, I think it is still in the cache,” Miller said. Analysts at The Analytic Sciences’ system has a 128K-byte cache.

Version 3.0 of the FX/ Fortran compiler optimizes a broader range of source-code constructs and algorithms, Alliant said. Delivered performance on the Supercomputer Linkpack benchmark increased 56% to 25 million floating-point operations per second.

All systems purchased now will ship with the new cache and interactive processors; the software has begun shipping. The company has upgrade packages for the new cache, priced at $80,000 per 256K-byte board, and interactive processors, costing $3,500 each, that will ship in the second quarter.

The FX/Fortran Version 3.0 and Version 3.0 of Alliant’s Concentrix operating system, needed for the disk striping, are supplied to current customers at no additional charge under existing software maintenance contracts. To use the disk-striping feature of the operating system, users need a disk controller, priced at $5,000, for each additional stripe.

Prime to premier

By Stanley Gibson

NATICK, Mass. — Seeking to boost its standing in the lucrative scientific and engineering markets, Prime Computer, Inc. will introduce a minisupercomputer that uses parallel and vector processing techniques in the second quarter of this year.

The processor, priced at less than $1 million for a full installation, will go head to head with the machines of Alliant Computer Systems Corp. and Convex Computer Corp. The first customer installations are expected late this year.

“It’s a minisupercomputer optimized on numerical performance. It’s about 10 times as fast as a supermini-computer but is priced at one-tenth the price of a Cray,” said Carl Ledbetter, Prime’s vice-president of scientific computing, in a news briefing in advance of the product’s formal announcement, referring to Cray Research, Inc. supercomputers.

The machine will run at 40 nsec, will be air-cooled with a fan and will require no exotic parts, Ledbetter said. The computer is now in development test by its manufacturer, Cy dredrome, Inc., formerly Axiom Computers, Inc., located in Milpitas, Calif...
Retailers decentralize with micro-based in-store systems

Use tools to organize schedules, payroll

By Alan Alper

NEW YORK — Decentralization, the buzzword of the data processing industry, is beginning to make its way into the lexicon of retailers, as small and large businesses alike begin adopting microcomputer-based systems to handle everything from point-of-sale (POS) to financial and administrative applications.

At the National Retail Merchants Association (NRMA) Conference held here last week, retailers talked about the virtues of microcomputers, standards in the electronic delivery of documents and the need for better software tools for analyzing data collected by POS systems.

While some smaller retailers were looking for their first POS system, medium-size to large retailers were evaluating second-generation equipment, much of it micro-based, and offering enhanced connectivity to corporate data bases residing on mainframes at headquarters.

‘Allow more efficiency’

“In-store processing is the direction more and more retailers are going,” noted Kathleen Gette, a MIS consultant with Arthur Young in New York. “Micros allow each store to collect more data and to be more efficient.”

Indeed, micros are having an immense impact on productivity at Marshall Field & Co., in Chicago. The mass merchandiser has recently begun using a microcomputer-based system to improve customer service by linking staffing to store traffic.

“Marshall Field believes fervently in the concept that our service level at the point of sale is a crucial element in maintaining and increasing our competitive advantage over other traditional department store retailers within our trading market,” said Walter Brown, vice-president of productivity and staffing.

The firm is using a package designed by Garr Consulting Group in Marietta, Ga., which runs on IBM Personal Computer XTs, ATs and compatibles, to set sales agents’ work schedules, breaks and revenue goals. By using a computer to handle scheduling, the department store chain hopes to free middle management of mundane tasks, allowing staff members to more effectively manage their departments.

The computerized scheduling system is a significant and first step in developing an integrated payroll management system within each store, Brown said. Marshall Field expects to install a timekeeping system running on the same micro as the scheduling package at each store, he added.

Encoded badges

The system will use encoded card badges, which when inserted into a card reader will provide daily, weekly, pay period, week-to-date and pay period-to-date information by worker and expense center. This data will be sent to the corporate payroll system via modem.

Other retailers, such as Hechinger Co., a Landover, Md., household goods chain, seek better software packages for in-store POS systems.

“We view that technology as providing us with a competitive edge,” said Robert DeMarcos, vice-president of MIS at Hechinger.

DeMarcos also said his company is evaluating the feasibility of using electronic data interchange. “It would enable us to put through purchase orders faster and more accurately,” he added.

Continued from page 14

according to Ledbetter.

“I think that [Cydrome] will be successful. But were it not for their relationship with Prime, they would be too late,” offered Jeff Canin, industry analyst with Hambrecht & Quist, Inc. in San Francisco. Canin said the minisupercomputer field is becoming crowded and that Prime’s marketing muscle will help the new computer to compete.

A Prime spokesman termed the relationship between Prime and Cydrome a joint development and marketing agreement under which both Prime and Cydrome will sell the product.

Ledbetter said the machine performs between 6 and 20 sustained million floating-point operations per second harmonic on the Livermore Loop and, according to that measurement, outperforms other minisupercomputers currently on the market.

The computer runs AT&T’s Unix System V Release 3. The 64-bit computer processor will have a Portran compiler and will support Ethernet and Transmission Control Protocol/Internet Protocol.

Prime said it hopes to sell the computer to users of Prime computer-aided design and manufacturing (CAD/CAM) systems for testing models created on the CAD/CAM system, in much the same way that Apollo computers are sold with Apollo Computer, Inc. workstations.

Ledbetter also hinted that Prime will introduce an advanced workstation that will complement the product later this year.

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Declaration of independents

There's a foul smell emanating from Section 1706 of the Tax Reform Act of 1986. As of this writing, the government is still trying to determine the most politically expedient interpretation of this section. While the drama unfolds, independent programmers and computer consultants are in limbo. Section 1706 threatens the status of the independents, or so it would seem. The problem is that no one seems to know whether it applies to independent contractors working through brokers, to those working directly with clients or to both. Since the section took effect Jan. 1, hundreds of thousands of independents are paying taxes against possible tax payments. Others are simply putting contractual arrangements on hold until the government can make up its mind.

No matter how one slices it, Section 1706 was ill conceived at best. To begin with, it is uncertain just how it got into the tax code. The more closely its genesis is viewed, the more it looks like Section 1706 was thrown into the reform hopper the way one tosses TV Guide into a shopping cart at the checkout counter. It's just another item.

Further, Section 1706 is curiously selective in terms of whose loopholes it attempts to close. Specifically, it applies to "an engineer, designer, computer programmer, systems analyst, or other similarly skilled worker." Independents working in nontechnical fields are safe from its grasp.

It is likely the tax reformers had it in mind to deal with the scores of programmers who, while functioning for all intents and purposes like permanent, full-time employees of one primary employer, exploited so-called safe harbor provisions and reaped the tax benefits of independent businessmen.

There is no questioning the merit of tax reform that brings scofflaws in line. But there are thousands of independents who may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. There are thousands of independents who, may get sucked under by a reform undertow. 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Learning how to profit from the EDP audit experience

By EFREM MALLACH

LEADER'S PLATFORM

By DONALD LATHAM

'It is essential for, and incumbent upon, the government to initiate measures to prevent the abuse or misuse of sensitive or unclassified information by those who would seek to invade the privacy of U.S. citizens, to obtain an unfair advantage in business dealings, to avoid law enforcement efforts or circumvent the intent and purpose of laws passed by the Congress.'

The policy is not intended to and will not affect authorized access to classified or government-derived information.

Federal rebuttal: Security policy won't protect private sector

A news article and editorial that appeared in the Nov. 24 issue of Computerworld contain inaccuracies I would like to correct and clarify. The statements in question appeared in the front-page article entitled, "Fed's sound red alert on data," and in the accompanying editorial entitled, "For our eyes only.

The news article, in an apparent reference to National Telecommunications and Information Systems Security Policy No. 2, "Protection of sensitive, but unclassified information in federal government and automated information systems," erroneously claims that, "In essence, the National Security Decision Directive (NSDD) 145 created a security level below the national security classifications of top secret, secret and confidential."

Neither the policy nor NSDD 145 establishes a new category of classified information. Indeed, the foreword to the policy states that the definition and requirements to safeguard classified information are addressed in Executive Order 12356, signed by President Reagan on April 2, 1982.

Moreover, the policy does not specifically identify sensitive but unclassified information to be protected.

Federal department and agency heads are responsible for identifying such information that pertains to national security or other federal government interests and ensuring that telecommunications and automated information systems processing of such sensitive but unclassified information is protected against unauthorized access.

The editorial described the Reagan administration's efforts to ensure the security of computer systems that process classified and sensitive information as "chilling" and claimed that "the issue is too sensitive to be handled in the military.

The interdepartmental structure established by NSDD 145 ensures that the heads of the military departments have been kept abreast of the policy and are not left solely in those hands.

In point of fact, the policy protecting government systems that process sensitive information was developed over a two-year period by subcommittees and the working groups of a 26-member interagency government committee - the National Telecommunications and Information Systems Security Committee (NTISSC).

The NTISSC is charged with implementing NSDD 145. A substantial majority of the NTISSC's membership (13 of its 21 members) come from civilian agencies, and even the military departments represented on the committee are, of course, headed by civilian secretaries.

After the policy was developed and approved by the NTISSC, it was thoroughly coordinated and approved by the Office of Management and Budget, the Attorney General and the director of the Central Intelligence Agency.

The policy reflects a recognition that technological advances have greatly increased the opportunity for unauthorized access to classified information. It does not apply to systems in the private sector.

We believe it is essential for, and incumbent upon, the government to initiate measures to prevent the abuse or misuse of sensitive or unclassified information by those who would seek to invade the privacy of U.S. citizens, to obtain an unfair advantage in business dealings, to avoid law enforcement efforts or circumvent the intent and purpose of laws passed by the Congress.

Looking at it this way, an audit can hardly be compared with a visit to the doctor, the dentist or the pharmacist. An audit is a review with a fancy name. The focus of an EDP audit is on computer systems. Can management be certain it is under control?

To make an audit more palatable, Phelps Dodge Corp.'s Corporate Vice-President for MIS Michael Cangemi suggests looking at the example of accountants. Accountants know their work will be audited because it has been for the better part of a century, he points out. They know what auditors want. They set up their systems to be audit-able and to pass audits.

Cangemi, who is a past president of the EDP Auditors Association and previously headed EDP auditing for Phelps Dodge, says MIS personnel must take on the conceptual responsibilities that accountants have assumed for decades. "In the past, they are responsible for computer controls," he says. "If they accept that, they will welcome the auditor as the second best way to see if their systems are well controlled. The best way is for them to do it themselves."

Once MIS managers accept this responsibility, an audit will be a chance to exchange thoughts, show off a little and pick up a few new ideas.
On discretionary security

Your article, "System break-ins raise concern over electronic terrorism" [CW, Nov. 24], demonstrates a lack of understanding of computer security. Unix may be insecure, but not "because it is an open architecture." The problems with Unix have nothing to do with open architecture. The existing Unix security system has serious holes in it, such as allowing users access to security data sets. Even if the security mechanism were tightened, Unix does not provide for discretionary security.

Consider the Multics operating system, which was developed, with Advanced Research Projects Agency funding, by the troika of General Electric Co., Bell Laboratories (which dropped out) and MIT.

Among its design goals was the ability for the user to selectively share data without compromising the data that he wished to withhold and without risking unauthorized changes to data he shared.

In order to satisfy this goal, the early design had to provide for security. The source code for Multics was available to the MIT student body, and students were encouraged to find and report bugs.

Far from compromising Multics security, this openness caused Multics to have much tighter security than it would otherwise have had. The National Security Agency has certified it as a B level on a scale running from D (most insecure) to A (tightest).

The IBM OS/VS2 MVS operating system, the latest incarnation of OS/VS, is also an open architecture, although IBM has announced that future enhancements will be closed. MVS with a security package was certified at the C level (either C1 or C2, depending on the particular security package). At the C1 level, full source code was available to the public for MVS and Resource Access Control Facility, including the program product versions of MVS, MVS/SP V1 and V2. The security certifications that Multics and MVS received were not easy — most operating systems have not been or cannot be certified. These systems were among the first to be certified.

I am aware that publicly readable security data, for example, passwords, are scrambled, but in the case of Unix, that turns out not to be much of an obstacle.

I am also aware of the three-level access code for files, but the ability to specify World, Group or Private access does not constitute discretionary access control.

You cannot make the file available to a specific user or to a specific group but only to yourself and the group to which you belong.

Seymour J. Metz
Annandale, Va.

Updating Mother Goose

Many years ago, I invented a Snow White simile.

IBM, under Tom Watson Jr., was the pure little central figure. General Electric Co., still fumbling around in Phoenix, was Dopey. Control Data Corp., founded not long before by William Norris and featuring Surly Seymour as head designer, was Grumpy. It seems to me NCR Corp., founded not long before by General Electric Co., still fumbling around in Phoenix, was Dopey. Control Data Corp., founded not long before by William Norris and featuring Surly Seymour as head designer, was Grumpy. It seems to me NCR Corp., was Sleepy, but I'd have to look into my archives to be sure.

Later on, I described Univac as "snatching defeat from the jaws of victory," and Burroughs Corp. as "the secret computer company." And over here I said naughty, naughty things about poor dear ICL PLC.

Time wore on. An ironical excessive regard for initials came up with BUNCH, which left out Digital Equipment Corp. And now B and U have eaten each other up, and H, like a fatally wounded brontosaurus, has realized it was killed a decade ago and has made novel arrangements for an Oriental interim.

We need a new simile.

The dwarfs have marched off, singing something a lot less cheerful than, "Hi, hi, ho! It's off to work we go."

Snow White has hired a thousand lawyers and grown up to be something like the Wicked Queen. "Mirror, mirror on the wall, who's the toughest of them all?"

I suggest we forget about our Japanese friends and replace the nice Disney tale with a slightly edited nursery rhyme about the five little piggies:

This little pig went to the market [UNRival].
This little pig stayed home [NCR].
This little pig had roast beef [DEC].
This little pig had none [IBM].
And the biggest pig cried, "Sue, sue, sue!" all the way home.

Herb Grosch
Mies, Switzerland
MAP, TOP standards gain fresh recruits

By Rosemary Hamilton and Elisabeth Horwitt

PHOENIX — Communication Machinery Corp. and Industrial Networking, Inc. were among the few vendors making product introductions at the Manufacturing Automation Protocol/Technical Office Protocol (MAP/TOP) Users Group Meeting here last week.

Communication Machinery introduced software that implements TOP Version 1.0 protocols on VMEbus- and Multibus-based engineering workstations and on the IBM Personal Computer AT.

Communication Machinery is making available software packages that implement physical, link-level internetworking and transport layers of TOP on existing intelligent on-board 802.3 Ethernet interfaces.

The TOP software runs on Communication Machinery's Ethernet Node Processor (ENP) hardware that also supports Xerox Corp. Network Services and Transmission Control Protocol/Internet Protocol (TCP/IP). The common hardware base provides a migration path to TOP for customers that already have installed networks using the older, multivendor communications protocols, Communication Machinery product marketing manager James Soriano said.

The ENP 10 with International Standards Organization (ISO) Lower Level Protocols implements TOP on VMEbus engineering workstations. Software for both products is priced at $3,500. For both products, TOP lower layers can be interfaced with upper layers of TOP, including applications such as File Transfer and API and TOP Utilities.

The ISO Protocol Software for ENP 60 implements the first four layers of TOP on an IBM Personal Computer AT running Microsoft Corp. MS-DOS. Priced at $450, the software includes FTAM software and an interface to the IBM PC networking interface Netbios. This enables software packages to communicate using SMB or TCP/IP.

Excelan forms alliances, broadens TCP/IP support

By Elisabeth Horwitt

WASHINGTON, D.C. — Two vendor alliances involving Excelan Corp. are expected to soon release products that allow multiple Microsoft Corp. Xenix System V and Digital Equipment Corp. VAX/VMS systems to act as network file servers for Microsoft MS-DOS workstations.

Scheduled for release by the end of this quarter, the products integrate Excelan's Transmission Control Protocol/Internet Protocol (TCP/IP) Ethernet boards with networking products based on Microsoft's Server Message Block (SMB).

Initially developed for IBM's PC Network, SMB is "a distributed file system that allows users to access and manipulate files transparently on a network without needing to designate which server and what type of operating system they reside on," according to Excelan Vice-President Subhash Bal.

Excelan's boards will be integrated with Santa Cruz Operation, Inc.'s (SCO) Xenix-Net, which implements SMB on Xenix systems, and Syntax Systems, Inc.'s SMB Server/VMS, which implements SMB on VAX/VMS systems. Xenix-Net also enables Xenix systems to act as servers for Xenix-based workstations.

Workstation-to-server file transfer and terminal-to-host communications can be performed using TCP/IP applications File Transfer Protocol and Telnet, respectively. The SMB implementation also allows users to copy files from the server to their workstations. SCO and Syntax's server programs perform format conversion necessary to transfer files from a Xenix or VAX to an MS-DOS workstation.

Excelan's networking board will interface TCP/IP with the IBM PC Network software interface Netbios, enabling software applications written for that interface to communicate using SMB or TCP/IP. Protocols used will conform to the Netbios/ SNA on net

By Elisabeth Horwitt

LAGUNA HILLS, Calif. — Network Software Associates, Inc. has announced communications software, named RJE/Background, that allows remote job entry micro-to-mainframe communications and file transfers to take place in background mode while another application runs concurrently in the foreground on an IBM Personal Computer.

RJE/Background allows IBM PC users to connect with a remote mainframe, initiate a remote job entry file transfer operation and continue to use their PCs to run an IBM PC-DOS application or other PC-DOS functions. The requested data is automatically transmitted to the PC's disk or to the minicomputer.

Gate links X.25, SNA on net

By Donna Raimondi

LAGUNA HILLS, Calif. — Tekelec Inc. recently unveiled a multi-protocol translator and an Integrated Services Digital Network (ISDN) Basic Rate interface for its Chameleon 32 Multiprotocol Test and Development System.

The Translator is a multifunctional communications processor that can act as a gateway among a variety of computer and communications environments, including X.25, Ethernet 802.3 and a variety of host protocols, according to Tekelec.

Support of X.3, X.28 and X.29 terminal controllers enables the Translator to act as a packet assembler/disassembler for groups of asynchronous terminals, which can then communicate with hosts over the X.25 packet-switching network.

PC package runs remote job entry in background mode

By Donna Raimondi

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PCK tied to Xenix, VAX

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Initially developed for IBM's PC Network, SMB is "a distributed file system that allows users to access and manipulate files transparently on a network without needing to designate which server and what type of operating system they reside on," according to Excelan Vice-President Subhash Bal.

Excelan's boards will be integrated with Santa Cruz Operation, Inc.'s (SCO) Xenix-Net, which implements SMB on Xenix systems, and Syntax Systems, Inc.'s SMB Server/VMS, which implements SMB on VAX/VMS systems. Xenix-Net also enables Xenix systems to act as servers for Xenix-based workstations.

Workstation-to-server file transfer and terminal-to-host communications can be performed using TCP/IP applications File Transfer Protocol and Telnet, respectively. The SMB implementation also allows users to copy files from the server to their workstations. SCO and Syntax's server programs perform format conversion necessary to transfer files from a Xenix or VAX to an MS-DOS workstation.

Excelan's networking board will interface TCP/IP with the IBM PC Network software interface Netbios, enabling software applications written for that interface to communicate using SMB or TCP/IP. Protocols used will conform to the Netbios/
Bank files suit against owner of proposed ATM network

Says competitors trying to monopolize market

By Stanley Gibson

BOSTON — A change in electronic funds transfer switching charges is the cause of a lawsuit between the owners of two major automated teller machine (ATM) networks in New England.

Claiming unfair competition, Baybanks, Inc., a Massachusetts bank holding company, has filed a complaint in U.S. District Court here against Connecticut Switch, Inc., the operator of a proposed ATM network.

The complaint alleges that five banks structured switching charges "with the specific intent of monopolizing the market for electronic funds transfer services in Massachusetts."

Regional bank network

In November, five of New England's largest banks — Bank of Boston Corp., Bank of New England, N.A.; Fleet National Bank; Shawmut Bank, N.A.; and State Street Bank and Trust Co. — announced they would band together to form a regional network under the name Yankee 24 that would be composed of 1,300 ATMs.

Baybanks currently operates more than 1,200 machines in its Express 24 network. Baybanks claims the larger banks are joining forces to squeeze it out of the market, despite the fact that the five banks invited Baybanks to join the network.

"It's like being invited to a potluck supper. Our competitors are bringing spinach, and we are bringing the steak," said William Sandalls, Baybanks' vice-chairman.

"They're trying to call it a licensing fee. They're restructuring the processing charge," Sandalls continued. He explained that if an independent bank were to join both Express 24 and Yankee 24 networks, it would have to pay a charge to Yankee 24 on all transactions, even those switched through another network.

Disinterest

Defending his bank's disinterest in joining Yankee 24, he said, "We provide the finest electronic banking in New England. It's not beneficial for us to open up to customers of any old bank."

Mitchell St. Thomas, president of Connecticut Switch, responded, "We unbundled the switch fee, which is 18 cents. The decision was part operations and part marketing."

He said the overall fee was not changed despite its restructuring and claimed other network operators, whom he declined to name, are similarly altering their switching charges.

"The reason they're so agitated is that they're so dominant," St. Thomas said. However, he added that Yankee 24's initial 1,300-terminal network will exceed Baybanks' current terminal installation and that Yankee 24 expects to rapidly add to that number.

PC package runs remote job entry

From page 19

printed on a local printer.

There are a number of benefits for users who communicate regularly with the mainframe in remote job entry mode, according to beta-test user Charlie Janssen, project manager at Safety-Kleen Corp. in Elgin, Ill. Such a user could receive reports or send data while doing Lotus Development Corp. 1-2-3 or word processing applications. "Someone with those requirements can get a lot more work done," he said.

While Janssen's company has not used the program extensively yet, he said he expects it will become an important benefit as Safety-Kleen's fledgling companywide network grows. The product can also transfer data to a mainframe.

The $785 software includes Network Software Associates' existing PC-to-mainframe communications link, which is called Adaptsna RJE. Host communications are accomplished via emulation of an IBM 3770 remote job entry workstation in an IBM Systems Network Architecture/Synchronous Data Link Control (SDLC) environment, the vendor said.

RJE/Background requires an SDLC adapter board. The product also requires one copy of the software for each PC.
Gate links X.25, SNA on net

Standards gain fresh recruits

Proteon adds router, says it supports token-ring standard

From page 19

according to Dave Farkin, Teleleck director of sales.

The Teleleck also acts as an IBM Systems Network Architecture (SNA) 3274 Cluster Controller, allowing asynchronous terminals to access IBM hosts directly or over an X.25 network. Primary and secondary Burroughs Pol Select protocols also are supported by the Translators.

Support of Ethernet 802.3 permits multiple Translators to share the same local-area network so that "you can have 40 or 50 users with terminals and personal computers accessing various networking environments via the Translators," Farkin said. A Translator can support multiple protocols and up to eight ports.

'Cost-effective'

Available now, Translator has a suggested list price of $6,000 with one protocol option. Software packages supporting additional protocols cost between $150 and $350. "The Translator is not meant to be a plain network terminal server; it's cost-effective for companies that need to support asynchronous, SNA and X.25 protocols on one premise," Farkin said.

The Chameleon 32 has been enhanced so that it can be used to test both customer-premise and carriers' central office equipment for conformance with the ISDN Basic Rate, particularly the 16K bit/sec. D channel that carries message sets for setting up call circuits, error recovery and alarm messages, according to Anders Hultin, Teleleck's director of ISDN operations.

The product will initially target manufacturers and carriers that want to test equipment for ISDN conformance.

The Chameleon 32 with Basic Rate interface monitors transmissions along the D channel to ensure conformance to ISDN norms, Hultin said.

D channel applications are still not firm, so Chameleon 32 only incorporates those protocols already approved by the Consultative Committee on International Telephone & Telegraph and will add features as manufacturers agree on specifications. "Two months from now they could change the whole thing, so our product remains a general tool that can test for individual functions that differ between carriers," Hultin said.

The suggested retail price for the Basic Rate interface for the Chameleon 32 is $3,500. It is available now.

Xenix, VAX tied to PC

By Elisabeth Horwitt

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Cutting the apron strings

The managers had just completed ranking their programmers for the performance reviews when some suggestions that the staff review and rank their managers. There was nervous laughter in the room, but the idea of having programmers and analysts rate their managers was an interesting concept. After the meeting, I began an informal, behind-the-scenes review of how the staff would conduct the reviews and what criteria they would use.

The one type of manager that always received the lowest ranking was the "apron strings" manager. This type of manager started out as a programmer but never learned to let go of his programming responsibilities — his mother's apron strings.

We all know him — the manager who is three levels removed from the highest programming position but who insists on writing a program or attending a programming class just to let the troops know that he can still perform at his old level; who insists on redesigning the entire system just to let the troops know that he hasn't lost his flare for systems design.

The apron strings manager has the very good intentions of creating a good product; however, in the process, he is destroying the morale of his staff. The staff frequently feels that it is not allowed to learn by doing. They also feel that they cannot criticize the quality of the design, even though they may have strong objections, because the apron strings manager's pride and ego are stamped on the design and the workers' performance reviews.

This manager also suffers from memory lapses when setting project dead-

By Charles Babcock

CHICAGO — Three authors of software that restructures Cobol programs met here last week to advocate the use of restructuring techniques. They acknowledged, however, that the differences among their products reflect a lack of a standard restructuring approach.

Meeting head to head for the first time last week were Charles Miller, principal of Peat, Marwick, Mitchell & Co.'s Catalyst Group in Chicago and author of Structured Retrofit, the Big Eight accounting firm's restructuring product; Eric Bush, chairman of Language Technology, Inc. in Salem, Mass., and author of Recoder; and Henry W. Morgan, vice-president of Group Operations, Inc. in Washington, D.C., and author of Superstructure. The three were invited to a three-hour debate on the merits of their products before members of the Software Maintenance Association.

IBM, which also offers a restructuring product called Cobol Structure Facility, or Cobol/SP, declined to send a representative to the debate. Cobol/SP is used in conjunction with IBM's VS Cobol II, but the new version of IBM Cobol has not yet been widely implemented, the debaters noted.

Each of the restructuring tools reorganizes a Cobol application to eliminate backward jumps in the logic path, recursive or wandering logic or GOTO loops within a paragraph. After restructuring, the logic path either moves forward through the program or moves out laterally like a branch off a tree trunk, "making it easier for maintenance programmers to understand," noted Garish Parikh, software maintenance consultant, author and a moderator of the event.

A program whose logic is so convoluted that it jumps both forward and backward, sometimes from the center of paragraphs, will remain a poor program even after restructuring, Parikh noted.

With different products and no single recommended way to restructure, the maintenance programming manager faces a quandary. "It boils down to a Pepsi taste test," noted Garish Parikh, software maintenance consultant, author and a moderator of the event.

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Pansophic offers Telon on PC

By Charles Babcock

Pansophic Systems, Inc. is offering its Telon mainframe application development environment on the personal computer at a price of $9,500 for two copies.

The PC system is memory-hungry; it requires a 640K-byte random-access memory, 5M to 7M bytes of hard-disk space and one double-density 360K-byte floppy disk drive or a high-density 1.2M-byte floppy disk drive.

The design tool is aimed at current and future mainframe Telon users who are seeking to off-load some of their mainframe development costs, company spokesmen said. Off-loading development to the micro also speeds response time to the development programmer, the spokesmen said.

Telon is among the largest applications development generators available. It competes with systems including Sage Systems, Inc.'s APS; CGI Systems, Inc.'s Pacbase; Higher Order Software, Inc.'s Use-it; and Taskem Software, Inc.'s Gamma, now part of Knowledgeware Systems, Inc.

The development systems are able to capture design specifications including screen layouts, report formats and program descriptions and generate a working application from them. The systems typically retail for $150,000 and up.

The personal computer version incorporates all mainframe Telon functions, capturing design information and generating a Cobol or PL/1 source program that can run on the mainframe. The PC version also provides integrated testing of the generated application in IBM's IMS and CICS or batch environments.

"We have three products. There is no standard definition of structure. . . . We what we really have is a situation where you have to mix and match," noted Garish Parikh, software maintenance consultant, author and a moderator of the event.

A built-in DOS command processor allows the developer to exit DOS and execute other new products, see pp. 59-68.

INSTANT ANALYSIS

"We have three products. There is no standard definition of structure. . . . What we really have is a situation where you have to mix and match," noted Garish Parikh, software maintenance consultant, author and a moderator of the event.

Telon utilizes the PC architecture by using a short help message at the bottom of each screen. Developers may choose from 16 screen colors or select improved field intensity.

A built-in DOS command processor allows the developer to exit DOS and execute other IBM PC-DOS commands or run a PC application. It operates on the IBM Personal Computer XT, AT, AT 3270 Model 6 or other new products to the Software Maintenance Association.

INSIDE

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NEW THIS WEEK

Oracle ports SQLCalc to VAX/VMS

Cincom Systems releases Version 1.4 of its Mantext mainframe text processing system

For more on these and other new products, see pp. 59-68.

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SOFTWARE & SERVICES

Tool explains DB2 operation

By Charles Babcock

HOUSTON — A source of information on the operation of IBM's DB2, called Let's See DB2, is available in the form of a tool from CDB Software, Inc.

The data base administration tool runs as an application under IBM's ISPF Dialog Manager and Time Sharing Option teleprocessing monitor. During normal operation, the tool requires no I/O, making for quick response time, according to Michael Burman, a principal of CDB Software.

Let's See DB2 attempts to address three areas of DB2: management of proliferating DB2 objects, management of direct-access storage devices (DASD) and management of utilities, he said.

In addition, reducing contention for the DB2 catalog can improve the data base management system's performance. The DB2 Software product removes user queries to the catalog seeking to determine the state of the system, Burman claimed.

The catalog contains tables defining views of DB2 objects — table spaces, tables, indexes and index spaces — that are the logical resources of the DBMS. The views are defined in order to provide users with access to data about objects within their authority while restricting them from other objects. The authorization system of Let's See DB2 eliminates both the need to define such views and the catalog contention associated with them, Burman said.

Let's See DB2 identifies DB2 objects and the relationships among them and allows the user to view pages from table spaces and index spaces on DASDs, he added. It also provides graphs, maps and numerical summaries of DB2 table spaces and index spaces. These "snapshots" display the amount of free space for table spaces, update status for table spaces and usage for index spaces at a particular time, Burman said.

In addition, the product allows a user to display DB2 table spaces, Burman said.

The product uses 40 menus and information screens backed by 100 Help screens.

Let's See DB2 is available immediately, with an initial license charge of $4,800 and an annual fee of $4,800. It is being offered with a 30-day free trial, Burman said.

Goal introduces on-line system for CICS applications

COLUMBUS, Ohio — Goal Systems International, Inc. has announced the release of Quiktask, an on-line, interactive application development system for IBM CICS applications.

The system uses a Cobol-like procedural language employing commonly used verbs, which allows batch programmers to work in it using their Cobol language skills, Goal spokes-

man Jim Crossley said.

Quiktask is designed to run on IBM mainframes under CICS 1.5 or above with IBM's DOS/VSE or MVS.

The system includes 10 integrated subsystems: on-line Help, on-line training, dictionary, screen painter, language, editor, translation, test and debug, execution and utilities.

Quiktask can interface to existing Cobol-callable routines, subroutines and copybooks, company spokesmen said.

Quiktask is designed to run on IBM mainframes under CICS 1.5 or above with IBM's DOS/VSE or MVS.

It costs $44,800 for MVS and $35,000 for DOS/VSE.

The execution subsystem is available as a separate option for DP centers that do not need the full development system. It costs $22,400 under MVS and $17,500 under DOS/VSE.

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For example, he said, instead of allowing a GOTO to transfer program control outside a particular procedure, Superstructure tends to restructure the program so the transfer goes back to the initialization or mainline of the procedure and starts over. By resorting to such a simple device, Superstructure simplifies the maintenance programmer’s task, Harrison said.

‘Eliminates GOTOs’

The Language Technology product, on the other hand, analyzes a program, “eliminates GOTOs and PERFORMS and automatically replaces them with new code,” Harrison said. Harrison had compared all three products for the GSA, which selected Peat, Marwick’s Retrofit. All three vendors claimed that their products yield restructured programs that are the functional equivalent of the original.

Group Operations’ Morgan claimed his product yields a program that most resembles the original, making it easier for experienced programmers to navigate through it.

Those programs most heavily involved in maintenance efforts should be the first candidates for restructuring, Morgan said, in response to a question on what gets targeted for restructuring.

Parikh asked the panel the size of the largest program each had restructured.

Miller said the largest program restructured with Retrofit was 45,000 lines. Morgan said Superstructure could restructure a program up to 30,000 lines long. Bush said Recoder’s limit was 32,000 lines, a limitation imposed by IBM Cobol 68/74 compilers. He added that he expects the constraint to be lifted with VS Cobol II compilers.

The restructuring products have been available through commercial services, such as the former Catalyst Corp. — which was acquired by Peat, Marwick and became the Catalyst Group — and Language Technology, since the early 1980s. They have been available as independent software products for two years or less.

Retrofit is priced from $36,000 to $89,000; Superstructure is priced from $28,000 to $46,000; Recoder is priced from $40,000 for a short-term lease to $150,000.

A total of 35 copies of Recoder have been sold, Bush said. Fifty copies of Retrofit have been sold, according to Miller. Morgan said about 115 copies of Superstructure have been sold.
Cutting the apron strings

From page 25

lines. Since he's been away from real programming for a number of years, he tends to suffer from the "we did it in two days" syndrome.

You know the situation. Your project plan states that it will take you 18 months to complete the new online accounting system using structured programming and to write the documentation before you write the code.

But your manager recalls it took them mere days to design, write and install the old accounting system back in the 1800s. If he could do it in two days, so can you. Why, he'll even volunteer to write the design and code one of the 287 programs for you.

Characteristics

We began to recall previous apron strings managers (they were the reasons we were no longer with our former companies) and to identify their characteristics. We found that:

- Their secret desire was to get out of management and back into programming, but with the same money.
- They were the technical gurus of their day and were rewarded with promotions.
- They usually couldn't write very well, so they delegated that task to subordinates.
- They usually didn't have enough work to keep them busy, so they hopped at the chance to design a system that required their approval.
- They always felt that they knew what the user wanted.
- They had inflated egos, yet they always wondered why you didn't tell them you needed more time to work on the project after they set the project deadline.

They'd work in data processing for 183 years and could remember the first computer the company ever purchased.

- They remembered when the northeast corner of the dining room was the BF department.
- They wondered why your marriage was on the rocks when you had worked 80 hours a week for the past year.
- They would rewrite one of your programs or make the same maintenance change just to see if you both did it the same way.

After we finished naming the traits, we tried to develop a plan of action to help the manager cut the strings. After all, we could not continue to change jobs eight times in six years without running out of employers. These are the steps that we decided to take:

1. Before you define the user requirements, ask the manager if he has something that should be built into the design to keep him satisfied. This gives him the feeling that he's a project leader, but you are really the person in control.

2. Give him weekly status reports. This keeps him from coming to your office, snooping around on your desk and finding a problem that he can "help" you resolve.

3. Offer to let him work on a noncritical part of the project. If you assign a task to him, he will feel honored that you think he can still do the job.

4. Ask him for advice — even if you don't need it — on a noncritical problem.

5. Try to keep him too busy to interfere with the individual members on your staff. If they mistakenly mention a problem they are having, he may be more than willing to help.

6. Identify all of your project tasks, prepare a critical-path chart and indicate the length of time required to complete each task. If he says the project deadline is too long, ask him to select which tasks you should skip. Hopefully, he will realize that cutting corners can cut his own throat.

7. Never tell him he is getting in your way — unless you have your reasons snooping around his neck.

8. As a last resort, talk to his manager (especially if he's not an apron strings manager) and let him know how you feel. They may be able to keep your manager too busy to get in your way.

We realized that apron strings managers will not lose their desire to be programmers; however, hopefully, if they stay busy with their own work, they won't do yours.

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as the largest computers in a business or as departmental computers in large companies. And to provide you with the communications and growth options your business needs, the System/3X family was recently enhanced to provide even smoother peer-to-peer communications, greater host and PC connectivity, and stronger networking with IBM's 3270 mainframes and PCs.

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Perhaps the best fit of all is in the way IBM's mid-range computers fit into your working environment. The 9370s are very portable. With set-up times of under five hours and face-mounted components that can be installed like stereo equipment. System/3X family members are simple to operate and fit in easily too.

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A Fitting Conclusion

The reason IBM mid-range systems fit in so well is based on a simple piece of logic: they're built to fit your business, rather than the vice versa.

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Not all products are available for all operating systems.
Toshiba laptop means business

Early projections of the market for laptop computer sales were excessively optimistic. Except for the Tandy Corp. Model 100, an inexpensive unit with built-in software but without built-in disk drives, none of the first wave of systems were very successful. And more capable systems of higher price and performance with built-in software but without built-in disk drives, none of them ever received broad acceptance.

But during the past year, Toshiba Corp.'s 1100+ has done a lot to bring popularity to laptops of corporate users. At $2,399 with 640K bytes of memory and two 3½-in. floppy and composite video ports are built separately priced features on laptops that were just too expensive to gain acceptance. Toshiba's 1100+ is an attractively priced product.

Parallel, serial, red-green-blue monitor and composite video ports are built in as standard features. These are offered separately priced features on laptops from other vendors. The effect is to make the Toshiba 1100+ 's pricing highly competitive. This is undoubtedly a major reason why, according to Framingham, Mass.-based market research firm International Data Corp., preliminary estimates, the 1100+ was the best selling IBM-compatible laptop in 1986 despite being sold for only the last six months of the year.

In fact, even more 1100+ systems would have been sold in 1986 had Toshiba been able to get 1100+ systems to market fast enough to meet the demand. Despite supply limitations, however, Toshiba appears to have sold more 1100+ systems in the last six months of 1986 than IBM sold through the year.

Zachmann is vice-president of research at International Data Corp.

Software Link gains support

Language developers to supplement 80386 PCs

By David Bright

ATLANTA — The Software Link, Inc. last week announced that two language developers will support its PC-MOS/386 multi-tasking, multi-user operating system for Intel Corp. 80386-based personal computers.

Software Link describes PC-MOS/386 as a superset of Microsoft Corp.'s MS-DOS operating system that achieves compatibility with existing MS-DOS programs and also supports the 80386 chip's 32-bit native mode.

A Software Link spokeswoman reported that the availability of the development tools would give developers incentive for creating applications that have the ability to take advantage of the 80386's 32-bit native mode.

Two developers are Phar Lap Software, Inc., based in Cambridge, Mass., and Metaware, Inc. in Santa Cruz, Calif. Phar Lap offers the 386/ASM assembler and 386/Link linkage editor for $495 together, while Metaware provides High C and Professional Pascal compilers priced at $895 each.

Officials at the two companies could not say for sure how long it would take for 32-bit native mode applications to become available.

Bob Moote, vice-president of software at Phar Lap, predicted some applications could appear within six months.

Memory and other features

While maintaining MS-DOS compatibility, PC-MOS/386 is said to support huge amounts of random-access memory, including the 80386's limit of 40-bytes, and features such as record and file locking, print spooling and remote modem access. "The 640K-byte barrier is gone," Metaware Vice-President Tom Pemolako said.

A version of Basic is also available for PC-MOS/386. Last November, Software Link agreed to bundle Summit Software Technology, Inc.'s Betterbasic/386 with the operating system.

Software Link said it plans to have the full version of PC-MOS/386 available next month. The company also offers a programmers' guide for 32-bit application software under PC-MOS/386.

Desktop tools headline expo

By Peggy Wett

SAN FRANCISCO — Product announcements at the recent Macworld Conference and Exposition focused on desktop publishing, with desktop accessories and storage products expanding out the offerings.

Graphic-design supply veteran Letraset USA will finally enter the desktop publishing market and sell Ready, Set, Go, a page layout program established by Manhattan Graphics in Valhalla, N.Y.

But he designed Sidekick 2.0 desktop accessories package included updated features of Outlook, an outline processor, Macplan, a limited spread-sheet program, and a Micromain Software Offers a 10-day trial to a Macintosh. The Micromain Software package for IBM-MOS/386.

Macworld attendees want connectivity, graphics options

By Peggy Wett

SAN FRANCISCO — Apple Computer, Inc.'s priorities of publishing, general graphics options will dominate the Macworld Conference and Exhibition here this month.

"We want to use the Macintosh to open windows to the map libraries stored remotely on minicomputers," said Barry F. Guthrie, computer systems specialist for Coast Forest Management Ltd., a Victoria, B.C., logging and engineering firm.

"We want to use the Macintosh to open windows to the map libraries stored remotely on minicomputers," said Barry F. Guthrie, computer systems specialist for Coast Forest Management Ltd., a Victoria, B.C., logging and engineering firm.

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North Edge releases time and billing software package for IBM-compatible microcomputers

NEW THIS WEEK

- Micromain Software offers a CICS screen painting and design facility for personal computers.

- More on this and other new products, see pp. 59-58.

See MACWORLD page 35

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A proposed satellite system for mobile and remote communications would use different frequencies for different needs. The mobile satellite network would relay two-way voice and data communications from airplanes, cars, trains, or remote locations. The system would use two Hughes Aircraft Company HS 393 spacecraft, one operated by the United States and another by Canada. UHF, a low frequency band that can be picked up by small antennas, would be reserved for trucks and cars. A higher frequency that requires larger antennas, L band, would be dedicated to remote telephone service. A third frequency, Ku band, would provide a gateway to local telephone systems, preserving scarce capacity on L band and UHF frequencies. Hughes Communications Mobile Satellite Services, Inc. is seeking authorization from the Federal Communications Commission to operate the system.

Military commanders at separate headquarters can share up-to-the-minute information, thanks to a new automated message processing system for Command and Control Information Systems (CCIS). The system, developed by Hughes, handles a wide range of formatted and unformatted messages as specified in the joint US/NATO military reporting system. It will dramatically lessen the time needed to update planning, intelligence, and force status information in command and control systems. The system can receive messages over a variety of digital links. Messages can be drawn automatically from complex relational databases, or be used to update information automatically. Information can be displayed on screens in a variety of formats, and be modified by commanders.

Helping to trim energy consumption is one major use of a hand-held infrared viewer. The device is a Hughes Probeye® viewer, which senses heat and displays images through an eyepiece. Mining officials use the device to inspect electrical systems and mechanical equipment because it detects potentially dangerous short circuits and overheating hardware. Real estate owners, developers, and appraisers use the device to inspect electrical systems and mechanical equipment because it detects potentially dangerous short circuits and overheating hardware. Real estate owners, developers, and appraisers use the viewer to determine the structural and thermal integrity of buildings. The unit reveals moisture spots in roofing and spots where buildings might be gaining or losing heat.

In pioneering work with applications for space-based defense systems and the next generation of missile seekers, Hughes has demonstrated an advanced infrared sensor. The device is believed to be the world's first high-density, staring, long-wavelength infrared focal plane array (FPA). The hybrid chip, smaller than a fingernail, is integrated with optics and electronics to create TV-like images of a scene, even in total darkness. Unlike conventional infrared sensors, which mechanically scan a scene by means of oscillating or rotating mirrors, the FPA stores at a scene in its view at one time. It promises significant performance, size, weight, and cost benefits over ordinary systems. The device was developed for the Defense Advanced Research Projects Agency as part of Strategic Defense Initiative efforts.

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Macworldgoers want connectivity

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Guthrie said he had not been very successful in finding sophisticated language tools for development but called the show the best one-stop shopping opportunity he has found.

Kathy Gallion, of California Eastern Labs in Santa Clara, Calif., wanted the latest graphics tools. They said their firm, a sales agency for NEC Corp. Microwave Semiconductor, currently designs only part of its catalog on its computer but plans to convert entirely to electronic publishing. "I like Pagemaker," Gallion added, referring to Aldus Corp.'s desktop publishing package.

Revino said, "Macdraw pales as an illustration tool compared to recent releases, particularly the Adobe [Systems, Inc.] Illustrator." A computer store sales representative said he shopped not only for wares to sell but also ideas for in-house use. Joseph H. Kress, with Pacific Tel Info Systems in San Francisco, said more than 100 Macs at Pacific stores on the West Coast run spreadsheets, word processing and graphics programs for the business. "We try lots of things, because we want to stay on top of what people are buying," he explained.

Apple did not announce any new products at the show, but company President John Sculley hinted of communications capabilities that build "industrial strength" onto AppleTalk to satisfy a growing cadre of corporate users. Sculley declined to be more specific but repeated that the Macintosh would have to communicate with other systems to make it in the business world. Apple did not deliver on an earlier promise that the Macintosh would eventually accommodate other operating systems, including Microsoft Corp.'s MS-DOS and Unix. Sculley said only that Apple would "coexist with the vast majority of MS-DOS machines" with hooks into those other systems. One year ago, Apple executives stated that these hooks would be unveiled within a year.

Sculley praised desktop publishing, a dominant application at the show, for enabling Apple "to crack corporate America... We have firmly gotten our feet into many major corporations thanks to desktop publishing," Sculley said. He added that Macintoshes in art departments are prompting installations in other corporate departments.

Microsoft Corp. Chairman Bill Gates illustrated the influence of the Macintosh on the entire microcomputer industry by recalling how the system's ability to display multiple fonts as they would finally be printed was once considered novel. Now this capability is becoming commonplace.

"The nature of the show has changed," said Paul Brainerd, president of Aldus Corp., which showed its unreleased upgrade of Pagemaker design program. "Professionals are looking at the Mac for business. We saw that at the Boston Macworld show, too. On Saturday, the ties and suits were off, but they were still business-oriented users."

Desktop tools headline expo

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sheet; and communications protocols to the pop-up desk accessory package.

Among the other Macworld announcements:

- Mass-storage products including a fault-tolerant option for the Data Frame XP hard disk, Data Stream tape back-up and combined hard disk with tape from Supersmack Technology in Mountain View, Calif.
- Quark Xpress, a $695 desktop publishing system that comes equipped with spell check and a word processor, from Quark, based in Denver.
- Page One, a page-layout program designed specifically for book publishing with a selection of 50 templates, a joint development project from FTL Systems, Inc. and McCutcheon Graphics, Inc., both in Toronto.
- Full Write Professional, a $295 word processing program from Ann Arbor Softworks in Newbury Park, Calif., that includes desktop publishing formatting features such as columns, kerning and the ability to move documents on a page.
- Mind Write, a word processor with multiple windows, graphics import capabilities and search and Move functions that do not require the clipboard, from Mindwork Software in Carmel, Calif.
- MSC/pal, an engineering-analysis package from MacNeal-Schwendler Corp. in Los Angeles, which performs static and dynamic finite element analysis within the Macintosh interface.
- Hyperdrive FX40, a 40M-byte external hard disk drive from General Computer in Cambridge, Mass., which connects through the Small Computer Systems Interface port.
- The Rodime 201 Plus and 451 Plus, 20- and 45M-byte internal hard disk drives from Rodime, Inc.'s personal computer division in Pepper Pike, Ohio.
- Mac Enhancer, jointly developed by Microsoft Corp. and Softstyle, Inc., which converts a single Macintosh port to four ports and includes driver software for more than 20 printers. Priced at $425, it is available now and is also an upgrade to Microsoft's original Mac Enhancer.
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Proof of PCs' gains on 3270

Advantages forecast strength as departmental CPU

Unix supermini hits tech marts

Fog around 9370 clears

Proof of PCs' gains on 3270

After several years of speculation by industry observers and users, evidence is appearing of a serious impact on the 15-year-old IBM 3270 market by personal computers.

There continues to be a growing number of workstations performing 3270-type communications, but the PC impact starts to show when one looks at how those communications are accomplished. It appears much of the growth will be on the part of PCs with 3270 emulation boards.

The evidence is presented by International Data Corp. (IDC), a Framingham, Mass.-based market research firm, in its annual study of the terminals industry. The IDC study predicts minimal, if any, growth of traditional 3270 in its annual study of the terminals industry. That compares with 26% annual growth from 1980 to 1985.

It was 1985 that "represented a critical turning point" for the overall 3270 market, according to IDC. The company predicts future 3270 displays during the rest of the 1980's. That compares with 26% annual growth from 1980 to 1985.

Looking at 1885 ship figures, IDC estimates there were 971,000 new workstations performing 3270 communications. Traditional 3270-type terminals still made up 68.8% of those shipments, but, accounting for 19.8% of the shipments, PCs with emulation boards were gaining momentum as an alternative. IDC concludes, "The 3270's strength will be as a departmental CPU, not a mainframe CPU."

The picture that was so cloudy three months ago, when IBM introduced its 9370 Information System, seems to be clearing.

As information drifts out of IBM and users and analysts take a closer look at the 9370's specifications, answers are more apparent for some of the questions that greeted the Oct. 7 product announcement. People finally seem to have a sense of how the mid-range computer — the subject of many consultants' reports, competitive vendor analyses and MIS managers' casual comments — can be used, how it will perform and what it will cost.

Interviews with various analysts indicate they believe the 9370 can provide the price/performance benefits that IBM's System/36 and 4361 could not offer in competing with Digital Equipment Corp.'s VAX line. Analysts also remarked that the 9370's strength will be as a departmental data processing machine running IBM's VM, rather than IBM's MVS, and that the machine's potential is far greater than has been announced so far.

"My feeling is that the 9370 is far from complete. It is more a statement of direction than a finished product. This one product probably will do more than anything else to define IBM's direction in the computer business," said IBM analyst Donald Steen of Yankee Group, a Boston-based market research firm.

Henkel said that in the past, IBM's goal was to drive all customers up to mainframes. "Even if you bought a personal computer, somewhere down the road they expected to sell you a mainframe. Now IBM has had to admit that there are customers out there who don't want a mainframe under any circumstances," he said.

Henkel added that the 9370 has "received a lot of attention for a lot of reasons."

Unix superminis hit tech marts

By David Bright

FT. LAUDERDALE, Fla. — Harris Corp.'s Computer Systems Division is expected to introduce a high-end, Unix-based superminicomputer for technical markets today.

According to Harris, the HCX-9 performs 7.5 million instructions per second (MIPS), provides the fastest response time of any superminicomputer in its price range and offers higher performance in a smaller package than Harris's earlier system.

Harris will sell the system to end users but will place a new emphasis on OEMs and value-added resellers. This is because the system uses an open architecture based on the VMEbus, the firm said.

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sons. The first being that IBM has done such a bad job in the mid-range market. "He observed that the confusion that previously centered on the System/36, means the 9370 "won't be an easy sell." But, he added, the 9370 eases concerns of Fortune 500 customers who want a departmental system but do not want to undertake the software development needed to shift from IBM systems to VAXes.

Another analyst, Executive Director Robert G. Simko of the Los Altos, Calif.-based market research firm International Technology Group, said the first four models of the 9370 — the 9373 Model 20, the 9375 Model 40 and 60 and the 9377 Model 90 — are only the start of the product line. He said the 9370's price/performance figures will be in line with IBM's policy of providing 30% to 40% price cuts with each generation. He predicted IBM will address the growth needs of existing IBM 4381 customers by introducing a higher performance processor for that processor family this year.

**Comparison**

Noting that the 9370 is an outgrowth of the 4300s, Simko compared it with that older product family. He said the 9373 Model 20 compares with the 4361 Model 3 currently in power for a lower price and the higher-end 9377 Model 90 compares with the 4381 Model 1. The announcement of the 9370's performance levels past the 4381 Model 3 while keeping prices a step below the older system's cost. However, Simko and other analysts said the 9370 will not replace the 4381a, which will be replaced by a line of more powerful systems.

Simko said he sees an IBM product line that includes the System/36 and 38 small-business families, the 9370, the 4381's successor and the IBM 3090-class mainframe family.

He said the 9370 offers an upward migration path. He also observed that while the 9370's performance and communications capabilities are comparable with the 4361, what sets it apart for the Fortune 500 market is the way IBM is promoting it as part of a top-to-bottom, host-to-PC solution. "What IBM is saying is that they aren't just selling a box," Simko said.

Without a good, low-end 370-architecture mainframe, IBM has missed opportunities for new business, with DEC taking advantage of that failing, Simko said. However, he defended the 1983 introduction of the System/ 36 by IBM's System Product Division (SPD), saying "it has been a good holding action for IBM" that has kept traditional IBM customers from jumping to DEC before the release of the 9370. He said the 9370 provides customers with a "clear-cut direction for VSP," which has been a division in flux for several years.

**Too early to tell**

Both Henkel and Simko said it is too early to tell how easy it will be to use the 9370. Simko observed that IBM has been working to make key VM applications easier to use and more affordable. Henkel said office automation software designed for the 9370 may be two years away and that there is no assurance that a simplified version of VM, currently under development and known unofficially as VM Desk, will satisfy the unsophisticated user.

Analyst Craig Symons of the market research firm Gartner Group, Inc. in Stamford, Conn., agreed that the 9370 fails to provide the unsophisticated user with an uncomplexed machine. He differed with the analysts who said the 9370's role is becoming clear and he said the software issue raises more questions.

"IBM has billed it as a departmental computer, but I don't see it as a departmental computer. It's a small mainframe," Symons said. Pointing out that IBM claims users can move mainframe applications to the departmental level, Symons said the 9370 will not move mainframe users' applications because it does not run MVS/XA, even though it runs MVS. "The fact of the matter is that the 9370 is still a VM machine," Symons declared.

However, Symons added that the 9370 offers dramatically lower prices than the 4361 and allows long-time IBM MIS shops to stay with IBM, rather than switching to DEC if they want to implement departmental computing.

An analyst who admits he is "bullish on the 9370" is Rick Martin, research analyst for Sanford C. Bernstein & Co., a New York investment firm. Martin, a former IBM product manager for the 4300 line, said he expects "a lot of spiffy office automation software" to come out of a development project IBM is doing for its first 9370 customer, United Air Lines.

Martin said customers running VM on the 9370 can have a clerical worker operate it and an MIS professional handle the troubleshooting. But he said MVS, even on a 9370, will continue to need professional operators. However, Martin, like the other analysts, pointed to price/performance as the key differentiation for the 9370.

"IBM is slowly releasing information about it, and the price/performance is better than it looked at first in commercial applications. In scientific applications, it is significantly better than anything out there," Martin asserted.

He also claimed the pricing structure gets even better when one looks...
Supermini hits tech marts

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er-aided design (CAD), computer-aided manufacturing, computer-aided engineering, universities and technical administration.

Typical applications in those environments include data acquisition and reduction, research, product design, real-time simulation and software development, the vendor said.

For example, an HCX-9 system will be used for Unix software development at the University of California at Berkeley.

Updating Unix

That school’s Computer Systems Research Group is creating an updated version of Unix, according to Harris.

The system is built around a proprietary processor that reportedly operates at 7.5 MIPS with Proton programs and at 8 MIPS using the C language.

The system’s dual VMEbus architecture is said to provide 40M byte/sec. of throughput per I/O bus, giving it almost four times the total I/O throughput of the earlier HCX-7.

Supports 256 users

According to Harris, the high-performance I/O bus enables the system to support as many as 256 users without significant performance degradation, particularly in disk-intensive applications such as CAD, software engineering and data base management.

The system runs Harris’s HCX/UX operating system. This system embraces both AT&T’s Unix System V.2 and the University of California at Berkeley Unix Version 4.3.

HCX/UX uses a switch that enables the two Unix versions to access the other version’s libraries and utilities.

Base configuration

The base configuration of the system costs $116,500. This configuration includes 4M bytes of random-access memory, an eight-slot VMEbus, an I/O controller with eight asynchronous serial ports, a 32-user Unix license and a C compiler.

Shipments are scheduled to begin in March.

Fog around 9370 clears

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siders IBM’s tendency to offer discounts. “The list price is almost meaningless when you buy 10, 20 or 100 of these. Then you get into the 30% discount range,” he added.

Martin said a final cost benefit for the customer will be in the area of peripherals, particularly products such as the IBM 9335 and 9332 disk drives, which can be attached directly to the 9370 system bus rather than through channel attachments. He said the disk drives, announced in June, are “incredibly cheap,” and that discounts on those products will run deeper as customers buy more.
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As microcomputers develop terminal-like capabilities, VDT makers are enhancing, price cutting, merging or dropping out

VDTs: DOING MORE FOR LESS

BY JOANN M. GRANGER

The current state of the display terminal market can be summed up in one word — competitive. From without, corporate acceptance of microcomputers, fueled by declining prices, is eroding the high end. From within, terminal vendors are scrambling to attract users and capture market share with a steady stream of new products and enhancements.

A number of firms are using micros as multipurpose workstations that duplicate some of the functions traditionally performed by terminals. As links to mainframes improve, more micros will be able to perform terminal-like tasks.

However, with an estimated 10 million units currently installed throughout the U.S., the video display terminal industry will remain an important part of the office environment for the foreseeable future.

Many manufacturers have found that to maintain a competitive edge and still offer a quality product, they have had to go to offshore manufacturing — primarily in South Korea and Taiwan. Because labor costs in these environments are kept to a minimum and quality remains consistent, the customer benefits in terms of more functionality per terminal dollar.

Lower prices have reduced profit margins for terminal vendors and have stiffened competition. This situation has prompted some vendors to bolster their financial situation through mergers and acquisitions.

Among firms choosing this route are Zentec Corp., which acquired Lear Siegler, Inc.’s Data Products Division late last summer; Phase Information Machines Corp., maker of IBM 3270-compatible terminals and workstations, which became a wholly owned subsidiary of Lee Data Corp. in 1985; Hazeltine Corp., which agreed in 1983 to sell its computer terminal equipment product line to a group of its management employees who formed Esprit Systems, Inc.; and NCR Corp., which acquired Applied Digital Data Systems, Inc. (ADDS) in 1981.

The major focus in this market is on functional capabilities. These include editing, highlighting, protected field, split-screen functions, color screen and ergonomic housing, to name a few.

Independent vendors tend to follow the lead of the larger vendors when offering such improvements. In a few instances, however, independents have taken the initiative to introduce terminal enhancements to major systems before the original manufacturer does.

This action, of course, pressures the original manufacturer to beef up the parent system, leading to a volleying back and forth to see which company can top the others by offering, in one package, the most features and functions at the lowest cost.

The display terminal market is divided into two distinct segments: the ASCII side and the IBM 3270 side.

The larger of the two is the ASCII, with regard to the number of vendors, units marketed and quantity sold.

The ASCII standard of communication is a coded character set introduced by the American
DISPLAY TERMINALS

CONTINUED FROM PAGE S1

Standard Code for Information Interchange. It consists of 7-bit or 8-bit coded characters — 8 bits including parity check — used for simple graphics and to convey to the vendors for responses.

VDT vendor competition

The Applied Digital Data Systems, Inc. 2020 terminals we use have blocking mode capability, but they cannot do edit checks on fields like some of the others. Why is this capability not included in this type of terminal?

James Mercer Manager of MIS CMP Publications, Inc. Manhasset, N.Y.

ADDs: The vast majority of users who would likely be in the block-mode application are not utilizing block-mode transmission. Whereas the feature would be a perceived advantage to a block-mode user, the number of people who would benefit from its incorporation would be minimal.

In addition, software developers tend not to write code for block-mode applications, choosing rather they prefer conversation mode, thereby allowing maximum control via the host computer.

Will a future release of the WY-50 smart terminal be versioned with graphics capability?

Dave Deitscher Hardware manager Salisbury State College Salisbury, Md.

DEC: Digital has pursued a strategy of providing a high-quality text terminal, designed especially to be upgradeable, but not to add the additional functionality and cost that would accompany a graphics product.

If we need graphics capability, Digital has products available to meet those requirements for different and higher price ranges.

By pursuing this strategy, Digital can minimize the cost for those who have text-only requirements.

Is there any way to obtain graphics capability on Hewlett-Packard Co. products without having to go to the expense of replacing them completely?

Michelle Johnson Information systems specialist Cathedral City, Calif.

HP: Although there is not a graph-
ics product recommended by the standards Institute, the HP-3000 system can support HPWord on our current family of HP 3000 systems can support using HPWord for many years.

Additionally, the HP 150 Touchscreen PC is supported as an HPWord terminal. The 2392 terminal has never supported HPWord, but two products are available for text processing for the 2392 — HPSlate and Text and Document Processor.

HP's direction with word processing is to move the functionality to the personal computer. Today the 2392A color graph/150 for the HP Touchscreen PC. The PC versions work stand-alone, and documents can be easily changed with terminal-based HPWord users.

Why did the supply of 3178 terminals suddenly disappear in September 1986? And why was there no warning that they would not be available?

Alen Baker Hardware manager Qume Corp. San Ramon, Calif.

IBM: There are a lot of factors involved in competitive pricing of such products, so we can't speculate with regard to the contract mentioned.

The HPWord terminals, 2626W and 2628A have been discontinued; however, customers with installed bases of these terminals using HPWord on our current family of HP 3000 systems can currently use HPWord for many years.

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The most sophisticated ter-
minal in the Wyse product line, the WY-60, incorporates both ASCII and DEC terminology. The ANSI X3.64 specification provides for standardized display protocols and command sets. Screen handling commands such as video attributes and cursor-positioning sequences are included in this specification. Wyse-60 users can select from among 17 different ASCII modes or one of three ANSI/DEC-compatible modes — such as the WY-75 ANSI, DEC VT52, or DEC VT100 — depending on which version is best suited for their application.

If your-own" keyboard option first announced with the 3178 allows users to design keyboards for specific applications, and some applications are available, with these keyboards that they have been slow to opt for the upgrade.

The IBM 3191 display, which offers more function, better ergonomics and a lower price.

I'm getting better response time for 40% to 60% of our users. Why can't IBM on third-party service contracts for the 3000 series terminals.

The most sophisticated terminal in the Wyse line, the WY-60, incorporates both ASCII and DEC terminology. The ANSI X3.64 specification provides for standardized display protocols and command sets. Screen handling commands such as video attributes and cursor-positioning sequences are included in this specification.

Wyse-W-60 users can select from among 17 different ASCII modes or one of three ANSI/DEC-compatible modes — such as the WY-75 ANSI, DEC VT52, or DEC VT100 — depending on which version is best suited for their application.

The HP solution for graphics is the 2393A graphics terminal or the 2392A color graph/150 for the HPTouchscreen PC. The PC versions work stand-alone, and documents can be easily changed with terminal-based HPWord users.

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Why did the supply of 3178 terminals suddenly disappear in September 1986? And why was there no warning that they would not be available?
Introducing the most reliable DEC-compatible terminal ever built. The TeleVideo 9220.

"Why do we want thousands of TeleVideo® terminals? Because we can't afford thousands of problems." Susan Kennedy should know. She's a product analyst at Leasametric, a company that rents, sells, and services DP equipment all over the country. Including thousands of terminals. And since reliability is crucial to Leasametric, they tear each evaluation unit apart piece by piece. Then, they give it a series of tests that make MIT exams look easy.

"Too many terminals just don't measure up," says Susan. "I've seen machines with questionable ergonomics... keyboards that flex in the middle when you type... even cheap little diodes that could drop off."

"But TeleVideo starts with solid engineering, and follows through with every detail. Overall, they've built the same quality into the 9220 that's made all their other terminals last so long."

And there's more to the 9220 than quality and reliability. There's also an extended feature set, including full VT-220 compatibility. A super-dark 14" amber screen. A tilt and swivel base. 30 programmable function keys. Plus the best thought-out ergonomics around. All for exactly $619.

The TeleVideo 9220. For more information, or the name of your nearest distributor, call 800-835-3228.
IBM is a registered trademark of International Business Machines Corporation
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The Other Three Initials In The 3270 World. And

**COMPLETE COMPATIBILITY.**

That's what you get with the AT&T 6500 Multi-function Communication System. And you get it in both SNA/SDLC and BSC protocols.

Which means for the first time, you have a real choice in 3270 Systems. From a company every bit as solid as Big Blue.

**SYNCH. AND ASYNCH.**

The AT&T 6500 will tie together data and applications from up to three synchronous and 16 asynchronous hosts. Not to mention allowing PCs to work as terminals.

What's more, you can switch between synchronous and asynchronous hosts with a single keystroke.

**FOUR WINDOWS.**

The 6500 lets you create up to four windows at the same time—into both synchronous and asynchronous hosts—and freely pass information among databases.

For example, an inside salesperson taking an order could access: the customer's credit status in one host; relevant inventory information from another host at a completely different location; and the order form to fulfill the request from yet a third host.

All on a single screen.

That kind of power means big productivity gains with no outlay for costly systems and applications development.
FIVE REASONS TO GIVE THEM A LONG, HARD LOOK.

---

PEACE OF MIND.

The 6500 incorporates AT&T's experience with three previous generations of 3270 equipment. Plus the kind of service that smaller companies just can't provide.

And we make the pieces fit. Modular architecture assures you of smooth system evolution: upgrading doesn't even require a new communications controller; and you can easily reconfigure your system with almost no disruption.

That's what you'd expect from the company that makes "The Computers With The Future Built In." AND VALUE.

Even with performance that matches or surpasses comparable IBM equipment, the AT&T 6500 looks a lot better on your balance sheet.

So before you decide on 3270 compatibles, call your AT&T Account Executive, or simply dial 1 800 247-1212.

We'll get you a lot to look at.
CONTINUED FROM PAGE S2

began commercial shipping of video display terminals in March 1979. Within a
year's time, the company propelled its way to the front of the line of independent suppliers, a position it retained for the next five years.

**Market position slipping**

During the past year, Televideo has found its competitive position in the display terminal market slipping, due largely to the company's foray into the microcomputer market. During its recent periods of declining sales, its competitors have been active in their attempts to increase market share.

In an effort to regain the spotlight, Televideo signed a five-year joint marketing accord with Ambi Corp. and purchased slightly less than 10% of Ambi stock. Ambi is a manufacturer of integrated voice/data terminals (see story page 58).

The display terminal product line now offered by Televideo consists of four models, each featuring improved ergonomics, editing capabilities and graphics characters. The Model 955 and Model 905 smart terminals are designed for the general-purpose ASCII market. The 905 is compatible with the Lear Siegler 3A/5A, Hazeltine 1410/1500, ADDS A2, ITT Qume QVT 101 and Televideo 925 and 910.

The remaining two models offer compliance with the ANSI X3.64 standard. Of these ANSI units, the Model 9220 is DEC VT220-compatible, and the Model pT700 is DEC VT100-compatible.

**“Within 10 days we had the names of the best distributors in three foreign countries”**

For nearly two decades, Land Grant has been involved with high tech in a variety of capacities. He is president of Land Grant & Company — a business devoted to export consulting and profitable concepts in global trade for high technology producers.

Land realizes the importance of networking in international business. And, he's been using CW International Marketing Services to help him expand his list of distributor contacts. "CW's worldwide offices are nodes on a network — in touch with current trends as well as the customers and international middlemen U.S. manufacturers are seeking," he explains.

Land discusses how CW International Marketing Services helped his client, Phoenix Technology: "Locating qualified candidates was one of our first steps in helping Phoenix select the right distributors. Within 10 days, we had the names of the best distributors in The United Kingdom, West Germany and France."

CW International Marketing Services is the only source, aside from the Commerce Department, that provides comprehensive distributor information broken down by country and product line. "For years, we had to sweat and cross-reference distributor information from a hodge-podge of government and international trade sources. Now, CW provides us with a better source of fast, top-drawer information," says Land.

In fact, selected international market information is so scarce, Land is currently writing a guide entitled the High-Tech Exporter's Sourcebook. And he plans to continue relying on CW International Marketing Services for distributor contacts. He explains, "The real added value of CW is its people and expertise in place around the world." He adds, "Because CW Communications is a network of international offices, CW International Marketing Services has worldwide contacts and marketing information unavailable elsewhere."

To find out how CW International Marketing Services can work for you, call Frank Cutitta, Managing Director, at 800-343-4674 (in MA, 617-879-0700).
Qume's QVT 101 with new sub-$400 units of their own.

Other manufacturers in this family include the QVT 103, QVT 201 and QVT 202, all of which are compatible with the ANSI X3.64 command and emulate DEC VT100 and/or VT200.

Featuring emulation of Tele-Video's 925, 920 and 912 is the QVT 108 smart editing terminal. The QVT 109, another smart terminal, provides seven-screen emul-ation of the ADS Viewpoint A2.

No conquest for IBM

Despite competitors' fears, IBM's 1979 entrance into the ASCII terminal market did not herald yet another conquest for Big Blue. IBM's first offering, the 3101 terminal, was priced about 20% higher than the com-petition and was made available for purchase only, with quantity discounts available for high-vol-ume orders. As of today, the 3101 has not achieved the popu-larity of VDTs. IBM's first offering, the 3101 terminal, was priced about 20% higher than the competition and was made available for purchase only, with quantity discounts available for high-volume orders.

IBM's major competitors in the DEC-compatible market with VTI00 and VT52 controllers or vice versa. Me-ecorex Corp. also makes plug-compatible replacements for various members of the 3270 family. This compatibility allows Telex ter-minals to be attached to IBM controllers or vice versa. Me-ecorex Corp. also makes plug-compatible replacements for various members of the 3270 family. This compatibility allows Telex terminals to be attached to IBM controllers or vice versa.

IBM's major competitors in this market include Telex Com-puter Products, Inc., ITT Court-er Terminal Systems, Inc., A&T, Lee Data and Memorex Corp. Telex Computer Products, Inc. provides plug-compatible replacements for various members of the 3270 family. This compatibility allows Telex terminals to be attached to IBM controllers or vice versa. Memorex Corp. also makes plug-compatible replacements for various 3270 components. A&T and Lee Data provide functional compatibility via their 3270-compatible product lines.

The families of display termi-nals now available as a part of the IBM 3270 Information Display System include the 3276 Con-troller/Display Station, the 3272, 3174, 3180, 3179, 3191, 3193 and 3194 Display Stations and the 3279 Color Display Sta-tion.

Lee Data was the first of the 3270-compatible vendors to offer multiple-host — asynchro-nous and synchronous — access from a single cluster controller, along with windowing and parti-tioning features on its 3270 dis-play stations. AT&T followed suit by offering the 6500 Multi-function Communication Sys-tem. Now, IBM offers these fea-tures via the 3174 controller and the 3193 and 3194 display sta-tions. IBM has gone a step farther by providing imaging ca-pability on the 3193.

Currently, the No. 1 competi-tor in the IBM 3270 market is Telex. In 1976, Telex purchased Terminal Communications, Inc. and entered the 3270-compatible terminal business. In June 1984, the company reached an agreement with Raytheon Corp. to purchase the installed base, receivables and inventory of Raytheon Data Systems.

Like all of the independents who must compete with IBM, Telex offers a broad line of com-peting products priced so much lower than those of IBM. One of the results of the stiff competition in the 3270 market is a trend toward display terminals with not only lower prices, but a more compact design.

Telex's 270 Information Dis-play System is a family of plug-compatible replacements that compete with terminals corre-sponding IBM models. The plug-compatible terminals included in this system are the 076, 079, 080, 179, 180-1, 279-3A, 1186, 1260 and 1280. The 073 contains a 12-in. display screen with a 1,920-char. screen capacity. It is a plug-compatible replacement for the IBM 3178. The 079 color terminal is the color counterpart to the 079 and displays in red, green, blue, yellow, turquoise and pink. The 079 is an alterna-tive to the IBM 3179 color ter-minal.

Offering four character screen sizes, the 080 is a 15-in. monochrome display supporting the direct attachment of light pen and message printer. It atta-ches directly to an IBM 3274/ 3276 controller or comparable Telex control unit. The 179 color terminal displays seven colors on a 14-inch monitor and offers three selectable screen sizes. It is a plug-compatible alternative to the IBM 3179-2.

An alternative to the IBM 3180 is the Telex 180-1. It fea-tures four user-selectable screen sizes on a 15-in. monitor.

Last is the 279-3A Color Graphics Terminal, featuring a 14-in. screen with a 2,560-char. display capacity. It is a plug-compatible replacement for the IBM 3279-3G.

Courier Terminal Systems became ITT Courier Terminal Systems Inc., a wholly owned subsidiary of ITT, in March 1978. Since that time, it has gained a significant presence in the computer industry. In April 1984, checking a ledger file: UMass staff members make use of a Lee Data VDT

**USER PROFILE**

**Campuses access UMass MIS**

**BY STANLEY GIBSON**

Although its main campus in Am-herst, Mass., sits amid the roll-ing hills of the Connecticut River Valley, the University of Massa-chusetts resides in other loca-tions in Worcester, downtown Boston and in Dorchester, over-looking Boston Harbor.

The university's MIS depart-ment must give its users at any of the locations across the state ac-cess to computers in other sites, particularly at the university's computing center in Amherst, which is where all student rec-ords are stored on a National Ad-anced Systems Corp. (NAS) 9040 mainframe.

Since January a year ago, the two Boston campuses have been compatible replacements that use Teledisco Systems, Inc. 925 terminals that communicate with the mainframe 3270 con-troller through a protocol con-verter. "The goal was to make it as comfortable as possible for a high portion of a user's work," Boland says.

Physical comfort for the users was also a factor in product se-lection, according to Boland, who points out that the Lee Data terminals are equipped with a de-tachable keyboard in addition to a tilt-and-swivel monitor. "At that time, the legislature had a bill mandating ergonomic fea-tures in state computer equip-ment purchases," Boland ex-plains. Although that bill was never passed, selecting termi-nals with better ergonomic fea-tures appeared to be a good idea, he recounts.

The initial Lee Data contract specified 60 terminals, five con-trollers, five printers and three IBM Personal Computer clones, at a price of $175,000. Boland has since added controllers, printers and some 40 terminals to the system.

Boland aims to increase re-sponsiveness in the Boston loca-tion by purchasing a new Lee Data product, the 525 terminal controller. The 525 will increase the controller-to-terminal speed to 56K bit/sec, from the present 9.6 bit/sec. The reason for the increase, he says, is that "when users travel to Amherst, they no-tice a faster response time." The faster speed, he says, is not a ne-cesity but a convenience that should make people more pro-ductive.

Terminal specifications such as Lee Data's, with a variety of capabilities, are particularly welcome, because, Boland says, he is committed to being a multivendor shop. "We don't want to be tied to one ven-dor and locked in," he says.

Further, because the univer-sity is run by the state, Boland is obligated to select the lowest bidder that meets the contract's specifications; he cannot choose a vendor for the sake of consis-tency or for intangible reasons.

But Boland says he enjoys se lecting the best bidder from many different vendors, regard-less of state purchasing guide- lines. "It's not so much the state process, but just trying to get the university the biggest bang for the buck."

Gibson is a Computerworld junior writer.
Integrated voice/data terminals make appearances in offices by capitalizing on business's reliance on the telephone

VOICE FOR MANAGERS

BY JOANN M. GRANGER

Integrated voice/data terminals are beginning to win friends in high places, but the corporate ladder has proved to be a tough climb. With tasks such as typing and report generation still regarded as clerical work, many executives have been reluctant to admit these machines into their own offices.

However, taking advantage of corporate America's reliance on the telephone, Northern Telecom, Inc. was able to get its foot in the door with the introduction of the Displayphone, and through that opening other vendors have followed.

The Displayphone integrates data and voice capabilities using a conventional telephone handset and accompanying telephony features. The addition of these telephony features to a conventional display station makes the resultant products much more attractive to the executive.

Last September, five years after introducing the Displayphone, Northern Telecom announced its second generation, comprising four models. Each model features basic data and voice capabilities as well as electronic mail.

The Displayphone 220 and Displayphone Plus are stand-alone units, the SL-1 Displayphone is designed for use with the Meridian SL-1 integrated services network, and the fourth unit is designed for the international market.

Rolm Corp., now a subsidiary of IBM, entered the integrated voice/data terminal market with its Cypress terminal in 1983. This unit provides IBM 3270 compatibility via the Rolm IBM Gateway — and Digital Equipment Corp. compatibility as well as one-button access to Rolm Phone Mail.

Rolm's Cedar and Juniper I arrived in November 1984. The Cedar is an IBM Personal Computer-compatible version of the Cypress. The Juniper I offers compatibility with the IBM PC and PCXT.

The Juniper II, announced in October 1985, features all of the capabilities of the Juniper I plus compatibility with the IBM PC XT and compatibles.

AT&T's three integrated voice/data terminals are designed for use with the company's System 72 and System 85 private automatic branch exchange (PABX).

The BCT 515 debuted in June 1983 and offers synchronous and asynchronous communications capability. The Personal Terminal 510A, which is analog, and 510D, which is digital, announced in June 1985, were the first voice/data terminals to incorporate a touch-sensitive screen.

Intecom, maker of the IBX family of PABXs, produced the Keystone integrated terminals in 1985. This unit provides all of the voice features of the IBX, plus data features including IBM and DEC terminal emulation and Wang Laboratories, Inc. Professional Computer attachment capability.

GTE Communication Systems brought to market the XT300 Actionstation in September 1982, which was replaced with the XT300E in August 1984. This integrated terminal provides full voice and data capabilities as well as access to GTE Telemail.

ITT Telecom Products Corp., a division of ITT Telecommunications Corp., unveiled the ITT Infostation in late 1984. The Infostation is a personal information terminal that provides electronic messaging and two-line voice/data transmission.

Davox Communications Corp. offers three cluster, multi-protocol workstations: the Series 1921, Davox 4900 and Davox 5900. The Series 1921...
CONTINUED FROM PAGE S7

DISPLAY TERMINALS

DUE primarily to deregulation, AT&T terminal prices have fallen to reflect the more competitive market in which the company finds itself.

innovator, integrating multiv-ntional capabilities into its terminal family. Its Series 400 offers 3270 and asynchronous communications, dual-host capability on a single control unit and an IBM 3270- PE emulator. Products such as these give Lee Data the first truly multifunctional product line in the 3270 world.

Among the many components of the Series 300 and Series 400 are three display ter-

The Model 1214 is an en-

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Managers' voice CONTINUED FROM PAGE S8

Managers' voice

targets the IBM 3270 market. In addi-
to IBM emulation, Data- 

voice capabilities and IBM PC attachabi-
dard on the Ambiset.

Ambiset, which features either

memory that connects directly to

Scanset XL in November 1982.

line in the U.S. The Scanset se-
tions Corp. announced the Tele-
to interface six standard electro-

Executive/Secretary Commun-

Centrex add-on. Escom en-

drive is also included with the

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## Display Terminals

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<th>MEMORY CAPACITY (NUMBER OF PAGES)</th>
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The companies included in this chart responded to a recent telephone survey conducted by Computerworld. Further product information is available from vendors.

Research assistance was provided by Datapro Research Corp.

CW chart compiled by Linda Gorgone.
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<th>COMPANY</th>
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<th>MEMORY CAPACITY (NUMBER OF PAGES)</th>
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<th>COLOR OR MONOCHROME</th>
<th>SCREEN/ MONOGRAM FUNCTION KEYS</th>
<th>TRANSMISSION MODE</th>
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Mail to: Wyse Technology, Attention: Marcom Dept. 286 3571 N. First Street, San Jose, CA 95134
Call 1-800-GET-WYSE

DIAL-IN READER SERVICE NUMBER 3
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<th>COMPANY</th>
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<th>COMPATIBILITY (EMULATION MODE)</th>
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<th>MIRROR CAPACITY (NUMBER OF PAGES)</th>
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<td>DEC VT100 family, ADDS, Lear Siegler, Teletex</td>
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<td>29308 Mill Creek Road</td>
<td>200-207</td>
<td>IBM 3101, 3178, 3278, 3278, 3251; DEC VT100, VT102</td>
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<td>Tektronix 4160</td>
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<td>Vision 3222</td>
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<td>3,564 1 15 Mono 6 24 Full, half</td>
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<td>F3278</td>
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<td>1178, 1179</td>
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<td>MC 3</td>
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<td>DISPLAY CAPACITY (NUMBER OF CHARACTERS/PAGE)</td>
<td>MEMORY CAPACITY (NUMBER OF PAGES)</td>
<td>SCREEN AREA (DIAGONAL INCHES)</td>
<td>COLOR OR MONOCHROME</td>
<td>SCAN SCREEN/ WINDOWS</td>
<td>DIAL-UP FUNCTION KEYS</td>
<td>TRANSMISSION MODE</td>
<td>TRANSMISSION RATE (ASYNCHRONOUS/SYNCHRONOUS)</td>
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<td>BIT/SIG RATE</td>
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**Prices and specifications are subject to change.**

**JANUARY 19, 1987**

**COMPUTERWORLD**

**S15**
## DISPLAY TERMINALS

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<th>COMPANY</th>
<th>PRODUCT</th>
<th>COMPATIBILITY</th>
<th>DISPLAY CAPACITY (NUMBER OF CHARACTERS PER PAGE)</th>
<th>MONITOR CAPACITY (NUMBER OF MEMORY SCREENS)</th>
<th>SCROLL AREA SIZE</th>
<th>COLOR OR MONOCHROME</th>
<th>TRANSMISSION (ASYNCHRONOUS / SYNCHRONOUS)</th>
<th>HIGH END FUNCTION KEYS</th>
<th>CODE</th>
<th>TRANSMISSION BIT/SEC RATE</th>
<th>FORMAT</th>
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<th>READERS SERVICE NUMBER</th>
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<td>DEC VT220, VT100, VT52</td>
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<td>ASCII</td>
<td>9.6K</td>
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<td>Tec, Inc.</td>
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<td>Televiews: Lear Siegler; ADDS Viewpoint; IBM 3101; Wyse; DEC; VT52, VT102, VT100, VT10</td>
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<td>105</td>
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At Telex, we're confidently laying our 3270 reputation on a new line. This time with a full line of System 36/38 products. Selections range from low-cost, plug-compatible displays and printers to high performance Intelligent Workstations with 5250 emulation.

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The Lanier EZ-Talk telephone replaces your phone, your calendar and your phone file. And it is fully compatible with PBX and most key office phone systems.

There are other complete Lanier business telephone systems, too. Full-featured Lanier phones that tie into dictation and other systems. Right up to a digital PBX that can accommodate 32 trunks and 120 stations.

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With Lanier, there is nothing to it. We've made dictating simple with units available in every size and configuration you can imagine. The new Lanier Pocket Protégé™ is one of the smallest microcassette units in the world. It's the only micro-cassette portable of any size with a display screen to tell you how many recordings are on your tape, and the length of each. So you can instantly locate any recording you want to review. Our screen also tells you if voices aren't loud enough to be recorded clearly.

Pocket Protégé lets you give your secretary special instructions before she starts typing. So she won't finish typing a lengthy letter only to find a paragraph you want inserted. So you save her time and yours.

But even though Pocket Protégé is a product of incredibly intricate technology, it's easy to use even if you're all thumbs. Just use one of them to operate the one-button that controls all the main functions: record, rewind, listen and stop.

Pocket Protégé puts all the features of a desktop dictation unit in the palm of your hand.

Lanier dictation equipment keeps your whole office organized, too. The Lanier Messenger® for example. Its revolving tray of four microcassettes lets several people dictate from in the office. Or out of the office. Because with the Messenger you can phone in your dictation. You can assign the microcassettes according to department, type of task or priority.

The Lanier VoiceWriter® System is for offices with heavier work loads. It lets several people record and transcribe at once. It can receive dictation from right there in the office, or over the phone, even from continents away.

And VoiceWriter lets you add to recordings exactly where you want the additional text. When you dictate your addition, the system inserts it right where you want it by "moving over" all the text that follows. You don't have to worry about erasing the original recording.

The VoiceWriter System has a console that tells you the status of each piece of dictation. So if you need a recording transcribed right away, it can be found right away. No one has to spend endless hours plowing through tapes to find it.

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ViewWriter is the only real electronic display typewriter. Its 16-line screen lets typists delete and rearrange entire paragraphs with a few simple keystrokes.

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In fact, ViewWriter has all the features of the best electrics and electronics, with many of the time-saving word processing features the best computers have. Like word wrap-around. And inserting and deleting words, or even paragraphs, is a breeze. There's no more need for retyping an entire text.

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Intrapreneurship: Turning in-house projects to profit

By RICHARD RAYSMA and PETER BROWN

A mid-size radio station spent four years developing and implementing a software package that performed all of the station’s accounting and billing functions, calculated its reach and frequency analysis for sales presentations to advertisers and analyzed its penetration into the radio-listening marketplace. The station’s MIS department spent $300,000 to develop the system and was able to show increased savings of $125,000 during the first year of implementation.

During the third year of implementation, the station marketed the software system to eight other radio stations; this effort showed a $200,000 profit. This year, the station expects to have another 20 software customers.

Most companies overlook the potential profitability within their own MIS departments. These departments maintain specialized software products that take several years and large cash investments to develop. Once these products have been generalized for other applications, they can be licensed to firms that need proven, sophisticated software systems. The best of these products have proven themselves to be an integral and valuable part of a company’s business.

With proper planning and a well-executed marketing effort, the “intrapreneurial,” or in-house, venture can create additional useful products and become a dynamic profit center. But since software companies derive most of all of their value from the intellectual property in their software products, intrapreneurs must take unique precautions to protect these assets. These defenses must be in place well before the first software product is licensed to an end user.

The company considering an intrapreneurial venture must also weigh the strategic worth of its product, judging whether the product can be made available for public use without damaging the corporate competitive edge.

New opportunities

For companies searching for new businesses and new products, software is an ideal product to consider. In most large organizations, the data processing function is well funded and populated with highly skilled technical personnel. These technical workers are, for the most part, self-motivated, creative and innovative. In addition, the product’s research and development expenses have been accounted for in its initial development, so start-up costs are well in hand.

Some pioneering companies that have committed to intrapreneurial ventures have found exciting opportunities. For example, a large international brokerage and investment banking firm recently began to market a comprehensive software product for brokerage applications. This product handles on-line applications — such as customer order entry and into-account inquiry — as well as back-office functions like end-of-day batch processing and detailed reports of the previous day’s activities.

The brokerage firm is a leader in the trading of stocks and bonds and raising investment capital in the financial markets. Yet until recently, it was not in the business of licensing software products. However, top management’s historical willingness to support intrapreneurial ventures was a factor in the brokerage firm’s decision to enter an entirely new business.

A sophisticated brokerage processing software system was developed during a period of years for the brokerage firm’s in-house data processing facilities. Millions of dollars in employee compensation, consultants’ fees and leading-edge equipment costs were spent on the system’s development. The end result was a sophisticated,
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comprehensive brokerage software system that was better than virtually any other system being used by major brokerage companies.

The brokerage firm had made a significant financial commitment to the development of a first-rate automated system, and a readily identifiable and marketable software product was available. In addition, with the deregulation of the banking industry, many larger banks were interested in sophisticated automation of their brokerage functions.

The firm's senior management, in conjunction with its MIS director, identified this new software product for use by other organizations with similar business needs. Once this software is modified to be generally applicable to other organizations with similar business needs. Once this software is generalized for use by others, it is potentially the core of a new business venture.

A new corporate subsidiary was formed to market the system. The subsidiary was assured a strong start by adequate financing and a superior management team.

Once software is generalized for use by others, it is potentially the core of a new business venture. The subsidiary currently markets the brokerage software system for $1,000,000 or more per license. This product is a proven one that works successfully; the new subsidiary can be instrumental in developing the automated system, and it recruited experienced management and marketing talents.

A new corporate subsidiary was formed to market the system. The subsidiary was assured a strong start by adequate financing and a superior management team.

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Managers get English access to totals, minimums, maximums and percentages, correlations and ratios—automatically displayed in summary or graph form.

3. APPLICATION BUILDING
Within security constraints, managers can create and update tables, build forms for data presentation, and request reports.

4. PROPER USE OF DB2
INTELLECT/DB2 uses all DB2 capabilities to full advantage. And as an SQL generator, INTELLECT's interface to DB2 makes complete use of DB2's power while optimizing SQL coding for maximum efficiency. An automatic "Instant English" facility gets you started fast.

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Use DB2 or other databases and file structures in many ways. With our PC Link, reformat DB2 data into a Lotus 1-2-3 worksheet and send it to a PC.

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Large aircraft manufacturers, for example, have taken advantage of their software and hardware capabilities for some time. These manufacturers have found it necessary to install expensive and sophisticated DP facilities.

In order to utilize excess DP capabilities, these manufacturers have started lucrative computer service bureau operations. For example, Boeing Corp. has built Boeing Computer Services Co. into one of the most successful computer service businesses in the U.S.; McDonnell Douglas Corp. has started the McDonnell Douglas Automation Co., often referred to as McAuto; and Grumman Corp. has created Grumman Data Systems Division. These intrapreneurial ventures were started well before intrapreneurial
ventures came into vogue. Software provides those companies that have already developed a working in-house system with an ideal medium for a new venture. A ready market is available for proven software products that work and have been used in the operation of a business.

The initial investment in software for new applications can be very large. It would be far cheaper, and results in software that does not work properly. It is often more economical for a company to acquire software by licensing an existing software product that works rather than attempting to develop its own.

**Identifying the product**

Several criteria should be applied to identify a product that might succeed as a new venture.

**Major in-house software venture.** The software product should originally have been a major financial and technical undertaking within the company itself. During the product's development and implementation, sufficient resources should have been devoted to the software product with the result that it would be sufficiently differentiated from other, potentially competitive software products.

Within any large organization, probably not more than a few software products can be classified as major development efforts. Additional technical development work would have to be performed on these software products to make them more generally usable by a broader range of companies.

**Large volume of transactions.** The software product should be used within the company's organization to process a large volume of transactions for the company.

If the product successfully handles a heavy load, a higher licensing fee in the marketplace is justified, resulting in a more profitable product.

**Critical application.** The software product should handle a vital function within the company. If the application is critical to the company, it will also be a critical application for the potential customers.

An organization is usually inclined to pay a higher license fee for software that can improve its vital functions than for a product that is more a luxury than a necessity.

In the brokerage company example, the software product was the lifeblood of the business. As a licensed software product, it would also become the lifeblood of other brokerage firms or banks, thus commanding a higher licensing fee.

Most companies will face objections from within the firm before they give away what they consider to be valuable trade secrets. The software product often gives a competitive edge over the company's direct competitors.

Some rent is available for proven software products to be licensed to its competitors include the following:

- The company has a one-to-three year lead time in implementation.
- The competitive company usually implements a similar system anyway.
- The software product usually has such a potential for profit that it will more than make up for any loss in competitive edge.
- The developing company may retain some key features for itself so that the licensed product is not quite as comprehensive as the original.

**Choosing the project team**

**Technical personnel.** The most important element after a working product is the technical staff to support and improve the product. If the software was developed in-house, there should be a capable and sophisticated technical staff that can continue to support and maintain the software product as it is marketed to outside customers. If the software product has existed for several years, the technical staff may by then have been reduced primarily to less skilled maintenance programmers.

Before choosing a particular software product for intrapreneurial marketing, management should assure itself that it has the technical ability to support the product. The technical staff should come from within the ranks of the organization. If the ranks of the technical staff have been thinned out, capable personnel should be recruited prior to marketing the product. Usually there is one key technical manager, often a project leader, who was responsible for developing the software product. This individual should be recruited to head up the technical team.

While the software product is being refined for outside marketing, the project leader may be wearing two hats. He may still be heading the development effort for the in-house product as well as heading the project for the outside marketing effort. A project leader should be given some leeway to assemble a qualified and reliable technical staff.

**Marketing personnel.** Even a great product cannot sell itself. An excellent software product will still need a superb marketing effort to bring it to the marketplace. Thus, the marketing personnel will probably be the key employees in the new venture.

For the intrapreneurial business, the preferable choice for marketing director would be an individual from within the organization with proven marketing experience. In some cases, the company may have to go outside to recruit a marketing director.

**Support staff.** The licensing and distribution of a sophisticated software product is different from the sale of a manufactured item. Customer training and product maintenance are critical ingredients for a successful software product. Adequate training staff should be...
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A unique menu-based architecture provides a highly productive, user-friendly system. With menus, windows, and on-line help screens to assist them, users can easily access data from a variety of sources, create or prototype applications and produce sophisticated reports easily.

No Waiting.

Concurrent, multi-user updating gives RAMIS users simultaneous access to data. RAMIS provides advanced multi-threading and concurrent data update and retrieval, greatly improving response time and reducing processing overhead.

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Resource-sensitive performance is a must for efficient end-user applications. Unlike competitive products with interpretive languages, RAMIS processes applications with a compiled fourth generation language giving you faster response and more reliable applications.

Relational Views.

RAMIS provides powerful, relational, structure-independent views of data. This enables users with no knowledge of file structures to easily combine, retrieve and utilize information from various sources.

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The advanced menu-based architecture lets each user choose the reporting style that best suits their skill and requirements. The RAMIS Information System offers four reporting options: artificial intelligence-based natural language, menu-assistance, checklist or syntax.

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An intrapreneurial software venture, like any software company, should include clauses pertaining to restrictions, copyrights and confidentiality within its product license. The following are examples of such clauses:

Restricted license. Licensor grants to Licensee, and Licensee accepts from Licensor, a perpetual nonexclusive and nontransferable license to use the current version of Licensor’s software.

The software shall initially be used only on equipment at locations identified as Licensee’s data processing centers. The software shall be used only for the processing of Licensor’s own business, which shall include servicing and maintaining records on behalf of its customers and clients.

Licensee shall not (1) permit any third party to use the software, (2) use the software in the operation of a service bureau or (3) allow access to the licensed software through terminals located outside Licensee’s business premises. A license may be temporarily transferred to backup equipment if the particular scheduled equipment is inoperative for more than 48 hours.

Confidentiality clause. The software and all programs developed hereunder and all copies are proprietary to Licensor and title remains in Licensor. All applicable patents, copyrights, trademarks and trade secrets in the software or any modifications made at Licensee’s request are and shall remain in Licensor.

Licensee shall not sell, transfer, publish, disclose, display or otherwise make available the software or copies to others. Licensee agrees to secure and protect each module, software product, documentation and copies in a manner consistent with the maintenance of Licensor’s rights therein and to take appropriate action by instruction or agreement with its employees or consultants who are permitted access to each program or software product to satisfy its obligations.

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The following clause pertains to contracts with consultants for development work:

The consultant agrees that all developments made and works created by the consultant in connection with the company’s assignments shall be the sole and complete property of the company and that any and all copyrights and other proprietary interests therein shall belong to the company.

The consultant agrees that, except as directed by the company, he will not at any time during or after the term of this agreement disclose any confidential information to any person whatsoever or permit any person whatsoever to examine and/or make copies of any reports prepared by him or that come into his possession or under his control by reason of his consultant services and that upon termination of this agreement he will turn over to the company all documents, papers and other matter in his possession or under his control that relate to the clients of the company.

The consultant acknowledges that disclosure of any confidential information by him will give rise to irreparable injury to the company or owner of such information, inadequately compensable in damages. Accordingly, the company or such other party may seek and obtain injunctive relief against a breach or threatened disclosure of confidential information, in addition to any other legal remedies that may be available.

— Richard Rayzman and Peter Brown

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Tremendous opportunities exist for an intrapreneurial company to obtain an entree into the software industry. Like all other new business ventures, the entree must be well planned, well staffed and well financed.

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Managing capacity

Capacity management is somewhat like the ugly duckling. The problem, you may recall, was that the duckling wasn’t really a duck at all. Likewise, capacity management isn’t really a technical issue; it’s a management issue.

Unfortunately, capacity management, which includes planning and performance issues, is frequently assigned to only one segment of MIS.

This leads to ineffective management because a single technical function cannot carry the burden of ensuring that there will be enough computer resources to meet the needs of the entire company.

It is critical, therefore, that managers recognize that capacity management is a multifaceted issue, not just an ugly technical function. If it is to be successfully addressed, it must be part of many MIS functions, including aspects of both operations management and applications development.

In many companies, the senior operations manager is given primary responsibility for capacity management because he has authority regarding the hardware and systems software.

This manager cannot effectively carry out such a responsibility, however, because he does not have authority over the use of resources by the applications departments.

To obtain accurate workload forecasts, particularly for new applications, the operations staff has to work with the MIS department. The foundation for Agway's MIS department was laid in the varied experiences Agway's MIS department acquired in serving the company's range of businesses and from a tradition of customer-oriented service, according to Dennis J. LaHood, formerly Agway's MIS director and now president of Agway Data Services.

The MIS department has always charged internal users for services and development. "In that respect, the MIS department has always acted and thought of itself as a service bureau and has always attempted to have a customer orientation," LaHood said.

In launching the subsidiary, that foundation was built upon support from the MIS department and the company's chief executive, who is involved with the hospital that also began marketing data processing services. LaHood said.

Additional encouragement came from outside companies that approached Agway's MIS department "asking if things could be done for them," he stated.

Agway, formed by a merger of three farmers' cooperatives 22 years ago, distributes petroleum products and runs four manufacturing businesses, a wholesale distribution firm and a retail chain. The company also offers insurance, banking, finance and leasing services, generally for Northeastern farmers.

By David A. Ludlum

DEWITT, N.Y. — Agway, Inc., a farmers' cooperative and Fortune 100 company involved in manufacturing, distribution and finance, has set up its data processing operation as an independent, profit-oriented subsidiary.

The new unit, Agway Data Services, Inc., attracted its first customer, the 23-branch Syracuse Savings Bank, four months before formally going into business Jan. 1. It is currently providing four other clients with limited services in data processing off-load, network management, consulting and systems review.

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Managing capacity
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with the applications development department as well as end users.
Since the applications staff and users do not consider capacity management a primary responsibility, they often do not realize the importance of providing operations with a useful forecast.
In addition, the operations manager has no control over the amount of work required per transaction for each application or the work-arrival rate for each part of the work load. The applications development department is responsible for determining both of these factors.
Without the necessary coordination and communication with other departments, operations essentially is forced to play a losing game in capacity management. To address capacity problems, the operations manager’s only choices involve adding more hardware or improving the performance of present systems.
Multifaceted nature
The multifaceted nature of capacity management is often not recognized even within the operations department itself; the system tuning and planning responsibilities are divided among separate groups within the department.
To address these issues, the MIS manager should make capacity management a major responsibility integrated throughout his organization — and to do so he must make it a standard activity for all aspects of the organization.
For example, the people who allocate direct-access storage device (DASD) space should also be responsible for ensuring that DASD response time is maintained at reasonable levels. To accomplish this, they will need to have capacity management data from other departments, and the results of their efforts should be monitored at an appropriate management level.
A good way to begin the consciousness-raising is to require that the vice-president of information systems, as well as the directors of both the operations and applications development departments, sign service-level agreements. Such an action clearly states that service is a primary responsibility of the entire organization, not simply operations.
Agway branches out into DP
From page 51
Agway Data Services, which has targeted all its parent company’s lines of business as its own markets, operates two IBM 3081 Model K mainframes as well as a CICS network serving about 160 Northeastern locations.
Despite its finance-oriented tradition and willing customers, the transition from internal unit to independent subsidiary has been marked by challenges in establishing financing and marketing, according to LaHood.
The move was formally launched last year by the commissioning of a study by John Diebold & Associates of Agway’s DP capabilities and the opportunities to market them.
The most serious consideration was the effect on service to internal users, LaHood said. The company decided to expand computer resources and enhance the staff to accommodate each outside customer, "so that we weren’t stealing resources from customers we were already servicing," he explained. The 140-employee subsidiary is also adding needed expertise in marketing, sales and finance.
Top management concerns in setting up the unit included whether Agway could meet its financial goals in a timely manner, according to Richard Radey, Agway, Inc.’s senior vice-president for finance and control and chairman of Agway Data Services.
"With most startup organizations, it generally takes longer to get the desired payback than what your original hope was," Radey said.
Radey said the capital investment required for the effort was "not overly significant," thanks in part to equipment leasing, and that the substantial commitment was in “getting the right human resources in place.”
There are many other factors that facilitated the move to subsidiary status, according to Michael Weiner, vice-president of John Diebold & Associates, who was a consultant on the project. Agway’s MIS organization was large and well run, and the Agway name brings recognition for quality in its market, Weiner said.
Several steps taken by Agway bode well for the subsidiary, he added. They include targeting Agway’s “business and geographical footprints” in the market, garnering top management support and incorporating the unit.
Incorporation allows establishment of management incentives that are important for a relatively small, entrepreneurial organization but might be foreign to a large company like Agway, Weiner said. “Companies of that size typically have bureaucratic structure and management,” he said.
LaHood and Radey declined to specify the financial and manpower requirements called for in setting up the subsidiary or to disclose projections for the unit’s sales and profits.
LaHood said the change has not revealed any bureaucratic inertia in the MIS department that had to be overcome. “It has certainly increased the enthusiasm and excitement of our MIS department. Data processing professionals have all come forward enthusiastically about the expectations,” LaHood said.

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The study also found more retailers putting computing power in stores, particularly through the use of self-contained POS systems that can store data on stocks of goods, prices and transactions and also access credit records.

Andrews said the systems, costing as little as $3,000, can often communicate with other systems in stores so that, for example, a clerk can tell a manager he needs change or has spotted a shoplifting suspect. Most of the retailers reported finding it easiest to integrate POS systems with others in stores.

The study reflects the situation at Minneapolis-based Dayton Hudson Department Stores, a subsidiary of Dayton-Hudson Corp., according to Fred Asher, the chain's vice-president of MIS. Inventory management is the major concern there, and POS systems are "an integral part of that whole process," Asher said.

"The key to that is being in stock on wanted merchandise. We're providing the information systems to assist that process," he said. That calls for close integration of marketing, procurement and distribution systems, Asher added.

Inventory and POS are also leading concerns at K Mart Corp. in Troy, Mich., according to David M. Carlson, vice-president of corporate information systems.

K Mart has endorsed IBM's Token-Ring local-area network for linking in-store systems — such as its IBM Personal Computer AT-based ones for labor management, POS and receiving — and is developing all of them to accommodate Token-Ring, Carlson said.

A typical benefit of such interconnection is K Mart receiving systems' retrieval of retail prices, at which the systems log incoming shipments from POS systems. Retailers are careful to keep the prices in POS systems up to date.

The study found that in development efforts, specialty retailers and department stores are emphasizing merchandise planning applications to control stocks of seasonal goods, with about 20% of the respondents reporting they had recently completed a major system and about 45% ranking it as a major development or enhancement priority in the next year or two.

Cost control a priority

For mass merchandisers, however, purchase order management systems for controlling costs are the development priority; 19% said they had recently developed a system and 63% reported they plan to develop or improve one in the next 18 months.

The study found that the software packages retailers most often purchase — rather than develop in-house — include general ledger (35%), payroll (49%), accounts payable (35%), fixed assets (33%) and POS (24%).

Packages for POS systems have become more common because the systems often function similarly; most packages are driven by parameters, so they can be customized; and many offer sophisticated functions previously developed in-house, such as cashier productivity and scheduling, Arthur Young's Andrews said.

The retailers' expenses for training and for support of systems in stores rose 50% in fiscal 1986, indicating an emphasis on training end-users in order to get the most from investments in systems, Andrews said.
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Automated Clean Room Processes. San Jose, Calif., Feb. 3-4 — Contact: Robotics International of Society of Manufacturing Engineers, P.O. Box 930, One SME Drive, Dearborn, Mich. 48121.

Digital Image Processing. Washington, D.C., Feb. 3-6 — Contact: Integrated Computer Systems, P.O. Box 3614, Culver City, Calif. 90231. Also being held March 17-20 in Boston.


FEBRUARY 1-7

Prototype Implementation Strategies. Ottawa, Feb. 9-10 — Contact: Director of Education, Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138.

Fourth and Fifth Generation Data Management Software. Boston, Feb. 9-10 — Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810. Also being held March 2-3 in Chicago.

Project Management Software. New York, Feb. 9-11 — Contact: American Management Association, P.O. Box 319, Saranac Lake, N.Y. 12983. Also being held March 23-25 in Chicago.

How to Design & Improve a Cost Information & Control System. Los Angeles, Feb. 9-11 — Contact: American Management Association, P.O. Box 319, Saranac Lake, N.Y. 12983. Also being held April 9-10 in Atlanta.


Systems Design & Integration Conference. San Jose, Calif., Feb. 10-12 — Contact: Electronic Conventions Management, 8110 Airport Blvd., Los Angeles, Calif. 90045.


South Florida Data Base Users Group. Ft. Lauderdale, Fla., Feb. 12 — Contact: 4780 N. State Road 7, Ft. Lauderdale, Fla. 33319.

FEBRUARY 15-21


15th Annual Association for Computing Machinery Computer Science Conference. St. Louis, Feb. 16-19 — Contact: Department of Computer Science, University of Pittsburgh, P.O. Box 13526, Pittsburgh, Pa. 15243.


Expo IV (for Pick-based systems users). Atlantic City, Feb. 18-20 — Contact: Expo-TMS, 22961 La Canada, Laguna Hills, Calif. 92653.


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Oracle adds VAX/VMS to SQL spreadsheet

Belmont, Calif.-based Oracle Corp. has announced a Digital Equipment Corp. VAX/VMS version of its SQLCalc spreadsheet facility said to allow users to access, update and create tables in a relational database directly from a Lotus Development Corp. 1-2-3-like spreadsheet.

The VAX/VMS version is said to be functionally identical to the IBM Personal Computer version introduced in 1986. According to a company spokesman, users can move spreadsheets and data bases between the VAX and PC versions, using the same interface in both environments.

Users enter IBM SQL requests into cells, just like formulas. The SQL statements can refer to other spreadsheet cells, so users can change parameters and see new information from the database. The user's queries can be edited, copied, moved and projected just as formulas can.

SQLCalc provides multiple concurrent users running SQLCalc or any of the vendor's other end-user and programmatic interfaces can access the Oracle database. The ability to limit spread sheet interface running on any mix of PCs and VAX ASCII terminals.

EMC disk subsystem features shadowing for Prime systems

EMC Corp. in Natick, Mass., has announced a fault-tolerant disk subsystem designed to increase the reliability and performance of Prime Computers, Inc. computers.

According to the vendor, the subsystem, which is said to provide fault-tolerant data storage using paired Winchester disk drives, employs a technique called shadowing. Shadowing increases the availability of critical data by utilizing two disk drives that hold identical images of the same information, the vendor said. The technique is implemented using a 24-MHz controller called the IDS-4 Shadow Controller.

Performance boost claimed

The IDS-4 Shadow Controller is said to provide improved disk performance and flexibility in determining appropriate disk configurations in addition to fault tolerance. It operates two disk drives simultaneously so that when a problem occurs with one, it automatically accesses the other.

The controller is capable of supporting up to two drive pairs. It is based on a Motorola, Inc. 16-bit microprocessor and a direct-memory access (DMA) controller.

It comes equipped with an expanded memory buffer with a 512K-byte capacity and features an On-line/Off-line switch.

No changes needed

According to the vendor, it requires no changes to the Primos operating system or existing hardware and is 100% compatible with any Prime system at REV 19.2 or higher.

The IDS-4 Shadow Controller is available as part of an EMC disk-storage subsystem. The disk-storage subsystems feature ESM-, 510M- and 374M-byte drives.

An EMC disk subsystem employing an IDS-4 Shadow Controller and paired 510M-byte drives costs $25,500 plus $265 for 96 months, the vendor said.
When it comes to something as crucial as how your organization's information will be shared, you must be free to run your enterprise as you see fit. Nobody, including your telephone or computer equipment supplier, should dictate your choices.

As you automate your business, you need a way to share information among all the different kinds of equipment you have, from different manufacturers, in every department. IBM mainframes, DEC and HP minicomputers. Personal computers, printers and plotters of every make and model.

Net/One is the one local area network that gives you complete freedom of choice. You're free to choose whatever kind of equipment you need to best do the job you want done. With Net/One, your equipment can work together, no matter what kind it is.

Net/One is also the one network solution that frees you from technology trends. Because it supports major standards that are important in communica-
tions, you never have to worry about being left in the technological lurch.

And Net/One is the one network that frees you from the hassle of wondering who to call about what. With us, you get everything you need from one place: multi-vendor connectivity, network design, installation, training, service, support.

One-stop accountability. We'll be responsible for the entire network. PC to mainframe. Factory, laboratory, office, campus.

How well does the Free Enterprise System work? Nearly half of America's top 50 corporations are already using Net/One to run a piece of their business. Let us show you how the Net/One system can help you run yours. Call us for more information.

Ungermann-Bass, Inc.,
3900 Freedom Circle, Santa Clara, California 95052.
Telephone (408) 496-0111.

Ungermann-Bass
Net One. The Free Enterprise System.
NEW PRODUCTS/SOFTWARE & SERVICES

SOFTWARE & SERVICES

System software
Profitkey International, Inc. has announced Sales Analysis, a module for its Profitkey manufacturing system.

The module is said to use sales information already captured in the data base to provide the reporting information needed to analyze the sales cycle and customer purchasing habits and manage the sales force.

Sales Analysis is priced at $4,000. Profitkey runs in multuser environments under Microsoft Corp. Xenix and Unix on AT&T, IBM, NCR Corp. and Unisys Corp. computers.


Applications packages
AT&T has announced Unitrax, Unix System V-based video transaction and information retrieval processing software.

Starter application packages contain data base design structure, data base linkages, North American Presentation Level Protocol Syntax and ASCII starter data base on magnetic tape cassette or disk. The applications available include Product Inventory; Literature and Product Ordering; Training Courses; Corporate Information and Support; and Business Communications. The packages can be customized and expanded using AT&T’s Unitrax Software Application Development System.

The binary software license fee ranges from $5,000 to $20,000. Each starter application package costs $750.

AT&T, 100 Southgate Pkwy., Morris, N.J. 07929.

Daly & Wolcott, Inc. has announced Release 1.0 of its G/L History and Inquiry System for the IBM System/36.

Written in RPG-II, the system is said to retain detailed general ledger transactions needed for the analysis of general ledger accounts. Inquiry may be performed by entering either account or journal reference information. Reports include G/L History Report, Worksheet by account, account ranges or journal reference and may be printed in detailed or summary form by dates. Period balances and net changes are printed on the reports along with a work area for notes.

The G/L History and Inquiry System costs $800.

Daly & Wolcott, P.O. Box 1509, East Greenwich, R.I. 02818.

Utilities
Aleyon Corp. has announced DB68, a C source-level debugger for its C68 Versados compiler.

DB68 is said to be a tool for symbolically debugging executable C programs at the source level. It provides a set of break-point commands and allows the user to debug without knowing the bit representation or size of C data types.

DB68 is priced at $950.

Aleyon, 5010 Shoreham Place, San Diego, Calif. 92122.

Axios Products, Inc. has announced Pilot/MVS, Pilot/CICS and Pilot/SMF.

Pilot/CICS is a reporting, tracking and modeling system. Pilot/MVS answers questions about the MVS and XA environments and depicts Resource Management Facility, direct-access storage drive, time-sharing option, paging and channeling information. They work with Lotus Development Corp.’s 1-2-3 to provide forecast, analysis and predictions based on mainframe data.

Pilot/SMF provides modules to clean, archive and format SMF records. It works with the other Pilot products by managing the mainframe data for transfer to a micro.

Pilot/CICS and Pilot/MVS cost $3,500 each. Pilot/SMF costs $4,000.

Axios Products, 1465 Veterans Highway, Hauppauge, N.Y. 11788.
NEW PRODUCTS/SOFTWARE & SERVICES

Softech Data Systems, Inc. has announced Fist, an RPG-II program generator for the IBM System/36. Fist is said to produce RPG-II source code compatible with all existing applications and it allows users to create, modify and compile RPG-II entry, inquiry, report and update programs. According to the vendor, the program employs a comprehensive menu, prompt- and Help screen-driven system. Fist is priced at $2,950. Softech Data Systems, 806 Rt. 17, Ramsey, N.J. 07446.

Software applications packages

U.S. Data Corp. has announced a run-time version of Factorylink, its open-architecture real-time automation software for IBM Personal Computers, as well as a dynamic trending option for the package.

The run-time version is compatible with all Factorylink functional software, including interval and event timers, alarm supervisors, data logging, math and logic, networking and interfaces to industrial controllers. Dynamic trending permits users to add graphic trending charts to any color graphics display without programming.

The run-time kernel costs $1,750. The Dynamic trending option costs $995. The Factorylink foundation system costs $2,750. U.S. Data Corp., P.O. Box 850058, 1551 Glenville Drive, Richardson, Texas 75085.

Great Plains Software, Inc. has announced the Great Plains Accounting series for the Apple Computer, Inc. Mactintosh personal computer.

The accounting series includes modules such as general ledger, accounts receivable, accounts payable, order entry, inventory, order entry with point-of-sale invoicing, network manager, purchase order and job cost. Features include a reference manual, learning guide, 176 reports, instant look-up windows and data export capabilities.

Each module costs $695, except network manager and purchase order, which cost $395 each. Great Plains Software, 1701 S.W. 38th St., Fargo, N.D. 58103.

Software enhancements

Mosaic Software, Inc. has enhanced its Integrated-7 personal computer software package.

The new version includes the vendor's Lotus Development Corp. 1-2-3 Release 1A-compatible Twin Classic instant spreadsheet module. Other modules include a relational data base management system; DataMail; business graphics; word processing with integral spell checker; terminal emulation; and PC-to-PC communications at up to 9.6K bits/second.


SYSTMA Systems Guild, Inc. has announced a new version of the Casah Realtime Toolkit, a package of real-time tools for the C programmer. Casahp 3.0 is said to support real-time programming in the C programming language. The package is included in Casahp provide interrupt handling and state management.


A Casah source license costs $495. Object production licenses cost $480 for 25 units or $2,475 for unlimited units.

Systems Guild, P.O. Box 1085, Kendall Sq. Station, Cambridge, Mass. 02142.

Data storage

Hewlett-Packard Co. has announced the HP 9154B 20MB-byte rugged disk drive. Continued on page 68

COMPUTERWORLD

Q & D

Software utilities

Beacon Street Software, Inc. has introduced an application development and management system called PC/Power for the IBM Personal Computer and compatibles.

PC/Power is said to allow programmers to speed up and control the application development process. It supports various dialects of Pascal, C, Basic and Assembler languages. Developers can build screens with data fields, both of programs and of particular programming languages, that were predefined independently.

PC/Power is priced at $95. Beacon Street Software, P.O. Box 216, State House, Boston, Mass. 02133.

Inteecting Concepts, Inc. has released Backup Master, a full-color, harddisk backup utility for the IBM Personal Computer and compatibles.

The program is said to back up hard disk data to floppies, other hard disks or cartridge hard disks. It is capable of performing a 10MB-byte backup to 5 1/4-in. floppies in less than eight minutes, the vendor said. It also features such hard-disk file and directory management support features as full directory tree and file display, preview files capabilities and call Microsoft Corp. MS-DOS function.

Backup Master costs $60.95. Intersecting Concepts, 4573 Heathcliffen, Moorpark, Calif. 93021.

HYDRA®

Direct Channel Attached Protocol Converter Controller

Communications

"As Hawaii's premier inter-island carrier it is vital for the information we transmit to reach its destination. This is why we chose the HYDRA. It enables us to use local and remote (including mainland) PC's to communicate data through our mainframe. We also download files containing member lists into PC's for preparation of personalized letters, for example, to our frequent fliers. We have been very impressed with HYDRA's performance!"

Melody N. Honey
Director-Computer Services
Alaska Airlines

Dial-In Support

"HYDRA allows students and programmers off campus to dial-in and work on projects. With support for such a wide variety of devices HYDRA enables virtually any ASCII terminal or PC to talk to our systems. This is ideal for us as we can cater to students no matter what terminal or PC they may be using. We are thrilled with the performance of the HYDRA and would definitely recommend it as a strong asset for any data processing center."

Dwight Ayle, Sr. Instructional Programmer Analysist
San Antonio College

HYDRA® 1403 Printer Emulation

"HYDRA's 1403 printer emulation has been a real money saver for us. We use Printronix 600 LPM printers defined as 1403's for jobs that would normally require expensive laser printers. HYDRA's versatility made it possible for us to generate our bar code inventory labels. Our salespeople and programmers also appreciate HYDRA's capability."

Steve Brown
Data Processing Director
P.M.S.A.

1403 Printer Emulation

"HYDRA's 1403 printer emulation has been a real money saver for us. We use Printronix 600 LPM printers defined as 1403's for jobs that would normally require expensive laser printers. HYDRA's versatility made it possible for us to generate our bar code inventory labels. Our salespeople and programmers also appreciate HYDRA's capability."

Steve Brown
Data Processing Director
P.M.S.A.

3211 Printer Emulation

"With HYDRA's 3211 printer emulation we can print sample documents on their matrix printers and preview them before we begin a major production run. We had a definite need, and HYDRA was the solution to our problem. What helped was not going to go through a black box processor or additional controllers. HYDRA helped us narrow things very simple for us."

Jim Mountain
Technical Support Manager
Bingham Young University

Their Solution Can Be Your Solution

Call Today! 800-55—HYDRA in California (714) 770-2263
For full details and your closest HYDRA dealer

JDS MICROPROCESSING

2903 Southgate

Humble, Texas 77347
Continued from page 63
and the HP 9153B 20M-byte drive with 344-in. microflop. Features of the 20M-byte drives include write protection, data protection, IBM Personal Computer compatibility and increased data throughput up to 50% more than the HP 9133H/9134H 20M-byte products.

Designed for use in computer-aided design and engineering systems as well as for word processing, business graphics and spreadsheets, the drives cost $2,290 for the HP 9154B and $2,740 for the HP 9153B.

Hewlett-Packard, 1820 Embarcadero Road, Palo Alto, Calif. 94303.

Micropolis Corp. has announced the 1330 Series Powerdrives for IBM Personal Computers. The Powerdrives are hard disk drives. According to the vendor, they can upgrade most ST506/412-interface personal computers to capacities of 44M, 53M or 71M bytes. They offer 30-msec. average access time and a 25,000-hour mean time between failures.

Prices for the 1330 Series Powerdrives range from $965 for the 44M-byte drive to $1,505 for the 71M-byte drive.

Micropolis, 21123 North Road, Billerica, Mass. 01821.

Printers/Plotters/Peripherals

QMS, Inc. has announced the QMS-PS800+ Postscript printer and the QMS-PS2000CX Postscript-based controller for use with Xerox Corp. 2700 laser printers. The QMS-PS800+ is an 8 p.pm. laser printer with 36 resident type styles. It is compatible with the IBM Personal Computer and Apple Computer,Inc. Macintosh and provides text and graphics printing at 300 by 300 dot/in. resolution. The external 2700CX controller allows the Xerox 2700 to accept the Postscript page description language. It adds graphics and font-scaling capabilities.

The QMS-PS800+ printer costs $5,495. The 2700CX controller costs $5,995.

QMS, P.O. Box 81250, Mobile, Ala. 36688.

Board-level devices

Univation has announced its Dream Board turbo-EMS enhancement card. This board offers IBM Enhanced Graphics Adapter (EGA) capabilities. The Dream Board with EGA is said to offer up to 2M bytes of random-access memory (RAM) with the Lotus/Intel/Microsoft Expanded Memory Specification (EMS). Features are said to include IBM EGA compatibility; IBM Color Graphics Adapter, Monochrome Display Adapter and Hercules Computer Technology, Inc. Monochrome Graphics compatibility; 256K bytes of display RAM; 64 colors; RAM-loadable character set; light-pen interface; and utility software.

The Dream Board with EGA costs $1,250 with 1M byte of EMS RAM and $1,505 with 2M bytes. Univation, 1231 California Circle, Milpitas, Calif. 95035.

Ideasociates has announced All Aboard 286, a surface-mount technology board for the IBM Personal Computer XT 286 and PC AT. The multifunction board offers 16M bytes of memory, serial and parallel ports and IBM Enhanced Graphics Adapter capabilities. According to the vendor, three memory options are available. Conventional memory brings the AT from 512K bytes to 640K bytes. Up to 4M bytes of Expanded Memory Specification can be added. Up to 16M bytes of extended memory are also available on the multifunction board.

All Aboard 286 is priced at $995 with 128K bytes of memory; 4M bytes of memory cost $2,505; and 16M bytes cost $12,905.

Ideasociates, 29 Dunham Road, Billerica, Mass. 01821.

IBM* has put a lot of thought into building the finest personal computers in the business.

We've also put a lot of thought into developing ways of linking them together. So each PC can serve as an integral part of an information system.

As a result, IBM offers local area networking and communications products that can help any size business be more productive.

Share and share alike.

The IBM PC Network, for example, is designed to accommodate the needs of small work groups. This network can connect a number of PCs.

It lets them share information. And share peripherals, such as storage devices, plotters and printers, so the equipment you've invested in can serve more people.

For even larger communications needs, IBM offers the Token-Ring Network. It allows you to connect up to 200 devices on a single ring.

In addition, the IBM Token-Ring Network can grow to an almost unlimited size by simply connecting with other IBM Token-Rings or PC Networks.

If your business runs on an IBM System/36 or System/38 minicomputer, what you need is one of the IBM PC 5250 Emulation Programs. They let connected PCs share information as well as access files.

Auxiliary equipment

Benex Corp. has announced the expansion of the storage buffer of its Datahawk data line monitor add-on package for the IBM Personal Computer and compatibles.

The Datahawk storage buffer has been expanded from 32K bytes to 320K bytes of memory, an attribute that allows users to save and record more gathered information while monitoring dedi-
nettiging
Communications controllers
Equinox Systems, Inc. has unveiled the MDX, a networked data private branch exchange.
The switch is said to allow keyboard-controlled port sharing and to allow micros to share printers and modems. It ties up to 16 devices into a local network.

The MDX allows terminal users to be connected to more than one computer port and to select ports from the terminal keyboard. It supports eight lines and can be expanded to 16 by adding an Equinox LM-8 Local Multiplexer. All lines can transmit asynchronously up to 19.2 Kbit/sec.
The eight-line MDX costs $800. The eight-line LM-8 expansion costs $700.

Equinox, 12041 S.W. 144 St., Miami, Fla. 22186.
Voice/data communications
Berkeley Speech Technologies, Inc. has announced the Bestspeech Integrated Telecommunication System, said to combine digital storage of human voice messages with its TTS proprietary text-to-speech conversion process. Bestspeech systems are said to provide spoken output of computer information. The systems include the necessary hardware and software for telephone applications with Touchtone answering and recording.
The Bestspeech System Prototyping Package for developers runs in microcomputer systems and includes a speech signal processing board with jacks for telephones and speaker. The Standard package costs $3,250.
Berkeley Speech Technologies, 2400 Telegraph Ave., Berkeley, Calif. 94704.

Software
SDM International, Inc. has announced SDM/Link, a combined System Network Architecture/ Binary Synchronous Control (SNA/BSC) batch communications product.
SDM/Link is said to provide CPU-to-CPU data transfer capabilities for IBM 3000, 4300 and 5200 series systems. It can be used as a Remote Job Entry (RJE) workstation for IBM's RSCS, JES2, JES3 and Power/RJE subsystems. It can support file-to-file data transfer as either the host or terminal. Supported features include manual and autodial, leased or switched lines and space compression and expansion.
SDM/Link runs in a batch environment under any IBM DOS/VSE or MVS operating system. It costs from $5,000 to $12,000.
SDM International, 134 Spring Ave., Fuyquay-Varina, N.C. 27526.

Multiplexers/Modems
Data Comm for Business, Inc. has announced the SPL family of statistical multiplexers featuring an on-line manual.
The multiplexers concentrate up to 14 asynchronous terminal ports over one communication channel. The full-duplex computer may be asynchronous or synchronous. Dial-up or leased-line modems, digital service units, synchronous multiplexers or other equipment up to 19.2 Kbit/sec. may be used between SPL locations. The manual is accessed through an asynchronous port.
Models are available from two to 14 ports in two-port increments. Prices range from $795 to $2,995.
Data Comm for Business, 807 Pioneer, Champaign, Ill. 61820.

export

Washington-based export license specialists
Mark Technology Associates, specializing in making foreign trade easier for U.S. companies, has added another book to its Library. Trade through Non-Application Licensing: How to Export Without an Export License gives guidance on how to deal with the restrictive trade practices of the U.S. government. Contact the further overseas representative for your region.
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NEW PRODUCTS/NETWORKING

The mainframe connection.
Only one thing works harder than an IBM PC.
And that's an IBM PC working together with an IBM mainframe.
To help make this important connection, IBM offers a family of IBM PC 3270 Emulation Programs.
Simply put, these programs give each PC access to your company's information resources.
With the Entry Level Emulation Program, you can conveniently "hot key" between PC and mainframe tasks.
But the story gets bigger.
In a network of PCs, IBM's advanced Emulation Programs (Versions 2.0 and 3.0) enable one PC to act as a "gateway" or communications server. Bringing the power of a mainframe to many users on the network.
For those who need multitasking capabilities, IBM offers the IBM 3270 PC workstation. With it, you can work with up to four mainframe sessions and six PC DOS sessions concurrently.

Tying it all together.
To get started with IBM's connectivity options, just link up with an Authorized IBM PC Dealer. Or call your IBM marketing representative.
For the name of a store near you, call 1-800-447-4700.

IBM

*IBM mainframes, together with all models of the IBM PC, IBM PC XT, IBM Personal Computer AT, and IBM 3270 PC, properly equipped and programmed, may be used with IBM networking options. IBM, IBM/PC, and IBM PC are trademarks of International Business Machines Corporation. IBM V donate, International Business Machines Corporation, in Alaska, 1-800-471-0890; in Canada, 1-800-465-6600; for a Value Added Dealer, 1-800-426-8277. Little Tramp character is licensed by Bubbles inc., inc.
Local-area networks

Control Data Corp. has announced its XN line of data communications products designed for networks with large numbers of terminals accessing multiple applications on multiple IBM host mainframes.

The XN systems are said to be able to support networks of more than 4,000 host computers and more than two million terminals. An XN communications processor supports up to 254 communications lines and more than 8,000 terminals; XN device interface subsystems are said to extend and improve IBM Virtual Telecommunications Access Method/Systems Network Architecture environments.

XN users can access multiple applications concurrently.

A typical system including hardware and software supporting 196 communications lines and two hosts costs $565,000.

Control Data, 8100 34th Ave. S., Minneapolis, Minn. 55440.

Test equipment

Standard Logic, Inc. has announced Datamon, an RS-232 communications analyzer, monitor and patch panel designed for real-time testing of all RS-232 networks.

The Datamon analyzer is said to allow the user to view a real-time data transfer in several different formats. It also records data to its 32K-byte buffer memory. It provides complete breakout box capability, status LED monitoring, bit/sec. rate conversion and data pattern triggering, the vendor said.

The Datamon analyzer costs $795.

Standard Logic, P.O. Box 3219, 132 Business Center Drive, Corona, Calif. 91729.

Tekelec has announced the TE821C multiplexer/demultiplexer, designed to give users multiplexing and demultiplexing capabilities to analyze T1C data and test standard T1C multiplexer/demultiplexers.

The stand-alone unit allows users to analyze T1C data from a T1C multiplexer and simulate a variety of errors to provide stress testing for a T1C demultiplexer. It also offers B8ZS capabilities for T1C testing.

The B8ZS option is said to increase the quality of T1C testing by inserting a special transmission code to ensure reliable clock recovery.

The TE821C is priced at $4,250. The B8ZS option costs $1,750.

Tekelec, 36540 Agoura Road, Calabasas, Calif. 91302.

Data storage

California Peripherals Corp. has introduced the Model CP-240 %-in. cartridge streaming tape drive.

The Model CP-240 is said to use the IBM 3480 cartridge or equivalent to provide 240M bytes of formatted storage. It has an enhanced small device interface-level interface and offers an optional small computer systems interface-intelligent interface.

Data transfer rate is 250K bit/sec. at a tape speed of 2.0 meter/sec.

The Model CP-240 is priced at $2,950.

California Peripherals, 19701 S. Vermont Ave., Torrance, Calif. 90405.
Ultimate attributes success to serendipitous business acumen

Pick systems vendor finds lucrative mart

By Alan Alper

East Hanover, N.J. — Serendipity can be just as important as business acumen in getting a fledgling computer company into high gear. Theodore Sabarese, founder and chairman of 8-year-old The Ultimate, Inc. minis and now offers software around. Ultimate began as a version of Pick on the hottest hardware systems running its enhanced operating system's author, Dick Pick, started Ultimate on a couple of thousand dollars and a prayer. Sabarese then struck a deal to market Pick-based Honeywell minis, and Ultimate has never looked back.

At the time, Pick was the province of a fanatical few who worshipped the decade-old operating system's portability, ease of use and strong data base management capabilities. Today, there are almost 70,000 Pick-based systems installed worldwide, according to Infocorp, a Cupertino, Calif., market research firm. Ultimate has risen through the ranks to become the No. 3 supplier of Pick-based systems, according to Infocorp.

Although Pick still suffers somewhat from a lack of recognition within the data processing community, some industry analysts feel the operating system is now regarded as a viable alternative to Unix in multiluser and multitasking applications.

"There is significantly more acceptance of Pick than people give the operating system credit for," Sabarese says.  "Six of our dealers were recently acquired by major corporations — firms like Continental Insurance, Security Pacific Bank, Automatic Data Processing, Inc. and American Hospital Corp. That's a pat on the back for Pick."

Although Ultimate is Honeywell's largest OEM customer, the control of Honeywell's computer business by France's Compagnie des Machines Bull and Japan's NEC Corp. should not hurt Ultimate's business prospects, Sabarese predicts. Bull has sold and serviced Ultimate's machines in France for some time, and Jacques Stern, the French firm's chairman, is a "Pickee," Sabarese says.

"Before, we were a significant customer of a large company that did many other things besides sell computers," according to Sabarese. "Now, we'll be a large customer of a larger company that is only involved in computers."

In the IBM world, Ultimate's good fortune continued in 1986. By acquiring rights to market Pick-based systems on the IBM 4300 from Systems Management Corp., a Manhattan dealer, Ultimate also received rights to the IBM 9370, Big Blue's new family of mid-range processors.

"We think [the 9370] is going to be an instant winner for IBM and tremendous business for us," Sabarese declares. "The machine costs more and offers less performance than our other products in that class, but people will want it because IBM has never had a product in that vertical market before."

Product and market expansion for publicly held Ultimate, however, have not come without some roadblocks. Ultimate was hit with lawsuits last summer by shareholders who claimed the firm, after completing a secondary stock offering, did not provide warning that earnings for its first fiscal quarter would be lower than expected.

Sabarese concedes the earnings and revenue shortfall occurred because Ultimate tried to do too much at once. "I think the lawsuits will sit dormant for two years," he speculates. "I'm confident that there was no fraud committed, and as the year unfolds and we reach our goals, all will be forgotten."
TI settles two lawsuits on RAM chips

By James A. Martin

DALLAS — Texas Instruments, Inc. has reached settlements with Japan's Fujitsu Ltd. and Sharp Electronics Corp. regarding patent infringement lawsuits filed by TI to protect its dynamic random-access memory (RAM) semiconductor technology.

Under the agreements, TI will license its dynamic RAM patents to the two companies in exchange for significant royalty payments to be paid until the licenses expire in late 1990. In addition, TI will receive per-unit royalties based on the use of its dynamic RAM patents. The company did not disclose the amount of the royalties.

TI filed patent infringement suits against Fujitsu, Sharp and seven other Japanese and South Korean chip manufacturers in January 1986, claiming the firms were using TI semiconductor technology for their own products. The suits also claimed the chips made from TI technology were sold in the U.S. without licenses.

Intellectual property

The settlements were seen as important to the semiconductor industry in its battle to establish products as intellectual property. "The settlements also establish the fact that there is, after all, some validity to patent protection," said Edward C. White Jr., an analyst with E. F. Hutton & Co.

The greatest significance, however, is for TI. Such royalties could have meant an extra $27 million in pretax income for TI in 1986, said Michael Gumport, an analyst with Drexel Burnham Lambert, Inc.

"In general, these settlements should slightly increase dynamic RAM prices, slightly reduce Japanese competitiveness and significantly increase TI's competitiveness," Gumport said.

Still pending are TI's patent infringement suits against Hitachi Ltd., Oki Electric Industry Co., Mitsubishi Electric Corp., Matsushita Electric Industrial Co., NEC Corp. and Toshiba Corp. in Japan and South Korea's Samsung Co.

Last February, TI filed a related complaint with the International Trade Commission (ITC), requesting a U.S. ban on dynamic RAM chips that infringed on TI patents. Fujitsu and Sharp, according to the settlement, have been dropped from that request.

The ITC investigation into the remaining seven companies will continue.

MSA to report higher sales, lower expenses

By James A. Martin

ATLANTA — Management Science America, Inc. (MSA) estimated last week that it will report revenue growth of approximately 25% for 1986.

MSA said profits increased roughly 160% from the firm's relatively sluggish performance in 1985.

The mainframe applications vendor said 1986 operating revenue was between $190 million and $193 million, compared with $151.7 million in 1985. Net income is expected to have been about $18 million, or $1.00 to $1.03 per share, compared with $6.9 million, or 50 cents per share, during the previous year.

Preliminary figures show MSA's sales were higher and its expenses lower than anticipated, according to Mark Finley, an analyst with Gartner Group, Inc. in Stamford, Conn. "There's no big turnaround here, but it looks to be a little better than what most people thought," he said. The increase in profits is most likely a result of cost reductions rather than results from MSA acquisitions in 1986, he added.

MSA's expansion of its customer base and sales force are the primary reasons behind its healthy fiscal year, said Scott Smith, analyst and vice-president of Donaldson, Lufkin and Jenrette, a New York brokerage firm. MSA is expected to report final results in early February.
AT&T to become Southwestern Bell’s ISDN customer

In-house switch to allow flexibility

By Elizabeth Horwitt
ST. LOUIS — AT&T signed a four-year contract recently to become the third commercial Integrated Services Digital Network (ISDN) customer of divested Bell operating company Southwestern Bell Telephone Co.

Under the agreement, Southwestern Bell will provide ISDN capability for 2,300 access lines at AT&T’s southwest regional headquarters in the St. Louis suburb of Ballwin, Mo. The lines will support digital data, voice and video transmissions within the 400,000 square-foot facility through a connection to Southwestern Bell’s ISDN central office switch in St. Louis.

Switching to ISDN telephone-line-based connections for in-house coaxial cable should allow AT&T more flexibility in adding transmission capacity. “This will result in an anticipated savings of $1 million just in time and expense involved in moving data terminals,” said Douglas K. Jacobs, regional vice-president for AT&T in St. Louis.

Southwestern Bell said it is involved with AT&T, Southwestern Bell Corp.’s third commercial ISDN customer. Last November, Southwestern Bell announced ISDN commitments from Shell Oil Co. and Tenexco, Inc., both in Houston.

Other ISDN contracts are being negotiated within Southwestern Bell Corp.’s five-state area, the company said.

Ashton-Tate to focus on inside growth

By Alan Alper
NEW YORK — Ashton-Tate expects its growth in 1987 to come primarily from internally developed products, as opposed to acquired software, Chairman Edward M. Esber Jr. told a recent meeting of security analysts.

Regarding acquisitions, Esber said the firm is interested in companies that would extend Ashton-Tate’s product portfolio into uncharted areas. “We would be interested in new software categories or technology and the right mainframe or mini data base software company if it came along,” he said.

Esber remains convinced that Ashton-Tate’s microcomputer approach to data base management will persevere in contrast to competing products and mainframe and mini methods. Ashton-Tate has shipped 1.1 million units of its Dbase family, a figure that Esber said is more than double mainframe or mini data base management system shipments. “There appears to be a high resistance to change among data base users,” he suggested.

With the flagship Dbase family expected to remain strong and with a data base product for the Apple Computer, Inc. Macintosh expected to ship in the next quarter, analysts predict Ashton-Tate will continue to perform well. For the nine months ended Oct. 31, net income was up 89% to $19.5 million on a revenue increase of 85%, to $147.9 million.

Esber said he is convinced that IBM Personal Computers and Apple Macintoshes will have to coexist in the work groups that make up departmental computing. As part of its “synergistic cooperation with Apple,” Ashton-Tate has pledged to provide software to enable PCs and Macintoshes to trade files. he observed.

“I expect 1987 to be a good year,” Esber said. “We will grow at the same rate as the software business.”
**Silicon Graphics, Convex ally in joint marketing, development pact**

By James Connolly

RICHARDSON, Texas — Convex Computer Corp. and Silicon Graphics, Inc. last week joined forces in an attack on the high-performance, three-dimensional graphics market by signing a joint development and cooperative marketing agreement.

Under the agreement, the companies hope to combine Silicon Graphics' strength in interactive three-dimensional graphics workstations with Convex's near-supercomputer technology. The companies will cooperate in software development and marketing efforts, including joint sales calls and promotion.

The companies will pair Silicon Graphics' Iris Superworkstation with Convex's C1 series of near-supercomputers, which use a technology based on the Cray Research, Inc. supercomputer architecture.

The alliance will target applications such as computational fluid dynamics, mechanical engineering and molecular modeling applications.

"This cooperative effort between Convex and Silicon Graphics makes possible the computation and visualization of large simulations at an accessible price," said Steve Wallach, vice-president of technology for Convex.

**Sprint joins EDS in job bid**

To vie with AT&T, MCI for GSA contract

By Mitch Betts

WASHINGTON, D.C. — Industry competition for the federal government's coveted $4.5 billion telecommunications contract received a new entry recently when U.S. Sprint Communications Co. announced it will team up with Electronic Data Systems Corp. (EDS) to bid for the so-called Federal Telecommunications System (FTS) 2000 contract.

Officials said the team combines the systems integration and software experience of Dallas-based EDS with the all-digital, fiber-optic network of U.S. Sprint. They will be competing against other teams, one that pairs AT&T and Boeing Computer Services Co. and another that includes Martin Marietta Corp. and MCI Communications Corp.

The General Services Administration (GSA) on Jan. 7 released the final bid request document for the FTS 2000 long-distance network. Bids will be made in June, and the 10-year contract will be awarded by the end of 1987.

The GSA is seeking a digital, software-defined network for voice and data traffic. Those specifications fit well with U.S. Sprint's virtual private network offering, according to U.S. Sprint officials.

U.S. Sprint officials also said that the FTS 2000 network is similar to the private digital network that EDS is implementing for its parent company, General Motors Corp.

**National Semi to close POS plant**

By Clinton Wilder

SANTA CLARA, Calif. — Still showing the effects of the long-depressed U.S. chip industry, National Semiconductor Corp. will close a point-of-sale terminal manufacturing plant and take a one-time charge of $16 million.

National Semiconductor will shut its Maynard, Mass., Datachecker production facility, transferring its production to Datachecker plants in Santa Clara, Calif., and Hong Kong. The company will lay off 250 employees.

The associated charge, to be taken in the firm's third fiscal quarter, which ends March 8, virtually assures the firm another quarter in the red. Although National Semiconductor earned a small profit from operations in the last two quarters, it reported net losses of $1.4 million and $5.7 million in the first and second quarters, respectively.

**SAS acquires compiler firm**

By James A. Martin

CARY, N.C. — SAS Institute, Inc. announced it has acquired Lattice, Inc., the developer of a highly regarded C language compiler, for an undisclosed amount.

The affiliation between SAS, an IBM mainframe software vendor, and Lattice dates to 1984 when SAS began marketing the Lattice C compiler for IBM mainframes and developing SAS software programs with the C language.

Although this is the first such merger for SAS, President James Goodnight does not see acquisition as a new corporate growth plan. "We will consider acquisitions, though, when they make sense, when there is a logical and strategic fit with our goals," he said.

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Banking software is heating up

From page 94

Banking software is heating up as companies vie for market share. In a recent survey, 70% of banking executives said they plan to invest in new software in the next year. The driving force behind this trend is the increasing need for banks to streamline operations and improve customer service. Additionally, the rise of e-commerce has put pressure on banks to offer more digital services.

One notable example is the acquisition of a small software vendor by a larger one. The acquisition involves an unusual agreement with a second-user vendor, which is not a common practice in the software industry. This move could set a precedent for other banks to use second-user equipment in their operations.

The software market is also affected by the trend towards cloud computing. Many banks are moving to the cloud to reduce costs and increase flexibility. This shift is challenging for software vendors, who must adapt to the new environment to stay competitive.

In conclusion, the banking software market is a hotbed of activity as companies seek to gain an edge in a rapidly changing landscape. The industry is poised for growth, with opportunities for both vendors and banks to benefit from new technologies and strategies.
IDG's International Data Corporation managing director Yugi Ogino is stopped in his tracks by a flash report on the company's International News Service. Digital News has just spotted a potential challenge to IBM's grip on the professional PC market: DEC has announced their Local Area VAX Cluster. Ogino sets up a conference call with Computerworld Japan editors to brief them on his analysis.

At almost the same moment 4,300 miles to the south, Computerworld Australia publisher Susan Coleman sees the DEC story on her news wire. She calls in Peter Scott, her editor, to plan editorial coverage for their market.

Halfway around the world, Timo Tolsa, editor of IDG's Finnish computer newspaper Tietoviestiky, faxes his comments on the pending story to Dieter Echbauer, editor of Computerwoche in Germany, who appoints an editorial team to file a comprehensive story for use by all five IDG publications in Germany.

Ruben Argento, the head of IDG's Computerworld newspaper in Argentina uncovers a new wrinkle in the rapidly unfolding story—and alerts Doane Perry, senior market consultant at IDC in Framingham, Massachusetts: a DEC competitor in South America is developing a similar cluster product.
IDG reporter Kathryn Esplin files a VAX Cluster story for Digital News. Her back-up analysis is sent to all publication offices around the world on the company's news wire.

Perry meets with Bill Ford, IDC Information Industry Services Chief, to plan a global research report on computer clusters and their potential impact on business users.

IDC Research Director Jean Yates faxes detailed schedules of the report requirements to IDC research centers in 16 other countries. Deadline: 1 week. Overnight mail announcements of the pending report are mailed to IDC's top 1,000 customers around the world.
With micros, networking and telecommunications becoming more important every day, the influence of Information Services is extending well beyond its traditional boundaries. And with it, the influence of IS professionals. Bob Ashworth and thousands of other aggressive computer professionals like him are clearly on the fast track in America's larger corporations, controlling more than $120 billion every year.

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In his spare time, Bob's an avid golfer, a snow skier, water skier and a jogger. As you can see, Bob's schedule is full. But if you want to reach him, there's one sure-fire way.

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Bob regards Computerworld as one of the essential tools of the trade. He finds it gives him the big picture far better than any micro book can.

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Qualified individuals are encouraged to explore the following opportunities in the Corporate Information Systems Group at our San Diego Data Center.

Senior Programmer Analysts

We have several programmer analyst positions available:

• Assist in planning and execution of software installation and user training, as well as installation of in-house item processing via phased approach. Supervise TEQ JCL, Assembler, IBM item Processing Systems, IP installation, and IBM mainframe experience required.

• As Senior PIA for the NOW or Savings system, you will be responsible for the maintenance, enhancement and participation in conversion of batch processing and on-line systems to MVS/ESA, VM/COBOL, and/or CICS experience with a banking background required. Some DOS experience preferred.

Systems Programmer

Responsibilities include installation, maintenance and troubleshooting in an ACF/VTAM environment. You will provide support for conversion from STAM to ACF/VTAM as well as training.

BSCS degree or equivalent experience and four to six years’ experience in ACF/VTAM in a MVS environment and familiarity with SMPE required. Experience in banking terminals preferred.

System Software Specialist

Responsibility for installation, maintenance and support of CICS, IMS and related products. You will also provide second level support for applications programmers.

BS degree or equivalent experience, along with two to three years’ experience in MVS/XA Systems Programming required.

Experience using standard system programming tools i.e. SMPE in a MVS/ESA TSO/E environment, proficiency in Assembler and C/370, and experience working in a VM/XA environment using shared DASD, DOS to MVS conversion.

Imperial Corporation of America offers a competitive salary and comprehensive benefits package. For confidential consideration, please send your resume indicating your desired position to: Imperial Corporation of America, PO. Box 23058-SPC, San Diego, CA 92123.

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Systems Programme

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FACULTY POSITION

Applications are invited for an anticipated ten-month position at the University of North Carolina at Greensboro. Applications are encouraged from women and minori

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For New York positions contact- Nancy Abel, Director of Recruiting-NY Region
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- Experience with IDMS, IMS, IMS, COBOL, IBM, FOCUS, ADABAS, SAS
- Experience with VAX, IBM, DEC, HP, SUN, ORACLE
- Experience with DB2, COBOL, CICS, IMS, 4300, 3000, 1500, 3600, 9000, 2000, 3000, 3090
- Experience with CICS, IMS, COBOL, FOCUS, ADABAS, IMS, CICS
- Experience with DEC, IBM, HP, SUN, ORACLE
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- 5 yrs experience in Model 204 Systems Software Programming
- Knowledge of COBOL
- Experience with Model 204
- Experience with IMS or DB2
- Experience with UNIX
- Experience with Data Base Management System
- Experience with NPL/2, MVS, DB2, CICS, IMS, DBS, JES, MVS/ESA
- Experience with IDMS, IMS, IMS, COBOL, FOCUS, ADABAS, SAS
- Experience with VAX, IBM, DEC, HP, SUN, ORACLE
- Experience with DB2, COBOL, CICS, IMS, 4300, 3000, 9000, 2000, 3000, 3090
- Experience with CICS, IMS, COBOL, FOCUS, ADABAS, IMS, CICS
- Experience with DEC, IBM, HP, SUN, ORACLE
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If you have experience in one of the above areas, you can be eligible to function as a team leader on one of many development projects in the Washington Metropolitan area.

If you are a team leader in one of the above areas with experience in any of the following areas please call me as soon as possible:

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- CRIS (Customer Records Information System Experience)

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If you are a team leader in one of the above areas with experience in any of the following areas please call me as soon as possible:

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SYSTEMS PROGRAMMERS

Simmonds Precision, a major leader in the development and manufacture of high performance avionic systems and instrumentation for fifty years, is expanding its Data Processing operations to meet its growing business and new product lines. Our state-of-the-art environment features IBM 4300 mainframes running VM, DOS/VSE, DL/I, DYNAM, DYNAM, DYNAM, DBMS and SNA (MVS is being considered), as well as HEWLETT PACKARD 3000 and WANG mini’s. Put your skills to the test in developing and maintaining this important system.

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- Salaried or Independent Positions
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- IMS Programmer Analysts
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(213) 635-8716
Or
Mitchell/ Martin, Inc.
110 Earlham Ave.
New York, NY 10009
In New York (212) 943-1404
In New Jersey (201) 659-2888

NEWBEY DEVELOPERS OF ORLANDO

Data Base Designer Mid $40's+

Must have knowledge of SQL. Strong knowledge of database management and Unix environment desired. Experience with large IBM mainframes a must. Should have experience with IBM DB2. Experience in programming environment of your choice a must. Must be knowledgeable in database and file management skills with professional image. Will lead project development efforts.

Sr. Systems Programmer Hi $40's+

Must have database and database systems installation experience. Knowledge of SQL and Unix environment desired. Must have experience in other programming languages. Will develop and manage assembly programs. Experience with IBM DB2, VMS and mainframe skills desired. Must have a Bachelor's degree in Computer Science.

Data Base Analyst Mid $30's+

Will require a minimum of 1 year experience in data base management and Unix environment. Must be knowledgeable in database and file management skills. Will be responsible for the design and implementation of all databases and applications. Must be able to work under pressure. Candidate will be able to utilize and develop new software in the Unix environment. Previous experience with IBM DB2 is preferred. Must have a Bachelor's degree in Computer Science.

NEW YORK LIFE INSURANCE COMPANY

Applications Programmer/ Analyst

New York Life Insurance Company has made a major commitment to developing new business systems in a Cullinet integrated software environment. We are seeking Programmer/Analysts with 2 or more years' experience for our Home Office in New York City, in applications systems design and Cullinet Software such as IDMS, EDD and ADSO. A working knowledge of COBOL is required. A knowledge of Structured Analysis and Design is a plus.

We offer:

- Competitive salaries.
- A 3-day weekend every other week.
- A professional work environment which includes an opportunity for real growth.
- Generous benefit program.

Please send resume, with present history, to Personnel Dept. CW-119, SYSTOREX INTERNATIONAL, INC., 10890 N. Tamiami Ave., Cypress, CA 90634. U.S. CITIZENSHIP REQUIRED. Principals only. apply.

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Users searching for alternatives to dead-end 8100 machines

By Jean S. Bozman
IBM's installed base of 8100 users has embarked on an urgent search for alternatives to the aging machine, a system that IBM said last year it will not enhance.

A recent survey indicates 60% of 8100 users plan to migrate — or are currently migrating — away from the 8-year-old product line. The survey, conducted by Dallas-based consulting firm B. R. Blackmarr and Associates, Inc., polled 25% of all domestic 8100 sites last summer — about 8,000 machines.

In 1985, there were about 15,000 IBM 8100s in the world, approximately 8,000 of them in the U.S., according to industry estimates.

IBM 8100
Demand for new systems

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INFORMATION PROVIDED BY B. R. BLACKMARR AND ASSOCIATES.

Competitors hunger for user base

The retreat of IBM's 8100 distributed processing systems presents a challenge for competing vendors to correctly position their own computer products to provide for the needs of 8100 users.

A new operating system, with concurrent communication capabilities, and an inheritance, are feeling the greatest pressure to expand their processing capacity.

IBM has already said that it will not support DPCX on another IBM product line. It was DPCX that gave IBM the 8100 a wide range of office automation capabilities.

IB&M 8100
Migation planning

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<td>Total Respondents</td>
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INFORMATION PROVIDED BY B. R. BLACKMARR AND ASSOCIATES.

Users of 8010 led down path

From page 1

IBM to support DPPX than DPCX on other IBM systems. "DPPX is programmed in a variant of PL/S, which is the language that all of IBM's major operating systems are programmed in. Because of that, the bulk of DPPX code can be easily recompiled," Ackerman said.

When IBM announced the 8100 in October 1978, the product was the logical descendent of the IBM 3700 cluster controller. The 8100 inherited a relatively small main memory, a penchant for cluster-controlling and the 3700's DOSF operating system, which was incorporated into DPCX as a migration tool for 3790 users.

First 8130s

The first 8130 units, shipped in the fourth quarter of 1979, had just 256K bytes of main memory. But these units were the first — and at the time the only — IBM machines able to act as true distributed processors, said Ackerman, who is a long-time IBM 8010 consultant and market research analyst.

Acknowledgment, whose newsletter, Update/810, has chronicled the machine's evolution, said that the 8100 embodied three components of the period's distributed processing theory.

"It was able to act as a host for the terminals that it was attached to, it was in charge of controller/host functions such as 3270 support and RJE," he said, "and it was able to act as an intelligent processor that carried on concurrent communications with the host and with the terminals."

An inheritance

Those kinds of functions were provided by the 8100's DPCX operating system. This operating system was able to process apart from the host and to ready the results for later transmission to the host.

But the 8100 also inherited something else from its DPCX predecessor: the ability to support the 3270, "DOSP operating system, which included the first release of the Distributed Office Support System."

A new operating system, DPPX, was written in native mode on the 8100 to support DOSP, supplying the 8100's office capabilities few machines had in the early 1980s.
Convergent signs OEM pacts

Revises Unisys deal, will resell Banyan LAN

By Clinton Wilder and Elisabeth Hoveritt

SAN JOSE, Calif.—Convergent Technologies, Inc. last week restructured its long-standing OEM agreement with a traditional reseller, Unisys Corp., and agreed to resell the local-area network (LAN) products of a new partner, Banyan Systems, Inc.

Convergent Chairman Paul C. Ely Jr. said the agreement with Unisys is intended to stabilize the rags-to-riches inconsistency of Convergent's 6-year-old deal with Burroughs Corp., which became Unisys after acquiring Sperry Corp. last year. The three-year pact requires Unisys to purchase a specified number of Convergent products in order to gain the right to manufacture those products.

The revision, Ely told Computerworld, stemmed from difficulties between Convergent and Burroughs during the last three years. When Convergent was unable to manufacture enough PC workstations to be resold as Burroughs' 825 in 1985, Burroughs manufactured the product itself, and its purchases from Convergent declined to none.

"There were disruptions in our relationship that almost killed it," Ely said. "The new terms give both companies incentives to do what they need to do to make it work." The agreement covers all current Convergent workstations and servers as well as future products in those lines.

Separately, Convergent signed an agreement to purchase and resell Banyan Systems' LC software. The LAN operating system, working in conjunction with Convergent's PC Exchange software, working in conjunction with Convergent's PC Exchange software, will be offered to customers at a specified number of Convergent workstations in order to gain the right to manufacture those products.

Banyan, of Westboro, Mass., is the first PC LAN vendor to form an alliance with a major PC vendor. The agreement will give both companies incentives to do what they need to do to make it work.

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**Computerworld stock trading index**

**CLOSED PRICES WEDNESDAY, JANUARY 14, 1987**

**SUPPLIES & ACCESSORIES**

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**SOFTWARE & DP SERVICES**

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Ultimate "Picks" the right hardware suppliers for OEM success/88

TI settles suits, will license memory chip patents to Fujitsu and Sharp/70

U.S. Sprint joins ITS 2000 bidding with EDS as its partner/72

INSTANT ANALYSIS
"We're gaining market share and improving profitability at the same time. Wall Street has a fond appreciation for that." — Mark A. Stein Krauss, director of investor relations at Digital Equipment Corp.

DEC's earnings surge 98%
Exceeds IBM's profit margin for first time

By Clinton Wilder

MAYNARD, Mass. — Continuing the industry-defying financial performance that has become its recent standard, Digital used the same week to report a 98% surge in profits in its second quarter ended Dec. 27.

The results, achieved on a relatively modest 22% sales increase, closed DEC's 1986 calendar year with four consecutive quarters in which net income increased by at least 85%. The quarter also marked the first time DEC's gross profit margins exceeded those of IBM, according to E. P. Hutton & Co.'s Michael Geran and other industry analysts.

Also, DEC is expected to report its second straight year of lower earnings, ending in what is widely considered to be a particularly weak fourth quarter. On the same day, DEC is scheduled to unveil its new high-end systems, consisting of clustered VAX 7600s that are directly targeted at the traditional IBM mainframe market.

DEC posted second-quarter profits of $270 million, or $2.02 per share, up from $136.1 million, or $1.08 per share, a year earlier. Sales also rose to $2.27 billion, compared with $1.86 billion in the second quarter of fiscal 1986. Revenue from services was particularly strong, increasing 36% to $796.1 million.

DEC held its year-to-year cost increase to a paltry 0.8%, despite hiring some 3,000 new employees during the quarter. The company's greatest gains in profit margin, however, came from a larger percentage of mid-range and high-end VAX systems in its product sales mix during the quarter, according to Mark Stein Krauss, DEC's director of investor relations.

Merrill Lynch, ADP sign deal

By Alan Alper

ROSELAND, N.J. — Automatic Data Processing, Inc. (ADP) last week said it has agreed to develop a customized stock quote system for investment and brokerage house Merrill Lynch & Co.

The agreement comes on the heels of the demise of International Marketnet (IM), a joint venture that Merrill Lynch entered with IBM to develop a financial information system for both internal use and to market to other brokerage houses [CW, Jan. 12].

The deal appears to jeopardize the continuation of Merrill Lynch's relationship with Quotron Systems, Inc. in Los Angeles, the firm's current supplier of financial information services and equipment. Merrill Lynch is Quotron's largest customer and accounts for approximately 25% of its revenue. Quotron, now owned by Citicorp, has a contract with Merrill Lynch that runs until 1988 and contains an option to renew for 1989.

A Merrill Lynch spokesman said the deal with ADP does not mean it is unhappy with Quotron. "Merrill Lynch historically has tried to improve upon what systems we have," he said. "Our strategy is if XYZ supplier has a better product, we go with the other product."

George Levine, Quotron's sales and marketing vice-president, said it is one thing for ADP to agree to develop a customized stock quote system and quite another to meet the stringent functional and delivery demands of a large customer such as Merrill Lynch. "Merrill Lynch and IBM did not succeed in their joint mission. I guess we have to see if ADP has the ability to improve upon that strategy," he said.

Wall Street sources last week said ADP has recently made its vendor system more attractive in an effort to drum up new business in the financial services sector. See DEC page 92

See Merrill Lynch's senior editor, computer industry.

Court upholds injunction
DEC sought against Emulex

By Alan Alper

CONCORD, N.H. — A U.S. District Court judge last week reinstated an earlier injunction sought by Digital Equipment Corp. to prevent the semiconductor manufacturer report- ing a fourth-quarter net loss of $16.5 million, the company's sixth consecutive quarter- loss.

For the year ended Dec. 27, the semiconductor manufacturer reported a net operating loss of $173.2 million, compared with a reported net income the previous year of $1.6 million.

However, Intel's annual revenue declined to $1.27 billion, compared with $1.36 billion in 1986. Fourth-quarter revenue rose 12% to $365.6 million, compared with $317.9 million the year before.

Although industry leaders Intel and National Semiconductor Corp. have recently reported losses, the Semiconductor Industry Association said last week that semiconductor orders increased 8.8% and shipments grew 14.7% in the fourth quarter. This statement fueled speculation that an industry turnaround was imminent.

"A lot of confusion" These conflicting reports have created "a lot of confusion," according to Drew Peck, semiconductor analyst at Macquarie Securities in Stamford, Conn.

Some analysts have predicted In- tel's revenue will increase 5% to 6% this year; all analysts had said the 1985-86 supply glut has been eliminated. "But most expectations for their recovery are much too high," Peck said. "It will be a tough road for them to get much beyond a break-even point."

Intel posts sixth straight loss

But analysts say industry could see turnaround

By James A. Martin

SANTA CLARA, Calif. — Intel Corp. reported last week a fourth-quarter net loss of $16.5 million, the company's sixth consecutive quarter- loss.

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