Tandem, market share

DATA VIEW

JEFF BABINEAU

Minicomputer market share: DEC tops IBM

Prime Computer, Inc. 3.4%

Data General Corp. 3.4%

Other 21.2%

Digital Equipment Corp. 26.9%

IBM 22.3%

Honeywell, Inc. 10.8%

Tandem Computers, Inc. 6.4%

Hewlett-Packard Co. 5.8%
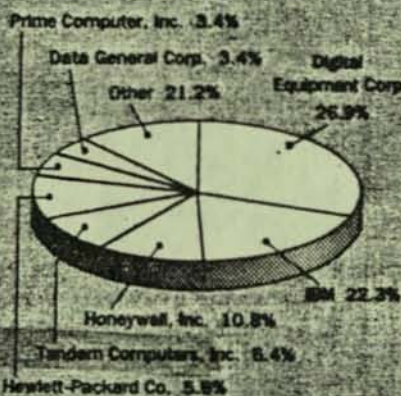
Figures represent 1985 worldwide market shares of medium-scale systems, supporting 17 to 128 users and priced between $100,000 and $1 million.

Information provided by International Data Corp. from a data base of 180,430 systems.

Computer World
June 16, 1986 p 174

Ridge Computers, founded in 1980, designs, manufactures and markets a family of affordable RISC-based servers aimed at multi-user, computationally intensive tasks in such applications as electrical and mechanical computer-aided design.

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ner, vice president of components group at Deere and Co. "People who claim to have made progress show that there was a fairly senior group of people, who provided the vision and the initial political support, to allow the people at the working level to put in place some of the technology."

Who is in charge once the technology is in place?

"In one sense, the vice president of operations, but in terms of implementing the project," said Gunn, "we recommend companies put a full-time corporate officer in charge."

Many full-time positions in automated factories, Gunn con-

ternally not only in the hardware and software industries, but also in a number of other areas, such as telecommunications, government contracting, consulting, banking, manufacturing, the chemical industry and the petroleum industry.

"In general," she said, "industry is looking to bring in people to work on advanced systems for internal use."

At Digital Equipment Corp., for instance, AI is incorporated to assist sales people placing customer orders in knowing what support gear must be purchased with the main order. At Coopers & Lybrand, a Big Eight accounting firm, AI is used to assist with tax assesments. AI has many diagnostic uses, as well, she said, citing the repairman who uses a computer to fix a copying machine.

"What people used to do, is now being done by a computer with a person there to monitor it," she explained.

"It's been going on for a while," she added, but whereas five years ago only a handful of companies were using it, "now

only about 10 schools are offering AI programs.

"The field is so new, there hasn't been time to educate a large group of people," she said. "Now the demand is tremendous, but the people just aren't there. This isn't something that just anyone can do. It's a very intelligent, well-educated group of people we're talking about."

"They must have an understanding of the structure of expert systems as well as a good working knowledge of the LISP programming language," she added. "They bridge the gap between the human expert whose know-how is to be used and the expert system itself."

Knowledge engineers have varied backgrounds, she said, though often they are business systems analysts with AI experience or have a Ph.D. degree in AI, cognitive psychology, human factors (the study of how humans interact with machines), mathematics, linguistics, semantics or traditional computer science. All are computer-literate.

The creators of expert systems, sometimes called tool builders,

to $60,000 range, Furno estimated, adding that not a lot of AI scientists are "making six figures" except perhaps those with management responsibilities or ownership in their company.

The job market in expert systems is "so far ahead" of other AI markets that demand for experts in natural language, speech input/output, vision systems, automatic theorem proving, automatic programming, supercomputers and other areas is sluggish. Furno said she believes this trend will continue and expects future job growth to be on the practical side.

"Now that much of the theoretical work in expert systems has been accomplished, AI companies are looking for people with fully rounded know-how, able not only to conceive of solutions, but also to sell, build, deliver and support a system in place."

People with traditional software backgrounds, therefore, are increasingly in demand, she said, because "such people tend to be practical, bottom-line-oriented and more experienced in producing a finished product—at least when compared to some of the visionaries in AI."

/ AUTOMATION ⊚

tinued, are "not likely to be plant operations managers, (but more likely) former manufacturing executives, and occasionally, information systems executives."

It is a mistake, he said, "to delegate the responsiblity for implementation of any of the system to the head of information systems—the responsibility must lie in the hands of the user."

Users, in this case, are people like the head of materials management and senior manufacturing executives.

"In most companies I've seen, GE (General Electric) as one template, they haven't resolved the issue of who is in charge," said Roger Sobkowiak, president of Software People Concepts, Stamford, Conn.

—Emily Leinfuss

-Up Adds Directors

pean Economic Community and now director of the Societe Generale de Belgique; Albert Kloezen, managing director of Euroventure, Benelux; Elserino Piol, executive vice president of strategy and development at Olivetti, and Klaus Volkholz, director of corporate planning and strategy at Philips International BV.

No Random Tests At EDS

DALLAS—After months of internal discussion, Electronic Data Systems Corp. has decided to test only employees suspected of using illegal drugs instead of conducting random checks of all workers.

A memo given employees last week said they must sign a code of ethics which includes the new drug policy. Workers who refuse the tests will be fired, the memo reportedly said.

Spokesman Bill Wright denied that a drug problem exists at the company and said the issue was largely a product of the internal "rumor mill."

"We're a clean-living bunch," Wright said.

Wright said new workers will continue to be tested as part of the hiring process. Other tests would be ordered "when a manager has some reason to believe there is a drug problem," Wright said.

The issue surfaced earlier this year when EDS president Morton Meyerson held a series of meetings with employees to discuss possible anti-drug policies (see MIS Week, March 24, page 1).

—David Coursey

On the move

• Tandem Computers Inc., Cupertino, Calif., appointed **Alois J. Strnad** vice president of management information systems. As such, he will have overall responsibility for MIS at the company. Prior to this position, Strnad was involved in research at Massachusetts Institute of Technology and served as a vice president of the Bank of America, vice president of MIS and software development at Victor Technologies and president of ATAA, a management consulting company.

• **Claude B. Finn** has been named vice president of systems engineering at Xyvision Inc., Wakefield, Mass., a manufacturer of computer-integrated publishing systems. Previous to this, Finn was one of the founders of En-Masse Computer Corp., serving as vice president of software development. Before that, he was a department manager at Data General Corp., where he managed the development of the AOS/VS virtual memory operating system for the DG MV Series hardware.

• **Christopher F. Allen** joined the technical services staff at Inte-

grated Network Systems, Mobile, Ala., where he will be responsible for problem determination and solving relating to INS product integration. Prior to this, he was a technical support specialist for AST Research.

• Kentek Information Systems Inc., Allendale, N.J., appointed **Kenneth Porch** as manager for customer services. He will be responsible for recruiting and training service personnel and will develop and implement Kentek's corporate service plan, customer support program and technical training program. Porch had been employed at Western Union for 25 years, most recently as director of installation and maintenance of domestic satellite programs and real-time computer systems.

• Microamerica named **Richard J. Mayne** national support manager, a new position for the company. Mayne will oversee all technical support at Microamerica's 11 regional distribution centers. He will also be responsible for providing technical support and direction to the company's regional support managers.

CORPORATE
INFORMATION CENTER

MISweek p82

TANDEM COMPUTERS AND ARTHUR YOUNG SIGN AGREEMENT TO ADVANCE
FACTORY AUTOMATION

Cupertino, CA--Tandem Computers Incorporated (OTC/TNDM) and
Arthur Young, an international accounting and consulting
firm, announced that they have signed an agreement under
which the two companies will work together to deliver
comprehensive computer-integrated manufacturing (CIM)
solutions to manufacturers to increase productivity and
decrease costs.

Under this agreement, as part of Tandem's new Solutions
Implementer program, Arthur Young will ensure that Tandem
users in the manufacturing industry realize successful CIM
implementations. Arthur young will provide
pre-installation analysis and definition of software
requirements, and post-installation implementation,
training and support. This spans from strategic planning
for CIM to hands-on implementation.

"The manufacturing industry is changing with the advent of
new technology and the need to integrate the resulting
islands of automation," says Gerald L. Peterson, Tandem
vice president of marketing. "Working together, Arthur
Young and Tandem can offer clients and customers a powerful
way to choose and implement the solutions they need to make
productivity gains a reality."

Woodrow W. Chamberlain, a partner in Arthur Young's
Manufacturing Consulting Group, says, "As far as we know,
this agreement between Arthur Young and Tandem is the first
where a computer manufacturer and consulting firm have
taken a joint approach to CIM."

The agreement will take advantage of Tandem's NonStop
computer architecture and Arthur Young's management
consulting experience in the manufacturing industry and in
application software.

Contact: Joyce Strand
           408/725-6516

June 11, 1986, Wednesday, Southland Edition

SECTION: Business; Part 4; Page 3; Column 3; Financial Desk

LENGTH: 19 words

HEADLINE: PEOPLE

BODY:
    Alois J. Strnad was appointed vice president-management information systems
of Tandem Computers, Cupertino.

TYPE: Column

Alois J. Strnad has been named vice-president of management information systems at Tandem Computers, Inc. of Cupertino, Calif. Strnad, 49, assumes overall responsibility for the company's management information systems.

COMPUTERWORLD

JUNE 9, 1986   p/o 5

Tandem, Young In CIM Agreement

CUPERTINO, Calif. — Tandem Computers, Inc., and consulting firm Arthur Young have signed a non-exclusive agreement under which the firms will work together to offer computer integrated manufacturing (CIM) solutions to customers.

While Arthur Young will continue to work with other computer system vendors and will not exclusively recommend Tandem's systems for CIM applications, the agreement represents a recognition that "Tandem has positioned itself in a superior way in the CIM market," according to Woodrow W. Chamberlain, a partner in Arthur Young's 600-person manufacturing consulting group.

Tandem and Arthur Young salespeople jointly will make sales calls to potential CIM customers, but customers will contract with Tandem and Arthur Young separately for hardware, software or services, Mr. Chamberlain said. Arthur Young is also under contract with Tandem to help the firm develop a strategy in the CIM market, he said.

About 20 manufacturing software packages now run on Tandem's systems, a Tandem spokeswoman said.

The Arthur Young agreement is the first in Tandem's Solutions Implementer program, under which Tandem will sign other consulting firms to similar agreements covering other industries, such as banking, insurance, lotteries and other areas of manufacturing.

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Mediat is expected to appeal to brokers who already use microcomputers, to link these into the mainframes of major insurance companies across the Packet Switch-stream network. A broker could then get instant quotes and look at client details, such as policy valuations.

There are 20 companies committed to putting their information on the Delegate system. These include Equity and Law, General Accident Life, Prudential and Scottish Provident.

BTIS expects this system to be used as a point-of-sale device in the front of a brokers office.

It will cost £35 a month, plus the cost of telephone calls. Optionline costs £4,000 for the first year, and £3,500 for each following year.

Mediat has a one-off connection charge of £395 and a quarterly subscription of £40, plus usage charges.

"This is quite a significant change for British Telecom," says Stagg. "BTIS is being allowed the freedom to decide where to place its own budget, and buy its resource in from Prestel."

With the official launch a couple of weeks away, Stagg is quietly optimistic about the response. On June 9 users will have to start paying for the services.

He estimates there are about 2,500 insurance brokers and building societies using Prestel, and thinks he will need to double that figure over the next year to see a decent profit. Initial marketing costs have been very high, he says.

IBM's 3270 environment of display stations and communications controllers.

The one that attracted BT is a way of interposing, within a normally co-axial link between an IBM terminal and its controller, a link over ordinary telephone lines.

As part of its customer service system BT wants to be able to install single terminals into local telephone exchanges so that visiting engineers do not have to travel backwards and forwards to regional offices collecting and reporting job progress.

The conventional solution from IBM would call for a controller at each location and even the new entry level 3270 controller links far more than the two devices (screen and printer) that BT wants. And there are some 4,000 exchanges in BT's network.

Adacom's solution is a pair of units which allow a 3270

Sheffield district will use the units to connect 200 IBM 3179 terminals in local exchanges to 3274 controllers at the 3081-based computer centre.

The technology behind Adalink derives from the US company but BT's preference for procurement from the UK encouraged the joint venture agreement. The new company will start manufacturing in the UK this year.

The units also allow local IBM terminals to be connected to low cost Ascii printers for local screen dumps without bothering the mainframe.

Another product launched by Adacom 3270 is a printer converter that makes an Ascii printer look like an IBM 3287 printer.

In addition to an IBM co-axial port, it has a serial and a parallel socket so that the printer can be attached to three hosts simultaneously.

COMMS BRIEFS

Thorn Ericsson has launched a local area network and wide area network facility for its MD110 PABX which it claims is the first in the world. Called Multinet, the new software allows any IBM-PC or compatible micro to be included in a ring network within the PABX.

Avant-Garde, US producer of communications network management and security systems has given **British Telecom** exclusive distribution rights for its products.

Tandem claims that it is one of the first vendors to announce delivery of a product conforming to the Layer 4 standard of the Open System Interconnection (OSI) model. The product, OSI 4AM is an implementation of the OSI transport layer operating over X.25 packet switch networks.

British Telecom has launched a new magazine, the *Communications Pro-*

gramme which will highlight innovation in the application of communications technology. Paper is out for this launch — the magazine will be presented on video. The *Communications Programme* will be produced nine times a year and be sent free to 1,500 top company managers involved in the specification, purchase and installation of data and telecomms systems.

The **British Standards Institute** has published details of BS6690 which it says will help standardise information interchange. BS6690 specifies an interchange format to facilitate the transfer of files containing data records between computer systems.

The first dealings in **British Telecom** shares on the Tokyo Stock Exchange took place on May 30. BT chairman, Sir George Jefferson, in Tokyo for the event, says this is a major step in BT development of commercial and cultural links with Japan.
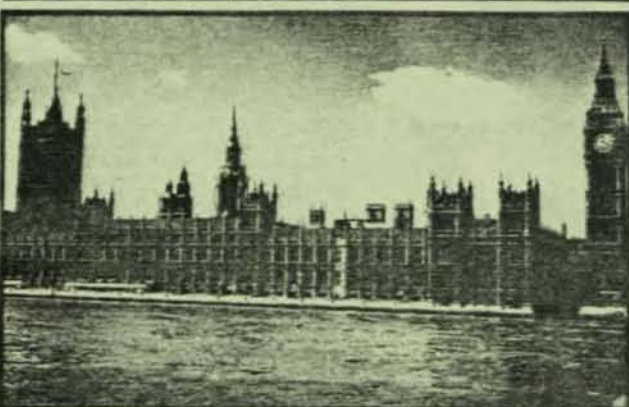
Anti-BT unions went to the Commons today.

Patriotic unions lobby Parliament

by Nuala Moran

A mass lobby of Parliament will take place today (Thursday) in support of Britain's telecommunications manufacturing industry. The action is organised by unions in the industry and will include employees from GEC, Plessey, STC and Pye TMC.

The purpose of the campaign is to put pressure on British Telecom to buy UK designed, developed and manufactured products.

The unions say that the UK has gone from being a net exporter of telecomms products in 1979 to a major importer in 1984. The balance of trade deficit in telecomms products in 1984

is put at £51 million by the unions, based on government statistics.

The success of the campaign, "is essential if Britain is to maintain a foothold in the world telecommunications markets", says the unions.

It demands that BT buys UK manufactured equipment; the restoration of previously projected ordering levels by BT for main telephone switching equipment; greater financial support from the government to help telecomms companies in world markets; and an end to BT's build up of manufacturing capacity outside the UK, and a freeze on BT's orders to overseas suppliers.

Computer Weekly June 5, 1986 p20

Street Talk:

Enthusiasm Continuing For Tandem

Enthusiasm for **Tandem Computers Inc.** stock remains strong. Citing the company's rebound from several low-growth years, **Montgomery Securities** has put Tandem's stock on its recommended list.

In recommending Tandem's stock, Montgomery's research department said it has been impressed by the improvement in Tandem's gross margins, which Montgomery believes should continue as new products—on both the high and low ends—are introduced.

"We also give Tandem's management high marks for introducing new technology while only slightly affecting their current high-end TXP product," Montgomery's research division said. "We believe that a low-end CMOS product can be successfully introduced with minimal impact this year on Tandem's current low-end product.

"Thus, two new additional sources of revenue are expected to be introduced in 1986, significantly broadening Tandem's product line."

Montgomery is expecting Tandem to earn $1.37 per share this fiscal year on sales of $748 million, compared to earnings of 82 cents last year on sales of $623 million. That improving trend—which Montgomery believes will continue into fiscal 1987, pushing Tandem to the $927 million sales level—makes Tandem a substantial value at current prices, the research house said. Tandem's stock, which has traded in a range of 12-7/8 to 34 in the last year, closed Thursday at 31-1/4, up 3/8 on the day.

• • •

Business continues to be weak at **TeleVideo Systems Inc.** The former high-flying terminals and systems vendor last week reported yet another quarter in which sales fell on both a year-over-year and sequential basis. While earning a scant $19,000 for its second quarter ended May 2—virtually a breakeven quarter—TeleVideo reported sales of $20.8 million. That was about 23 percent below the $26,029,000 that TeleVideo generated in the same quarter last year, and below the $22.3 million and $25.5 million that the company generated, respectively, in its October- and January-ended quarters.

TeleVideo chairman K. Philip Hwang pointed out that the company's cash reserve rose again in the quarter, to $73 million (TeleVideo had some $70 million at the end of February). Hwang also expressed satisfaction with the performance of TeleVideo's terminals business, which he said grew in both shipments and revenue.

Investors didn't seem to be excited by what TeleVideo's numbers were telling them. The company's stock was unchanged at 3-3/8 shortly after the earnings came out Friday morning.

• • •

Far from disappointing investors and analysts, **Computer Associates International Inc.** has usually exceeded their expectations. And that is exactly what appears to have happened in the mainframe software supplier's fourth quarter.

Brian Mutert, an analyst at **Robertson, Colman & Stephens**, had been concerned that Computer Associates might disappoint investors "because of its eroding position in the micro software market and an inability to continue its growth strategy by means of acquisitions because of its dissipating war chest." Instead, Computer Associates posted another record quarter, meeting Mutert's earnings-per-share estimate and exceeding his revenue estimate. The results encouraged Mutert to revise his fiscal 1987 estimate upwards and to initiate a buy recommendation on Computer Associates' stock.

The stock, which was split not long ago, has remained near its adjusted 52-week high of 24-1/4. It closed last Thursday at 23-1/4, down 1/2 point on the day.

• • •

The deal that **Maxtor Corp.** inked with **Digital Equipment Corp.**—a deal Maxtor's management has not officially confirmed—may not be fully appreciated by investors. At least that's what John C. Levinson of **Goldman, Sachs & Co.** says. In a recent assessment, Levinson suggests Maxtor's stock should continue to do well as the magnitude of DEC's order becomes better known. Levinson said DEC could provide Maxtor with $70 million in business in its fiscal year ending March 1987, allowing Maxtor to approach the $200 million sales level by then. Maxtor's sales in the fiscal year ended March 31, 1986, were $85.2 million.

Nor would that necessarily be the end of the edge that Maxtor has established over the last year. Levinson says that at a recent meeting for securities analysts, the company spoke about new products in the 3.5-inch (greater than 100 Mbytes) and 5.25-inch (greater than 380 Mbytes) disk drive area that could be announced later this year. "These products promise to keep Maxtor a generation or more ahead of its high-end competition and will be instrumental in setting the company further apart from its competitors," Levinson said.

Maxtor stock closed at 30-3/8 Thursday, down 1/8 on the day. Its 52-week range is 10-3/4 to 32-1/8.

—*Robert Hertzberg*

CORPORATE
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NEWS

_p8_

Tandem, Arthur Young joint CIM pact breaks new ground

By Rosemary Hamilton

CUPERTINO, Calif. — In an unusual alliance, Tandem Computers, Inc. announced last week that it signed an agreement with Arthur Young, a Big Eight accounting and consulting firm, to jointly provide products and services to manufacturing customers.

Although many vendors have forged partnerships to jointly develop manufacturing automation products, the Tandem alliance is apparently the first formal agreement between a computer vendor and a Big Eight consulting concern in the computer-integrated manufacturing (CIM) market.

Some observers question whether such an arrangement detracts from the consultant's role as objective advisor, but both Tandem and Arthur Young said the agreement is nonexclusive. Most of the Big Eight firms have informal working relationships with CIM vendors.

"We remain interested in other vendors because there are as many solutions to CIM as there are vendors," said Woodrow Chamberlain, a partner in Arthur Young's manufacturing consulting group. "We don't go out and recommend anything. But we are expressing an opinion that says you should consider Tandem seriously when considering CIM."

According to the agreement, Tandem and Arthur Young will provide a hardware and services package to customers "embarking on a major new strategy in CIM," said Gerald Peterson, vice-president of marketing at Tandem. Arthur Young will work with customers in the areas of software, training, support and overall strategy. Tandem will provide its line of Nonstop fault-tolerant computers and associated networking products.

Some of the other Big Eight firms said they have chosen not to make formal agreements because they have not found the appropriate partner or because they believe it would compromise objectivity.

Larry Roches, senior manager in the manufacturing consulting practice of Peat, Marwick, Mitchell & Co., said a formal partnership with a vendor would be "outside of our independence and objectivity policy."

John Arnold, a manager in the manufacturing consulting practice of Coopers & Lybrand, said that so far his firm has opted to work as a "preferred consultant" with vendors, such as Hewlett-Packard Co.

But at Arthur Andersen & Co., partner Roger Willis said the idea of a formal agreement has not been ruled out. "We've thought about it and haven't come up with a situation that seemed right," Willis said.

June, 1986, National Edition

SECTION: PRODUCT UPDATE; Pg. 77

LENGTH: 107 words

HEADLINE: New 6AT/20 and 6AT/40 Workstations

BODY:
    Tandem Computers Inc. has unveiled two new PC AT-compatible workstations
that can function as either stand-alone units or as fully integrated system
terminals for Tandem NonStop systems.

    The 6AT/20 has a 20-megabyte (MB) internal hard disk drive; the 6AT/40 has a
40-MB internal hard disk drive. The 6AT is expandable to a maximum of 80 MB of
disk storage and 11 MB of Random Access Memory (RAM), yielding more storage and
memory capacity than the IBM PC AT. Fully compatible with the PC AT, the 6AT
can run a wide variety of business software, and comes with extra features at a
lower price.

    Tandem Computers Inc., Cupertino, CA.

GRAPHIC: Picture, no caption

SECTION: NEW PRODUCTS; Pg. 250

LENGTH: 623 words

HEADLINE: High-end Tandem uses VLSI and expert diagnostics

BODY:
   Tandem Computers extended the high end of its Nonstop computer family to
include a computer that uses VLSI (very large scale integrated) technology and
integral expert-system diagnostics. The VLX is compatible with earlier Nonstop
models, including their 56-kbit/s communications capability.

   The base VLX configuration using the vendor's standard full-function software
processes from 40 to 50 transactions per second with an average response time of
1.5 seconds. The computer can be expanded modularly to process hundreds of
transactions per second within a single unit, or thousands using the
manufacturer's fiber optic link, without rewriting software.

   VLX features a fault-tolerant VLSI-based fiber optic communications
controller, the FOX II, which links VLX boxes to each other at distances up to
four kilometers. FOX II is implemented on two printed circuit boards each
equipped with 10 gate arrays. The computer can communicate using a variety of
protocols, among them SNA (Systems Network Architecture), X.25, X.21, OSI (open
systems interconnection), and MAP (manufacturing automation protocol).

   The VLX is based on the MCA 2800 ALS, a bipolar gate array chip developed
jointly with Motorola. The entry level machine has four processors, 32 Mbytes
of memory, 2.5 Gbytes of disk storage, four 5-Mbyte input/output channels, disk
and tape controllers, and the Check fault tolerant diagnostic expert system.

   Each VLX CPU consists of two plug-in printed circuit boards engineered with
31 gate arrays. The new computer's 8-Mbyte memory board uses 256-kbyte RAM
(random access memory) chips and uses two gate arrays. A failed component
sparing scheme is built into the device, as are single bit error correction as
well as double-data bit and single-address bit error detection. Multiple disk
drives may be added to the new computer.

   VLX uses the most recent release of the Guardian operating system that
supports the Encompass database. The Pathmaker application generator works with
the new computer, as do Cobol 85 and 74, Pascal, Basic, Fortran-77, Mumps, and C
programming languages.

   The Check maintenance subsystem provides remote support. A combination of
embedded hardware, software, and firmware, it works with the vendor's existing
TMDS maintenance and diagnostic software to perform fault analysis. In the base
model VLX, two MC68000-based remote modules collect information from eight 6809
microprocessors and sensors. These modules communicate over a dedicated
high-speed dual bus.

Check examines interfaces to internal processors, power supplies, fiber optic communications controllers, and fan and temperature sensors. If a network resource changes state or an abnormal condition is detected, the monitoring faculty generates a message or event signature sent to TMDS for analysis. When a condition requiring immediate operator attention is detected, an audible alarm is sounded and a message is displayed on the operator console. Optionally, a remote service center may be automatically dialed to notify Tandem service personnel of the alarm condition. Customers may choose multiple levels of security and enable or disable the automatic dialing function.

Over the next year, the manufacturer will establish four remote support centers, one each in Japan, West Germany, Britain, and the United States. Tandem has said that VLX maintenance prices will be 50 percent less than they were for previous models for those customers choosing the remote option. The remote service option, event logging, network monitoring, and TMDS software are included in the monthly charge.

Price for an entry VLX is $995,275.

Tandem Computers Inc., 19191 Vallco Pkwy., Cupertino, Calif. 95014

GRAPHIC: Picture, no caption

TANDEM COMPUTERS
(OTC: TNDM)

Price 6/4/86	1986 Price Range	EPS (FY: Sept.) 1985A	1986E	1987E
33 1/2	34-12	$0.82	$1.30	$1.85

P/E Ratio 1986E	1987E	Indicated Dividend Yield	
25.8X	18.1X	$0.00	nil

After four years of no growth, earnings have begun to accelerate reflecting management's more conservative stance regarding near-term growth prospects. Accordingly, expenses have come more into balance with revenues, and manufacturing margins have improved. Tandem remains the leader within the on-line transaction processing market, a sizeable niche that continues to expand at a rate significantly above the overall computer industry. The near-term outlook for earnings continues to be positive based on (1) a recently reorganized and more efficient sales force, (2) leverage from expanded third party software relationships, (3) a sizeable mix of overseas business (40% of revenues) where business is strong, and (4) the prospect of additional revenues $15-20 million in 3Q and $35-40 million in 4Q from the new high-performance VLX system. Our estimates call for earnings of $1.30 per share in the current fiscal year and $1.85 per share in FY 1987. Based on this outlook, and a relative multiple in expected calendar 1987 earnings that shows little premium to the market, we continue to recommend purchase of the stock.

6-4-86

Last of his signs, not last of him

SIGN OFF: San Jose City Council challenger **Andy Diaz**, the only candidate to be jailed for violating the city's campaign sign ordinance, doesn't think that's fair. Now that the election is over, Diaz says he may take his photo album — "I've got pictures of more than 125 illegally posted signs for other candidates" — to court and sue the city for "unjust arrest" ... We shouldn't see too many Diaz signs littering the landscape as in years past. He is offering $100 for every small "Diaz for Mayor" sign turned in (they're 15 years old, almost collector's items) and $50 for each 14-by-5-inch black-and-white "Diaz" sign and for each red, green and blue "Legendary Diaz" sign. "I may run again, but I doubt you'll ever see a Diaz sign again," he says. Enough people know his name by now anyway ... With the rest of the candidates now taking down their signs as well (that's the theory, anyway; the law gives 'em 30 days), property manager **Norma Glidden** of Capital Builders knows just where they can look — at the signs erected without permission on her private property office site at North First Street and Brokaw Road. The score when she last checked stood at three signs each for Mayor **Tom McEnery** and Sheriff **Robert Winter**, one for mayoral challenger **Dan Minutillo** and a couple of others. "But," Glidden adds, "building owner **Mar Dell Casto** has come up with an ingenious removal procedure. He lassos the unsightly things." The Wild West lives on.

THE LEE SIDE: Ticor Title's **Jim O'Brien** says he read with equal amounts of interest and dismay the report that **Lee Iacocca**-for-President boosters are planning a booklet titled "The Quotations of Chairman Lee." O'Brien: "Since the inspiration for this title was 'Quotations of Chairman Mao,' which were memorialized in the 'Little Red Book,' will Chairman Lee's be known as the 'Little Blue Book' so dear to the hearts of the used-car set?" ... Can't say that Chrysler's Sanforized violet isn't quotable, though. At the finale of the annual San Jose Development Briefing, Brookings Institute real estate expert **Anthony Downs** recounted this exchange. Reporter to Iacocca: "Is it true, Mr. Iacocca, that you were born in a log cabin?" Iacocca: "No, that was Abraham Lincoln. I was born in a manger."

SHOW TIME: Ads for Thursday night's premiere of "Three Men and a Cradle" at Camera Three said it would be a benefit for the YMCA. Uh uh. It's the YWCA, but the confusion is understandable. The film — a dandy — is about three Frenchmen who switch from bachelorhood to motherhood after a baby is left on their doorstep ... KNTV (Channel 11) will switch schedules Sunday night to air a two-hour documentary on San Jose's redevelopment. The program will pre-empt the Walt Disney show (but what if no one notices?) ... A change in KNTV's news department, too, with **Paul Pedersen** leaving after four years as assignment editor. He's moving to Tandem Computers' in-house TV department; no replacement yet.

Lee Iacocca

FUN AND GAMES: This year's Sunnyvale Dinkers Tennis Tournament, a doubles event pitting randomly selected teams of city officials and politicians against each other, is history, but the outcome doesn't appear so random. Last year, a team headed by City Manager **Tom Lewcock** won. This year, the duo headed by Mayor **Brian O'Toole** won. City Attorney **Lou Green**, the next in command, agrees that logic would dictate he'll win next year's tourney, and nobody is betting against him.

Columns by Leigh Weimers appear Monday through Friday.

San Jose Mercury News

June 17, 1986, Tuesday

CORPORATE INFORMATION CENTER

DISTRIBUTION: Business Editors

LENGTH: 305 words

HEADLINE: TANDEM-COMPUTERS; (TNDM) Selected by Travelers Express for Quantum ATM services

DATELINE: CUPERTINO, Calif.

BODY:
   Tandem Computers Inc. (OTC:TNDM) announced that Travelers Express, Minneapolis, a wholly owned subsidiary of the Greyhound Corp., has selected a Tandem computer system to operate their Quantum ATM networking service for financial institutions.

   The Quantum system is a service provider for electronic funds transfer to 160 credit unions, savings and loans and other medium to small-sized financial institutions nationwide.

   A Tandem Nonstop TXP system, with Connex software, from A. O. Smith Data Systems Inc., Brown Deer, Wis., will provide on-line transaction authorization through the Quantum switch with access to 14 regional and national networks.

   Robert Ferris, director of electronic services, of Travelers Express, said, ''Tandem proved to be superior over all of its competitors. They offered us a continuously available system with superior communications capabilities and linear growth.

   ''In addition, they offered very attractive and proven software packages through the Tandem Alliance software program.''

   A. O. Smith Data Systems Inc., a subsidiary of A. O. Smith Corp., provides software and services to financial institutions and retailers involved in EFT. They are a member of the Tandem Alliance, a program to encourage application designers to develop software solutions that run on Tandem Nonstop systems. They are headquartered in Brown Deer, Wis. Phone is 800/558-6980.

   Tandem Computers Inc. is the leading supplier of system and networks for the on-line transaction processing market with 130 ATM networks and 76 EFT switches worldwide.

   The company is headquartered at 19333 Vallco Parkway, Cupertino, Calif. 95014. Phone is 408/725-6000.

   CONTACT: Tandem Computer Systems, Cupertino

   Leslie Stull, 408/725-6237 or

   Travelers Express, Minneapolis

June 25, 1986, Wednesday

SECTION: TECHNOLOGY TODAY; Technology Topics; Pg. 13

LENGTH: 68 words

HEADLINE: TRAVELERS EXPRESS BUYS GEAR

BYLINE: Michael Weinstein and David O. Tyson

BODY:
   Travelers Express Co., a Greyhound Corp. subsidiary based in Minneapolis,
has selected a Tandem computer system and purchased a license for Connex
software form A.O. Smith Data Systems Inc. to run its automated teller machines.

   Travelers Express runs some 200 teller machines for credit unions and other
small and medium-size institutions around the country. The company's network is
called Quantum.

trade in duty-free chips has grown, but one knowledgeable Silicon Valley consultant who asks to remain anonymous estimates it could be worth as much as $1 billion a year, nearly 10% of the entire U.S. chip market. Experts believe that about 40% of the smuggled chips enter the U.S. directly, with most of the remainder arriving via Canada and Mexico.

The potential rewards are huge. Around 25,000 chips can fit into the trunk of the typical American passenger car. Running such a haul from Tijuana to San Diego could easily net up to $10,000 per trip. Repeated once a week for a year, that's more than $500,000. And while the penalties for smuggling commercial quantities of chips are stiff—fines and up to five years in prison—they are much less stiff than for running dope or guns.

Chances are, much of this trade is run by otherwise upstanding businessmen. A California businessman turned chip-smuggler agreed to talk to FORBES about the trade on the grounds we not divulge his identity. We'll call him Chris Brown.

Brown says he reluctantly turned to smuggling to save his $15 million (1985 sales) chip distribution business. He says if he paid the duty he could not compete with others who sold smuggled chips. According to Brown, 256K Toshiba DRAM memory chips recently sold for 290 yen ($1.70) apiece, in quantity, on Tokyo's gray market. Adding a 48% dumping duty, a few pennies for air freight and a little profit margin, that chip should sell here for around $2.75. Yet, according to Brown, some distributors are selling these chips here for $2.15 apiece. That is a good 20% to 30% below the prices quoted by major authorized distributors.

This year Brown has made two trips to Tokyo. There he bought chips in quantities of 20,000 and 40,000, packed them into suitcases and flew with them to Vancouver, where the chips entered duty free. There Brown rented a car, changed from his business suit into sweatshirt and Levis and drove the chips across the border into Washington, where he airfreighted the contraband to his office in southern California. Brown then covered his tracks by driving back to Vancouver to continue his flight to California.

"All my competitors are doing it," Brown, 33, tells FORBES. "I had no choice but to join in." Some of Brown's roughest competition comes from gray market traders, unauthorized distributors who sell to small electronics firms nationwide. Such chip dealers often work out of residences, taking orders on answering machines. Their terms are cash and carry. "They're like cockroaches, almost impossible to kill," says William McMillan, Mountain View, Calif.-based NEC Electronics Inc.'s director of corporate accounts.

The gray and black market chips come from a variety of sources, such as liquidated inventories or hijacked shipments. Worse, they are sometimes "culls"—chips rejected during testing. Culls are particularly worrisome if they end up in, say, medical equipment, and malfunction.

Kenneth Ingleby, special agent in charge for the San Diego district of the U.S. Customs Service, has been investigating the smuggling of chips from Mexico in cars, private and commercial aircraft and boats for nearly two months now. But stemming the trade will be next to impossible. Chips soldered onto circuit boards, notes NEC's McMillan, can come in duty free. Don't expect Customs inspectors to check whether each circuit is soldered. U.S.-based black marketeers are also believed to run dummy electronics companies in Asia, buying chips from authorized sales outlets and then shipping them to third countries like Mexico and Canada or, mislabeled, directly into the U.S. Or a cargo with duty paid on 25,000 chips may in fact contain 40,000. "It's physically impossible to count them," says Rollin Klink, U.S. Customs special agent in San Francisco.

There is talk now that the antidumping duties on chips can be scrapped if the Japanese agree to buy more U.S. chips. But that won't necessarily eliminate the incentive to smuggle. The duties would probably be replaced by some sort of artificially high minimum price deemed "fair" to U.S. producers. So the gray and black markets in chips would likely increase. Where there's a tax or price control, there is, inevitably, a way around it. "It's rum-running all over again," says smuggler Brown. ∎

Companies, like countries, sometimes attempt to do too much themselves.

The education of James Treybig

By Marc Beauchamp

FOUR YEARS AGO James Treybig kicked a five-pack-a-day cigarette habit and took up jogging. Last April he flew to London to run his first marathon, placing 17,165th in a field of some 22,000. But just finishing wasn't bad.

In his business life, Treybig, 45, has set himself perhaps a tougher challenge: pushing sales at Tandem Computers, which he started in 1974, past the $1 billion mark by 1988. A few years ago, Treybig was talking about hitting the $1 billion mark by 1985. Seemed reasonable. Tandem's sales had already shot from $8 million in 1977 to $418 million in 1983.

But when Treybig closed the books on 1985, sales came in at $624 million. Margins sank from 8% in 1984 to 5.5%; return on equity slumped from 12.4% to 8.6%. "All that [prior] growth made us arrogant" is Treybig's explanation for the slowdown. The computer slump didn't help, either. The arrogance was compounded by a 1984 settlement with the SEC stemming from a downward restatement of Tandem's 1982 sales and profits by 7% and 20%, respectively.

Analyzing their problems, Treybig and his lieutenants concluded that Tandem was trying too hard to be self-sufficient, rather than specializing and trading expertise with others in the computer economy. "We were xe-
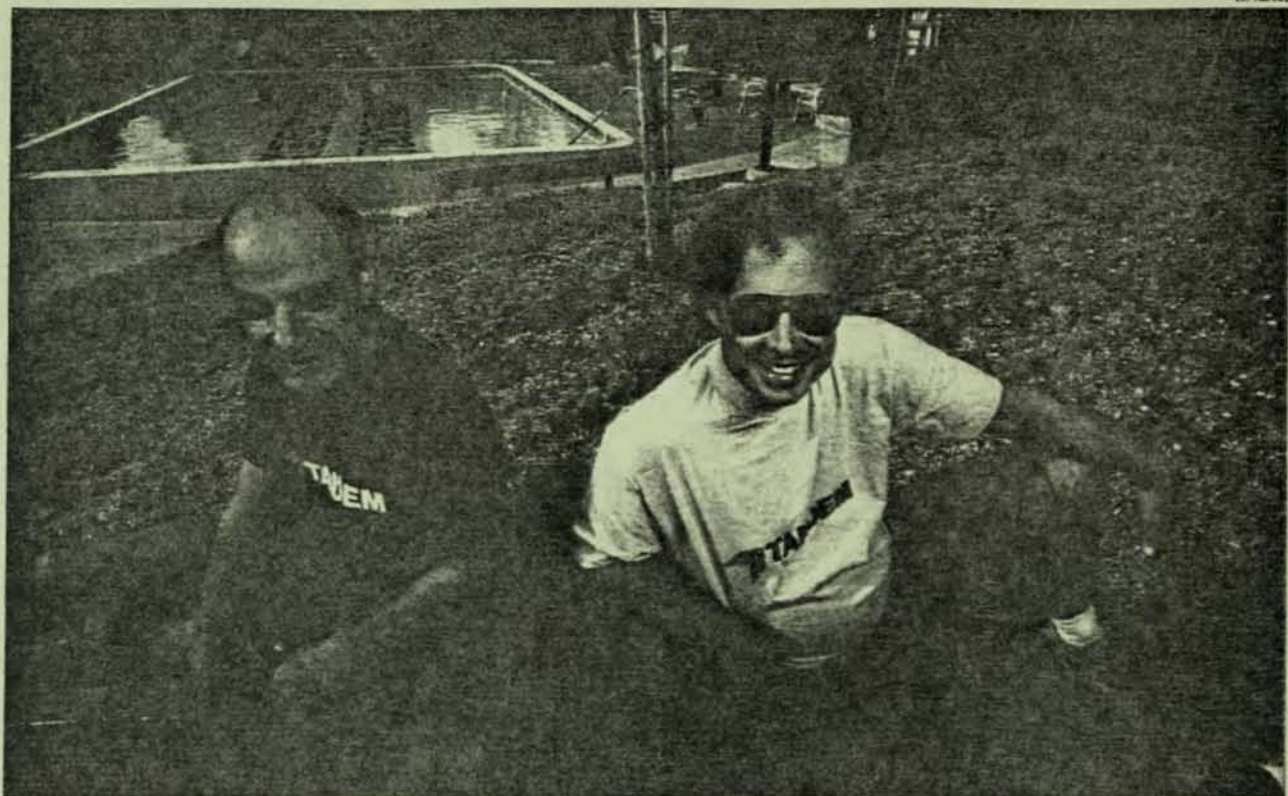
Tandem Computers' Robert Marshall and James Treybig
"We were xenophobic . . . but that's crazy."

nophobic a few years ago," says Treybig, a lean Texan with two electrical engineering degrees from Rice University and a Stanford M.B.A. "But that's crazy. Outside relationships help you see better."

Let no one lose sight of Treybig's towering achievement. He started Cupertino, Calif.-based Tandem to produce the world's first commercial fault-tolerant computer. Tandem's hardware and software ensured that if a part of the system failed, the work would be handed to another working processor in the system, thus enabling the system to keep running, albeit more slowly. Banks bought Tandem systems for their automated teller machine networks. Today 15 stock exchanges around the world use Tandem computers, as do 30 large brokerage firms.

For a few years Treybig had the fault-tolerant market pretty much to himself. But competitors are never far away. As the market for on-line transaction processing (as ATM and stock quotation-like applications are called) grew and technology advanced, competitors tried to repeat Treybig's success. While many have failed, at least one, Marlboro, Mass.-based Stratus Computer, Inc. (1985 sales, $80 million), has emerged as a formidable threat in the fault-tolerant market. Last year, in its first outside purchase

of a computer system, IBM signed an OEM deal—the terms were not disclosed—to buy and resell Stratus computers under the IBM name.

Says Treybig ruefully: "We could have been less confident back in 1982. It would have been better if we'd paid more attention to Stratus."

But Treybig is opening Tandem to outside influence with a vengeance. Last year he put top priority on working with outside software houses and value-added resellers (VARs). Tandem has also taken equity positions in Integrated Technology, Inc., a telecommunications firm, and Triplex, whose market is factory automation.

One potentially lucrative relationship with the outside world is Tandem's new strategic alliance with Altos Computer Systems to develop new products. Altos computers use the Unix operating system, increasingly specified in big federal government contracts, and so will help Treybig reduce his dependence on banking and financial services customers. Retailers, telephone companies and transportation companies are also on Tandem's prospects list; so is factory automation.

Tandem has accepted General Motors' manufacturing automation protocol (MAP) standards for factory automation, which could bring Tandem a significant slice of the huge

anticipated automation spending by GM and other companies.

Meanwhile, Treybig has boosted Tandem's R&D spending to 12% of revenues, vs. 9% recently, and has rolled out several products, from a $3,995 workstation to a $1 million mainframe. Explains Chief Operating Officer Robert Marshall: "We had to reposition ourselves from being a maker of nonstop minicomputers to being a big computer company with a broad product range." To take the new message on the road, Treybig, Marshall and Marketing Vice President Gerald Peterson have overhauled Tandem's marketing division, trimming several layers of managers and putting more salespeople in the field.

So far, so good. For the quarter ending Mar. 31, revenues rose 20%, net income climbed 81% and operating margins hit 11.3% from 6.6%. Long-term debt remains a minuscule 2% of capital. Cash balances reached a record $161 million—enough to bankroll acquisitions and finance growth when the computer industry recovers.

"The next four years," promises Treybig, "will be really terrific." Putting his money where his mouth is, Treybig, who already owns 309,444 shares, last fall borrowed $1.7 million over four years at 10% from Tandem in order to buy a debenture convertible into more Tandem common. ∎

CORD

Lenthor Engineering, Mark Lencioni/Wesley Thorn, 1516 Gladding Court

Omega Restaurant, D.G.V. Inc., 90 S. Park Victoria Drive

Soft-Train, Jim Thomas/Ed Flores, 326 Abel St.

Golden State Data Products, Stephen Pope/Dave Clark, 1124 Wrigley Way

Integrated Business Systems, Stephen Pope, 1124 Wrigley Way

Easy Finance Incorpoation, 500 E. Calaveras Blvd. #201

Hill Engineering, Darryl Hill, 383 Gosser St.

R/Cade, Rodolfo A. Pinque, 1209 Clearlake Court

CPI Communications, Kenneth Lowen/Albert Stass, 404 Railroad Ave.

Windy Chinese Cuisine, William Tam/Lawrence Tam, 1245 Jacklin Road

Melody Software, Robbie Chung, 1604 Jason Drive

Friends of the Milpitas Library, Annell Spencer, current president, 40 N. Milpitas Blvd.

Yogurt Street, Lloyd/Miriam Mefferd, 593 E. Calaveras Blvd.

Octel Communications Corp., Cohn/Olson/Sweifach/Ciesins, 890 Tasman Drive

R.V.M.D., Richard Moore/Samuel De Pa, 364 S. Temle Drive

J.B.L. Interprise, John B. Lucas, 1228 Starlite Drive

Sean's Paint Service, Sean Fullerton, 1361 Lassen Ave.

I AM, Meulener/Flores/Miramontes, 92 Marylinn Drive

Nguyen-T-Thin, Thin T. Nguyen, 351 Fanyon St.

Link Pro, Mitri Halagi, 116 Abbott Ave.

Joseph H. Clark, 133 N. Temple Drive #59

Parrot Wood Signs, Young S. Kang, 477 Prada Drive

Paint Doctor, 1393 Olympic Drive

Allen's Auto Transport Service, Lee Roy M. Allen, 251 Smithwood Ave.

Cupertino

Alice C. Campbell, M.S., psychotherapy, 21627 Stevens Creek Blvd., 291-5090

Diane Letchworth, psychotherapy, 21627 Stevens Creek Blvd., 291-5090

StrataCom Inc., develop and manufacture telecommunications equipment, 10341 Bubb Road, 973-9000

Keystone Realty Inc., d/b/a World Properties, real estate & loan brokerage, 20530 Stevens Creek Blvd., 255-8171

Seville Properties Inc., real estate, 20111 Stevens Creek Blvd., 996-7040

Emporium Capwell, retail sales, 10333 N. Wolfe Road, 865-6000

Priest & Montoya CPA's Software, 10413 Torre Ave., 446-3351

Olin Brass, sales office, 20430 Town Center Lane, 257-5820

D&C Maintenance, janitorial services, 20800 Homestead #13H, 255-8658

Jade Tree Chinese Restaurant, restaurant, 10074 E. Estates Drive, 996-2999

Vallco Shell, service station, 11111 N. Wolfe Road, 255-7785

R&D Marketing, Hewlett Packard, research & development, 19420 Homestead Ave., 725-8111

Hewlett-Packard Co., worldwide customer support operations, 19320 Pruneridge Ave., 996-9800

The Knothole Pub & Deli, cocktail lounge, 10033-37 Mann Drive, 996-2353

Domino's Pizza of Cupertino, pizza delivery and take-out, 10525 S. De Anza Blvd., 685-0973

Sunnyvale

Janelle Inc. Flower Market, florist, 222 Commercial Ave.

Phase 2 Automation, robotics, 115 Sobrante Way

SCG Development Corp., printer equipment, 260 Santa Ana court

Silikon's Gardens, restaurant, 1205 Wildwood Ave.

Patrice's Hallmark Shop, sales, Leohmann's Plaza

Les Petits Enfants, clothing retail, 548 S. Murphy Ave.

Holiday Cleaners, dry cleaners, 1607 Hollenbeck Ave.

Best 4 Less, food retailer, 933 E. Duane Ave.

Presentation Technologies, manufacturing, 743 N. Pastoria Ave.

Forethought Inc., software publishing, 250 Sobrante Way

The Garden Grove Apartments, apartment complex, 243 Buena Vista Ave.

Stryker Vision, manufacturing, 1225 Elko Drive

The Auto Answer, auto repair, 750 S. Bernardo Ave.

Carrows Restaurant, restaurant, 595 E. El Camino Real

GCH Systems Inc., electronic sales & design, 767 N. Mary Ave.

ACRS Realty, real estate sales, 111 W. Evelyn Ave. #107

Dayton Automotive Engineering, auto repair, 295 Commercial Ave.

process required to obtain documents such as title, vehicle registrations, license plates and stickers.

Vynet Corp., a Los Gatos manufacturer of telephone voice response systems, opened an East Coast sales office in Marlton, N.J.

Qubix Graphic Systems, a San Jose manufacturer of computer-driven systems for the electronic technical publishing market, opened a sales and service office in San Diego.

Visic Inc., a San Jose manufacturer of memory computer chips, began offering licensing agreements for three of its products to selected manufacturers earlier this month.

San Jose Business Journal June 30/1986 p 28

Contracts

ILC Technology Inc. in Sunnyvale has received a one-year research and development contract from **NASA's Goddard Space Flight Center** in Greenbelt, Md. to investigate the lifetime of laser pump lamps for use in spaceborne solid state lasers.

Visulux Corp. in Santa Clara has received a contract valued at $3 million from **TRW** for its Lasar 1000 large screen color projection systems to be delivered to the Military Airlift Command headquarters for its Global Decision Support System at Scott Air Force Base in Illinois.

Tandem Computers Inc. in Cupertino has received a contract from **Travelers Express** in Minneapolis, Minn., a wholly owned subsidiary of the **Greyhound Corp.**, for a Tandem computer system to operate its Quantum ATM networking service for financial institutions.

Conventions

July 17-20

The **National Association of Female Executives convention** will be held at the New York Hilton. Keynote speaker will be Gloria Steinem. The convention will focus on what the future holds for women in the workforce. Seminars on building skills, networking opportunities and open forums will be included. For more infor-