

CORPORATE  
INFORMATION CENTER

LEVEL 1 - 1 OF 1 STORY

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Daily Report For Executives

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SECTION: ECONOMIC DEVELOPMENTS; Employment; DER No. 151; Pg. L-1

LENGTH: 1453 words

HEADLINE: SABBATICALS SEEN OFFERING RENEWAL FOR EMPLOYEES, BUT FEW COMPANIES  
HAVE FORMAL PROGRAMS

## BODY:

Sabbaticals in the corporate world -- extra leave time in addition to regular, earned vacations -- are a somewhat rare, but prized employee benefit, valued by both employers and employees interviewed by BNA.

In a 1980 census, the Department of Labor reported that only 13 percent of U.S. companies have some form of sabbatical leave, according to Suzanne Smith of New Ways to Work, San Francisco. Corporations seem to be staying away from formal sabbatical programs, and even regular vacation time has not been increasing in recent years, according to Jamie Roberts of Hewitt Associates.

Among corporations that offer the benefit, however, the prevailing attitude seems to be that sabbaticals offer rewards to both the company and the employee. In high-technology firms especially, the renewal and revitalization of employees was deemed worth the cost. And in some firms, the program is available to employees in virtually all job classifications -- from janitor to chief executive officer.

Employees of the federal government can apply for up to a year's leave without pay, said Sharon Wells of the Office of Personnel Management. OPM sets guidelines in the Federal Personnel Manual, but the decision to grant the leave is generally up to the employee's supervisor and depends, in part, on whether or not the employee can be spared. Agencies cannot hire permanent replacements for employees on leave without pay, Wells said. Matters to be considered in granting the leave are the value of the leave to the government or the employee's serious needs, Wells said.

Wells Fargo and Co. offers sabbaticals -- or "personal growth leaves" -- so that employees will have the chance to pursue activities of personal interest for which they wouldn't otherwise have time, according to Nancy Thompson, vice president of corporate responsibility. Only a few sabbatical requests are granted each year, she said, to those who have made a contribution to Wells Fargo and who have a "fine idea" of how to spend the time.

Each year, a letter from the president goes out to all employees with 10 or more years of service, telling them they are eligible to apply for a paid sabbatical leave. Applications are culled down by a committee to the few that are selected, Thompson said. Last year, four employees took three months each.

The leaves can range from one to three months, she explained, and should be for something that would require at least one month to accomplish. Leaves are not granted to employees who want to lie on the beach or just "get away from it all," nor are they considered for educational courses or other pursuits that

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The sabbatical is one of the most popular benefits Tandem offers, Becker said, and now everyone takes it. All Tandem employees are automatically entitled to a sabbatical after four years of service.

A 13-week sabbatical at full pay and benefits after five years of employment was one of the original benefits at Convergent Technologies in San Jose, Calif., according to Catherine Connolly, compensation and benefits manager at the seven-year-old company.

At one time, Convergent was the fastest-growing company in the United States, Connolly said, and work there was fast-paced, pressure-filled, and "extremely hectic." The company felt employees needed time for themselves and for their families, she added. The firm also believes that employees will come back with greater energy and creativity, Connolly said.

The 13-week sabbatical applies to all employees who have been with the company five years, Connolly explained, and is recurrent. Employees have used it for vacation time, including trips to Europe; relaxation; and to extend their maternity leave.

Staffing arrangements during an employee's sabbatical are up to the supervisor, and what is done usually depends on what position is being left empty, Connolly said. Some employees can schedule their sabbatical for when they finish a project, and then pick up another project when they return, she said. Temporary employees can be hired to replace workers on the assembly line, she continued. It is hard to guarantee that employees will return to exactly the same job when they come back, Connolly said, but when possible, they do. Otherwise they are placed elsewhere in the company, she said.

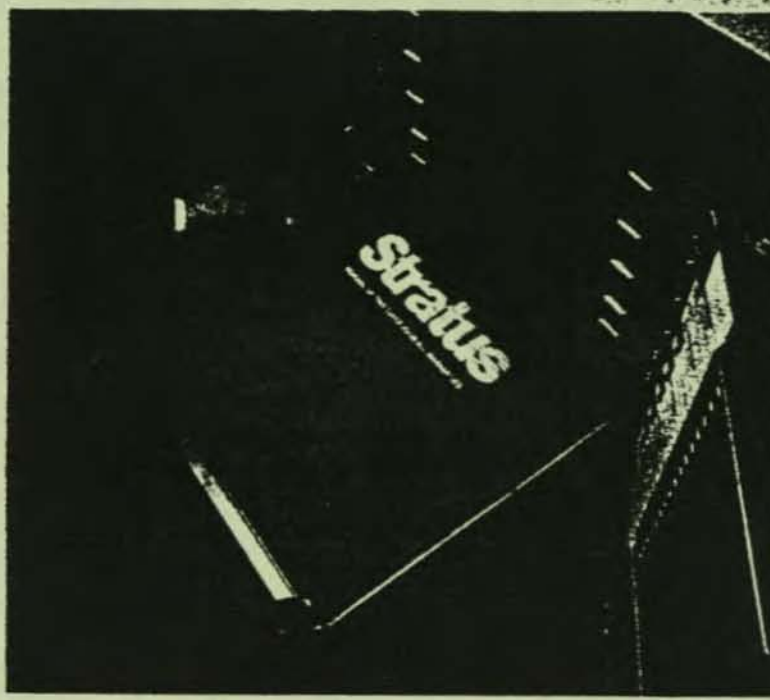
Connolly said that so far there have been no problems of any sort with the program, but "our headcount has increased dramatically," and it's possible that within the next few years a majority of employees could be on sabbatical at one time. Currently, she said, all 13 weeks must be taken at one time, and must be taken within the sixth year. To avoid potential staffing gaps, those provisions and others will be carefully examined to see if changes should be made, Connolly said.

The program at Intel Corp. allows all employees to take an extra eight weeks at full pay and benefits every seven years, according to Glynnis Kaye, spokesperson for the firm. Scheduling around the absent employee, who may add the sabbatical to vacation time, is not too difficult, she said, because it is known fairly far in advance when the employee will take the time off. Normally the employee returns to the same job, although sometimes sabbaticals are timed just before a promotion or transfer, Kaye said.

Intel Corp., like other Silicon Valley firms, went through recessions in 1982 and 1985-86, but did not cut back on its sabbatical benefit, Kaye said. "I don't think it's ever been considered," she added.



## Stratus: The transaction network users' delight?



### The company has emerged as Tandem's most serious threat.

A few years ago, fault-tolerant computers were one of the hot items in the communications industry. Tandem Computers Inc., coming into its own in the late 1970s, grew by 650 percent into the early 1980s. Researchers talked about a \$22 billion market growing at 40 percent annually, and venture capitalists poured money into start-ups that didn't even have products, hoping they would mirror Tandem's record.

For the most part, that euphoria has all but disappeared with the collapse of companies like Auragen Systems Corp. of Fair Lawn, N. J., and Synapse Computer Corp. of Milpitas, Calif., and with the failure of others to even get

beyond the development stage.

Frost & Sullivan Inc., which in 1984 predicted \$7.4 billion in sales of fault-tolerant computers in 1988 out of a potential market of \$21.3 billion, has scrapped those estimates. In a revised report issued earlier this year, the New York-based research house forecast sales of \$3.1 billion in 1988 and \$4.7 billion in 1990. The firm cited the drop in all computer sales, the strength of the dollar overseas, the lack of compatibility of many fault-tolerant machines with IBM applications programs, user concern about the viability of many vendors, and uncertainty about IBM's plans in the field as the reasons for the new estimates.

Frost & Sullivan is not alone in its downward revision. Omri Serlin, president of ITOM International of Los Altos, Calif., and a leading consultant on fault-tolerant computers, is also trimming his projections for the industry. Where he used to say that fault-tolerant computer manufacturers were selling into a \$22.5 billion market for on-line transaction processors, he now limits himself to looser estimates, say, of several billion dollars. Any double-digit projections of market size by the end of the decade are pure guesswork, he insists.

■ **New serious threat.** The hesitancy of the analysts comes at a time when one of the fledgling manufacturers of the early 1980s—Stratus Computer Inc.—is showing signs of achieving the promise once predicted for the industry. The high degree of reliability of fault-tolerant computers makes them attractive to users who cannot afford to have their networks out of operation.

After shipping its first product in February 1982 to the West Lynn Creamery in Massachusetts, Stratus has emerged as the only serious threat to Tandem's domination of the fault-tolerant market.

The Marlboro, Mass., company has seen sales rise every year, from \$5.5 million in 1982 to \$80.2 million in 1985—the latter a 90 percent increase over 1984 figures. Although the company lost money in 1981 and 1982, last year Stratus was \$8.6 million in the black.

Not many companies grow 90 percent in a year, especially a year when the overall industry is in the doldrums. But in the first quarter of 1986, Stratus booked a 75 percent increase in sales to \$26.9 million and an even more impressive 99 percent increase in profit: \$3.05 million over the \$1.5 million achieved the previous year.

Hambrecht & Quist analyst Jeff Canin estimates that sales for the quarter ended June 30 were \$31 million, a 67 percent increase over a year ago,



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and net income was \$3.35 million or 78 percent above last year's level.

There are several other privately held California companies—like Tolerant Systems Inc. of San Jose and Parallel Computers Inc. of Santa Cruz—that have won contracts lately.

Tolerant, for example, recently signed a deal to supply the Online Computer Library Center in Dublin, Ohio, with its Eternity computers for database management and its new, larger P2000 for transactions. Tolerant also plans to raise \$10 million in a stock offering. But even those firms, along with Enmasse Computer Corp. of Acton, Mass., and Sequoia Systems Inc. of Marlboro, Mass., have only a small fraction of the market compared with front-runners Tandem and Stratus, according to analysts.

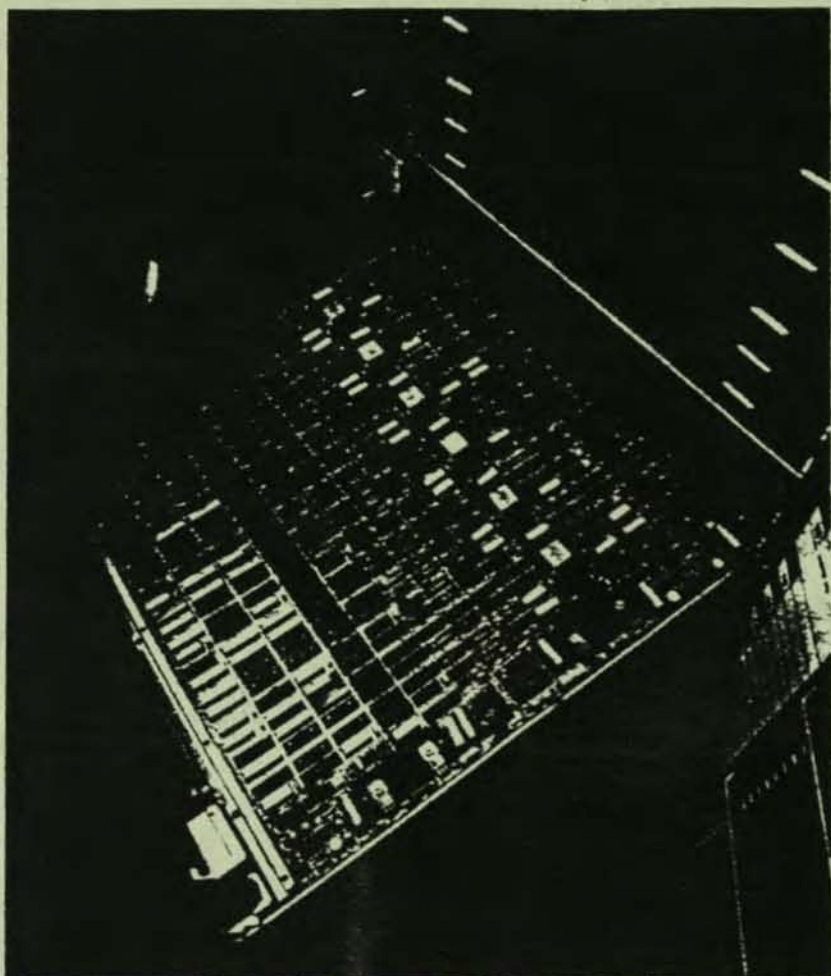
Some of Stratus's success is due to the October 1985 agreement by IBM to sell the company's machines under the Big Blue label as the System/88, the first time IBM had ever done that. IBM reportedly was trying to catch up after losing a major contract with J. C. Penney Inc. to Tandem.

Last year, IBM bought about \$12 million, or 15 percent, of Stratus's production. Stratus President William Foster says IBM should continue to account for 15 to 20 percent of sales this year.

Gordon Casey, vice president at Merrill Lynch Capital Markets, estimates that Stratus will end 1986 with sales of \$134 million and net income of \$13.6 million. IBM's contribution should be about 22 percent, or \$29 million, Casey says.

Canin of Hambrecht & Quist says that IBM sales have not developed as rapidly as he and Stratus had expected and estimates they will be no more than 15 percent of 1986's total. Familiarizing the sales force of any large corporation with a new product from a small supplier is not accomplished immediately, he says.

Casey of Merrill Lynch says that when IBM transferred the System/88 to its Communications Product Division from its Entry System Division, it shifted the role of the product. From primarily a midrange standalone computer, it became a communications front-end processor for mainframes. The Series/1 and 3725s that IBM has been using are older equipment and vulnerable to competition, he argues, while the Stra-



**Partly unique.** To help the company stand out from the competition, Stratus built its fault-tolerant computer with redundant processors, rather than redundant software. Users hail the reliability of Stratus gear.

tus machines "offer a means of significantly enhancing network reliability and availability."

Software enhancements announced in the spring by IBM and Stratus allow System/88 to access a host processor, communications processor, and cluster controller. Casey sees that as the first step in establishing System/88 in IBM's communication scheme. He predicts further software support from IBM. (IBM executives say only that the System/88 is being sold as both a standalone device and a front-end processor but won't discuss any software enhancements.)

There are limitations to the Stratus equipment as front-end processors, according to Steven Greenfield, vice president of Scientific Games Inc., a Norcross, Ga., company that runs state lotteries using Stratus computers.

Greenfield says Scientific Games

uses equipment from Parallel Computers as front-end processors to feed data to a Stratus XA600, the company's largest computer, because the XA600 is not "fast enough" to accept input from thousands of terminals. The XA600 works best with up to 300 terminals, he says.

Scientific Games feeds data into the Parallel equipment, which transmits to the Stratus machine over an Ethernet bus, he says. Several Parallel computers are tied in that fashion to the XA600. Parallel's computer, with a single Motorola 68010 processor, isn't powerful enough to substitute for the Stratus, Greenfield says.

Scientific Games is happy with the Stratus products and recently renewed its three-year-old OEM agreement.

That kind of commitment indicates that if IBM has been important to Stratus, it has not been the only reason for



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the company's growth. Foster says that what sets the company apart from other manufacturers of fault-tolerant machines is that its product came "out on time and worked on Day One."

While other start-ups were using precious venture capital funds that should have been spent to correct problems, Stratus was selling to customers who came back to buy more and became good references, Foster says.

Financial customers account for almost 30 percent of Stratus's sales, manufacturers almost 10 percent, communications applications another 12 percent, and alternative distribution channels (such as IBM and other OEM customers including Olivetti Inc., which accounts for 10 percent of sales) another 33 percent.

The remainder is made up of a variety of customers in the hotel, real estate, point-of-sale, and other vertical markets. GTE Corp., for instance, has sold a Stratus computer to the U. S. Air Force for use in the North American Air Defense command. Lockheed Corp. included it in an air traffic control center sold to Taiwan and is marketing it to other countries for the same application.

Unlike Tandem, which is moving up to compete with IBM in mainframe computer sales, Stratus will continue to sell to the superminicomputer market—with its machines priced between \$100,000 and \$500,000, Foster insists.

Stratus's first product was the FT200, which uses eight Motorola 68000 32-bit processors in a single module with up to 256 Mbytes of main memory and 72 Gbytes of disk storage. It sells for \$120,000. Two new larger machines using the Motorola 68010 processors were introduced in 1984—the XA400 and the XA600—aimed at the Tandem XTP segment of the market. The XA400 starts at \$180,000 and the XA600 at \$270,000. In 1985, Stratus answered Tandem's NonStop EXT entry into the lower end of the market with its FT250, which is priced lower at about \$115,000. The FT250 can be upgraded to all the other Stratus computers.

Newer products are expected to come out later this year, and Stratus might use Motorola's new 68020 chip, Foster says. The new generation will include peripherals and boost performance while keeping the price of top-

end computers around \$500,000. Stratus will try to drive down the price of its FT200 and FT250 computers to the \$100,000 range, he adds.

The company also wants to develop the communications ability of its products, both for talking to the IBM world of machines and for meeting international standards. Stratus does not develop applications programs but sells to value-added resellers that do, like Scientific Games. According to Frost & Sullivan, about 30 software houses have written programs to run on the Stratus equipment.

One of the three founders of Stratus, Foster is impatient with talk about whether the company is selling fault-tolerant equipment or on-line transaction processing computers. He dismisses "on-line transaction processing" as a "buzzword," then adds:

"Most new applications today are for on-line applications. There are very few large batch-processing applications being contemplated or developed. If you have an on-line application and you are someone who is concerned if a computer fails, that makes us a candidate."

**■ Simpler architecture.** Foster and the two men who founded Stratus with him—Robert Freiburghouse, senior vice president, and Gardner Hendrie, a company director—decided to build a fault-tolerant machine based on redundant central processing units rather than the software checkpointing techniques that Tandem uses. In part, it was a marketing decision, because the company had to be unique, and in part it was an engineering decision, because Stratus wanted a simpler software architecture than Tandem's.

Hardware was the least expensive part of the computer, and chip prices have continued to come down, Foster points out. He rejects the idea that customers pay more for the extra processing power or that the price performance is not up to that of other minicomputers. "Our average system sells for \$250,000, and the processor chips cost \$20 each," Foster says. "The fact that we have four of them rather than one is irrelevant."

However, Brad Whitehead, vice president of Sky Courier Inc., Reston, Va., says he selected EnMasse over Tandem's NonStop II and Stratus's XA600 because EnMasse's product

cost \$300,000 versus \$1.2 million for the Tandem and almost \$1 million for the Stratus.

There are several transaction-oriented benchmarks commonly used to compare the performance of fault-tolerant machines. Foster and other industry executives agree the benchmarks are essentially meaningless and that the only real test of performance is how well a customer's application runs on a computer.

George DiNardo, executive vice president at Pittsburgh's Mellon Bank, backs up Foster. The claim that fault tolerance lowers performance is "donkey dust," says DiNardo, who has both Tandem and Stratus computers.

But users do not have the tools needed to check how busy a CPU is or to trace every instruction to see if it is executing properly or efficiently, DiNardo says. Those tools are available with older products such as IBM mainframes—users can get into them and "crank them up," he says.

That does not imply that DiNardo has problems with the Stratus XA400, which is used as a bridge between international and domestic electronic funds transfer networks. The machine is "bullet proof" and has had no problems in nine months of operations, he says. It is also easier to use than a Tandem, which requires more skilled operators, DiNardo says. "You just plug [the Stratus] in and it goes," he adds. Mellon did select a Tandem XT over a Stratus to control access to its computer base because the application was better suited to the Tandem product. It also uses Tandems on its automated teller network.

Stratus emphasizes its service operation—rather, the lack of it, since the machines are not supposed to fail. If something does go wrong with a part that a customer can insert by himself, the company is notified automatically and sends out a part by overnight mail. J. P. Kelly, supervisor of systems assurance at Rouge Steel Co. of Dearborn, Mich., attests to that. "The loneliest guy in the world is a Stratus customer engineer, because you never see him," he jokes. Rouge has three Stratus computers and shares two others in a joint venture in its plants, and Kelly says that the savings on service almost pay for the machines over five years.

—John T. Mulqueen



dubbed the Model RO-8070 WL. The company claims that the write-once drive can store up to 700M bytes per side. Pricing and the formal introduction date haven't been announced but, expect it in late 1987.—*Carl Warren*

### **KYOCERA OFFERS LASER PRINTER WITH FULL EMULATION**

Kyocera OEM Sales, Cupertino, Calif., is offering the FBP-10 Compact Laser Printer for \$3,900. This printer includes 1M byte of internal RAM, 300-dot-per-inch resolution and 10 page-per-minute output. In addition, the printer emulates the Hewlett-Packard Co. LaserJet Plus, Epson America Inc. FX-80 dot-matrix printers and the Diablo Systems Inc. 630 daisy-wheel printer. A page-description language called PRESCRIBE comes as part of the controlling ROM code.—*Carl Warren*

### **COLOR LASER PRINTER EXPECTED BY FEBRUARY**

Shown only to a few observers at NCC this year was a \$4,000, 10-page-per-minute, four-color laser printer. The printer, manufactured by a major Japanese company, uses a small-computer systems interface (SCSI), provides emulation of all popular laser and dot-matrix printers and includes 64 built-in fonts. The company, which asked not to be identified, says it plans to introduce the printer in January 1987. Deliveries start the next month.—*Carl Warren*

### **TANDEM DEBUTS CHEAPER LOW-END FAULT-TOLERANT SYSTEM**

A year ago Tandem Computers Inc., Cupertino, Calif., decided to play in the low end of the transaction-processing field with its NonStop EXT fault-tolerant system. With a market apparently established for that class of machine, Tandem has doubled the performance and dropped the entry price by a third to \$82,500 for its new EXT10, rated at 4.3 transactions per second.—*Mike Seither*

**NOTES FROM OVERSEAS:** The worldwide telecommunications and information technology activities of **ITT Corp.** will fall under French control when the Paris-based **Compagnie Générale d'Electricité (CGE)** completes its planned acquisition of a majority holding. ITT will retain a 30 percent share. The government-owned CGE is the leading manufacturer of central office digital switches in France and is interested in ITT's European telephone exchange manufacturing and marketing activities. —*Keith Jones*

Competition for faster disk storage is coming from a new company. **Anamartic Ltd.**, Cambridge, England, says it will launch a semiconductor memory system with a capacity of 40M bytes by the end of the year. The memory will offer access speeds "thousands of times" faster than Winchester disk storage while offering compatibility with industry-standard disk drive interfaces, according to the company. Costs will be held down by building the system from complete wafers of integrated circuits, thus avoiding the expense of dividing the wafers into individual chips, packaging them and mounting them on printed-circuit boards.—*Keith Jones*



## HARDWARE NOTES

# Tandem inks fast food pact

Tandem Computers, Inc. has landed contracts with **Kentucky Fried Chicken Corp. (KFC)** and **Safeway Stores, Inc.** The chicken purveyor, headquartered in Louisville, Ky., bought a sales reporting system, a Tandem spokesman said. A Tandem Nonstop EXT will be on-line by September to collect daily sales figures from KFC's 1,224 co-owned restaurants in the U.S.

The system, using software from LeRoux, Pitts & Associates of Clearwater, Fla., will dial up the restaurants' electronic cash registers overnight to collect sales data. The system is a replacement for another, but neither Tandem nor KFC would say whose system it replaces.

Tandem also sold two systems to Safeway for a pilot implementation for order processing, warehousing and communications applications to be used within Safeway. Neither Tandem nor Safeway would comment further.

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DATA CHANNELS  
Wednesday August 27, 1986

NEW TANDEM CONTROLLER TARGETS MULTIVENDOR  
DEPARTMENTAL COMMUNICATIONS SYSTEMS

Tandem Computers Inc. has released the 6105 Communications Controller, a very large scale integrated (VLSI) downloadable device that resides on a single board inside a Tandem system cabinet. It is a dual-ported, microprocessor-driven controller that manages data communications between Tandem and other vendors' computers such as Digital Equipment Corp., IBM and Wang.

The 6105 supports up to 4 separately configurable communications lines, making it suitable for a branch or departmental system, Andy Parker, communication product manager at Tandem, told DATA CHANNELS.

The product enhances system performance because data link level protocol support is off-loaded from the host, he said.

The company reports that VLSI and CMOS technologies yield 63% better performance than the bit- and byte-synchronous controllers the 6105 replaces.

Dual ports connect the 6105 to the I/O channel of 2 processors in the host system, providing a backup path to each of the lines.

Each line can be configured to be controlled by either of the 2 hosts, allowing line-level load balancing.

Another feature of the 6105 is the ability to run any software that runs on the larger 6100 Communications Controller, which supports 45 lines of synchronous communications and 145 lines of asynchronous communications, Parker told us. The reason for this upward compatibility is that both controllers were designed with the same architecture, he said.

Standard Tandem, IBM and Open Systems Interconnect (OSI) communication protocols are supported by the 6105, with more available in the future based on customer request. Custom protocols are also available through Tandem's Independent Software Vendor program, Parker said. The program is a third-party arrangement whereby Tandem tests and supports software from independent vendors. Approximately 85 protocols are currently being worked on, Parker told us.

The 6105 controller runs on Tandem NonStop TXP, NonStop EXT, NonStop EXT10, NonStop EXT25 and NonStop II systems and can coexist in a processor cabinet with all other Tandem controllers.



# User firm's benchmarks support VLX performance claim

## Tests confirm Tandem software compatibility

By Jeffrey Beeler

CUPERTINO, Calif. — Benchmark tests by a Milwaukee-based user of Tandem Computers, Inc. systems recently corroborated the vendor's performance claims for its VLX high-end transaction processor.

In a test that A. O. Smith Data Systems, Inc. ran at Tandem's Cupertino headquarters in June, a VLX-based configuration reportedly provided twice the throughput per processor of the hardware supplier's next largest machine, the TXP.

"Our benchmark results put the VLX very much smack in the middle

of the performance range that Tandem initially claimed for the machine," A. O. Smith's Vice-President of Product Development Walter Hadcock said during a recent telephone interview.

The tests also put to rest any doubts A. O. Smith had about whether its software written for other Tandem machines would run on the VLX, Hadcock said.

When Tandem introduced its latest top-of-the line system in April, it credited the VLX with processing on-line transactions 1.8 to 2.4 times faster than the nearly 3-year-old TXP.

A. O. Smith, a supplier of Tandem-compatible software for automated teller machine (ATM) applications and an ATM service bureau, furnished both the programs and raw

data for its benchmark test, which was meant to simulate the workings of a shared ATM network.

In real life, a typical ATM transaction involves an intermediate processor that receives on-line traffic from a customer terminal and forwards the signal to a bank's host mainframe for authorization. After checking the user's account balance electronically, the host returns the transaction through the intermediate CPU to the originating ATM, which ends the process by sending a completion message to the middle machine.

In A. O. Smith's benchmark test, a four-processor VLX configuration played the role of the intermediate box, while an eight-CPU TXP system created the ATM work load and doubled as the authorizing host.

Roughly 10% to 15% of the ATM traffic was composed of simple inquiries about account balances. The rest of the work load, which was transmitted over a score of 9.6K bit/sec. lines, consisted of relatively resource-intensive transactions such as simulated funds transfers and cash withdrawals.

The mix of transaction types that A. O. Smith chose for its test is fairly representative of the kinds of traffic that typically occur over a commercial ATM network, Hadcock said.

After the VLX configuration had finished processing the work load it received from the TXPs, the test was repeated in reverse: A. O. Smith used the VLX system to simulate the ATM traffic and the TXP machines

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## User tests support Tandem claim

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to process it.

"The reason we benchmarked the systems in both directions is that we were more interested in gauging the relative throughput of the VLX and the TXP than we were in getting some absolute measure of their performance," Hadcock said.

In the first half of the procedure, when ATM applications were being executed by the VLX, the testers achieved a top processing speed of 50 transaction/sec. and a sustained throughput of 40 transaction/sec., he said.

In the second half of the test, when responsibility for the processing moved to the TXP, the observed performance peaked at 29 transaction/sec. and averaged 20 transaction/sec.

As a Tandem software house, A. O. Smith sells products that run on the TXP and the hardware vendor's other existing processor models, including the Nonstop II.

But prior to the benchmark test,

the user organization was uncertain as to whether the same programs would also operate — without revision — on the VLX.

### Test proved compatibility

Hadcock said that, to A. O. Smith's relief, the benchmark test proved the VLX fully compatible with the rest of Tandem's processor line.

"The software we used in our tests was identical to the products we provide commercially," Hadcock said. "Within an hour of the moment we walked in and saw a VLX for the first

time, we had our programs up and operating."

Although the test results were generally favorable, Smith has deferred thus far its decision on a VLX purchase.

"Right now, we still have some room to grow in the TXPs and Nonstop IIs we already have," Hadcock

said.

"When our volume grows to the point where it begins to rub against our available capacity, we'll have to begin looking carefully at the VLX as our next possible acquisition," Hadcock added.

A decision one way or the other on Smith's next CPU procurement will probably come during the fourth quarter, he said.

**"Within an hour of the moment we walked in and saw a VLX for the first time, we had our programs up and operating."**

— Walter Hadcock  
A. O. Smith Data Systems, Inc.



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August 25, 1986, Monday

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HEADLINE: TANDEM; (TNDM) Wells Fargo Bank receives 10,000th processor from  
Tandem

DATELINE: CUPERTINO, Calif.

## BODY:

Tandem Computers Inc. (OTC:TNDM) Monday announced that Wells Fargo Bank of San Francisco, has received the 10,000th processor manufactured by the firm.

Wells Fargo Bank has been a Tandem customer since December 1976. One of the initial Tandem NonStop production systems was installed in the bank's retail operations unit to run a 50-automatic-teller-machine network.

Their recent acquisition of Crocker Bank will bring the total number of ATMs running on Tandem systems to more than 1,100, making Wells Fargo Bank the largest 24-hour ATM network in California and one of the largest in the nation.

Wells has 125 Tandem processors installed in five business units in California making it the largest Tandem bank customer. Other Tandem applications include consumer credit, trust and investment, bank card and wholesale systems services.

James G. Treybig, Tandem president and chief executive officer, commented on the significant progress made by Tandem since its first customer shipment in May 1976, "We attribute our success to several factors: the dedication of Tandem's own employees who provide exceptional products, support and service to our customer base, the unique capabilities of our NonStop systems, and the loyalty of Tandem's customers.

"Tandem's growth in sales and earnings is a direct result of our dedication to excellence, in product offerings, service and support, for a growing list of domestic and international customers such as Wells Fargo Bank," Treybig noted.

Wells Fargo & Co. is the 10th largest bank holding company in the United States in terms of assets. Wells Fargo Bank, the principal subsidiary of Wells Fargo & Co., ranks as the ninth largest commercial bank in the nation and the third largest in California.

Wells is located at 420 Montgomery St., San Francisco. For further information contact the public relations department at 415/396-3606.

Tandem Computers Inc. manufactures and markets computer systems and networks for the on-line transaction processing market. Tandem is located at 19333 Vallico Parkway, Cupertino, Calif. 95014.

Note to editors:

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## LEVEL 1 - 1 OF 2 STORIES

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**CORPORATE  
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SECTION: NEW PRODUCTS; Computers &amp; Peripherals; Pg. 93

LENGTH: 150 words

HEADLINE: TANDEM ADDS DISTRIBUTED SYSTEMS

## BODY:

Tandem Computers is targeting a pair of systems at users who distribute their transaction-processing tasks at local or regional levels. The NonStop EXT10, an entry-level fault-tolerant transaction-processing system priced at \$82,500, can process 4.3 transactions/s. The EXT25 is a midrange system that is 2 1/2 times as fast; it is priced at \$325,000 and can process 11 transaction/s.

Both systems can be expanded: the EXT10 to 8.6 transactions/s, and the EXT25 to 22 transactions/s. The basic system cabinet houses two processors, two 128-megabyte 8-in. Winchester disk drives, two cartridge tape drives, a communications and an operations and service processor. The EXT10 has 8 megabytes of RAM and the EXT25 has 16 megabytes. Both systems will be available later this quarter.

Tandem Computers Inc., 19191 Vallco Pkwy., Location 4-40, Cupertino, Calif. 95014. Phone (408) 725-6000

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## LEVEL 1 - 3 OF 4 STORIES

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SECTION: SUPPLIERS; Vol. 9, No. 17; Pg. 5

LENGTH: 331 words

HEADLINE: TANDEM EXPANDS LINE OF EXT PROCESSORS

## BODY:

Tandem Computers Inc., one of the largest designers and manufacturers of fault-tolerant computer systems, last week unveiled 2 new fault-tolerant processing systems under its NonStop EXT line of computers. The NonStop EXT computers are most often used in banking environments for delivering a wide variety of wholesale and retail financial services, since their continuous processing features make the processors extremely resistant to so-called system "crash," or system unavailability.

Dubbed the EXT10 and EXT25, the newly introduced processors are not only smaller, according to Tandem officials, but "more powerful than Tandem's existing NonStop EXT system."

"The base EXT10 system...can process 4.3 transactions per second (TPS)," Tandem officials claim, adding, "With an entry-level price of \$82,500, [the EXT10] is the lowest priced expandable fault-tolerant transaction-processing system in the industry."

The NonStop EXT25 can process 11 TPS, making it 2.5 times more powerful than the EXT10, according to Tandem officials, and has an entry-level price of \$325,000. Expanded EXT10 and EXT25 systems can process up to 8.6 and 22 TPS, respectively, a Tandem product description states.

"These systems are ideal for nodes that are part of a network, including global banking systems, global limits systems, wholesale delivery systems, branch processors, regional processors, retail delivery systems and network management systems," Tandem officials say of their new product offerings.

Along with announcements of the new processors, Tandem also came out with a new "economical" terminal, dubbed the Tandem 6526 terminal, for Tandem systems, and a new communications controller for Tandem NonStop computers. The 6105 Communications Controller manages data communications between a Tandem computer and terminals, printers, other computers and communications devices. (Tandem Computers Inc., 19191 Vallco Parkway, Location 4-40, Cupertino, CA 95014-2599, 408/725-6000.)



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EFT REPORT  
Wednesday August 20, 1986

#### TANDEM EXPANDS LINE OF EXT PROCESSORS

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LEVEL 1 - 2 OF 2 STORIES

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Business Wire

August 19, 1986, Tuesday

DISTRIBUTION: Business Editors

LENGTH: 722 words

HEADLINE: TANDEM-COMPUTERS; (TNDM) ACT develops high-performance MUMPS language system under alliance relationship with Tandem Computers

DATELINE: CUPERTINO, Calif.

BODY:

Tandem Computers Inc. (OTC:TNDM) and Advanced Computer Techniques Corp. (ACT) (OTC:ACTP) announced Tuesday that they have signed an agreement under which ACT will provide a high-performance, new generation interactive MUMPS language system to run on Tandem NonStop computer systems.

MUMPS, an acronym for Massachusetts General Hospital Utility Multi-Programming Systems, is a high-level language widely used in medical and commercial applications.

The new ACT MUMPS language system will conform to the latest ANSI standard, ANSI X11.1-1984, and support industry-standard extensions.

It will be compatible with existing Tandem MUMPS and with the extensions to the standard offered by DEC Standard MUMPS (DSM).

This language processor will provide a mode which allows MUMPS programs to be compiled to machine code for optimal execution.

A key benefit of the new product is high performance. According to ACT, throughput will increase by a factor of five over the performance of currently available MUMPS systems.

The product will be available in both interpretive and compiled modes. Enhanced productivity will be provided to programmers by use of the interpretive mode during the application development phase.

High-speed execution and security for proprietary applications will be provided by use of the compiled mode when an application achieves production status.

The interpretive version offers ease of program development and debugging.

According to Edward D. Bright, chairman, ACT, "The combination of Tandem's continuously available and expandable NonStop systems and the high-performance ACT MUMPS product will support applications requiring continuous 24-hour-per-day operation.

"Such applications are typical of the demands found in medical, financial, banking and insurance businesses."



@ 1986 Business Wire, August 19, 1986

According to Michael K. Batemen, Tandem vice president of third party marketing, "ACT's experience with MUMPS, transaction processing, real-time transaction-based systems and language system development are essential to building this state-of-the-art MUMPS product with its unique capabilities and exceptional price/performance ratio."

The ACT MUMPS compiler will be integrated with the Tandem NonStop architecture. Interfaces will be provided to allow non-MUMPS programs to access MUMPS routines and data.

MUMPS routines will also be able to access routines written in other languages.

The new MUMPS language system architecture takes advantage of Tandem's fault-tolerant features, and is designed to provide full support of Tandem's networking capabilities, including its SNAX software that allows Tandem users to participate in IBM SNA networks.

The product will be marketed jointly by Tandem and ACT to end users, OEMs and VARs. It will be available from ACT in first quarter 1987 and will be fully supported by ACT.

The license fee is between \$10,000 and \$20,000, depending on the user configuration. An upgrade path for current Tandem MUMPS users will be made available. This will cost between \$400 and \$800 per month for license and support.

ACT was incorporated in 1962. For almost 25 years the company has built a reputation for excellence based on dedication to performance, quality and service.

ACT is one of the major independent software vendors in the United States and is recognized as a leader in compiler building, system software and state-of-the-art applications.

Its clients include computer companies, semiconductor manufacturers, the federal government and DoD contractors.

ACT is located at 16 E. 32nd St., New York, N.Y. 10016. Telephone is 212/696-3600.

Tandem Computers Inc. manufactures and markets computer systems and networks for the on-line transaction processing market. The company is headquartered at 19333 Vallco Parkway, Cupertino, Calif. 95014. Phone is 408/725-6000.

DEC is a trademark of Digital Equipment Corp.  
IBM is a trademark of International Business Machines Corp.  
NonStop is a trademark of Tandem Computers Inc.

CONTACT: Tandem Computers Inc., Cupertino  
Joyce Strand, 408/725-6516  
or

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PAGE 5

Advanced Computer Techniques Corp., New York  
John Pates, 212/696-3600

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LEVEL 1 - 1 OF 2 STORIES

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Aviation Week and Space Technology

August 18, 1986

**CORPORATE  
INFORMATION CENTER**

SECTION: AIR TRANSPORT; Shortlines; Pg. 35

LENGTH: 46 words

**BODY:**

Western Airlines has begun installing Tandem Computers, Inc., systems to relay reservations and passenger service information between Western's offices throughout the U.S. and the airline's Los Angeles headquarters. Entire network is scheduled to be on-line by late 1986.

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INVESTEXT/COMPUTERS AND OFFICE EQUIPMENT  
AUGUST 18, 1986

Tandem Computers - Company Report

BEAR STEARNS & COMPANY - Fram, J., et al  
07-25-86 (RN=609471)

Tandem Computers (\*) (TNDM - 35)

Continuing Buy Recommendation

1985 EPS (9/30):	\$0.82
1986 EPS Est.:	\$1.41
P/E 1986 Est.:	24.8x
P/E 1987 Est.:	19.3x
Dividend:	Nil
Yield:	Nil
1986 Price Range:	35-20
Common Shares Out.:	43 Mil.

Summary and Investment Conclusion

Tandem continued its market share gains and margin improvement during third-quarter fiscal 1986. As a result, earnings in the quarter exceeded our \$0.33 estimate, rising to \$0.40 compared with \$0.06 in the prior year. Revenues grew 39% to \$200.8 million, substantially higher than a year ago in both domestic (up 28%) and international (up 62%) markets. The U.S. showed strength for the first time in more than a year. We continue to recommend purchase of Tandem.

Increased EPS Estimates

We have increased our fiscal 1986 and 1987 earnings per share estimates to \$1.41 and \$1.81, respectively. Revenue growth of 21% is projected for the year.

Fiscal 1986 Third-Quarter Results

Tandem experienced growth in both higher-priced segments of its product line, the \$400,000 TXP and \$1,000,000 VLX. As a result, gross margins improved to an all-time high of nearly 70%. As well, the company was able to better leverage its sales force, seeing SG&A/revenue decline by one percentage point versus second-quarter 1986 to 43%. Tandem's low-end EXT system was somewhat behind plan, a situation which ironically aided gross margins. We believe that Tandem will soon introduce two low-end systems, the EXT-10 and EXT-25, which, for the first time, will break below the \$100,000 price point.

We are encouraged by the fact that some of the company's long sell cycle efforts are bearing fruit, justifying its extensive marketing efforts. For example, contracts are believed to have been closed with Safeway (SA - 60), Wells Fargo Bank (WFC - 103), Merrill Lynch (MER - 34) and Nabisco during the quarter. Furthermore, third-party software vendors are generating an ever increasing portion of the company's revenues, (believed to be as high as 20%).



## Financial Condition

Tandem continues to have one of the healthiest balance sheets in the industry. Cash rose to \$177 million during the quarter, while debt remained at \$35 million (representing less than 5% of total capital). The number of shares outstanding rose to 45 million due to dilution arising from employees exercising stock options. Such conversions also added about \$20 million in cash.

## A Mainstream Player

We continue to believe that Tandem will become one of the main industry vendors. While its initial growth wave came from its fault-tolerant features, its unique computer architecture has enabled it to address the broad commercial on-line transaction processing (OLTP) market in a more effective way than traditional mainframe suppliers. That is, instead of competing in the \$1 billion fault-tolerant market, Tandem competes in the \$30 billion OLTP market.

## The Advantages of Tandem's Multiprocessor Computer Architecture

Tandem's architectural advantages stem from the multiprocessor nature of its architecture which permits many processing units to be connected together within a single cabinet. This contrasts with the typical mainframe approach which involves building large, single processor engines. This latter approach requires fast semiconductors and advanced circuit packaging, both of which are capital intensive. On the other hand, Tandem can build higher performance processing complexes than can IBM by using off-the-shelf components (thereby achieving a better gross margin).

Tandem's architecture is more effective in "transaction processing" environments. A transaction is essentially a small program. For example, consider a bank with 100 automatic teller machines (ATM) controlled by a computer. If a customer wants to withdraw money from his checking account, the computer must look up the customer's balance, compare it with the withdrawal amount, subtract that amount from the balance if it is sufficient, send a message to the ATM to dispense the money and finally, log the transaction in a record file. This transaction might involve 10-12 accesses to disk drives and the execution of 100,000 machine instructions. Typically a stream of these independent transactions come in from the ATMs to the bank's computer. If the computer is a mainframe, the transactions will get queued-up and then executed in succession. If it is a Tandem computer, the operating system will assign the next available processor to the transaction. Up to 16 processors can be contained in one cabinet, and up to 14 cabinets can be connected together to end up with significant parallelism in the execution of these transaction. As a result, Tandem's architecture has enabled it to capture about two-thirds of the ATM market.

Other segments of industry, such as travel reservations, financial markets and manufacturing are becoming increasingly dependent on on-line transaction processing systems.



Table I. Rejected Revenue/Earnings  
(\$ Millions)

	9/30/87 Est.	9/30/86 Est.	9/30/85
Product Revenue	693	615	515
Service & Other Revenue	174	145	109
	867	760	624
Cost of Revenue	277	245	240
Product Development	95	87	72
Mktg, General & Admin	356	325	262
Net Interest	-8	-8	-6
Total Costs	721	649	565
EBIT	138	103	50
Pretax Income	146	111	56
Income Tax	64	49	22
Net Income	82	62	34
Shares Outstanding (Mil.)	45	45	42
Earnings Per Share (\$)	1.81	1.41	0.82
Margins (%)			
Cost of Revenue	32	32	38
Product Development	11	11	11
Mktg, General & Admin.	41	43	42
EBIT	16	14	8
Pretax Income	17	15	9
Income Tax	44	44	39
Net Income	9	8	6
Growth (%)			
Product	20	19	15
Service	20	33	30
Pretax income	31	97	0
Net Income	32	79	-20
Product Revenue (\$ Mil.)			
NS-II	50	63	77
TXP	440	440	386
EXT	53	53	52
VLX	150	50	0
Percent of Sales (%)			
NS-II	7	10	15
TXP	64	72	75
EXT	8	9	10
VLX	22	8	0
Unit Shipments			
NS-II	200	250	300
TXP	1,100	1,100	1,000



EXT  
VLX

350  
150

350  
50

350  
0



Table II. Results by Quarters  
(\$ Millions)

	1985				1986			
	I	II	III	IV	I	II	III	IV (E)
Product Revenue	134	120	117	144	137	143	159	176
Service & Other	26	26	27	30	33	34	42	37
Revenue	160	147	144	174	170	176	201	213
Cost of Revenue	62	58	56	64	59	58	61	67
Product Development	15	17	18	21	20	21	22	23
Marketing, General & Admin	60	62	70	71	72	77	87	89
Net Interest	-2	-2	-1	-2	-2	-2	-2	-2
Total Costs	135	135	142	155	149	154	168	178
EBIT	23	10	0	17	19	20	31	33
Pretax Income	24	11	2	19	21	23	33	35
Income Tax	10	4	-1	8	9	10	15	15
Net Income	14	7	2	11	12	13	18	20
Shares Outstanding	41	42	42	42	42	43	45	45
Earnings per Share (\$)	0.34	0.16	0.06	0.27	0.28	0.29	0.40	0.44
Margins (%)								
Cost of Revenue	39	39	39	37	35	33	30	32
Product Development	9	12	12	12	12	12	11	11
Marketing, General & Admin	38	42	48	41	42	44	43	42
EBIT	14	7	0	10	11	11	15	15
Pretax Income	15	8	1	11	12	13	16	16
Income Tax	43	39	-31	41	45	44	44	44
Net Income	9	5	2	6	7	7	9	9
Growth (%)								
Product	24	32	-2	11	2	19	36	22
Service	42	32	19	28	29	27	52	25
Pretax Income	35	253	-89	-2	-14	100	1,745	84
Net Income	37	241	-75	-48	-17	83	652	74

(E) = Estimate

Note: For additional information please refer to the Highlights dated June 6, 1986 and New Purchase Recommendation dated June 11, 1986.

(\*) At the time of this report, Bear, Stearns & Co. Inc. was a market maker in this security.



LEVEL 1 - 1 OF 4 STORIES

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August 18, 1986, Monday

**CORPORATE  
INFORMATION CENTER**

SECTION: Pg. 19

LENGTH: 443 words

HEADLINE: Tandem Introduces Powerful Pair Of Transaction Processing Systems

BYLINE: By DAVID O. TYSON

DATELINE: NEW YORK

## BODY:

Tandem Computers Inc. has hastened the industry trend to smaller, more powerful, lower-cost computers by introducing two new versions of its NonStop EXT transaction processing system for banks and brokers.

The company said the new EXT10, at an entry level cost of \$82,500, is the lowest priced expandable, fault-tolerant transaction processing system in the industry. Its new EXT25, a mid-range system that is two-and-a-half times more powerful than the EXT10, has an entry level price of \$315,000.

Tandem said the systems can serve as part of a network or as stand-alone, on-line transaction processing systems. The company said banks can use them for local processing of major applications and simultaneously integrate the applications into a global network.

The cabinet for each takes up only 8.3 square feet of floor space and does not require a separate computer room, raised floor, special power, or extensive air conditioning.

"And it is quiet and compact enough to fit comfortably in an open office area or copy room," the company brochure said. "Basic installation, from unpacking to power up, takes about one hour."

The EXT10 can process 4.3 credit or debit transactions a second, using a standard industry benchmark measurement known as ET1. The EXT25 can process 8.6 ET1 transactions per second. The performance of either can be doubled by adding another two-processor cabinet.

Based in Cupertino in California's Silicon Valley, Tandem produces minicomputers for banks, phone companies, airlines, stock exchanges, and other enterprises that require uninterrupted operation when breakdowns occur. The continuous processing is achieved by what is known as fault tolerance, the use of duplicate components so that when one fails another picks up instantly.

About 30% of Tandem revenues come from financial institutions and almost two-thirds of that segment is banks. It includes 120 banks in North America, 52 in Europe and the Middle East, and 15 in Australia and the Pacific Rim.

In North America, the Tandem applications include 94 automated teller machine systems, 75 point-of-sale systems, 65 funds transfer systems, seven cash management systems, and 54 electronic funds transfer switches.

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@ 1986 American Banker, August 18, 1986

The EXT10 and EXT25 compete against various minicomputers manufactured by International Business Machines Corp., Digital Equipment Corp., NCR Corp., and Stratus Computer Inc.

Simultaneously, Tandem announced its 6526 terminal for a range of transaction processing applications. It has a 14-inch monitor, a detached keyboard, 16 pages of screen memory, a footprint of 14-by-13 inches, and a price of \$1,095.

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LEVEL 1 - 2 OF 4 STORIES

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August 18, 1986, Monday

**CORPORATE  
INFORMATION CENTER**

DISTRIBUTION: Business/Computer Editors

LENGTH: 439 words

HEADLINE: **TANDEM-COMPUTERS;** (TNDM) Selected by Oklahoma state agency for  
on-line administration system

DATELINE: CUPERTINO, Calif.

## BODY:

Tandem Computers Inc. (OTC:TNDM) announced Monday that the Oklahoma State Department of Education installed a \$966,875 three-processor Tandem NonStop TXP computer system at the agency's Oklahoma City data center for a comprehensive on-line education administration system.

The DOE, which is responsible for the supervision of all state and federal educational programs and for the payment of appropriated funds to Oklahoma school districts, will initially use its new Tandem system to handle funds disbursement and record keeping and provide more timely and cost-effective access to grades, attendance records and transportation data.

Pat Crist, DOE director of research and data services, commented, "The Oklahoma State Department of Education, under the direction of the State Board of Education and State Superintendent of Instruction John Folks, carries out all functions related to the public education system in the state.

"The Tandem system will eventually be integrated into all phases of the operation of the DOE as an essential part of discharging its responsibilities."

Programs administered by the DOE, said Crist, include free textbooks, nutritional services, transportation services, special education, Indian education, bilingual and national origin education, adult education, curriculum development, accreditation of schools and teacher testing and certification.

"We had outgrown our old computer system, and it did not provide on-line access to most data," said Crist. "The bidding process showed the Tandem system to be the most cost-effective and flexible solution and one that will allow us to make services available to more users."

Crist said local and remote users will access the system via Burroughs terminals installed with the previous computer system. Other terminals and personal computers will also connect to the Tandem system.

Conversion of application software components to the Tandem computer is underway by the DOE, Crist said, and will be completed by June 30, 1987.

Tandem Computers Inc. manufactures and markets computer systems and networks for the on-line transaction processing marketplace. The company is headquartered at 19333 Vallco Parkway, Cupertino, Calif. 95014; 408/725-6000.

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# LOOK AHEAD

DEC REPORTEDLY  
DEVELOPING OWN  
UNIX OS

A little birdy in New England tells us that there's a hush-hush internal project at DEC to write a proprietary Unix-like operating system from scratch. So worried is DEC about litigation from AT&T if the product is ever launched that the company won't let any worker on Ultrix, DEC's current version of Unix, or anyone else who has come into contact with Unix source code near the project. Reportedly, a private investigator has even been hired to check out people's backgrounds in college and previous employment to ensure against any Unix exposure. Calls to DEC weren't returned by press time.

THREE CCA  
PRODUCTS  
DUE IN Q4

Look for a series of major announcements from Computer Corp. of America (CCA) in the fourth quarter. The Cambridge, Mass., company is expected to announce extensions to its Model 204 DBMS that will enable customers to move data from IBM's DB2 DBMS, provide support for the SQL query language interface, and enable both technical and nontechnical personnel to create their own databases through a friendly forms-based product, "DB Designer." The company is also expected to ship its Ada language Adaplex DBMS by next summer.

IT'S GOING TO  
BE LIKE A  
BUSY DELI

Pretty soon you'll need a ticket to get into the supercomputer game. The latest entrant is Sperry's Integrated Scientific Processor (ISP), which the company has been tinkering with since 1980. Sperry announced the product a year ago but has been mum about prospective customers. Well, it found one. The ISP has been in beta test since June at CILEA, an Italian consortium of universities near Milan. Attached to Sperry's 1190 mainframe, the 133MFLOP supercomputer-class ISP does both high-speed vector and scalar processing.

A GUSHER  
FOR TANDEM

It may not turn J.R. Ewing's head, but Tandem seems to have struck oil in Europe. The Cupertino, Calif., company recently added three European petroleum giants--one was Shell Oil--to its growing roster of oil companies, Tandem president Jim Treybig told DATAMATION. "We also have our foot in the door in the airline and retail businesses," he added without elaboration. Treybig also disclosed that "four or five" new low-end systems, including a CMOS version of the NonStop architecture, will be out over the next year, as well as an SQL-like database product and a 4GL applications software generator.

MORE SOFTWARE  
DUE FROM IBM

Latest rumblings are that IBM is readying a number of "cross-systems" products. According to MIS executives briefed by the computer giant, VM/CMS, TSO, and a "standard" COBOL are to be available across all



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Corporate EFT Report

August 13, 1986

SECTION: SUPPLIERS; Vol. 6, No. 16; Pg. 5

LENGTH: 326 words

HEADLINE: TANDEM EXPANDS LINE OF EXT PROCESSORS

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August 13, 1986, Wednesday

DISTRIBUTION: Business Editors

LENGTH: 425 words

HEADLINE: TANDEM-COMPUTERS; (TNDM) Announces agreement with Software Professionals to jointly market interactive system monitor

DATELINE: CUPERTINO, Calif.

BODY:

Tandem Computers Inc. (OTC:TNDM) Wednesday announced that it has signed an agreement with Software Professionals Pty. Ltd., Sydney, Australia, to market Software Professionals' ENLIGHTEN software package, an on-line diagnostic and monitoring tool that runs exclusively on Tandem's NonStop systems.

Under the terms of this agreement, Software Professionals will produce the ENLIGHTEN software package and market it directly to Tandem NonStop system users under the sponsorship of the Tandem Alliance program.

ENLIGHTEN is a real time diagnostic and performance monitoring tool which provides windows into a Tandem node, either independently or as part of a network. It consists of a main screen providing essential performance information on each processor within the node and subsidiary screens which allow the user to focus on each component in the system.

ENLIGHTEN complements Tandem-designed diagnostic and monitoring tools, such as Tandem Maintenance and Diagnostic Software, VIEWSYS and MEASURE.

The ENLIGHTEN software package allows Tandem users to interactively diagnose software and hardware performance problems. Problems such as unbalanced systems, overloaded processors or disks can be easily detected within seconds of the problem occurring.

ENLIGHTEN allows the user to identify potential problems or trends before they significantly impact the end user.

Developed by Software Professionals Pty. Ltd., the ENLIGHTEN software is designed to operate on Tandem NonStop VLX, NonStop TXP, NonStop II and NonStop EXT systems. Software Professionals provide full service and support to its product. The ENLIGHTEN package is currently in operation in more than 150 Tandem systems worldwide.

Software Professionals is headquartered in Sydney and has offices in Melbourne, Australia, and San Francisco. The phone number in San Francisco is 415/421-2886.

Tandem Computers Inc. manufactures and markets computer systems and networks for the on-line transactions processing market.



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CORPORATE EFT REPORT  
Wednesday August 13, 1986

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LEVEL 1 - 3 OF 3 STORIES

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Computerworld

August 11, 1986

**CORPORATE  
INFORMATION CENTER**

SECTION: SYSTEMS &amp; PERIPHERALS; Hardware Notes; Pg. 43

LENGTH: 142 words

HEADLINE: Tandem inks fast food pact

## BODY:

Tandem Computers, Inc. has landed contracts with Kentucky Fried Chicken Corp. (KFC) and Safeway Stores, Inc. The chicken purveyor, headquartered in Louisville, Ky., bought a sales reporting system, a Tandem spokesman said. A Tandem Nonstop EXT will be on-line by September to collect daily sales figures from KFC's 1,224 co-owned restaurants in the U.S.

The system, using software from LeRoux, Pitts & Associates of Clearwater, Fla., will dial up the restaurants' electronic cash registers overnight to collect sales data. The system is a replacement for another, but neither Tandem nor KFC would say whose system it replaces.

Tandem also sold two systems to Safeway for a pilot implementation for order processing, warehousing and communications applications to be used within Safeway. Neither Tandem nor Safeway would comment further.

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24C Monday, August 11, 1986 ■ San Jose Mercury News

New Products

**Tandem Computers Inc.** of Cupertino last week extended the low-end and mid-range of its fault-tolerant line of computers with the introduction of the NonStop EXT10 and EXT125.

Both are more powerful and smaller than Tandem's existing NonStop EXT system. The base EXT10 system costs \$82,500, and the EXT125, which is 2½ times more powerful, costs \$325,000.

**RJE Communications Inc.** of Cupertino has added a portable 1200-baud terminal with a high-contrast liquid crystal display screen to its line of credit prompter terminals. The machines are designed to access information of consumer and business credit bureaus.

oping a "virtual mac system," code-named microcomputers by Corp.'s 80386 microchip. The VM/386 80386-based computer virtual computers can run each with its own tem.

**Softguard Systems Inc.** of Santa Clara announced it is devel-

Benson Inc. of M



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August 5, 1986, Tuesday

DISTRIBUTION: Business Editors

LENGTH: 465 words

HEADLINE: TANDEM/ISI-SOFTWARE; (TNDM) Bell Atlantic selects Tandem Computer,  
ISI Software for charge quotation system

DATeline: CUPERTINO, Calif.

BODY:

Tandem Computers Inc. (OTC:TNDM) announced Tuesday that Bell Atlantic Network Services Inc., subsidiary of Bell Atlantic Corp., has selected a Nonstop EXT10 computer system, recently introduced by Tandem and software from Interactive Systems Inc. for an automatic charge quotation system serving Bell Atlantic operating telephone companies.

The Tandem/ISI system is to be installed September 1986 at the Philadelphia Operator Services data base center of the Bell Telephone Company of Pennsylvania. It will distribute call charge information to Bell of Pennsylvania telephone customers such as hotels and motels that allocate charges to guests and clients and handle requests for refunds or adjustments from public phone users.

It is anticipated that New Jersey Bell Telephone Co. and the Chesapeake and Potomac Telephone Cos. will offer this service in 1987 and 1988.

George A. Brandes, ISI president, stated, "Bell Atlantic's system will be based on INFOQUOTE, ISI's general purpose system for automating a wide range of operator services activities now becoming essential telephone company offerings.

"Since the AT&T divestitures, Bell companies have paid AT&T for hotel/motel quotation services. INFOQUOTE lets them provide their own."

Dick Geder, manager of operator services network planning for Bell Atlantic, commented, "The Tandem system's fault tolerant operation and the features of INFOQUOTE were key to our selection."

Bell Atlantic, one of seven regional holding companies created by the AT&T divestiture in 1984, includes The Bell Telephone Company of Pennsylvania, New Jersey Bell Telephone Co., The Diamond State Telephone Co. and the Chesapeake and Potomac Telephone Cos. of Maryland, Virginia, West Virginia and Washington D.C.

ISI will provide the Nonstop EXT10 system from Tandem. ISI is a systems integrator under the Tandem Alliance, a program to encourage the development of application software for Tandem Nonstop systems.

Interactive Systems Inc. was founded in 1976 to provide data acquisition, database management, message switching and telecommunications software that runs on Tandem systems.

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IDB ONLINE--THE COMPUTING INDUSTRY DAILY  
Tuesday August 5, 1986

#### TANDEM REPLACES EXT WITH IMPROVED COMMS MODELS

Tandem has replaced its eighteen month old, low end EXT fault tolerant system with two models featuring a new communications controller and improved price/performance. Joining the bottom of the company's range is the EXT10 which, at a starting price of \$82,500 with dual processors and 256Kb of RAM, handles 4.3 transactions per second, rising to 8.6tps in its extended form. The mid-range EXT25 offers two and a half times the power of the smaller model, coming in at \$325,000 for a 16Mb system. Winchester storage is handled on 128Mb 8" disks. The company attributes the performance gain largely to the 6105 comms controller which handles async, bit sync and byte sync communications simultaneously and replaces the old option of bit sync or byte sync devices. The 6105 can be bought as a separate unit for \$6,000, fitting into the office environment cabinet of the new EXTs. The company also has a new, bought-in cartridge tape, claimed to reduce maintenance and space requirements. Software is the Guardian 90XF suite including Tandem's operating system and database, networking and file transfer applications. A UK launch is planned for September with shipments in the third quarter.



# DG Unveils NMOS Implementation Of E

By Gary McWilliams

WESTBORO, MASS. — Data General Corp. last week unveiled an NMOS implementation of its Eclipse/MV architecture that takes aim at Digital Equipment Corp.'s VAX 8200.

A board-level version of the new Data General MV/7800—the first Eclipse/MV single-board offering—also targets the customer base of DG's 16-bit Nova 4, S/1XX and CS systems. The unit is said to run at 1 MIPS and is billed as costing 28 percent less than DEC's VAX 8200.

Joining Honeywell Inc. and Prime Computer in a recruitment drive to attract Datapoint Corp. resellers, Data General also announced a Databus compiler that enables Datapoint applications to run on Eclipse/MV systems. Compiler pricing begins at \$6250 on an MV/2000, and it rises to \$42,250 for an aid.

es a single-board design consisting of four NMOS ECL chip in each set, the DG said in April that it on of its own semiconduc k said it is producing the lif., division.

rack-mounted or 16-slot puter room system sup-mory, 9 Gbytes of virtual

address space, and 128 video display connections. Deliveries of all three configurations are slated to begin this month.

Used in CEO office automation applications, the system supports up to 50 users or 25 percent more than an MV/4000, the spokesman said. Typical usage runs between 35 and 40 CEO users, vs. 28 on an MV/4000, he said.

Price for a system including processor, AOS/VS operating system, 6 Mbytes of memory, a 354-Mbyte disk subsystem, nine-track tape drive and controller, a 16-line communications controller, 22 Dasher D411 display terminals, three Dasher D461 graphics terminals, two band and three letter-quality printers, CEO software with Decision Support option, and COBOL right-to-use license and X.25 communications software, is \$212,670.

A configuration with a processor, an AOS/VS operating system, 6 Mbytes of memory, a 354-Mbyte disk, 25 D411 display terminals, band and letter-quality printers, is \$154,670. The spokesman said the two packages are priced between 30 percent and 26 percent lower than comparatively equipped VAX 8200 systems. A CEO license on the MV/7800 is \$27,840.

Although currently limited to support of the company's 14-inch disk drives, it is designed to support the 5.25-inch disks available on the MV/2000 in the future, said product marketing manager Bill Duckett.

Memory support w

The board includ nel and Data Cha board to be plugg chassis as well as systems, Duckett s ed enthusiastically from the bus comp

"We're thankful Hartsfield of legal when we went to about new CPUs. upgrade than it is

Hartsfield said existing customers CPUs. Some may be

"I'm excited abo with Data Genera president of govern Data Inc. "If it is discount it will be a accounts with 16-b 32-bit Eclipse/MVs

Duckett said the 10-to-38-percent sc

A Data General i the system configu mance edge agains erations. While say would be \$30,000 t the ISV sales direct uct could hurt the

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Among commerc developed using DG Cobol languages ar bit environment, sa ning manager for th said the company is sales of the MV/780 2 Mbytes or 4 Mby

Add-on memory p are: \$5000 for 2 M \$17,500 for 10 Mby ed system is \$19,0 memory, a power s

Computer  
Systems News  
Aug 4, 1986 p10  
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## Tandem To Add Low-End NonStop Systems

By Ev Kramer

CUPERTINO, CALIF. — Tandem Computers Inc. is expected to announce today two low-end NonStop systems.

The NonStop EXT10 and EXT25 are designed for businesses not needing the company's larger NonStop systems such as the NonStop VLX.

The NonStop EXT10 has an entry-level price of \$82,500. Its entry-level configurations include two processors, a processing capability of 4.3 tps, 8 Mbytes of main memory and 256 Mbytes of Winchester disk storage. As an option, the EXT10 can house four processors, which can process 8.6 tps; have 32 Mbytes of main memory; have 0.5 Gbytes of Winchester storage; and can accommodate 75 users.

The NonStop EXT25 has an entry-level price of \$325,000 and is 2.5 times more powerful than the EXT10. Its entry-level configuration also has two processors, but it has a processing capability of 11 tps. It has 16 Mbytes of main memory and 0.5 Gbytes

of Winchester storage.

With an optional cabinet, it can hold four proces-sors, which can process 22 tps; 64 Mbytes of main memory; 1 Gbyte on four Winchester drives. With this addition, the EXT25 can accommodate 185 users.

Both systems use the same cabinet housing, which has an 8.3-square-foot footprint. These systems can be networked with other NonStop systems. Software packages such as GUARDIAN 90XF, ENCOMPASS data base management software, TRANSFER communication software and EXPAND networking software can be purchased separately.

The new systems can support other devices and terminals, such as the IBM 3270 terminals and other Tandem terminals and devices. They can also run software that permits communication with other host systems.

The system will be marketed through Tandem's Alliance program via the use of resellers, international distributors and Tandem's end-user/direct sales force worldwide. Shipments will begin later this month.

## Apple Names Chief Opera

CUPERTINO, CALIF. — Apple Computer Inc. has promoted Delbert W. Yocam to executive vice-president and chief operating officer.

Yocam, who at one time oversaw the Apple II line, more recently had been executive vice-president and group executive of product operations. In that role, he was responsible for product development, worldwide manufacturing and distribution.

Analysts said the move was designed to lighten the workload of John Scully, president and chief executive. Yocam will be responsible for worldwide product operations, sales and marketing.

he and Yocam relationship.

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Bill Campe U.S. sales, and dent of interna

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## Tandem Drops Low-End Sys., Adds 2 With Faster Processing

CUPERTINO, Calif. — Tandem Computers, Inc., replaced its existing low-end computer system with two new models said to boost on-line transaction processing (OLTP) speeds based on the ET1 debit-credit benchmark.

The two new models are the EXT10, which can process 4.3 to 8.6 ET1 transactions per second (tps) and has a base price of \$82,500, and the EXT25, which can process 11 to 22 ET1 tps and has a base price of \$325,000.

The new systems replace Tandem's existing EXT, introduced last spring and now dropped from the price list, which can process between four and eight ET1 tps and had a base price of \$120,000.

The EXT10 has between 8M bytes and 32M bytes of memory, two or four processors, two to eight 128M-byte 8-inch Winchester disk drives, 15 to 31 I/O slots, one to four 1/2-inch cartridge tape drives, and a 6105 communication controller.

The EXT25 has between 16M bytes and 64M bytes of memory, two or four processors, four to eight 128M-byte disk drives, 15 to 31 I/O slots, one to four tape drives, and a 6105 communication controller.

The EXT10 and EXT25, like the EXT, use TTL technology. Tandem's president and chief executive James Treybig has said that the firm is working on a cus-

tom CMOS version of its system that will become its low-end processor. While Mr. Treybig and other Tandem executives will not say when the low-end CMOS gate-array processor will be introduced, industry sources say it will come out sometime next year.

The EXT10 and EXT25 will be available by the end of September. The expansion cabinets, which turn a two-processor base system into a four-processor system, will be available in the fourth quarter of this year. Expansion cabinets are priced at \$75,000 for the EXT10 and \$275,000 for the EXT25.

The EXT10 can be field-upgraded to the EXT25. The price for a 4M-byte EXT10 to be upgraded to an 8M-byte EXT25 is \$205,000.

The Guardian 90XF system software package for the new systems is priced at \$16,500 for an initial license fee and \$600 monthly charge on the EXT10, and a \$22,000 initial license fee and \$750 monthly charge on the EXT25.

The OLTP benchmark used by Tandem is said to be comparable to the TP1 debit credit benchmark, with each transaction measured by ET1 consisting of seven I/Os in a typical debit-credit banking transaction.

Tandem also introduced a communication processor called the 6105 that replaces existing bit- and

byte-synchronous communication controllers. It supports up to four separately-configurable communications lines as well as several standard Tandem, IBM and OSI protocols. The 6105, which operates on all Tandem systems, is priced at \$5,455 and will be available by the end of September.

Tandem also introduced a low-end terminal, the 6526, which can communicate with any Tandem host in character and block modes, and offers most of the capabilities offered on Tandem's high-end 653X terminal. The 6526 is available now at a price of \$1,095.

In another development, Tandem also disclosed a contract with Western Air Lines, Inc., its first sale into the airline industry, which is said to be dominated by IBM.

The total value of the contract is between \$3.6 million and \$3.8 million.

Western Air Lines, Inc., Los Angeles, will install by the end of the year NonStop TXP systems in Los Angeles, Seattle and Salt Lake City, and NonStop EXT10 and EXT25 systems in Honolulu, Anchorage, and Washington, D.C.

The Tandem systems will replace Raytheon RDS 500 network concentrators, providing the network connecting Western's approximately 4,000 terminals and its host IBM 4381 Model Group 2 system, which will continue to do the processing for reservations. Western looked at IBM's 3705 and 3704 communication processors before deciding on Tandem.

— ERIC NEE

Electronic News  
Aug 4, 1986 p22

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Viking Freight Systems Inc. of Santa Clara announced several promotions. Peter Foley was appointed vice president of sales, Edmund Hulton vice president of management information systems, John Keen vice president and controller, and Phillip Smith vice president of corporate planning. Foley, the former director of sales, has been in the trucking industry in sales positions for more than 20 years. Hulton has been at the firm for two years. Keen was promoted from the controllers position. He has been with Viking Freight for three years. Smith, an employee for five years, was promoted from director of corporate planning.

David Davis has been admitted as a principal of Johanson & Yau Accountancy Corp. in San Jose. Davis will be responsible for the firm's computer division.

Chris Christoferson has been named vice president of Corvus Systems Inc.'s engineering group. He assumes responsibility for all aspects of the company's engineering activities, including microcomputer engineering, network operating systems, network architecture and mechanical manufacturing engineering. Christoferson was a founder and vice president of engineering of Oemtek Inc.

Sue Cam has been elected president of the San Jose Building Owners and Managers Association. She is presi-



Christoferson



San Jose Business Journal  
Aug 4, 1986 p15

## CORPORATE INFORMATION CENTER

Walter Wriston, retired chairman of Citicorp, has been elected to the board of directors at Tandem Computers Inc. of Cupertino.

Thomas Bondi, formerly a tax manager with Rowinski Plette & Kado Accountancy Corp. of San Jose, has established his own accounting firm. Primary clients are closely held businesses. The new offices will be located in downtown San Jose.

commercial real estate trainee Mitchell was selected as a commercial real estate trainee in the company's retail division.

Tom Wolf, former vice president of Wolf Computer in Los Gatos, has joined Software Galleria Inc. in Sunnyvale as director of sales and operations. He assumes corporate responsibility for all sales, marketing, distribution and operations.



Wolf

L. Joan Bardach was named director of sales at Superwave Technology Inc. of Santa Clara, a maker of semiconductor manufacturing systems. She joins the company after four years with Marubeni International Electronics.



Bardach

Peter Will has joined Fairchild Semiconductor Corp. as director of VLSI systems research at the Schlumberger Research Center in Palo Alto. He was director of systems science at Schlumberger-Doll Research in Ridgefield, Conn.

Dianne McNutt, principal of McNutt & Co. Public Relations in Santa Clara, has been named professional coordinator for the certificate program in marketing communications at San Jose State University. She will be responsible for coordinating curriculum and recruiting instructors from business and industry. She teaches courses on public relations and direct mail selling.

manager of the company's machine division. Moody will manage the division's staff and oversee all equipment design, sales and marketing. Moody joined the company in 1974.

Skyway Freight Systems Inc. of Santa Cruz has appointed Jean Pellegrin McClymonds as director of marketing. She will be responsible for the company's strategic marketing plan and the day-to-day operations of the marketing department, including advertising, direct market research, public relations, sales collateral development and promotion. McClymonds was director of marketing communications at Madic Corp. in Santa Clara.

Ralph Cernera has been promoted to the newly created position of product marketing manager for optical measurement systems at Nanometrics Inc. of Sunnyvale. He was product manager of optical line width and inspection. Cernera will oversee all optical products used in semiconductor manufacturing.

NEC Corp. has selected Hideo Nakamura as associate senior vice president and member of the board of directors, as president and chief executive officer of NEC Electronics Inc. of Mountain View, a wholly owned subsidiary of the diversified electronics company. He has been with the parent company since 1957.

Visual Engineering Inc. of San Jose, a supplier of graphics software for the UNIX marketplace has named Thomas Harris vice president of sales. Harris joins the company from Ask Computer Systems of Los Altos where he was responsible for sales and sales support in the western U.S., the Pacific and Australia. He will be responsible for national and international sales activities.

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LEVEL 1 - 3 OF 3 STORIES

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August 4, 1986, Monday

DISTRIBUTION: Business Editors

LENGTH: 903 words

HEADLINE: TANDEM-COMPUTERS; (TNDM) Unveils two new systems for low-cost distributed processing: communication controller, low-cost terminal

DATELINE: CUPERTINO, Calif.

BODY:

Tandem Computers Inc. (OTC:TNDM) Monday extended the low-end and mid-range of its NonStop computer system line with the introduction of NonStop EXT10 and EXT25 systems. Designed as lower priced, full-function extensions of the Tandem network, or stand-alone on-line transaction processing systems, the EXT10 and EXT25 are smaller and more powerful than Tandem's existing NonStop EXT system. The new EXT systems are network and software compatible with other NonStop systems and do not require computer room facilities for operation. The base NonStop EXT10 system, with an entry-level price of \$82,500, is the lowest priced, expandable fault-tolerant transaction processing system in the industry, and can process 4.3 (ET1) transactions per second (TPS). The NonStop EXT25, a mid-range system that is two and one-half times more powerful than the EXT10, has an entry-level price of \$325,000, and can process 11 (ET1) TPS. Expanded EXT10 and EXT25 systems can process up to 8.6 and 22 TPS, respectively. "The EXT10 and EXT25 systems offer a full-function distributed solution for those seeking to extend their transaction processing network into branch offices, or across one or more departments," according to Tandem Vice President of Marketing Gerald L. Peterson. The new systems are designed for users who are distributing their transaction processing at the local or regional level. The EXT10 and EXT25 are designed for optimal price/performance in this environment to benefit banks, manufacturing operations, telecommunications service providers, and retail or point-of-sale businesses who have distributed operations and a need for on-line information to run their organizations. The basic system cabinet houses two processors: 8MB of 256K dynamic RAM main memory for the EXT10, and 16MB of memory for the EXT25; 128 MB Winchester 8-inch disk drives; disk controllers; new cartridge magnetic tape drives; the new 6105 communication controller; power supplies; and an operations and service processor. Available separately, GUARDIAN 90XF is a system software package that contains the GUARDIAN 90 operating system, ENCOMPASS data base management software, TRANSFER communication software, and EXPAND networking software. These products can be purchased individually. Powerful application development tools, a variety of programming languages, and security products are also available. The NonStop EXT10 and EXT25 systems will be marketed through Tandem's direct sales force worldwide, international distributors, and resellers under the Tandem Alliance third-party marketing organization. Packaged with the new EXT systems, the new VLSI-based 6105 controller provides flexible and powerful on-board communications. This single-board controller supports a variety of communications protocols, and can be configured to run asynchronously, byte synchronously, or bit synchronously, alone or in any combination. Each 6105 controller can support four communication lines. The EXT10 and EXT25 provide users with links to different types of host systems and to different types of

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terminals or other devices. The new systems can support IBM 327x terminals, Tandem terminals and workstations, teller terminals, point-of-sale devices, and many others. The new systems can run software that permits communication with a wide variety of host systems from other vendors. For example, Tandem SNAX/XF and SNAX/APC (LU6.2) software provide connectivity with IBM systems. Support for Open Systems Interconnection (OSI) protocols is also available. The 6526 terminal for Tandem systems, also introduced Monday, is designed for use with a wide range of transaction processing applications, and is compatible with existing Tandem terminal and system products. Optional Tandem software also allows users to access IBM 3270 applications. The 6526 comes with a 14-inch adjustable monitor and detached keyboard, and provides up to 16 pages of screen memory. The terminal includes both RS-232 and current loop interfaces, and it can be connected to a local or remote Tandem host, via modem or cluster controller. Configurable international character support is provided for ASCII, Danish/Norwegian, French (QWERTY and AZERTY), German/Austrian, Swedish/Finnish, Spanish, and UK English. The EXT10 and EXT25 are available in the third calendar quarter of 1986. Quantity or volume discounts are available. All prices below are given in U.S. dollars. A two-processor EXT10 system is priced at \$82,500. A two-processor EXT25 system is priced at \$325,000. The NonStop EXT10 and EXT25 are expandable to four-processor systems through the addition of a two-processor expansion cabinet, which doubles the performance, memory, and I/O capacities of the base cabinet. Available in the fourth quarter of 1986, an expansion cabinet for the EXT10 system is \$75,000, and an EXT25 system expansion cabinet is \$275,000. The 6105 controller is available in the third calendar quarter of 1986, and is priced at \$5455. The 6526 terminal is available now for \$1095. Quantity or volume discounts are available. Tandem Computers manufactures and markets computer systems and networks for on-line transaction processing. The company is headquartered at 19333 Vallco Parkway, Cupertino 95014.

CONTACT: Tandem Computers Inc., Cupertino  
Corinne DeBra, 408/725-7574

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## Tandem broadens low end with two EXTs

### Machines offer more power, expandability

By Jeffry Beeler

CUPERTINO, Calif. — Tandem Computers, Inc. last week prematurely retired its Nonstop EXT on-line transaction processing system less than 18 months after its introduction. Tandem replaced the EXT with two upgrades, the EXT10 and EXT25, that address the original system's growth and performance shortcomings and broaden the low end of Tandem's product line.

The new systems, targeted at companies seeking to decentralize on-line transaction processing activities, reportedly offer customers price and performance improvements. Both new systems are reputed to run the same operating system and applications as the EXT, but they differ sharply from their predecessor in price and raw computing power.

The EXT10 and EXT25 form the centerpiece of a product announcement that also includes the following two elements:

- The Model 6150 communications controller, which on one board integrates three kinds of device support that with the original EXT required three boards.
- The Model 6526 terminal, which

costs roughly 50% less than Tandem's existing Model 6530 display unit and offers basically the same functions.

Although the EXT10 and EXT25 are reputed to run exactly the same operating system and applications as the processor they supplant, the two machines differ sharply from their predecessor in price and raw computing power. Capable of executing 4.3 transactions per second, a basic EXT10 provides roughly the same computing power as a comparable EXT but costs about 30% less, according to Terry Retford, Tandem's manager of processor and memory products.

#### Out-performs EXT

With its 11 transaction/sec. throughput rating, by contrast, an entry-level EXT25 out-performs a minimally configured EXT by a factor of 2.5 and is priced proportionally higher, Retford said.

The EXT25 owes its performance edge over the EXT10 to its superior machine cycle time and to its use of a 64K-byte cache memory, which the smaller processor lacks, he added. Compared with the EXT10, which executes a machine cycle every 100 nsec, the EXT25 is rated at 83.3 nsec.

With a footprint of 8.3 square feet, coupled with the machines' ability to operate outside a computer room, the

EXT10 and EXT25 are targeted at the remote locations of large corporations, according to Retford.

Tandem's first effort to crack the distributed processing arena began in April 1985, when the company announced its original EXT. But the processor's limited expandability created more user resistance to the EXT than its manufacturer apparently expected, according to Omri Serlin, head of Mountain View, Calif.-based Icom International, Inc., which tracks the on-line transaction processor marketplace.

"For some of our clients, the concern with the existing EXT was that it was a closed-end system," said a product manager for a beta-test user that develops funds-transfer software for banks. "If our customers acquired other banks or if their volumes grew significantly, they could easily outgrow their systems."

Even the smaller EXT10 affords an upgrade path for the existing EXT. "Thus far, our EXT10 has operated even faster than we had initially expected," the source at the beta-test site said.

In addition to relieving the EXT family's horsepower restrictions, the announcement also lowers Tandem's entry-level price barrier. "With the EXT10, Tandem is trying to extend its product line so that its

See EXT page 6

## EXTs broaden Tandem low end

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current customers can reach out further into their outlying offices," said Kimball Brown, an analyst with Dataquest, Inc., a San Jose, Calif.-based market research firm.

A basic EXT10 and EXT25 configuration consists of one system cabinet that holds two processors and up to four 128M-byte disk units. Main memory capacity ranges from 8M to 16M bytes for a two-processor EXT10 and from 16M to 32M bytes for a comparable EXT25.

To create a maximum EXT10 or EXT25 configuration, users have to add a second system enclosure. Fully expanded, the two modules reportedly execute 8.3 and 22 transactions per second, respectively.

A two-processor EXT10 and a similarly configured EXT25 cost \$82,500 and \$325,000, respectively. The Model 6105 communications controller costs \$5,455, the Model 6526 terminal, \$1,095. Shipments begin during the current quarter.

## INFORMATION SYSTEMS

### Tandem Readies 2 New Versions Of Its Entry-Level EXT

By JULI CORTINO

CUPERTINO, Calif. — Tandem Computers Inc. this week will unveil the EXT-10 and EXT-25, two new versions of its entry-level EXT processor introduced just over a year ago.

Intended as "lower-priced, full-function extensions of the Tandem network, or stand-alone on-line transaction processing systems," the \$82,500 EXT-10 and the \$325,000 EXT-25 will replace the original EXT.

"Customers told us they liked the original EXT," said Terry Retford, Tandem's manager of processor and memory products. "But, they wanted more power at a lower cost and they wanted features such as quieter fans, better operator controls and better tape-handling than the EXT had."

Tandem's new EXTs represent the company's first move out of the computer room and into distributed data processing and its first processor, the EXT-10, priced under \$100,000.

"We changed the base technology a little, and the packaging a lot, on the new EXTs," said Retford. "They're quieter, smaller, more ergonomically pleasing. The reel-to-reel tape has been changed to a small cartridge and these new machines are aimed at the low-entry customer who wants high performance outside of the computer room."

#### 8 Mbytes Of 256-Kbyte RAM

Tandem's EXT-10 features 8 Mbytes of 256-Kbyte random access memory. The EXT-10 offers 5 percent higher performance than the original EXT. It supports up to 75 users.

The EXT-25 offers 16 Mbytes of memory. It, like the EXT-10, runs Tandem's proprietary Guardian 90 operating system, with 2.5 times higher performance than the EXT-10, and supports up to 185 users. Tandem's original EXT supported 50 to 60 users.

Tandem will also introduce a new communications controller, the 6105, and a new low-cost terminal, the 6526, priced at \$1,095.

Prices for Tandem's current line of 6530 terminals range from \$1,800 to \$2,100.

The VLSI-based controller sits on a single board inside Tandem's processors. The controller's size and \$5,455 price make it attractive to users of smaller systems who have communications requirements but do not need Tandem's 6100 Communications Subsystem, which is for systems with heavier communication requirements.

An 8-Mbyte EXT-10 can be upgraded to an 8-Mbyte EXT-25 at a cost of \$205,000. The original EXT cannot be upgraded to any of the new processors.

Tandem would not say how many of its original EXTs have been sold. Retford said the inventory of old EXTs "has been taken care of very well," meaning that there is not a great deal of excess inventory remaining.

Kimball Brown, an industry analyst at Dataquest, San Jose, Calif., said the EXT-10 and 25 represent a "great move" on Tandem's part, but that the company needs to "go even further."

#### Uniprocessor Next?

Brown said the company's next step should be to offer a processor that is even lower-priced—perhaps a uniprocessor. Tandem has traditionally offered dual-processor systems that offer fault tolerance, or backup processing capabilities.

"Tandem can do an excellent job of being your computer company, if they want to," said Brown. "The EXT 10 and 25 let them attack the Fortune 1500, IBM's stronghold. There is a vast array of companies with 50 to 100 people who need a simple, easy-to-use system. These machines let Tandem target those companies."

Brown said the EXT-10 pro-

vides Tandem with its "most efficient form of entry" into the Tandem environment. He also noted that the EXT-10 and EXT-25 lend themselves more to the value-added-reseller (VAR) sales channel than do the larger, more complex processors that Tandem sells through its direct sales force.

Brown said he expects Tandem to offer the same ASIC (application-specific integrated circuit) technology, which is featured on the EXT-10 and EXT-25 and on the company's recently introduced high-end VLX processor, across its entire product line.

"I expect Tandem's TXP and its NonStop II processors could be redone with the new circuitry," he said.

Brown noted that the semiconductor technology, newly introduced with the VLX, offers speed and lower maintenance costs and means Tandem can build fewer boards for its machines.



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INFORMATION CENTER**

SECTION: PRODUCT UPDATE; Pg. 76

LENGTH: 81 words

HEADLINE: VLX High-End System

## BODY:

Tandem Computers Inc. has extended the high end of its NonStop computer family with the introduction of a new VLSI-based system. The NonStop VLX system is a transaction processing mainframe that delivers higher transaction throughput than the industry's largest computer systems.

The VLX, fully compatible with previous NonStop systems, features new processors based on ECL/TTL gate array circuit technology designed by Tandem and Motorola.

Tandem Computers Inc., Cupertino, CA

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