Tandem Computers Incorporated

700,000 SHARES
COMMON STOCK

Prior to this offering, there has been no public market for the Common Stock of the Company. See "Underwriting — Pricing of the Offering" with respect to the method of determining the initial public offering price. The offering price has been determined by negotiation between the Company and the Underwriters and bears no direct relationship to the Company's assets, earnings or book value.

The Common Stock offered hereby involves a high degree of risk. See "Introductory Statement—Certain Factors to be Considered Before Purchasing Common Stock."

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

	Price to Public	Underwriting Discounts and Commissions (1)	Proceeds to Company (2)
Per Share	$11.50	$.90	$10.60
Total (3)			
Minimum	$8,050,000	$630,000	$7,420,000
Maximum	$8,855,000	$693,000	$8,162,000

(1) See "Underwriting."

(2) Before deducting expenses payable by the Company estimated at $216,000 ($.31 per share, assuming the over-allotment option is not exercised).

(3) The Company has granted to the Underwriters an eight-day option to purchase up to 70,000 additional shares to cover over-allotments. See "Underwriting." In the foregoing table the minimum amounts assume that the option will not be exercised and the maximum amounts assume that the option will be exercised in full.

This offering involves immediate substantial dilution of the book value of the Common Stock from the public offering price. See "Introductory Statement — Dilution."

The shares of Common Stock are offered by the Underwriters subject to receipt and acceptance of such shares by them. The Underwriters reserve the right to reject any order in whole or in part. It is expected that delivery of certificates for the shares will be made against payment therefor on or about December 21, 1977.

L.F. ROTHSCHILD, UNTERBERG, TOWBIN
ROBERTSON, COLMAN, SIEBEL & WEISEL

The date of this Prospectus is December 14, 1977.

No person has been authorized to give any information or to make any representation not contained in this Prospectus in connection with the offer made by this Prospectus; and any information or representations not contained herein must not be relied upon as having been authorized by the Company or any of the Underwriters. This Prospectus does not constitute an offer of the securities to which it relates in any jurisdiction to any person to whom it is unlawful to make such offer in such jurisdiction. Neither the delivery of this Prospectus nor any sale made hereunder shall under any circumstances create an implication that there has been no change in the affairs of the Company since the date hereof.

Until March 14, 1978 all dealers effecting transactions in the Common Stock, whether or not participating in this distribution, may be required to deliver a Prospectus. This delivery requirement is in addition to the obligation of dealers to deliver a Prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

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IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE COMMON STOCK AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

SUMMARY OF PROSPECTUS

The following is a summary of certain information contained in the body of this Prospectus. This summary is intended merely to highlight certain information and, accordingly, should be read in conjunction with such material.

The Offering

	Minimum	Maximum
Shares of Common Stock to be sold by the Company	700,000	770,000
Shares of Common Stock to be outstanding after the offering(1)	3,524,466	3,594,466

See "Introductory Statement" with respect to the reasons why purchase of the securities offered hereby is speculative and should be carefully considered; the possible adverse impact on the market for the Common Stock as a result of the shares available for sale after the offering; and the immediate dilution in net tangible book value per share to be incurred by new investors.

Business

The Company designs, develops, manufactures, markets and services multiple processor computer systems, designated as Tandem's NonStop™* systems, which have been designed to minimize the risk of system failure. The Company offers a family of system configurations which include from two to 16 processors together with controllers, peripherals, operating systems software and programming languages. Tandem's NonStop™ systems are intended primarily for users which depend on the continuous availability of their computer systems, such as businesses with heavy volume on-line transaction processing or message handling requirements. See "The Company" and "Business—Customers and Applications."

Use of Proceeds

It is anticipated that over the next 18 months substantially all of the proceeds will be employed for general corporate purposes, including the financing of a higher level of accounts receivable and inventories. See "Use of Proceeds."

Consolidated Statement of Operations—Summary:

	November 29, 1974 (date of incorporation) to September 30, 1975	Year Ended September 30 1976	1977
Revenues	$ —	$ 580,969	$7,691,506
Income (loss) before extraordinary credit(2)	(646,150)	(2,168,770)	157,944
Net income (loss)	(646,150)	(2,168,770)	324,944
Income (loss) per common share			
Income (loss) before extraordinary credit	(1.49)	(4.33)	.06
Extraordinary credit	—	—	.06
Net income (loss)	(1.49)	(4.33)	.12

Consolidated Balance Sheet—Summary:

September 30, 1977(1)

Working capital	$3,346,696
Total assets	5,570,498
Total indebtedness(3)	407,289
Deficit	(2,489,976)
Shareholders' investment	3,735,284

(1) Adjusted to reflect the issuance in October 1977 of 125,000 shares of the Company's convertible Preferred Stock at $8.00 per share for a total consideration of $1,000,000, and the immediate repayment of $800,000 of outstanding bank borrowings. Since its formation the Company has financed its operations primarily from the sale of convertible Preferred Stock. Certain information contained in this Prospectus, including the information set forth under the caption "The Offering" above, has been adjusted to reflect the automatic conversion of such Preferred Stock into an equal number of shares of Common Stock on the date of this Prospectus. See "Description of Securities—Common Stock."

(2) Extraordinary credit consisted of the tax benefit resulting from net operating loss carryforwards.

(3) Consisted of capitalized lease obligation. See Note 3 of Notes To Consolidated Financial Statements.

* The letters "TM" as used in this Prospectus indicate a trademark which has not been registered.

THE COMPANY

The Company designs, develops, manufactures, markets and services multiple processor computer systems, designated as Tandem's NonStop™ systems, which have been designed to minimize the risk of system failure. The Company offers a family of system configurations which include from two to 16 processors together with controllers, peripherals, operating systems software and programming languages. The systems, which are designed to minimize the cost per transaction, are intended primarily for use by businesses which depend on the continuous availability of their computer systems, such as businesses with heavy volume on-line transaction processing or message handling requirements. In addition, Tandem systems are designed to protect the information stored, or in process, from damage due to a module failure and to provide for flexible modular expansion without reprogramming. Although other computer manufacturers offer customized multiple processor computer systems intended to minimize the risk of system failure, management believes that no other company offers a standard commercial computer system with the capabilities of Tandem's systems. See "Business."

Shipments of Tandem systems began in May 1976 to customers which utilize the systems in a number of diverse commercial applications. During fiscal 1976 the Company shipped six systems which include 12 processors. During fiscal 1977 the Company shipped 31 systems which include 69 processors. Such systems sold at prices ranging from $83,000 to $626,000. For the quarter ended June 30, 1977 (unaudited), the Company reported its first profitable operations and earned $158,000 before income taxes and extraordinary credit on revenues of $2,369,000. During the quarter ended September 30, 1977 (unaudited), the Company earned $640,000 before income taxes and extraordinary credit on revenues of $3,095,000.

The terms "Tandem" and the "Company" refer to Tandem Computers Incorporated, incorporated in California in November 1974, and to its consolidated subsidiaries. Tandem's headquarters and principal operations are located at 19333 Vallco Parkway, Cupertino, California 95014, telephone (408) 996-6000.

INTRODUCTORY STATEMENT

Certain Factors to be Considered Before Purchasing Common Stock

The securities offered by this Prospectus are speculative for the reasons set forth below, which should be carefully considered by investors before purchasing these securities.

1. *Short Operating History.* Tandem commenced its operations in November 1974. From its inception through the second quarter of fiscal 1977, the Company incurred losses. Although the Company's two most recent quarters have been profitable, at September 30, 1977, the Company had an accumulated deficit of $2,490,000.

The Company delivered its first system in May 1976. Although the Company offers systems of up to 16 processors, the largest system delivered to date includes five processors. Accordingly, many of the system configurations currently offered by the Company have not been tested in commercial applications.

2. *Fluctuations in Operating Results.* Because the Company endeavors to minimize the time between receipt of purchase orders and date of delivery of systems, delays in receipt of anticipated orders and in related shipments or cancellations of orders may result in substantial variations in quarterly operating results and could lead to losses in future quarters. Such fluctuations could adversely affect the financial condition of the Company.

The Company plans to ship a ten processor system at a price of $1,900,000 in December 1977. This shipment will represent the Company's first system containing more than five processors. While man-

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agement believes that the shipment will occur on schedule, if there were to be a delay, operating results for the quarter ending December 31, 1977, could be materially and adversely affected.

3. *Competition and Technological Change.* Competition in the computer industry is intense. The Company has concentrated its resources solely on its NonStop™ systems. Although the technological approach used by Tandem is new, management anticipates that other data processing manufacturers with greater financial resources, more extensive business experience, and better established design, development, manufacturing, marketing and service capabilities than Tandem will develop data processing systems similar to or competitive with the NonStop™ systems. Further, the Company's products are in a field of rapid technological change, and the introduction by others of new products with greater capabilities or lower prices could adversely affect the business of the Company. Accordingly, the Company expects to expend substantial funds for engineering and development. See "Business—Competition."

4. *Continuous Need for Additional Capital.* While the Company has no immediate need for all of the proceeds of the offering, it can be anticipated that if sales continue to expand (of which there can be no assurance) the Company will need to raise funds on a regular basis from various sources in order to finance a higher level of accounts receivable and inventories. There can be no assurance that the Company will be successful in obtaining such financing or that, if such financing is obtained, its terms and conditions will be favorable. In addition, sales of the Company's securities by existing holders could adversely affect the Company's ability to raise equity capital in the future. See "Shares Available for Sale" below.

5. *Dependence on Qualified Employees.* The Company's business is dependent upon its ability to attract and retain qualified personnel, who are in great demand. Its operations would be adversely affected if it were to lose the services of certain employees or if it were unable to obtain additional qualified persons as employees when needed. See "Business—Employees."

6. *Sources of Supply.* The Company purchases substantially all of the components of, and all of the peripheral devices used with, its systems from other manufacturers. Most of the components and peripherals used in the Company's systems are available from a number of different suppliers. The Company generally purchases major items such as peripherals from single sources of supply. The Company believes that alternative sources could be developed if required for present single supply sources. Although the Company has not experienced any significant problems in obtaining its required supplies, future shortages of components or peripherals could result in production delays which would adversely affect its business.

Shares Available for Sale

Persons who will own an aggregate of 2,198,702 shares of the Company's Common Stock after the offering possess certain rights to require the Company to register their stock for sale under the Securities Act of 1933. See "Description of Securities—Common Stock." An aggregate of up to approximately 600,000 shares of Common Stock may also be eligible for sale in the public market during the six-month period beginning 90 days after the date of this Prospectus pursuant to Rule 144 under the Securities Act of 1933. Rule 144 permits sales by a person within any six-month period of a number of shares which does not exceed 1% of the number of outstanding shares, if certain conditions are met. In addition, the Company has outstanding employee stock options to purchase 197,953 shares of Common Stock. See "Management—Stock Option Plans." The sale of substantial amounts of Common Stock by existing shareholders could have a material adverse effect on the market for the Common Stock.

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Dilution

The information set forth below under this caption "Dilution" gives effect to the adjustments described in Note 1 under the caption "Summary of Prospectus."

As of September 30, 1977, the net tangible book value of the Company's Common Stock was $3,727,980, or $1.32 per share. Giving effect to the offering, the pro forma net tangible book value of the Company at September 30, 1977, would have been $10,931,980, or $3.10 per share, representing an immediate increase in net tangible book value of $1.78 per share to present shareholders and an immediate dilution of $8.40 per share to new investors. The following table illustrates the dilution of a new investor's equity in a share of Common Stock as of September 30, 1977:

Public offering price (1)		$11.50
Net tangible book value per share, before offering (2)	$1.32	
Increase attributable to payments by new investors	1.78	
Pro forma net tangible book value per share, after offering		3.10
Dilution of book value to new investors (3)		$ 8.40

(1) Offering price before deduction of Underwriters' commissions and offering expenses.

(2) Net tangible book value per share is determined by dividing the number of shares of Common Stock outstanding into the tangible net worth of the Company (tangible assets less liabilities).

(3) "Dilution" is determined by subtracting pro forma net tangible book value per share after the offering from the amount of cash paid by a new investor for a share of Common Stock.

The following table summarizes the difference between the total shares purchased as of October 31, 1977, the total consideration paid and the average price per share paid by the new investors and by others:

	Shares Purchased	Percent of Total Shares	Consideration	Percent of Total Consideration	Average Price Per Share
New investors	700,000	19.9%	$ 8,050,000	56.3%	$11.50
Others	2,824,466	80.1	6,259,510	43.7	2.22
Total	3,524,466	100.0%	$14,309,510	100.0%	$ 4.06

The above computations assume no exercise of the Underwriters' over-allotment option or of the employee stock options outstanding under the Company's stock option plans. The outstanding options to purchase 197,953 shares of Common Stock under the Company's Qualified and Non-Qualified Stock Option Plans have an average exercise price of $4.64 per share.

USE OF PROCEEDS

The net proceeds from the sale of the 700,000 shares of Common Stock offered by the Company are estimated at $7,204,000, or $7,946,000 if the Underwriters' over-allotment option is exercised in full. Of such net proceeds, $500,000 will be used to retire the outstanding balance of the Company's short-term bank borrowings. The Company is unable, at this time, to set forth specific uses, or amounts

to be applied to any particular use, for the remainder of the proceeds of this offering. The Company has no immediate need for the remainder of the proceeds. It is anticipated, however, that over the next 18 months substantially all of the remaining proceeds will be employed for general corporate purposes, including the financing of a higher level of accounts receivable and inventories. Prior to these applications, the remaining proceeds will be invested in short-term, interest-bearing securities. To the extent that the proceeds of this offering are inadequate to finance the growth of accounts receivable and inventories, the Company intends to rely on its bank line of credit which is currently $2,000,000. See Note 4 of Notes To Consolidated Financial Statements.

DIVIDEND POLICY

The Company has paid no dividends on its capital stock since its incorporation and anticipates that for the foreseeable future it will continue to retain its earnings for use in its business.

CAPITALIZATION

The following table sets forth the capitalization of the Company at October 31, 1977, and as adjusted to reflect the sale of 700,000 shares of Common Stock offered hereby and the repayment of short-term bank borrowings:

	Outstanding	As Adjusted(1)
Short-Term Debt(2)	$300,000	$ —0—
Long-Term Debt		
Capitalized lease obligation(3)(6)	318,935	318,935
Total Indebtedness	$618,935	$318,935
Preferred Stock, $.10 par value, 2,400,000 shares authorized(4)	None	None
Common Stock, $.05 par value, 4,000,000 shares authorized(4)(5)	2,824,466 shs.	3,524,466 shs.

(1) Does not reflect the issuance of any shares as a result of the exercise of the Underwriters' over-allotment option.

(2) The Company has a $2,000,000 line of credit from a bank, under which $300,000 in borrowings was outstanding at October 31, 1977. These borrowings have been subsequently increased to $500,000. See Note 4 of Notes To Consolidated Financial Statements.

(3) Excludes current maturities of $91,000. For information with respect to capitalized lease obligation, see Note 3 of Notes To Consolidated Financial Statements.

(4) Adjusted to reflect the conversion of all previously outstanding shares of Preferred Stock into Common Stock on the date of the Prospectus and the retirement of such Preferred Stock. In addition, on the date of this Prospectus, the number of authorized shares of Common Stock will be increased to 10,000,000. See "Description of Securities—Common Stock."

(5) Authorized shares include 403,785 shares reserved for issuance upon exercise of options under the Company's Qualified and Non-Qualified Stock Option Plans.

(6) For information with respect to leases of real property, see Note 7 of Notes To Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF OPERATIONS

The following consolidated statement of operations of Tandem Computers Incorporated and subsidiaries for the period from November 29, 1974 (date of incorporation) to September 30, 1975, and the years ended September 30, 1976 and 1977, has been examined by Arthur Andersen & Co., independent public accountants, as set forth in their report included elsewhere in this Prospectus, and should be read in conjunction with the notes thereto and with the financial statements and related notes included elsewhere in this Prospectus.

	November 29, 1974 (date of incorporation) to September 30 1975	Year Ended September 30	
		1976	1977
Revenues (Note A)	$ —	$ 580,969	$7,691,506
Costs and Expenses:			
Cost of revenues (Note B)	—	481,721	3,513,614
Product development	455,694	978,869	1,093,805
Marketing, general and administrative	192,125	1,327,541	2,719,058
Interest expense	12,408	30,079	52,274
Interest income	(14,077)	(68,471)	(16,189)
	646,150	2,749,739	7,362,562
Income (loss) before income taxes and extraordinary credit	(646,150)	(2,168,770)	328,944
Provision for Income Taxes (Note B)	—	—	171,000
Income (loss) before extraordinary credit	(646,150)	(2,168,770)	157,944
Extraordinary Credit—Tax benefit of net operating loss carryforwards (Note B)	—	—	167,000
Net Income (Loss)	$ (646,150)	$(2,168,770)	$ 324,944
Income (Loss) Per Common Share (Note C)			
Income (loss) before extraordinary credit	$(1.49)	$(4.33)	$ .06
Extraordinary credit	—	—	.06
Net income (loss)	$(1.49)	$(4.33)	$ .12

The accompanying notes to consolidated statement of operations
are an integral part of this statement.

NOTES TO CONSOLIDATED STATEMENT OF OPERATIONS

(A) Tandem Computers Incorporated shipped its first system to a customer in May 1976. Revenues in fiscal 1977 include sales of systems totaling approximately $1,300,000 to one customer and also include approximately $1,840,000 of sales made by the Company's West German sales subsidiary to unaffiliated foreign customers.

(B) See Note 1 of Notes To Consolidated Financial Statements for a summary of significant accounting policies, including components of inventory and Note 2 for a discussion of the provision for income taxes.

(C) Net income per common share for the year ended September 30, 1977, has been computed based upon the average number of common and common equivalent shares outstanding. Common equivalent shares result from the potential conversion of the convertible preferred stock into 2,073,702 common shares and the assumed exercise of stock options outstanding which have a dilutive effect when applying the treasury stock method. Total shares used in the computation were 2,679,923. Fully diluted income per share is substantially the same as reported income per share.

Net loss per common share for the period from November 29, 1974, to September 30, 1975, and for the year ended September 30, 1976, has been computed by dividing the net loss plus a charge for preferred stock dividends ($10,525 in 1975 and $129,181 in 1976) by the average number of common shares outstanding during the periods (440,143 in 1975 and 530,270 in 1976). The charge for dividends represents the amount which the preferred shareholders would be entitled to receive prior to any dividends on the common stock; however, no dividends have been declared or accrued. The common equivalent shares resulting from the convertible preferred stock and the stock options were excluded from the computation because the effect would be to decrease the loss per common share.

(D) The Company has not declared or paid any dividends on either its common or preferred stock.

(E) Unaudited quarterly results for fiscal 1977 are included in "Management's Discussion and Analysis of the Consolidated Statement of Operations."

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF
THE CONSOLIDATED STATEMENT OF OPERATIONS

General

From its organization in November 1974 until early 1976, Tandem was engaged primarily in the design, development and testing of its NonStop™ systems. The Company began developing its field marketing operations in January 1976, and shipped its first system to a customer in May 1976.

Unaudited Quarterly Results for Fiscal 1977

As an aid to a better understanding of the Company's operating results for fiscal 1977, the following table sets forth selected unaudited financial information by quarter along with the percentage relationships of income and expense (dollars in thousands):

	Quarter Ended 12/31/76		Quarter Ended 3/31/77		Quarter Ended 6/30/77		Quarter Ended 9/30/77	
Revenues	$ 789	100.0%	$1,439	100.0%	$2,369	100.0%	$3,095	100.0%
Costs and expenses:								
Cost of revenues	397	50.3	737	51.2	1,158	48.9	1,222	39.5
Product development	231	29.3	278	19.3	292	12.3	293	9.5
Marketing, general and administrative	464	58.8	587	40.8	747	31.5	921	29.7
Interest, net	(2)	(.3)	5	.4	14	.6	19	.6
Income (loss) before income taxes and extraordinary credit(1)	$(301)	(38.1)	$(168)	(11.7)	$158	6.7	$640	20.7

(1) The provision for income taxes for fiscal 1977 of $171,000 and the extraordinary credit of $167,000 were not recognized until the fourth quarter due to the availability of losses in previous quarters of fiscal 1977.

Total revenues increased with the growth of the Company in successive quarters during fiscal 1977. Cost of revenues decreased as a percentage of revenues in the fourth quarter after remaining relatively constant during the first three quarters. The fourth quarter decline resulted largely from manufacturing efficiencies and from lower material costs. The Company expects that cost of revenues as a percentage of revenues may be higher during fiscal 1978 than in the fourth quarter of fiscal 1977. Product development costs in dollars have remained relatively constant each quarter and, consequently, reflect a successively lower percentage of revenues. Continued hardware and software development is considered to be essential, and, accordingly, the Company expects that the percentage of revenues spent on such development will not decline below the percentage of revenues spent during the fourth quarter of fiscal 1977. The increases each quarter in marketing, general and administrative expenses reflect the establishment of additional sales, support and service capabilities and the opening of new offices.

Fiscal 1977 Compared to Fiscal 1976

Total systems shipped to customers increased from six in fiscal 1976 to 31 in fiscal 1977. The $7,110,537 increase in revenues in fiscal 1977 was principally attributable to this growth in system shipments and to a very substantial increase in the average sale price of each system, resulting primarily from an increased number of processors, memories and peripherals included in each system. Although cost of revenues increased $3,031,893 during fiscal 1977, it decreased from 82.9% of revenues in fiscal 1976 to 45.7% in 1977. This decline resulted primarily from lower material costs due to per unit price reductions and volume discounts received by the Company and from lower manufacturing overhead per system due to greatly increased volume. Product development costs were relatively constant between

1976 and 1977 since the increased salaries of a larger staff, especially in software development, were nearly offset by the elimination of certain high material costs associated with initial prototype and system development. Marketing, general and administrative expenses increased by $1,391,517 (105%) from 1976 to 1977 reflecting growth in service expenses, salaries and media advertising.

Fiscal 1976 Compared to Fiscal 1975

The Company was in the development stage in fiscal 1975 and as a result there were no revenues or cost of revenues in that year. Product development costs increased 115% from 1975 to 1976 reflecting increased development personnel and prototype costs. Marketing, general and administrative expenses increased from $192,125 in 1975 to $1,327,541 in 1976 primarily as a result of the Company's initial development of its marketing capabilities in 1976.

BUSINESS

The Company was formed to meet the need for general purpose multiple processor computer systems of users with heavy volume on-line transaction processing or message handling requirements. For such customers computer system failures, damage to the data base or interruptions of computer service for repair, routine maintenance or system expansion can result in serious interruptions of operations.

Other computer companies have been meeting this need through the adaptation of existing hardware and software to provide for dual processors. These systems, however, are generally slow, require customized programming, are expensive and in many cases do not permit the use of the second processor to its full capacity.

Tandem's response has been to design original hardware and operating systems software into general purpose multiple processor computer systems, which can be configured to minimize the risk of system failure. NonStop™ systems are also intended to provide capacity for modular expansion without reprogramming, protect the information stored, or in process, from damage due to module failure, and minimize the cost per transaction. To its knowledge, Tandem is the only company to design and market a standard commercial computer system with these capabilities.

The Company's approach to detection of system failure is oriented towards what is referred to in the computer industry as a "hard" failure, that is, a failure such as a failed processor, which would ordinarily shut down a system. Tandem's systems are not oriented towards the detection of "soft" failures, where the system would continue to operate, but in a manner which might not provide error-free results, but which might instead provide results which are skewed or totally useless.

Customers and Applications

As of September 30, 1977, Tandem had sold and delivered 37 of its systems (81 processors) to 30 customers. Approximately two thirds of Tandem's sales were to end users, which either develop their own applications programs or subcontract their development. The remaining one third of the Company's sales were to software and systems development companies (which are under contract to end user customers to develop applications programs and in some cases interface peripherals not provided by Tandem) and original equipment manufacturers (which on their own initiative add peripherals or software for resale for standard applications). The Company's largest single customer (Tandy Corporation) accounted for approximately $1,300,000 or 17% of total sales. Foreign revenues, all of which were in West Germany, represented approximately $1,840,000 or 24% of total sales. The Company believes that the profitability on foreign sales is relatively equal to that on domestic sales.

The Company's systems are employed in many economic sectors such as banking, manufacturing, transportation, credit, medical and wholesale businesses. Among the end users of Tandem's systems are: Eastern States Bankcard Association, The First National Bank of Lincoln, Nebraska, Illinois Bell

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Telephone Company, Tandy Corporation, Thyssen A.G., and University of Virginia. Tandem's original equipment manufacturer accounts include such companies as Automatic Totalisators, Inc., Clay Bernard Systems International, McDonnell Douglas Corp. and Messerschmitt-Bolköw-Blohm GmbH. Software and systems development companies which purchase from Tandem include Applied Communications, Computer Sciences Corporation and International Micor Systems, Inc.

In the normal course of its business, the Company does not develop applications programs, but from time to time may assist customers with particular programs. Some of the more important areas for which customers are writing applications programs for the Tandem NonStop™ systems are: data base management, communications networks and control systems. In each of these areas, once a customer has made the decision to utilize an interactive data base, both the availability of the system for continuous use and the protection of information stored, or in process, from inadvertent alteration due to system malfunction become of primary importance.

One of the important applications in the data base management area is on-line order entry and inventory control systems. Essential characteristics of such systems are the immediate availability of inventory information and the automatic updating of that information when an order is entered, so that the user continually knows the current status of its inventory and orders. Examples of other data base management applications which are being developed by Tandem's customers are verification of credit information, recordation of patient treatment at hospitals for later evaluation by a physician and determination of trunk line usage and availability for a telephone company. In these data base management applications, it is critical for the system user to have continued access to the data base and to avoid deterioration of the data base through system malfunction.

In communications networks, Tandem's systems are being used by two customers, each of which represents a consortium of banks, to implement an electronic funds transfer system. Management believes that its NonStop™ systems' ability to protect information stored, or in process, from damage due to a module failure is especially useful for these systems' applications since accurate transmission of deposit and withdrawal information to the correct bank account is critical.

Control systems represent another applications area for NonStop™ systems. Customers are presently developing applications programs for a centralized control system for a prototype transportation system and for an automated warehouse operation.

Other examples of applications of Tandem's NonStop™ systems being used or developed by Tandem's customers include systems for emergency vehicle dispatch, and text processing and photo composition prior to large-scale commercial printing operations.

Technology

A basic Tandem design goal has been to develop systems in which the failure of no single module can substantially affect system operations. NonStop™ systems have been designed to attempt to assure that there will always be an alternative module available to perform the function carried out by a corresponding unit which has failed. More specifically, the Company's technique has been to employ multiple processors (which perform arithmetic and logic operations), multiple controllers (which provide the interface between the processor and the peripheral devices), multiple data paths (which provide communications between the system modules) and multiple power supplies, so that there is a high probability that at least one processor and one data path will always be operable.

Given the availability of an alternative module, a defective element may be replaced by a service technician without shutting down the balance of the system. This feature attempts to assure that the processing of customer workload is not halted during repairs or maintenance. In addition, the modular design

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of Tandem's systems makes it possible to add additional computing power (i.e., more processor units or more memory) and additional systems capability if the user's workload increases or if more protection is desired. This expansion can be accomplished in steps, without reprogramming.

In normal use in a Tandem system all data paths and modules are employed to some degree. Each module, however, may have excess capacity available for functions carried out by other modules in the system. In the event of a failure, functions can be shifted from a failed module to the remaining system to the extent capacity is available. In addition, the system can be programmed to assign priority to the programs to be run on the remaining capacity. The capability to switch from a failed module to the remaining operational system is accomplished by a combination of hardware devices and software programs.

An essential feature of NonStop™ systems is the Company's Dynabus hardware which provides two autonomous data paths for high speed transmission of data among processors without tying up normal communications between the processors and peripheral devices. The Dynabus is also used for periodic interprocessor checks, which permit isolation of any processor failure and also indicate at which point in the sequence of program steps the remaining operational system should begin in order to complete an interrupted assignment. Similarly, Tandem's peripheral device controllers have a special "dual port" construction which provides communications paths from each controller to two different modules in the system. This multiplicity of paths between multiple processors and multiple controllers makes it possible for the system to continue to operate after the failure of a single communications path, processor module or controller.

Management believes the design of the Tandem processor capitalizes on several advanced processor design concepts available in the computer industry, including stack architecture, built-in microprogram control, virtual paged memory, single bit main memory error correction, instruction prefetching, multi-programming capability and multilevel interrupt vectoring. Each Tandem computer is built around a pipelined microprogrammed central processor with a cycle time of 100 nanoseconds. This central processor is operated by 32-bit microinstructions each of which consists of combinations of up to seven of the 168 microoperations available. Up to 2,048 32-bit words of microprogram storage are available, of which 512 words have been used for the basic instruction set. There are 14 registers accessible by the programmer and 11 additional registers used only by the microprogrammed central processor. To increase performance, a second microprogrammed processor in each Tandem computer is dedicated to input-output operations. Each Tandem computer can have up to 524,000 eight-bit bytes of main memory.

As previously indicated, Tandem NonStop™ systems utilize a combination of hardware devices and software systems. *Guardian* is the operating system software for the NonStop™ systems. It provides a means of recognizing and responding to module failure, scheduling application programs according to customer assigned priorities, allocating system resources among different programs, communicating with peripheral devices, handling communications between programs and enabling expansion or contraction of a system without reprogramming. The Company believes that many of these operating system software tasks are essential for continuous system operation. Guardian relieves the user from the complex requirement of independently developing such software.

Enscribe is the operating systems software which allows simplified access to and manipulation of records in the data base, which may contain files of up to four billion characters. It also provides the capability to duplicate data bases automatically on two separate disc drives so that, when a failure occurs on one of the disc drives, processing continues without interruption on the other. When the inoperable disc drive is repaired, Enscribe automatically updates and corrects the data base of the returned disc without stopping the ongoing functions of the system.

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Envoy is the software which provides the interface between applications programs and data communications networks. Operating as an integral part of Guardian, Envoy assures that communications will be maintained in the event of a processor or input/output channel failure.

Users of the Tandem systems may write their applications programs in either of the two high level languages provided by Tandem, Tandem-COBOL or T/TAL. COBOL is a widely used standard business data processing language which the Company has adapted to its NonStop™ systems. T/TAL is a programming language unique to Tandem which has been designed for the most efficient use of the Tandem systems.

Tandem also provides users with several software development tools to aid them in applications programming. For example, *Entry* assists in designing data entry forms on a terminal screen, and *Edit* and *Galley* assist in text editing.

System Configurations

The Company offers a variety of system configurations which can be purchased with a wide range of peripheral devices commonly available in the computer industry. Tandem NonStop™ systems consist of all the hardware and software needed for a customer to start applications software development upon delivery of the system. Systems delivered to date have included between two and five processors. The Company believes, however, that a maximum of 16 processors may be combined in a system. The table below sets forth the Company's estimates concerning the expected range of computing power for a hypothetical small two processor system and a hypothetical large ten processor system:

Per System	Two Processor	Ten Processor
Main memory	0.384 megabytes	4.8 megabytes
Disc storage	20 megabytes	9,600 megabytes
Price (excludes terminals)	$136,000	$1,900,000

Manufacturing

Manufacture of Tandem's NonStop™ computer systems requires the assembly and testing of circuit boards, power supplies and memory systems and the final assembly and testing of completed computer systems. In general, the Company manufactures its systems from components and prefabricated parts such as integrated circuits, printed circuit boards and metal parts manufactured by others. Tandem also purchases major assemblies such as disc drives, tape drives and other peripheral equipment. Certain of the items manufactured by others such as printed circuit boards, power supplies and mechanical parts are made to the Company's specifications.

Approximately 25% of subassembly production for printed circuit boards and cables which will be incorporated into the Company's processors, main memories and controllers takes place at the Company's manufacturing facilities. The remaining 75% of subassembly production for these items is provided by subcontractors.

The Company purchases substantially all of the components of, and all of the peripheral devices used with, its systems from other manufacturers. Most of the components and peripherals used in the Company's systems are available from a number of different suppliers. The Company generally purchases major items such as peripherals from single sources of supply. The Company believes that alternative sources could be developed if required for present single supply sources. Although the Company has not experienced any significant problem in obtaining its required supplies, future shortages of components or peripherals could result in production delays which would adversely affect its business.

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Marketing

The Company markets its computer systems through its own sales organization. In addition to a sales office for Northern California located at its corporate headquarters, sales offices have been established in the Chicago, Dallas, Greensboro, North Carolina, Los Angeles, Philadelphia, St. Louis, Stamford, Connecticut, Washington, D.C., and Frankfurt and Munich, Germany areas. As of September 30, 1977, the Company employed 13 salesmen, 13 field systems analysts and 16 field engineers. The Company intends to continue to expand its marketing operations in the foreseeable future both in the United States and abroad.

Because of the Company's end user market orientation, the Company endeavors to minimize the time which elapses from the receipt of purchase orders to the date of shipment of its systems. Typically the Company ships its systems to customers within 90 days after receipt of orders. For this reason, and because of the possibility of customer changes in delivery schedules or cancellations of orders, the Company's backlog as of the end of any particular period is generally not representative of the Company's actual sales for the succeeding period.

The Company does not rent or lease any of its systems, nor is such a program contemplated. Customers who prefer to lease are asked to contact their own bank or an independent third party leasing company.

Training

The Company conducts training classes on a fee basis in software programming and hardware maintenance. Between April 1976 and September 1977, 166 individuals from 53 customers and prospective customers attended these classes which range in duration from two weeks to three weeks.

Field Service

The Company generally provides a 90-day warranty for its systems. Warranty liabilities have been nominal to date.

The Company offers post-warranty maintenance service under its standard maintenance contract, under which the Company provides all maintenance and repair services at monthly charges. As of September 30, 1977, the Company had in effect maintenance contracts covering 22 of the 26 systems which were no longer covered by warranty. Services under these contracts are performed by the Company's 16 field engineers.

Since the Company's NonStop™ systems are designed to function even if a single module fails, response time to a module failure can generally be longer than for a single processor computer system. Because subassemblies of the Company's systems are modular, maintenance can generally be performed by replacing, rather than repairing, malfunctioning subassemblies in the field. In addition, the NonStop™ system will generally identify a failed module for the field engineer, thereby simplifying maintenance of the system. Test verification and diagnostic software is included in the Company's systems to enhance system reliability, availability and serviceability.

Engineering and Development

The Company operates in an industry which is subject to rapid technological change, and Tandem's ability to compete and operate successfully depends upon, among other things, its ability to react to such change. Accordingly, Tandem is committed to the development of new hardware and software products as well as the improvement and refinement of existing products. During fiscal 1976 and 1977 the Company's product development expenses were approximately $979,000 and $1,094,000, respectively. See "Management's Discussion and Analysis of the Consolidated Statement of Operations." At September 30, 1977, the Company employed 15 persons in hardware development and 16 persons in software development.

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Competition

The market for computer systems is highly competitive. Many companies have established reputations in the computer industry and have far greater financial, technical and operating resources than the Company. Present competitors are companies which offer dual computer systems, including Burroughs Corporation, Data General Corporation, Digital Equipment Company, Hewlett-Packard Company, Honeywell Information Systems, Inc. and IBM Corporation. Management believes that sales of dual processor systems constitute only a small proportion of such competitors' total computer sales, and that none of these companies presently offers a system with the same capabilities as Tandem's NonStop™ systems. It is believed, however, that these or other data processing companies could develop and market systems similar to or competitive with the NonStop™ systems. It can be anticipated that others will enter the market in the future.

The computer industry is also characterized by rapid technological advances. The Company would be adversely affected if its competitors introduced technologically superior products. The Company believes that the computer industry will continue to make significant technological advances, and as a result, Tandem expects to continue to incur substantial engineering and development expenses.

Important considerations for potential purchasers of computer systems include systems performance, software capability, systems reliability and maintainability, capability of a manufacturer to develop new products and enhance existing products, and price, including the relationship of price to one or more of the foregoing factors.

Employees

As of September 30, 1977, the Company employed 137 persons, including 31 in engineering and software development, 31 in manufacturing, 66 in marketing and field service and nine in general management and administration.

The future of the Company will depend in part upon its ability to attract and retain additional qualified employees to the extent that its needs require. No assurance can be given that the Company will be able to attract such employees. It is not the Company's policy to require employees to sign employment contracts or noncompetition agreements.

The Company has a Qualified and a Non-Qualified Stock Option Plan (see "Management—Stock Option Plan") and has group health, life and disability insurance plans. None of the Company's employees is represented by a labor union and the Company has had no work stoppages. The Company believes that its employee relations are good.

Properties

The Company's headquarters and manufacturing, engineering, testing, training and Northern California sales office facilities are located in a modern building containing approximately 137,000 square feet of floor space located in Cupertino, California. The Company is initially leasing and occupying 45,000 square feet of this building. Under the terms of its lease, the Company will be obligated to lease an additional 45,000 square feet of this building on August 1, 1978, and the remaining 47,000 square feet on February 1, 1979. See Note 7 of Notes To Consolidated Financial Statements for information regarding lease terms and related obligations.

Patents

The Company has filed a patent application with the United States Patent Office containing numerous claims. Foreign patent applications were also in process as of September 30, 1977, in a limited number

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of countries. There can be no assurance that any of these applications will result in the issuance of a patent or that the Company will be successful in defending its right to the patent should there subsequently be patent infringement actions.

Because of rapid technological development in the computer industry with concurrent extensive patent coverage and the rapid rate of issuance of new patents, certain components of the Company's products may involve infringement of existing patents. If any such infringements do exist, the Company believes, based upon industry practice, that any necessary licenses or rights under patents may be obtained on conditions which would not have a materially adverse financial effect on the Company.

MANAGEMENT

Officers and Directors

The Executive Officers and Directors of the Company are as follows:

Name	Age	Title
Thomas J. Perkins	45	Chairman of the Board
James G. Treybig	37	President, Chief Executive Officer and Director
Michael D. Green	34	Vice President—Software Development
James A. Katzman	31	Vice President—Engineering
John C. Loustaunou	39	Vice President, Chief Financial Officer, Secretary and Director
Robert C. Marshall	46	Vice President—Manufacturing
Samuel J. Wiegand	48	Vice President—Marketing
Morton Collins*	41	Director
Thomas J. Davis, Jr.*	65	Director
Franklin P. Johnson, Jr.	49	Director
Eugene Kleiner*	54	Director

* Members of Audit Committee

Since 1972 Mr. Perkins has been a general partner of Kleiner & Perkins, a San Francisco private investment partnership which is one of the founders of the Company. From 1965 to 1972 Mr. Perkins served in various management capacities at the Hewlett-Packard Company, including director of corporate development from 1970 to 1972 and general manager of the computer division from 1967 to 1970. Mr. Perkins has been a director of the Company since 1974.

Mr. Treybig is the principal founder of the Company and has been its president since its formation. Mr. Treybig was an employee of Kleiner & Perkins from 1973 to the Company's formation in November 1974 and he continues to be a limited partner in that firm. From 1968 through 1973 Mr. Treybig served as a marketing manager of the computer and peripheral equipment divisions of the Hewlett-Packard Company. Mr. Treybig has been a director of the Company since 1974.

Mr. Green is one of the founders of the Company and has been one of its vice presidents since July 1975. For eight years prior to the formation of Tandem, Mr. Green was employed by the Hewlett-Packard Company in various technical and management positions in that firm's computer division software development groups.

Mr. Katzman is one of the founders of the Company and has been one of its vice presidents since July 1975. From 1972 until the formation of Tandem he was manager of a technical group of Amdahl Corporation.

Mr. Loustaunou is one of the founders of the Company and has been one of its vice presidents since its formation. Mr. Loustaunou was an employee of Kleiner & Perkins from 1973 to the Company's formation in 1974 and continues to be a limited partner in that firm. From 1966 through 1972, he served in various financial management positions with the Hewlett-Packard Company in the areas of accounting and control, including the position of data products group finance manager. Mr. Loustaunou has been a director of the Company since 1974.

Mr. Marshall joined the Company in 1975, and has been a vice president since that time. From 1974 until his employment by Tandem he served as a vice president of advanced operations of the Diablo division of Xerox Corporation. From 1969 to 1973 Mr. Marshall was vice president of manufacturing of the Diablo division of Xerox.

Mr. Wiegand has been a vice president since joining the Company in 1975. He was president of Ball Computer Products Inc., a subsidiary of Ball Corporation, from 1974 to 1975. From 1969 to 1972 Mr. Wiegand served as marketing vice president of Diablo Systems, Inc. (a computer peripheral manufacturer, now a division of Xerox Corporation).

Since 1974 Mr. Collins has been a general partner of DSV Associates, a Princeton, New Jersey private investment partnership. From 1968 to 1974 Mr. Collins was president of Data Sciences Ventures Incorporated, a private investment company. He has been a director of Tandem since 1975.

Since 1973 Mr. Davis has been a general partner of Mayfield II, and since 1969 he has been a general partner of Mayfield Fund. Both Mayfield II and Mayfield Fund are Menlo Park, California private investment partnerships. Mr. Davis has been a director of the Company since 1976.

Since 1967 Mr. Johnson has been the owner of Asset Management Company, a Palo Alto, California private investment proprietorship, and since 1974 he has been president of Asset Management Capital Company, a small business investment company. Mr. Johnson has been a director of the Company since 1975.

Since 1972 Mr. Kleiner has been a general partner of Kleiner & Perkins, a San Francisco private investment partnership which is one of the founders of the Company. Prior to that time, Mr. Kleiner had been a private investor. Mr. Kleiner has been a director of the Company since 1974.

Officers and directors are elected on an annual basis. The present terms of office for each director will expire at the 1978 Annual Meeting of Shareholders or at such time as his successor is duly elected.

Remuneration

The aggregate direct remuneration paid or accrued by Tandem for the fiscal year ended September 30, 1977, to each director and each of the three highest paid officers whose aggregate direct remuneration exceeded $40,000 and to all officers and directors as a group was as follows:

Name & Capacity	Remuneration
James G. Treybig, President and Director	$ 47,344
Samuel J. Wiegand, Vice President	$ 46,875
John C. Loustaunou, Vice President and Director	$ 42,083
All directors and officers as a group (11 persons)	$251,823

Stock Option Plans

In 1975 the Company adopted a qualified stock option plan (the "Qualified Plan") for certain key employees. Options under the Qualified Plan are intended to be "qualified stock options" within

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the meaning of Section 422 of the Internal Revenue Code of 1954, as amended. A maximum of 500,000 shares of the Company's Common Stock is authorized for issuance under the Qualified Plan. The term of each option is five years or until May 20, 1981, if earlier, and the option price must be 100% of the fair market value of the shares covered by the option on the date of grant. The option prices are determined by the Company's board of directors.

Options are outstanding under the Qualified Plan for the purchase of 147,053 shares of Common Stock. The range of the expiration dates of the outstanding options is from February 6, 1981 to May 20, 1981, and the average exercise price is $2.27. Shares of Common Stock issued under this plan are subject to certain repurchase rights by the Company. See "Description of Securities—Common Stock."

In 1975 the Company also adopted a non-qualified stock option plan (the "Non-Qualified Plan") with respect to 500,000 shares of its Common Stock. Although the Non-Qualified Plan provides that options may be granted with exercise dates of up to seven years from the date of grant, the term of each outstanding option is one year. In addition, the option price must be 100% of the fair market value of the shares covered by the option on the date of grant. The option prices are determined by the Company's board of directors.

Options are outstanding under the Non-Qualified Plan for the purchase of 50,900 shares of Common Stock. In each case the expiration date is December 14, 1978, and the exercise price is $11.50 per share.

Options granted under either the Qualified Plan or the Non-Qualified Plan reduce share for share the number of shares available under the other plan.

No options have been granted to officers or directors of the Company.

Certain Transactions with Management and Others

The information set forth herein under the caption "Certain Transactions with Management and Others" has been adjusted to give effect to the automatic conversion of Preferred Stock into Common Stock on the date of this Prospectus. See "Description of Securities—Common Stock."

The Company believes that Messrs. Treybig, Loustaunou, Green and Katzman and Kleiner & Perkins may be considered "founders" of the Company within the meaning of the rules and regulations promulgated under the Securities Act of 1933. Wilmington Securities, Inc., a wholly-owned subsidiary of The Hillman Company, owns approximately 50% of the limited partnership interests in Kleiner & Perkins, and also owns 166,667 shares of Common Stock. The following table sets forth the number of shares of Common Stock which were sold to and the price paid therefor by each founder.

	Shares	Price Per Share(1)	Date of Purchase
James G. Treybig	109,000	$ .05	March 12, 1975
John C. Loustaunou	82,000	$ .05	March 12, 1975
Michael D. Green	77,000	$ .05	March 13, 1975
James A. Katzman	77,000	$ .05	March 17, 1975
Kleiner & Perkins	200,000	$ .25(2)	March 13, 1975
	720,000	$1.25(2)	May 15, 1975
	166,667	$3.00(2)	November 18, 1975

(1) All shares were purchased for cash.

(2) Purchase price for shares of the Company's Preferred Stock which will automatically be converted into Common Stock on the date of this Prospectus. See "Description of Securities—Common Stock."

(3) This table does not include the 166,667 shares of Common Stock owned directly by Wilmington Securities, Inc.

In addition, on December 12, 1974, Kleiner & Perkins guaranteed a loan in the amount of $150,000 to the Company from a bank, which loan was repaid in 1975. Mr. Kleiner and Mr. Perkins, the general partners of Kleiner & Perkins, are directors of the Company.

The following table sets forth the number of shares of Common Stock which were sold to and the price paid therefor by shareholders of the Company (other than the founders) who were associates of directors of the Company:

Name	Shares	Price Per Share(1)	Date of Purchase
Asset Management Capital Company(2)	40,000	$1.25	May 1, 1975
	3,333	$3.00	November 18, 1975
Mayfield II(3)	166,667	$3.00	November 18, 1975
	100,000	$5.00	July 23, 1976
DSV Associates(4)	83,334	$3.00	November 18, 1975

(1) Purchase price for shares of the Company's Preferred Stock which will automatically be converted into Common Stock on the date of this Prospectus. See "Description of Securities—Common Stock."

(2) Mr. Johnson, president of Asset Management Capital Company, is a director of the Company.

(3) Mr. Davis, a general partner of Mayfield II, is a director of the Company.

(4) Mr. Collins, a general partner of DSV Associates, is a director of the Company.

(5) This table does not include the 166,667 shares of Common Stock owned directly by Wilmington Securities, Inc.

PRINCIPAL HOLDERS OF SECURITIES

The following table sets forth, as of October 31, 1977, the percentage of outstanding shares held by the only shareholder which owned beneficially more than 10% of the Company's Common Stock and the percentage of outstanding shares owned by all officers and directors as a group.

Name and Address	Type of Ownership	Number of Shares(1)	Percentage(1) Before Offering	Percentage(1) After Offering(2)
Kleiner & Perkins Two Embarcadero Center, Suite 2900 San Francisco California	beneficially and of record	1,086,667	38.5	30.8
All officers and directors as a group (11 persons)(3)	beneficially and of record	436,000	15.4	12.4

(1) Adjusted to give effect to the automatic conversion of Preferred Stock into Common Stock on the date of this Prospectus. See "Description of Securities—Common Stock."

(2) Does not reflect the issuance of any shares as a result of the exercise of the Underwriters' overallotment option.

(3) Excludes 1,086,667 shares held by Kleiner & Perkins, a California limited partnership (of which directors Kleiner and Perkins are general partners), 266,667 shares held by Mayfield II (of which director Davis is a general partner), 83,334 shares held by DSV Associates (of which director Collins is a general partner) and 43,333 shares held by Asset Management Capital Company (of which director Johnson is president).

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DESCRIPTION OF SECURITIES

Preferred Stock

On the date of this Prospectus, the Company will file Restated Articles of Incorporation which will authorize 2,400,000 shares of Preferred Stock, par value $.10 per share, none of which will be outstanding. The board of directors of the Company will be authorized to fix the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption, liquidation preferences on any wholly unissued series of Preferred Stock, the number of shares constituting any such series and the designation thereof.

Common Stock

The Restated Articles of Incorporation referred to under "Preferred Stock" will also increase the authorized Common Stock to 10,000,000 shares, par value $.05 per share. On the date of this Prospectus 2,824,466 shares of Common Stock will be outstanding. 2,198,702 of such shares will have been issued pursuant to the automatic conversion of five series of outstanding Preferred Stock on the basis of one share of Common Stock for each share of Preferred Stock. The number of shares constituting each series of Preferred Stock which will have been converted, and the prices paid therefor are as follows: Series A—200,000 shares at $.25 per share, Series B—773,000 shares at $1.25 per share, Series C—673,702 at $3.00 per share, Series D—427,000 at $5.00 per share, Series E—125,000 at $8.00 per share.

Each shareholder of Common Stock is entitled to one vote for each share held of record and may cumulate votes for the election of directors. Shareholders are entitled to receive such dividends as may be declared from time to time by the board of directors out of funds legally available therefor and to share pro rata in any other distribution to shareholders of Common Stock. Except as described in the paragraph below with respect to the shares subject to the Purchase Option, the Common Stock is not entitled to preemptive rights and is not subject to redemption or assessment.

Employee registration rights and repurchase agreements

Each employee or consultant who has purchased Common Stock has executed an agreement which grants the Company an option (the "Purchase Option") to repurchase from him at his original cost a declining percentage of the shares over a four-year period, in the event he ceases to be an employee of or consultant for the Company. If the Company waives or fails to exercise the Purchase Option as to all shares subject thereto, the Company may, at its option, give notice of the price and number of shares available to certain other shareholders, and such shareholders shall be entitled to purchase a pro rata portion of the available shares.

In addition, each employee or consultant who has purchased Common Stock, other than through exercise of an option granted pursuant to the Company's Qualified Stock Option Plan, may request the Company to include not more than 10% of the Common Stock held by him in any registration statement filed by the Company under the Securities Act of 1933 (the "Act") which includes Preferred Stock, or Common Stock issued upon conversion thereof, held by Kleiner & Perkins or certain transferees of Kleiner & Perkins. Such registration rights expire for each such holder of Common Stock on the earlier of (i) effectiveness of a registration statement under the Act covering any shares of such holder's Common Stock, (ii) receipt by the Company of a letter from the Securities and Exchange Commission indicating that the Commission will not take action if such holder disposes of the shares of Common Stock included in any registration request without registration under the Act, whether pursuant to Rule 144 or any other applicable rule, or (iii) eight years after the execution of the agreement which gives the holder such registration rights.

Rights of certain other holders of Common Stock

The stock purchase agreements relating to each series of Preferred Stock which is being automatically converted to Common Stock on the date of this Prospectus provide that so long as an original holder of Preferred Stock under such agreements ('the "Holder") continues to hold shares of Common Stock received upon conversion of his Preferred Stock (the "Shares"), if the Company prepares to offer any shares of any class of its capital stock or any securities convertible into such capital stock for the purpose of financing its business, the Company shall first offer such shares to each Holder in the same proportion that the Holders' Shares having such rights shall bear to all outstanding Shares having such rights; provided, however, that such right of first refusal shall not generally be applicable to (i) sales of shares to employees, (ii) sales of two percent or less of its outstanding Common Stock in a twelve-month period to persons with whom the Company is transacting business and (iii) a firmly underwritten public offering at a public offering price greater than $3.00 in the case of Series A, Series B and Series C, $5.00 in the case of Series D, and $8.00 in the case of Series E.

The preferred stock agreements relating to the Series C, Series D and Series E Preferred Stock also provide that, after the effective date of the first registration statement filed by the Company under the Act, the Holders (or certain entities affiliated with the Holders to whom the Holders have transferred their registration rights, or transferees who purchase a minimum of 10,000 Shares from the Holders) of at least 35% of the Shares may request that the Company file a registration statement under the Act for at least 20% of such Shares (or a lesser percentage if the reasonably anticipated net proceeds to the Company of the offering would exceed $1,000,000). Such sales would be made through underwriters acceptable to the Company and the Holders. The Company is required to effect two such registrations for each of the Series C, Series D and Series E of Preferred Stock to be converted to Common Stock on the date of this Prospectus. The preferred stock agreements relating to the Series A and the Series B Preferred Stock give the Holders thereof similar registration rights, except that such rights expire eight years after the purchase of the Preferred Stock, and the Company is only required to effect one registration for the Series A Preferred Stock.

In addition, under the terms of the preferred stock agreements for each of the five series of Preferred Stock, whenever the Company proposes to register any Common Stock under the Act for a public offering for cash, the Company is required, each such time, to give the Holders notice, and to use its best efforts to cause all Shares which the Holder may request to be included in such registration; provided, among other things, that the proposed managing underwriter does not advise the Company that in its opinion the inclusion of the Holder's Shares would adversely affect the offering or the pricing thereof.

Reports to Shareholders

The Company plans to distribute to shareholders annual reports containing audited financial statements and quarterly reports containing unaudited summaries of sales and earnings.

Transfer Agent and Registrar

The Company has appointed Bank of America National Trust and Savings Association, San Francisco, California as its transfer agent and registrar of Common Stock.

UNDERWRITING

In the Purchase Agreement, the Underwriters, represented by L. F. Rothschild, Unterberg, Towbin and Robertson, Colman, Siebel & Weisel, have agreed severally, subject to the terms and conditions therein set forth, to purchase from the Company, and the Company has agreed to sell to them, the respective number of shares of Common Stock, totaling 700,000 shares, set forth opposite their respective names below. The Underwriters are committed to take and pay for all shares if any shares are taken.

The names of the several Underwriters and the respective number of shares to be purchased by each of them are:

Name	Number of Shares to Be Purchased	Name	Number of Shares to Be Purchased
L. F. Rothschild, Unterberg, Towbin	145,150	Crowell, Weedon & Co.	3,600
Robertson, Colman, Siebel & Weisel	145,150	Dain, Kalman & Quail, Incorporated	3,600
Bache Halsey Stuart Shields Incorporated	10,000	F. Eberstadt & Co., Inc.	3,600
The First Boston Corporation	10,000	A. G. Edwards & Sons, Inc.	3,600
Blyth Eastman Dillon & Co. Incorporated	10,000	Ladenburg, Thalmann & Co. Inc.	3,600
Donaldson, Lufkin & Jenrette Securities Corporation	10,000	Legg Mason Wood Walker, Incorporated	3,600
		Loewi & Co. Incorporated	3,600
Drexel Burnham Lambert Incorporated	10,000	McDonald & Company	3,600
Goldman, Sachs & Co.	10,000	Moseley, Hallgarten & Estabrook Inc.	3,600
Hornblower, Weeks, Noyes & Trask Incorporated	10,000	Neuberger & Berman	3,600
		Prescott, Ball & Turben	3,600
E. F. Hutton & Company Inc.	10,000	Rotan Mosle Inc.	3,600
Kidder, Peabody & Co. Incorporated	10,000	Rauscher Pierce Securities Corporation	3,600
Kuhn Loeb & Co. Incorporated	10,000	The Robinson-Humphrey Company, Inc.	3,600
Lehman Brothers Incorporated	10,000	Shuman, Agnew & Co., Inc.	3,600
Loeb Rhoades & Co. Inc.	10,000	Sutro & Co. Incorporated	3,600
New Court Securities Corporation	10,000	Tucker, Anthony & R. L. Day, Inc.	3,600
Reynolds Securities Inc.	10,000	UBS-DB Corporation	3,600
Smith Barney, Harris Upham & Co. Incorporated	10,000	Wheat, First Securities, Inc.	3,600
		Birr, Wilson & Co., Inc.	2,500
Wertheim & Co., Inc.	10,000	Burgess & Leith Incorporated	2,500
White, Weld & Co. Incorporated	10,000	The Chicago Corporation	2,500
Dean Witter & Co. Incorporated	10,000	Davis, Skaggs & Co., Inc.	2,500
Bear, Stearns & Co.	10,000	Fahnestock & Co.	2,500
Shearson Hayden Stone Inc.	10,000	First Manhattan Co.	2,500
Alex. Brown & Sons	5,000	Foster & Marshall Inc.	2,500
Hambrecht & Quist	5,000	Furman Selz Mager Dietz & Birney Incorporated	2,500
Oppenheimer & Co., Inc.	5,000	Gruntal & Co.	2,500
Piper, Jaffray & Hopwood Incorporated	5,000	J. J. B. Hilliard, W. L. Lyons, Inc.	2,500
Advest, Inc.	3,600	Moore & Schley, Cameron & Co.	2,500
Allen & Company Incorporated	3,600	Moore, Leonard & Lynch, Incorporated	2,500
Arnhold and S. Bleichroeder, Inc.	3,600	Morgan, Olmstead, Kennedy & Gardner Incorporated	2,500
Bacon, Whipple & Co.	3,600		
Basle Securities Corporation	3,600	Newhard, Cook & Co. Incorporated	2,500
Bateman Eichler, Hill Richards Incorporated	3,600	Parker/Hunter Incorporated	2,500
William Blair & Company	3,600	Stephens Inc.	2,500
Blunt Ellis & Simmons Incorporated	3,600	Black & Company, Inc.	1,500
Boettcher & Company	3,600	Cowen & Co.	1,500
J. C. Bradford & Co., Incorporated	3,600	First Equity Corporation of Florida	1,500

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Name	Number of Shares to Be Purchased	Name	Number of Shares to Be Purchased
John Muir & Co.	1,500	Banque Louis-Dreyfus	3,600
Muller & Co.	1,500	Buckmaster & Moore	3,600
Seidler, Arnett & Spillane Incorporated	1,500	Kitcat & Aitken	3,600
Henry F. Swift & Co.	1,500	Pictet Internationl Ltd.	3,600
Ultrafin International Corporation	1,500	Samuel Montagu & Co. Limited	3,600
Hans Utsch & Co., Inc.	1,500	J. Henry Schroder Wagg & Co. Ltd.	3,600
Warren W. York & Co., Inc.	1,500	Singer & Friedlander Ltd.	3,600
Wedbush, Noble, Cooke, Inc.	1,500	Vereins- und Westbank Aktiengesellschaft	3,600
		Total	700,000

The Underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page. The Underwriters may allow a concession not exceeding $.42 per share to selected dealers who are members of the National Association of Securities Dealers, Inc. and to certain foreign dealers, and the Underwriters may allow, and such dealers may reallow, to members of the National Association of Securities Dealers, Inc. and to certain foreign dealers a concession not exceeding $.25 per share. After the initial public offering, the public offering price and concessions may be changed.

The Company has granted an option to the Underwriters, exercisable during the eight-day period after the date of this Prospectus, to purchase up to a maximum of 70,000 shares of Common Stock at the same price per share as the initial 700,000 shares. The Underwriters may exercise such option only to cover over-allotments in the sale of the shares that the Underwriters have agreed to purchase. To the extent that the Underwriters exercise such option, each of the Underwriters will have a firm commitment, subject to certain conditions, to purchase the same percentage of the option shares as the number of shares to be purchased and offered by that Underwriter in the above table bears to 700,000.

The Company has agreed to indemnify the Underwriters against certain liabilities which may be incurred in connection with this offering, including certain liabilities under the Securities Act of 1933.

The Underwriters do not intend to confirm sales to any accounts over which they exercise discretionary authority.

Mr. Kleiner, a director of the Company and a general partner of Kleiner & Perkins, is a limited partner of Robertson, Colman, Siebel & Weisel. Certain shareholders of the Company are affiliated or associated with firms which are members of the National Association of Securities Dealers, Inc. and which are among the Underwriters. Such firms will be participating in the offering pursuant to Section 4(b) of Schedule E to the by-laws of the National Association of Securities Dealers, Inc.

Pricing of the Offering

There has been no prior market for the Common Stock of the Company. Consequently, the offering price has been determined by negotiation between the Company and the Representatives of the Underwriters. Among the factors considered in such negotiations were the prices paid by purchasers of securities of the Company since its formation, estimates of the business potential of the Company and the present state of the Company's development. The estimated offering price range set forth on the cover page of this Prospectus should not, however, be considered an indication of the actual value of the Company. Such price range is subject to change as a result of market conditions and other factors.

Calculated on the basis of the public offering price of $11.50 per share, the aggregate value of the shares to be outstanding prior to the offering of shares, adjusted to give effect to the automatic conversion of Preferred Stock into Common Stock on the date of this Prospectus, would be $32,481,359. Such amount would not, however, necessarily be considered indicative of the actual value of the Company.

LEGAL OPINIONS

The legality of the Common Stock offered hereby will be passed upon for the Company by Pillsbury, Madison & Sutro, San Francisco, California. Orrick, Herrington, Rowley & Sutcliffe, San Francisco, California, are acting as counsel for the Underwriters in connection with certain legal matters relating to the shares of Common Stock offered hereby.

EXPERTS

The consolidated financial statements and schedules included in this Prospectus and elsewhere in the Registration Statement have been examined by Arthur Andersen & Co., independent public accountants, as indicated in their reports with respect thereto, and are included herein in reliance upon the authority of said firm as experts in giving said reports.

The statements included in this Prospectus in the first paragraph under the caption "Business—Patents" have been reviewed by Donald C. Feix, Esq., patent counsel for the Company, and are included herein in reliance upon the authority of such counsel as an expert in such matters.

ADDITIONAL INFORMATION

The Company has filed with the Securities and Exchange Commission, Washington, D. C. 20549, a Registration Statement under the Securities Act of 1933 with respect to the Common Stock offered hereby. This Prospectus does not contain all of the information set forth in such Registration Statement and the exhibits and schedules thereto, and reference to such Registration Statement, exhibits and schedules is made hereby.

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

To Tandem Computers Incorporated:

We have examined the consolidated balance sheet of Tandem Computers Incorporated (a California corporation) and subsidiaries as of September 30, 1977, and the related consolidated statements of operations, shareholders' investment and changes in financial position for the period from November 29, 1974 (date of incorporation), to September 30, 1975, and the years ended September 30, 1976 and 1977. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Tandem Computers Incorporated and subsidiaries as of September 30, 1977, and the results of their operations and the changes in their financial position for the period from November 29, 1974, to September 30, 1975, and the years ended September 30, 1976 and 1977, in conformity with generally accepted accounting principles consistently applied during the periods.

ARTHUR ANDERSEN & CO.

San Jose, California,
November 3, 1977.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEET
September 30, 1977

ASSETS

Current Assets:

Cash	$ 108,810
Accounts receivable (Note 4)	2,601,622
Inventories (Notes 1 and 4)	1,863,052
Prepaid expenses	92,006
Total current assets	4,665,490

Property and Equipment, at Cost (Notes 1, 3 and 7):

Production and test equipment	152,399
Computer equipment	396,685
Office furniture and equipment	93,973
Systems spares	262,587
Leasehold improvements	29,910
	935,554
Less—Accumulated depreciation	230,546
	705,008
	$5,370,498

LIABILITIES AND SHAREHOLDERS' INVESTMENT

Current Liabilities:

Notes payable to bank (Note 4)	$ 800,000
Current maturities of capitalized lease obligation	90,869
Accounts payable	1,114,715
Accrued expenses	313,210
Total current liabilities	2,318,794

Capitalized Lease Obligation, net of current maturities (Note 3)	316,420

Commitments (Note 7)

Shareholders' Investment (Notes 5 and 6):

Preferred stock—$.10 par value, authorized 2,400,000 shares, outstanding 2,073,702 shares, aggregate liquidating preference of $5,518,956	207,370
Common stock—$.05 par value, authorized 4,000,000 shares, outstanding 625,464 shares	31,273
Additional paid-in capital	4,986,617
Deficit	(2,489,976)
Total shareholders' investment	2,735,284
	$5,370,498

The accompanying notes are an integral part of this balance sheet.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF SHAREHOLDERS' INVESTMENT
For the Period from November 29, 1974 (Date of Incorporation)
to September 30, 1975 and
the Years Ended September 30, 1976 and 1977

	Preferred Stock				Additional Paid-in Capital	Common Stock		Deficit	Total Shareholders' Investment
	Series A	Series B	Series C	Series D		Shares	Amount		
Sale of preferred stock—									
Series A, 200,000 shares at $.25 per share	$20,000	$ —	$ —	$ —	$ 30,000	—	$ —	$ —	$ 50,000
Series B, 773,000 shares at $1.25 per share	—	77,300	—	—	888,950	—	—	—	966,250
Sale of common stock to employees at $.05 per share	—	—	—	—	—	489,600	24,480	—	24,480
Net loss	—	—	—	—	—	—	—	(646,150)	(646,150)
Balance, September 30, 1975	20,000	77,300	—	—	918,950	489,600	24,480	(646,150)	394,580
Sale of preferred stock—									
Series C, 673,702 shares at $3 per share, net of related expenses of $13,850	—	—	67,370	—	1,939,886	—	—	—	2,007,256
Series D, 427,000 shares at $5 per share, net of related expenses of $13,800	—	—	—	42,700	2,078,500	—	—	—	2,121,200
Sale of common stock to employees at $.05 per share	—	—	—	—	—	43,200	2,160	—	2,160
Repurchase of common stock	—	—	—	—	—	(3,251)	(163)	—	(163)
Net loss	—	—	—	—	—	—	—	(2,168,770)	(2,168,770)
Balance, September 30, 1976	20,000	77,300	67,370	42,700	4,937,336	529,549	26,477	(2,814,920)	2,356,263
Sale of common stock under stock option plan	—	—	—	—	51,145	97,877	4,894	—	56,039
Repurchase of common stock	—	—	—	—	(1,864)	(1,962)	(98)	—	(1,962)
Net income	—	—	—	—	—	—	—	324,944	324,944
Balance, September 30, 1977	$20,000	$77,300	$67,370	$42,700	$4,986,617	625,464	$31,273	$(2,489,976)	$2,735,284

The accompanying notes are an integral part of this statement.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

For the Period from November 29, 1974 (Date of Incorporation) to September 30, 1975 and
the Years Ended September 30, 1976 and 1977

	1975	1976	1977
Working Capital Provided From (Used For):			
Net income (loss) before extraordinary credit	$ (646,150)	$(2,168,770)	$ 157,944
Add back-depreciation and amortization not requiring the use of working capital	17,825	55,263	167,011
Funds provided from (used for) operations	(628,325)	(2,113,507)	324,955
Extraordinary credit	—	—	167,000
Acquisition of property and equipment	(171,787)	(288,603)	(534,072)
(Increase) Decrease in lease deposits	(48,369)	(3,043)	51,412
Organization costs	(10,889)	—	—
Net book value of equipment sold or retired	—	1,107	51,289
Increase in capitalized lease obligation, net of current maturities	184,474	128,075	3,871
Sale of preferred stock, net of related expenses	1,016,250	4,128,456	—
Sale of common stock, net of repurchases	24,480	1,997	54,077
Net increase in working capital	$ 365,834	$ 1,854,482	$ 118,532
Working Capital Increase Represented By:			
Increase (Decrease) in current assets—			
Cash and cash investments	$ 446,761	$ 1,070,130	$(1,408,081)
Accounts receivable	—	460,774	2,140,848
Inventories	—	585,591	1,277,461
Prepaid expenses	7,124	37,490	39,544
(Increase) in current liabilities—			
Notes payable to bank	—	—	(800,000)
Current portion of capitalized lease obligation	—	(45,998)	(44,871)
Accounts payable	(59,226)	(208,424)	(847,065)
Accrued expenses	(28,825)	(45,081)	(239,304)
Net increase in working capital	$ 365,834	$ 1,854,482	$ 118,532

The accompanying notes are an integral part of this statement.

1. Summary of Significant Accounting Policies

Consolidation

The consolidated financial statements include the accounts of Tandem Computers Incorporated, its German sales subsidiary and a Domestic International Sales Corporation (DISC) after elimination of intercompany accounts and transactions. The accounts of the foreign subsidiary have been translated into U.S. dollars in accordance with Financial Accounting Standards Board Statement No. 8. Translation gains and losses are not significant and are reflected in the results of operations.

Revenue Recognition

The Company generally recognizes revenues and provides for estimated warranty costs on systems at the time of shipment.

Inventories

Inventories are stated at the lower of cost (first-in, first-out) or market and include material, labor, and manufacturing overhead. The components of inventory used to determine cost of revenues were:

	September 30,		
	1975	1976	1977
Purchased parts and subassemblies	$ —	$133,669	$1,184,558
Work-in-process and finished systems	—	451,922	678,494
	$ —	$585,591	$1,863,052

Income Taxes

The Company provides for income taxes on total DISC income, and accounts for investment tax credits as a reduction of the provision for taxes on income in the year in which the related credits are realized. Such investment tax credits have not been significant.

Property and Equipment

Systems spares are depreciated using the double declining balance method. All other property and equipment are depreciated using the straight-line method. The estimated useful lives are:

	Years
Production and test equipment	5-10
Computer equipment	5
Office furniture and equipment	5-10
Systems spares	4
Leasehold improvements	5

Expenditures for maintenance and repairs are charged to operations as incurred. Expenditures for major betterments and renewals are capitalized and depreciated over the estimated remaining useful life of the asset. The net gain or loss on assets retired or otherwise disposed of is credited or charged to operations and the asset cost and related depreciation are removed from the accounts.

2. Income Taxes

The provision for income taxes (all current) for the year ended September 30, 1977, is comprised of:

Federal	$ 74,000
State	26,000
Foreign	71,000
	$171,000

The provision for Federal income taxes differs from the amount obtained by applying the statutory Federal income tax rate (48%) to income before taxes as follows:

Federal tax provision at statutory rate	$158,000
State income taxes net of Federal income tax benefit	(13,000)
Foreign income taxes	(71,000)
	$ 74,000

As of September 30, 1977, the Company had a net operating loss carryforward for Federal income tax purposes of approximately $2,450,000, of which $1,980,000 expires in 1983 and $470,000 expires in 1980. In addition, there was a net operating loss carryforward for German income tax purposes of approximately $40,000 which expires in 1981.

3. Capitalized Lease Obligation

As of September 30, 1977, the Company had leased from a bank $454,000 of equipment for a period of five years with an option to purchase the equipment at the fair market value at the end of the lease period. This lease has been capitalized because the lease period approximates the estimated useful life of the equipment.

The Company makes monthly payments of $9,205. The following summarizes the future minimum lease payments together with the present value of the net minimum lease payments as of September 30, 1977.

Year Ending September 30	
1978	$110,465
1979	110,465
1980	110,465
1981	110,465
1982	53,187
Total minimum lease payments	495,047
Less: Amount representing interest (8%)	87,758
Present value of net minimum lease payments	$407,289

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4. Notes Payable to Bank

In February 1977, the Company entered into a credit agreement with a bank providing for working capital borrowings up to $1,000,000, secured by receivables and inventory. On October 5, 1977, this credit agreement was replaced with a revolving line of credit agreement providing for borrowings up to $2,000,000, secured by receivables, inventory and all other assets. The new agreement, which expires December 31, 1978, provides for borrowings, based on a revolving formula and evidenced by demand notes, at .75% above the bank's prime lending rate.

Among other things, the credit agreement requires the Company to (1) maintain a current ratio of 2.0 to 1, (2) maintain a compensating balance of 5% of the commitment plus 5% of the line utilized, (3) maintain a maximum total debt to tangible net worth ratio of 1 to 1, and (4) be profitable on a fiscal quarterly basis.

The average interest rate on borrowings during fiscal 1977 was approximately $7\frac{1}{2}\%$. During 1977 the average month-end borrowing was $625,000 and the maximum borrowing at any month end was $950,000. The balance outstanding at September 30, 1977 ($800,000) was repaid shortly after year-end from proceeds of the sale of preferred stock described in Note 5.

5. Preferred Stock

The Company has authorized 2,400,000 shares of preferred stock, $.10 par value, of which the following four series were outstanding at September 30, 1977:

	Par Value
Series A, Convertible—200,000 shares	$ 20,000
Series B, Convertible—773,000 shares	77,300
Series C, Convertible—673,702 shares	67,370
Series D, Convertible—427,000 shares	42,700
	$207,370

Preferred shareholders have liquidation preferences equal to their purchase price ($.25-Series A, $1.25-Series B, $3-Series C, and $5-Series D) plus all accrued and unpaid dividends. Each share of Series A, B, C, and D preferred stock is entitled to a cumulative annual dividend of $.01, $.05, $.12 and $.20, respectively, to the extent available.

As of September 30, 1977, Kleiner & Perkins, a California limited partnership, owned 200,000 shares of the outstanding Series A preferred stock, 720,000 shares of the outstanding Series B preferred stock and 166,667 shares of the outstanding Series C preferred stock.

On October 4, 1977, the Company sold 125,000 shares of Series E convertible preferred stock at $8 per share for $1,000,000 and used $800,000 of the proceeds to repay the bank indebtedness outstanding at September 30, 1977.

Each preferred share will be automatically converted into one share of common stock upon the effective date of a registration statement which yields proceeds of at least $1,000,000 to the Company. In such event, any undeclared dividends in arrears will no longer be payable.

6. Common Stock

All sales of common stock, other than those under stock option plans, have been to employees under agreements which grant the Company the right to repurchase a percentage of the shares if the employee terminates within four years from the date of employment. The repurchase price is equal to the amount per share originally paid by the employee and represents the fair market value of the stock, as determined by the Board of Directors, on the date of sale to the employee.

The Company has reserved 2,400,000 shares of common stock for issuance upon conversion of its preferred stock and has reserved an aggregate of 500,000 shares of common stock for issuance under two stock option plans adopted in fiscal 1976.

Under one plan, the option price may not be less than 100% of the fair market value on the date of grant as determined by the Board of Directors. All options granted under this plan are exercisable upon the date of grant and expire five years from the date of grant or on May 20, 1981, if earlier. Under the other plan, the option price is such price as the Board of Directors deems appropriate. All options granted under this plan are also exercisable upon the date of grant and expire seven years from the date of grant. However, no options may become exercisable until the shares contingently issuable have been registered or are legally determined to be exempt from registration. Shares purchased upon exercise of the options are also subject to repurchase terms similar to those described above.

As of September 30, 1977, all options have been granted at fair market value, as determined by the Board of Directors. There have been no charges against operations with respect to such plans. At September 30, 1977 and 1976, there were options for 278,782 and 394,400 shares, respectively, available for future grant. Following is a summary of activity under the plans:

Options outstanding as of September 30, 1977:

Granted in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date of Grant	
		Per Share	Total	Per Share	Total
1976	21,810	$ .50-1.00	$ 11,905	$ .50-1.00	$ 11,905
1977	103,493	1.00-3.50	179,868	1.00-3.50	179,868
	125,303		$191,773		$191,773

Options became exercisable as follows:

Became Exercisable in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Became Exercisable	
		Per Share	Total	Per Share	Total
1977	171,868	$ .50-1.00	$126,425	$1.00	$171,868

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Options were exercised as follows:

Exercised in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Exercised	
		Per Share	Total	Per Share	Total
1977	95,915	$ .50-1.00	$ 60,377	$1.00-3.50	$104,040

7. Commitments

In August 1977, the Company entered into a lease agreement for headquarters and operating facilities which the Company plans to occupy in November 1977. The lease period is from October 1977 through February 1984, with an option to renew the lease for an additional five years. The Company is committed to occupy 45,000 square feet of the building through July 1978, 90,000 square feet through January 1979 and the entire building (137,000 square feet) thereafter. The Company also leases autos and field offices under lease agreements which expire through 1980. Future lease payments are as follows:

Year Ending September 30	
1978	$ 342,600
1979	602,400
1980	617,500
1981	574,500
1982	558,300
1983-87	790,500
	$3,485,800

The Company has been released from its present headquarters and operating facilities leases without any significant liability. Rent expense for the periods ended September 30, 1975, 1976 and 1977 was $21,000, $82,000 and $165,000, respectively.

8. Supplementary Profit and Loss Information

The following items were charged to operations:

	Year Ended September 30	
	1976	1977
Taxes other than income:		
Payroll	$74,839	$141,223
Property	10,278	11,753
Advertising costs	94,405	124,396

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TANDEM

Among computer companies, Tandem Computers Incorporated stands alone in its full focus on what the company believes are the critical requirements of the rapidly expanding segment of the data processing marketplace known as on-line transaction processing. This marketplace, characterized by a continual need for instantaneous information to control vital aspects of business operations, is the heartbeat of the emerging age of automation. In this marketplace,

TANDEM

the computer finds its most demanding environment: system failures and loss or damage to the customers' essential data bases can seriously disrupt business. ∞ Tandem designs, develops, manufactures, markets and services a unique system in response to the unique needs of the on-line marketplace. It is called the Tandem NonStop 16. Its innovative architecture virtually eliminates the risk of system failures and protects the customers' data bases from damage caused by electronic hardware failures. ∞ The Tandem NonStop 16 is the only computer system designed-from-scratch for uninterrupted operation: it can even be serviced—parts removed and replaced—while the system is running and without interrupting the customers' operations. ∞ The versatility and uniqueness of

TANDEM

Tandem's product line is further distinguished by its capacity for modular expansion. The Tandem NonStop 16 is, in effect, a family of systems. It is the only computer system that can be expanded on the customer's floor from a mid-size to a large-scale system with no massive, costly and disruptive hardware or software conversions . . . by merely adding processor modules. ∞ Tandem's customers enjoy these proprietary features while maintaining low costs per transaction. ∞ In evidence of the validity of the Tandem concepts and the vitality of the on-line marketplace, Tandem's fiscal 1978 revenues, as compared to 1977, tripled. ∞ And, reflecting the company's growing maturity, fiscal 1978 pre-tax return on revenues rose sharply from 4.3% to 18.5% to yield a pre-tax earnings gain of 13 times.

Highlights of the Year

Fiscal year ended September 30	1978	1977
Revenues	$24,305,000	$7,692,000
Income Before Income Taxes	$ 4,490,000	$ 329,000
Pre-Tax Return on Revenues	18.5%	4.3%
Net Income*	$ 2,153,000	$ 158,000
Earnings Per Share*	$.60	$.06
Weighted Average Shares Outstanding	3,589,974	2,679,923
Working Capital	$13,702,000	$2,346,000
Total Assets	$22,051,000	$5,370,000
Shareholders' Equity	$15,538,000	$2,735,000
Number of Employees	446	137

*before extraordinary credit

Quarterly Revenues
(In thousands of dollars; fiscal quarters)

1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q
1977 1978
(quarterly reports unaudited)

1

People
(fiscal quarters)

400

300

200

100

1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q
1977 1978
(quarterly reports unaudited)

TO OUR SHAREHOLDERS:

Fiscal 1978 was an excellent year for Tandem; a year where we met our goals for high growth with attractive profits, and a year in which Tandem invested heavily in its future. Major strategic steps during the year have significantly expanded our marketplace and have given Tandem the financial strength and the personnel depth to continue achieving our objectives for revenue and profit growth and leadership in the emerging market for on-line transaction processing computer systems.

Tandem's financial position at year-end was sound. On fiscal 1978 revenues of $24,305,000, our net income before extraordinary credit reached $2,153,000. The company's initial public offering in December of 1977 provided proceeds of $7,888,000 which contributed significantly to our $12,803,000 advance in net worth during the year. Our 3.4 to 1 current ratio and 6% debt to capitalization ratio at year-end, and our current unused line of credit for $5,000,000, place Tandem in a strong and flexible financial position.

Financial results, however, do not convey the significant progress we have made strategically. We continue to make a substantial commitment to product development and have, over the last year, introduced numerous new products. Software product announcements included COBOL, FORTRAN and ENFORM, which both expand our market potential and reduce our customer's requirement for software investment. Our unique new hardware product, DIAG LINK, allows us to monitor and diagnose systems performance remotely, thereby providing a faster, more competent and cost effective support capability. We also recently announced EXPAND, which extends the unique features of our NonStop systems from single sites to networks of geographically dispersed Tandem systems. This product has profoundly broadened our marketplace and is second in importance only to the advent of our original Tandem 16 system. Finally, our average system performance was increased some 30% through hardware and software improvements, illustrating our ongoing commitment to offering our customers the best performance per dollar cost.
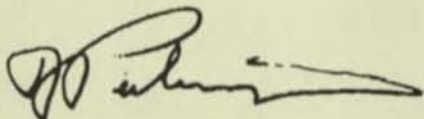
Tandem's investment in its future strategic progress is also illustrated by the broad geographic expansion of our sales, service and software support operations over the past year. Sixteen North American and four European offices were opened, and two Latin American distributor arrangements were completed during fiscal 1978. Our customer training operations were conducted in four domestic and three international locations. This expansion is important both to adding new customers and to servicing the multi-location and multi-national needs of our existing customers, who typically use Tandem systems to convert a critical aspect of their business to on-line operations.

Our greatest vote of confidence has come from our customers, who at fiscal year-end 1978, came from 22 different industries. These users are developing a wide variety of applications utilizing Tandem's product features. Each of their successes, perhaps more than any other factor, is expanding our market as the capabilities of Tandem multi-processor systems and the productivity benefits of on-line transaction processing are better understood and accepted by computer users in general.
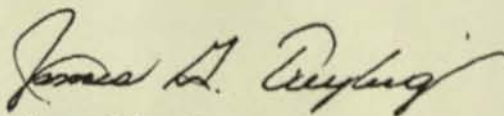
To keep pace with the acceptance we have experienced and foresee in the future, Tandem moved to a new 137,000 square foot corporate headquarters early in fiscal 1978, and plans are currently under way to construct two buildings adjacent to this facility which will more than double our headquarters square footage for manufacturing, development and administration. We also expect to commence systems integration and test operations in West Germany in 1979, reflecting our belief that our customers and Tandem are best served by having the implicit high level of technical expertise of such an operation close to our users' sites.

Central to realizing our growth and profit objectives and meeting the needs of our emerging marketplace is Tandem's commitment to building an organization of outstanding people. At year-end our employment totaled 446, up from 137 just a year ago. A significant number of our new employees have been in training during the year, learning how to manufacture, service and support Tandem systems. Our people are enthusiastic and dedicated; they are truly our greatest resource, and our best assurance of continued success in the years ahead.
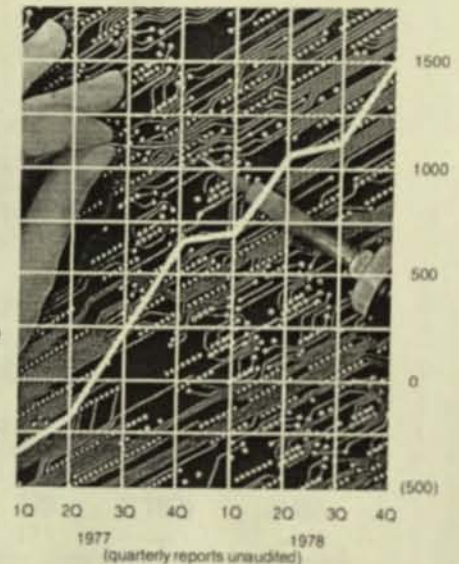
Sincerely yours,

T. J. Perkins
Chairman of the Board

James G. Treybig
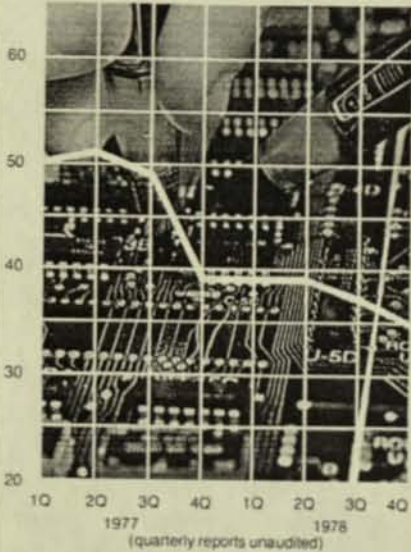President and
Chief Executive Officer

November 7, 1978

Income before Income Taxes
(in thousands of dollars; fiscal quarters)

1977   1978
(quarterly reports unaudited)

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TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES
Consolidated Statement of Operations
From date of incorporation to September 30, 1978

Cost of Revenues (%)
(fiscal quarters)

10 20 30 40 10 20 30 40
1977   1978
(quarterly reports unaudited)

	Year Ended September 30			November 29, 1974 (date of incorporation) to September 30
	1978	1977	1976	1975
	(In Thousands Except for Per Share Data)			
Revenues	$24,305	$7,692	$ 581	$ —
Costs and Expenses:				
Cost of revenues	9,096	3,514	482	—
Product development	2,169	1,094	979	456
Marketing, general and administrative	8,808	2,719	1,327	192
Interest, net	(258)	36	(38)	(2)
	19,815	7,363	2,750	646
Income (loss) before income taxes and extraordinary credit	4,490	329	(2,169)	(646)
Provision for Income Taxes	2,337	171	—	—
Income (loss) before extraordinary credit	2,153	158	(2,169)	(646)
Extraordinary Credit—Tax benefit of net operating loss carryforwards	1,218	167	—	—
Net Income (Loss)	$ 3,371	$ 325	$ (2,169)	$ (646)
Income (Loss) Per Common Share:				
Income (loss) before extraordinary credit	$ .60	$ .06	$ (4.33)	$ (1.49)
Extraordinary credit	.34	.06	—	—
Net income (loss)	$ .94	$ .12	$ (4.33)	$ (1.49)
Weighted average outstanding shares	3,589,974	2,679,923	530,270	440,143

MANAGEMENT'S DISCUSSION AND ANALYSIS OF
THE CONSOLIDATED STATEMENT OF OPERATIONS

General

From its organization in November 1974 until early 1976, Tandem was engaged primarily in the design, development and testing of its systems. The Company began developing its field marketing operations in January 1976, and shipped its first system to a customer in May 1976.

Fiscal 1978 Compared to Fiscal 1977

Revenues in fiscal 1978 increased 216% to $24.3 million. This gain was primarily attributable to an increase in systems shipped to new and existing customers from 31 in fiscal 1977 to 72 in fiscal 1978 and to sales of added processors and peripherals for existing systems.

The Company's cost of revenues increased 159% to $9.1 million but decreased from 45.7% of revenues in fiscal 1977 to 37.4% in fiscal 1978 primarily because of per unit price reductions and quantity discounts received by the Company due to greatly increased volume.

Product development expenditures, which resulted in several important product introductions during fiscal 1978 and funded research on future products, increased 98% to $2.2 million. This increase brought development expenditures to 8.9% of revenues in fiscal 1978, which is slightly below the Company's long-term objective of nine to ten percent for such costs.

Marketing, general and administrative expenditures rose 224% to $8.8 million and amounted to 36.2% of revenues in fiscal 1978. These expenditures reflect principally the end user orientation of the Company, the geographical expansion of marketing operations during fiscal 1978 and the addition of marketing personnel in anticipation of future growth.

Interest inome in fiscal 1978 resulted primarily from the interim investment in short-term securities of the proceeds of the Company's December 1977 Common Stock offering.

The provision for income taxes remained constant at approximately 52% in both fiscal 1978 and fiscal 1977.

As a result of the factors discussed above, net income before extraordinary credit increased to $2.153 million in fiscal 1978 as compared to $158,000 in fiscal 1977.

Fiscal 1977 Compared to Fiscal 1976

Total systems shipped to customers increased from six in fiscal 1976 to 31 in fiscal 1977. The $7.1 million increase in revenues in fiscal 1977 was principally attributable to this growth in system shipments and to a substantial increase in the average sale price of each system, resulting primarily from an increased number of processors, memories and peripherals included in each system. Although cost of revenues increased $3.0 million during fiscal 1977, it decreased from 82.9% of revenues in fiscal 1976 to 45.7% in 1977. This decline resulted primarily from lower material costs due to per unit price reductions and quantity discounts received by the Company and from lower manufacturing overhead per system due to greatly increased volume. Product development costs were relatively constant between 1976 and 1977 since the increased salaries of a larger staff, especially in software development, were nearly offset by the elimination of certain high material costs associated with initial prototype and system development. Marketing, general and administrative expenses increased by $1.4 million (105%) from 1976 to 1977 reflecting growth in service expenses, salaries and media advertising.

Product Development Expenditures
(in thousands of dollars; fiscal quarters)
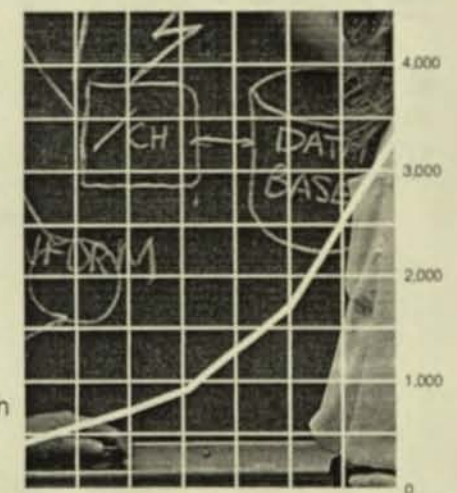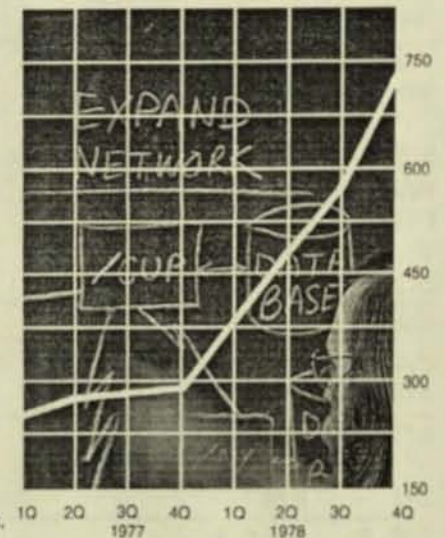
Marketing General and Administrative Expenditures
(in thousands of dollars; fiscal quarters)

(quarterly reports unaudited)

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES
Consolidated Statement of Income
For the Years Ended September 30, 1978 and 1977

Earnings Per Share
(cumulative; before extraordinary credit; fiscal periods)

60¢
40¢
20¢
0¢
(20¢)

3 mo　6 mo　9 mo　12 mo

— — — 1977　———— 1978
(quarterly reports unaudited)
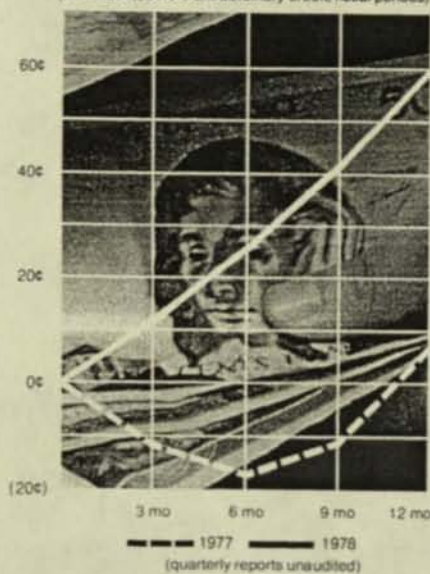
	1978	1977
	(In Thousands)	
Revenues (Notes 1 and 9)	$24,305	$7,692
Costs and Expenses:		
Cost of revenues	9,096	3,514
Product development	2,169	1,094
Marketing, general and administrative	8,808	2,719
Interest expense	65	52
Interest income	(323)	(16)
	19,815	7,363
Income before income taxes and extraordinary credit	4,490	329
Provision for Income Taxes (Note 2)	2,337	171
Income before extraordinary credit	2,153	158
Extraordinary credit—Tax benefit of net operating loss carryforwards (Note 2)	1,218	167
Net Income	$ 3,371	$ 325
Income Per Common Share (Note 8)		
Income before extraordinary credit	$ .60	$ .06
Extraordinary credit	.34	.06
Net income	$ .94	$ .12

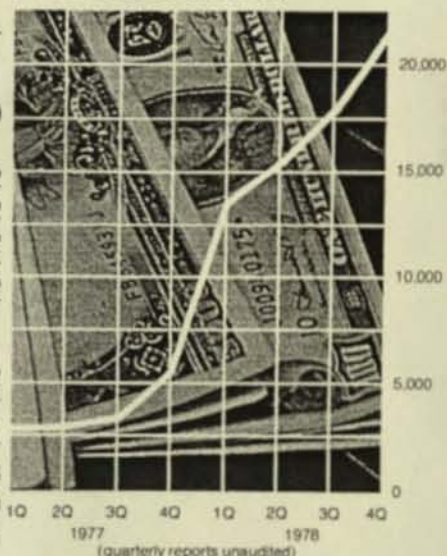The accompanying notes are an integral part of this statement.

ASSETS	1978	1977
	(In Thousands)	
Current Assets:		
Cash	$ 1,063	$ 109
Cash investments	3,384	—
Accounts receivable	8,115	2,602
Inventories (Note 1)	6,319	1,862
Prepaid expenses	619	92
Total current assets	19,500	4,665
Property and Equipment, at Cost (Notes 1 and 3):		
Production and test equipment	506	152
Computer equipment	1,105	397
Office furniture and equipment	176	94
Systems spares	775	263
Leasehold improvements	606	30
	3,168	936
Less—Accumulated depreciation	617	231
	2,551	705
	$22,051	$5,370

Assets
(in thousands of dollars; fiscal quarters)

1977 / 1978
(quarterly reports unaudited)

LIABILITIES AND SHAREHOLDERS' INVESTMENT	1978	1977
	(in Thousands)	
Current Liabilities:		
Notes payable to bank (Note 4)	$ —	$ 800
Current maturities of capitalized lease obligation	203	91
Accounts payable	3,766	1,115
Accrued expenses	953	309
Accrued income taxes—currently payable	181	4
Accrued income taxes—deferred	695	—
Total current liabilities	5,798	2,319
Capitalized Lease Obligation, net of current maturities (Note 3)	715	316
Commitments (Note 7)		
Shareholders' Investment (Notes 5 and 6):		
Preferred stock—$.10 par value, authorized 2,400,000 shares; outstanding, 2,073,702 shares in 1977, none in 1978	—	207
Common stock—$.05 par value, authorized 10,000,000 shares; outstanding 625,464 shares in 1977 and 3,675,981 shares in 1978	184	31
Additional paid-in capital	14,473	4,987
Retained earnings	881	(2,490)
Total shareholders' investment	15,538	2,735
	$22,051	$5,370

The accompanying notes are an integral part of these balance sheets.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES
Consolidated Statement of Shareholders' Investment
For the Years Ended September 30, 1978 and 1977

Shareholders' Equity
(in thousands of dollars; fiscal quarters)

20,000
15,000
10,000
5,000
0

1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q
1977   1978
(quarterly reports unaudited)
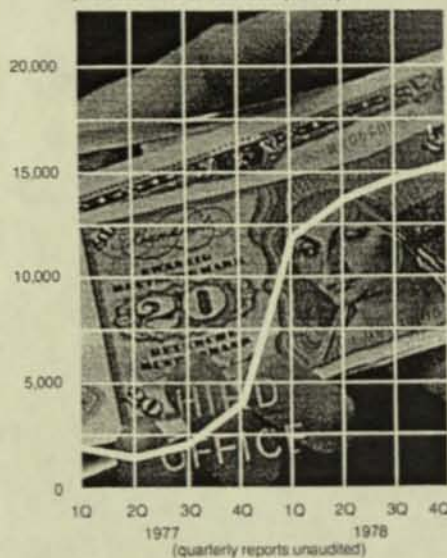
	Preferred Stock Shares	Preferred Stock Amount	Additional Paid-in Capital	Common Stock Shares	Common Stock Amount	Retained Earnings (Deficit)	Total Shareholders' Investment
			(In Thousands)				
Balance, September 30, 1976	2,074	$207	$ 4,938	530	$ 26	$(2,815)	$ 2,356
Sale of stock under stock option plan, net	—	—	49	96	5	—	54
Net income	—	—	—	—	—	325	325
Balance, September 30, 1977	2,074	207	4,987	626	31	(2,490)	2,735
Sale of preferred stock	125	13	987	—	—	—	1,000
Conversion of preferred into common stock	(2,199)	(220)	110	2,199	110	—	—
Sale of common stock, net of related expenses of $968,000	—	—	7,849	770	39	—	7,888
Sale of stock under stock option and stock purchase plans, net	—	—	306	81	4	—	310
Income tax benefit resulting from exercises of non-qualified stock options and early disposition of shares acquired under qualified stock options	—	—	234	—	—	—	234
Net income	—	—	—	—	—	3,371	3,371
Balance, September 30, 1978	—	$ —	$14,473	3,676	$184	$ 881	$15,538

The accompanying notes are an integral part of this statement.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES
Consolidated Statement of Changes in Financial Position
For the Years Ended September 30, 1978 and 1977

	1978	1977
	(In Thousands)	
Working Capital Provided From (Used For):		
Net income before extraordinary credit	$ 2,153	$ 158
Add back-depreciation and amortization not requiring the use of working capital	457	167
Working capital provided from operations	2,610	325
Extraordinary credit	1,218	167
Acquisition of property and equipment	(2,387)	(534)
Decrease in lease deposits	—	51
Net book value of equipment sold or retired	84	51
Increase in capitalized lease obligation, net of current maturities	399	4
Sale of preferred stock	1,000	—
Sale of common stock, net	8,198	54
Tax benefit of stock options	234	—
Net increase in working capital	$11,356	$ 118
Working Capital Increase Represented By:		
Increase (Decrease) in current assets—		
Cash and cash investments	$ 4,338	$ (1,408)
Accounts receivable	5,513	2,141
Inventories	4,457	1,277
Prepaid expenses	527	39
Decrease (Increase) in current liabilities—		
Notes payable to bank	800	(800)
Current portion of capitalized lease obligation	(112)	(45)
Accounts payable	(2,651)	(847)
Accrued expenses	(644)	(235)
Accrued income taxes	(872)	(4)
Net increase in working capital	$11,356	$ 118

The accompanying notes are an integral part of this statement.

1. Summary of Significant Accounting Policies

Consolidation
The consolidated financial statements include the accounts of Tandem Computers Incorporated and its wholly owned subsidiaries after elimination of intercompany accounts and transactions. Translation gains and losses are not significant and are reflected in the results of operations.

Revenue Recognition
The Company generally recognizes revenues at the time of shipment.

Inventories
Inventories are stated at the lower of cost (first-in, first-out) or market and include material, labor, and manufacturing overhead. The components of inventory used to determine cost of revenues were:

	September 30		
	1976	1977	1978
	(In Thousands)		
Purchased parts and subassemblies	$134	$1,185	$4,196
Work-in-process and finished systems	452	677	2,123
	$586	$1,862	$6,319

Income Taxes
The Company provides for income taxes on total DISC income and accounts for investment tax credits as a reduction of the provision for taxes on income in the year in which the related credits are realized.

Property and Equipment
Systems spares are depreciated using the double declining balance method. All other property and equipment are depreciated using the straight-line method. The estimated useful lives are:

	Years
Production and test equipment	5-10
Computer equipment	5
Office furniture and equipment	5-10
Systems spares	4
Leasehold improvements	Lease Term

Expenditures for maintenance and repairs are charged to operations as incurred. Expenditures for major betterments and renewals are capitalized and depreciated over the estimated remaining useful life of the asset. The net gain or loss on assets retired or otherwise disposed of is credited or charged to operations and the asset cost and related depreciation are removed from the accounts.

2. Income Taxes

The provision for income taxes for the years ended September 30, 1977 and 1978 is comprised of:

Current Provision:	1977	1978
Federal	$ 74,000	$ 755,000
State	26,000	307,000
Foreign	71,000	580,000
	171,000	1,642,000
Deferred Provision:		
Federal	—	288,000
State	—	23,000
Foreign	—	384,000
	—	695,000
	$171,000	$2,337,000

The sources of deferred taxes in 1978 were as follows:

DISC income	$ 304,000
Revenues deferred for foreign tax purposes	384,000
Other, net	7,000
	$ 695,000

The provision for income taxes differs from the amount obtained by applying the statutory Federal income tax rate (48%) to income before taxes as follows:

	1977	1978
Federal tax provision at statutory rate	$158,000	$2,155,000
State income taxes net of Federal income tax benefit	13,000	172,000
Foreign income taxes in excess of Federal tax rate	—	179,000
Investment tax credit	—	(104,000)
Other	—	(65,000)
	$171,000	$2,337,000

3. Capitalized Lease Obligation

As of September 30, 1978, the Company had leased from a bank $1,043,000 of equipment for the period through September 1983 with an option to purchase the equipment at the fair market value at the end of the lease period.

The following summarizes the future minimum lease payments together with the present value of the minimum lease payments as of September 30, 1978.

Year Ending September 30	
1979	$ 245,000
1980	251,000
1981	251,000
1982	197,000
1983	168,000
Total minimum lease payments	1,112,000
Less: Amount representing interest (8%)	194,000
Present value of minimum lease payments	$ 918,000

4. Line of Credit

In October 1977, the Company entered into a revolving line of credit with a bank providing for borrowings up to $2,000,000, secured by receivables, inventory and all other assets. On November 6, 1978, this credit agreement was replaced with a revolving line of credit agreement providing for unsecured borrowings up to $5,000,000. The new agreement, which expires December 31, 1979, provides for borrowings evidenced by demand notes at .25% above the bank's prime lending rate.

Among other things, the credit agreement requires the Company to (1) maintain a minimum current ratio of 2.0 to 1, (2) maintain a compensating balance of 5% of the commitment plus 5% of the line utilized, (3) maintain a maximum total debt to tangible net worth ratio of .75 to 1, and (4) be profitable on a fiscal quarterly basis.

Borrowings in fiscal 1978 were outstanding from October 1, 1977 to December 21, 1977. The average interest rate on borrowings during this period was approximately 7½%. The average month-end borrowing was $400,000 and the maximum borrowing at any month end was $500,000.

The average interest rate on borrowings during fiscal 1977 was approximately 7½%. During 1977 the average month-end borrowing was $625,000 and the maximum borrowing at any month end was $950,000.

5. Preferred Stock

The Company has authorized 2,400,000 shares of preferred stock, $.10 par value, of which the following four series were outstanding at September 30, 1977:

	Par Value
Series A, Convertible—200,000 shares	$ 20,000
Series B, Convertible—773,000 shares	77,300
Series C, Convertible—673,702 shares	67,370
Series D, Convertible—427,000 shares	42,700
	$207,370

In October 1977 (fiscal 1978) the Company sold 125,000 shares of Series E, Convertible preferred stock at $8 per share for $1,000,000.

In December 1977, each share of the then outstanding preferred stock (2,198,702 shares) was converted into one share of common stock in connection with the Company's public offering.

6. Stock Option and Stock Purchase Plans

Stock Option Plan

The Company adopted two stock option plans in fiscal 1976. Under both plans, the option price may not be less than 100% of the fair market value on the date of grant. Under one plan, all options granted may be exercisable upon the date of grant and expire five years from the date of grant or on May 20, 1981, if earlier. Options to be granted under the other plan may be exercisable upon the date of grant and expire no later than seven years from the date of grant.

At September 30, 1978 and 1977, there were options for 90,647 and 278,782 shares, respectively, available for future grant. Following is a summary of activity under the plans:

Options outstanding as of September 30, 1978:

Granted in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date of Grant	
		Per Share	Total	Per Share	Total
1976	7,400	$ .50- 1.00	$ 4,000	$ .50- 1.00	$ 4,000
1977	56,075	1.00- 3.50	110,000	1.00- 3.50	110,000
1978	162,349	3.50-30.25	2,830,000	3.50-30.25	2,830,000
	225,824		$2,944,000		$2,944,000

Options became exercisable as follows:

Became Exercisable in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Became Exercisable	
		Per Share	Total	Per Share	Total
1977	171,868	$ .50- 1.00	$ 126,000	$ 1.00	$ 172,000
1978	249,550	1.00-30.25	3,408,000	14.50-30.25	4,441,000

Options were exercised as follows:

Exercised in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Exercised	
		Per Share	Total	Per Share	Total
1977	95,915	$ .50- 1.00	$ 60,000	$1.00- 3.50	$ 104,000
1978	83,653	.50-16.75	400,000	3.50-37.00	2,042,000

In addition, as of September 30, 1978, there were options outstanding to purchase 2,000 shares at an option price of $30.25 granted to a director of the Company.

Stock Purchase Plan

As of September 30, 1978, the Company has reserved 96,112 shares of Common Stock for future issuance under its employee stock purchase plan adopted in fiscal 1978. Eligible employees may elect to purchase shares of Common Stock at 85% of the lower of the fair market value at the beginning or end of a three-month offering period. During 1978, the Company issued 3,888 shares of Common Stock pursuant to this plan.

Proceeds from the sale of common stock under the stock option plans or the stock purchase plan are credited to the common stock account to the extent of par value and the remainder to additional paid-in capital. No charges or credits are reflected in the income statement with respect to stock options or stock purchase plans.

4

7. Commitments

The Company leases its headquarters and operating facilities. The lease period extends through February 1984, with an option to renew the lease for an additional five years. The Company is committed to occupy 110,000 square feet through January 1979 and the entire building (137,000 square feet) thereafter. The Company also leases autos and field offices under lease agreements which expire through 1988. Future lease payments are as follows:

Year Ending September 30	
1979	$1,028,000
1980	1,066,000
1981	943,000
1982	812,000
1983	787,000
1984-88	629,000
	$5,265,000

Rent expense included in the results of operations for the years ended September 30, 1977 and 1978 are $165,000 and $726,000, respectively.

8. Income Per Common Share

Net income per common share for the years ended September 30, 1977 and 1978 has been computed based upon the average number of common and common equivalent shares outstanding. Common equivalent shares in 1977 result from the potential conversion of convertible preferred stock (converted in fiscal 1978) into 2,073,702 common shares and, in 1977 and 1978, the assumed exercise of stock options outstanding which have a dilutive effect when applying the treasury stock method. Total shares used in the computation were 2,679,923 for 1977 and 3,589,974 for 1978. Fully diluted income per share is substantially the same as reported income per share.

9. Geographic Segment Information

The Company designs, develops, manufactures, markets and services multiple processor computer systems. The following table sets forth information about the Company's operations in different geographic areas for the year ended September 30, 1978:

	United States	West Germany	Other	Adjustments and Eliminations	Consolidated
			(In Thousands)		
Revenues—					
Customers	$16,837	$6,437	$1,031	$ —	$24,305
Intracompany	3,904	—	—	(3,904)	—
Total revenues	$20,741	$6,437	$1,031	$(3,904)	$24,305
Income before taxes and extraordinary credit	$ 3,122	$1,256	$ 148	$ (36)	$ 4,490
Identifiable assets	$17,821	$3,637	$ 686	$ (93)	$22,051

Intracompany revenues are accounted for at prices which approximate arm's length prices. Identifiable assets are those assets of the Company that are identified with the operation of each geographic area.

Customer Revenues

Revenues in 1978 include sales of approximately $2,500,000 to one customer and revenues in 1977 include sales of approximately $1,300,000 to another customer.

Revenues in 1977 include sales of approximately $1,800,000 made by the West German sales subsidiary to unaffiliated foreign customers.

AUDITORS' REPORT

To Tandem Computers Incorporated:

We have examined the consolidated balance sheets of Tandem Computers Incorporated (a California corporation) and subsidiaries as of September 30, 1978 and 1977, and the related consolidated statements of income, shareholders' investment and changes in financial position for the years then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Tandem Computers Incorporated and subsidiaries as of September 30, 1978, and 1977, and the results of their operations and the changes in their financial position for the years then ended in conformity with generally accepted accounting principles consistently applied during the periods.

ARTHUR ANDERSEN & CO.

San Jose, California
November 6, 1978.

TANDEM STOCK PRICE

Calendar Quarter Price	High	Low
4th Quarter 1977*	$16½	$13½
1st Quarter 1978	$16¾	$13¼
2nd Quarter 1978	$24½	$15
3rd Quarter 1978	$36½	$23

*December 14 and thereafter.

Tandem Computers Incorporated common stock was offered to the public on December 14, 1977 at $11.50 per share and thereafter has been traded in the over-the-counter market under NASDAQ symbol TNDM. High and low bid prices are shown above as reported by the National Quotation Bureau. These quotations represent prices between dealers, do not include markup, markdown or commissions, and may not represent actual transactions. No dividends have been declared on the common stock.

BOARD OF DIRECTORS

Thomas J. Perkins (1),
    Chairman of the Board;
    Partner, Kleiner, Perkins, Caufield & Byers
Morton Collins (2), Partner, DSV Associates
Thomas J. Davis, Jr. (1)(2),
    Partner, Mayfield II
Franklin P. Johnson, Jr., President, Asset
    Management Capital Company
Eugene Kleiner (2),
    Partner, Kleiner, Perkins, Caufield & Byers
John C. Loustaunou, Vice President, Chief
    Financial Officer and Secretary, Tandem
    Computers Incorporated
Alvin C. Rice, Private Investor
Robert G. Stone, Jr., Chairman of the Board,
    West India Shipping Company
James G. Treybig (1), President and Chief
    Executive Officer, Tandem Computers
    Incorporated

(1) Member of Executive Committee
(2) Member of Audit Committee

OFFICERS

James G. Treybig, President and Chief
    Executive Officer
Michael D. Green, Vice President—Software
    Development
Lawrence A. Laurich, Vice President—
    Engineering
John C. Loustaunou, Vice President, Chief
    Financial Officer and Secretary
Robert C. Marshall, Vice President—
    Manufacturing
Samuel J. Wiegand, Vice President—
    Marketing
Jeanne D. Wohlers, Treasurer

AUDITORS

Arthur Andersen & Co.,
San Jose, California

REGISTRAR AND TRANSFER AGENT

Bank of America N.T. & S.A.,
San Francisco, California

FORM 10-K

**A copy of the company's Form 10-K, as
filed with the Securities and Exchange
Commission, is available on request.
Please direct your request to:**
    Treasurer's Office
    Tandem Computers Incorporated
    19333 Vallco Parkway
    Cupertino, California 95014

ANNUAL MEETING

The annual meeting of stockholders will be
held at 10:00 a.m. on Wednesday, January
24, 1979 at the corporation's headquarters.

TANDEM
**Corporate Headquarters
19333 Vallco Parkway
Cupertino, CA 95014**

DOMESTIC OFFICES
Eastern Region

George Eckert, Vice President
Director, Eastern Region •
One Penn Plaza
250 W. 34th Street
New York, NY 10001

Central Region

Michael Bateman
Director, Central Region
1827 Walden Office Square
Schaumberg, IL 60195

Western Region

Charles W. Ryle, Vice President
Director, Western Region
1201 Watson Road
Arlington, TX 76011

District Offices

Boston, Massachusetts
Cincinnati, Ohio
Columbus, Ohio
Denver, Colorado
Detroit, Michigan
Greensboro, North Carolina
Hasbrouck Heights, New Jersey
Houston, Texas
Long Beach, California
Minneapolis, Minnesota
Omaha, Nebraska
Philadelphia, Pennsylvania
Phoenix, Arizona
Pittsburgh, Pennsylvania
San Francisco, California
Seattle, Washington
St. Louis, Missouri
Tampa, Florida
Washington, DC

INTERNATIONAL OFFICES
Canada

Victor DeSouza
Managing Director, Tandem Computers
    Canada Limited
55 University Avenue
Toronto, Ontario

England

Jack Chapman
Managing Director, Tandem Computers
    Limited
187 High Street
Uxbridge

Germany

Horst Enzelmueller, Vice President
Managing Director, Tandem
    Computers GmbH
Bernerstrasse 50
6000 Frankfurt/Main 56
Offices also located in
Dusseldorf and Munich

Switzerland

Heinz Studiger
Managing Director, Tandem Computers AG
Zweierstrasse 138
8003 Zurich

Table of Contents

Tandem brings to the marketplace a total commitment to on-line transaction processing—with attitudes and products that are designed specifically to meet the critical needs of on-line computer users.

The Tandem idea . . . the notion of a computer system designed specifically to meet the previously unfulfilled requirements of on-line transaction processing . . . came from the marketplace.

It is an emerging marketplace, comprising a wide range of businesses which rely on their computer systems throughout the working day . . . or around the clock . . . to perform tasks vital to their operations.

. . . Businesses like banks that have gone on-line with credit card verification procedures to minimize losses . . . where a system failure or output error has a direct bearing on profitability.
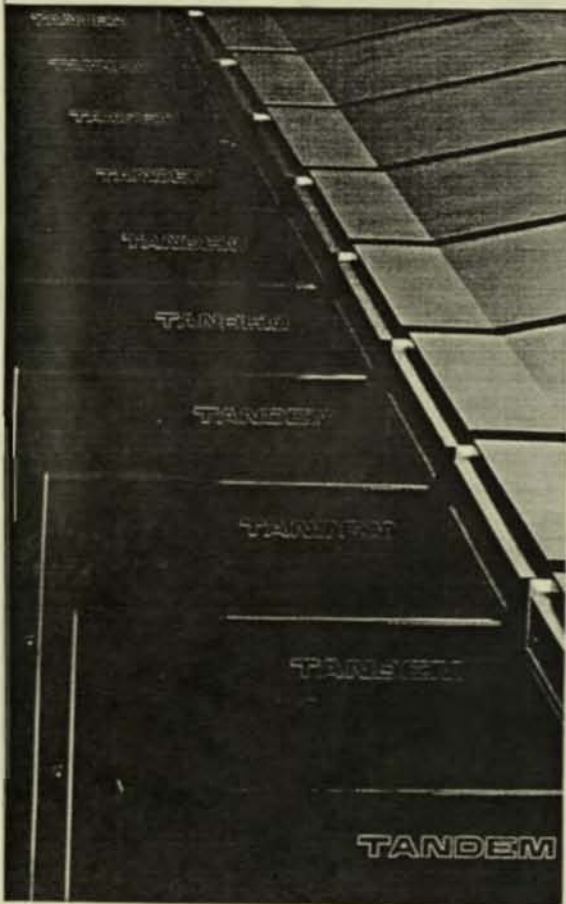
. . . Businesses like wholesale distributors that have developed on-line, automated warehouses to control massive inventories . . . where, if the computer stops, business stops.

. . . Travel reservation systems. Hospital patient treatment record keeping. Manufacturing control systems. Newspaper text editing. Numerous other industries and hundreds of other computer applications where customer service, profit and even lives are increasingly reliant on computers.

Consequently, it is a marketplace that stands apart from the general-purpose batch-processing community in its inherent requirements for:

. . . uninterrupted operation of its computer systems,

. . . on-line data bases (the customers' files of essential information) that are safe from damage, and

. . . a method of easily and inexpensively expanding computer power without software change to keep pace with growing demand.

Given these basic requirements, it is also a marketplace where the computer's role is fundamental to business success, where more and more vital aspects of the user's day-to-day operation are becoming computer reliant. And where, consequently, the cost of processing each transaction and ease of programming join with dependability, data integrity and ease of

The Tandem NonStop 16 is the first computer system that can be expanded modularly—with no programming changes or disruption of service—from a two-processor, mid-sized system up to a 16-processor, large-scale system . . . creating a continuous range of models priced from approximately $150,000 to $3,000,000.

The Tandem NonStop 16 . . . the first commercially available computer system designed to continue operating regardless of a failure anywhere in the system . . . the first computer system that protects on-line data bases from damage or destruction resulting from a hardware failure.

2

expandability as essential user concerns.

The on-line transaction processing marketplace is not new, but rather is one that is now emerging as a large and rapidly growing segment of the data processing industry. In the past, pioneers of on-line systems tried to meet their needs with custom designed operating system software which coupled together two conventional computers . . . the objective being to minimize the risk of system failure. Such tactics clearly indicated the need for a general-purpose system specifically designed for on-line transaction processing.

But such custom approaches have been very costly and generally not able to combine effectively continuous operation and data integrity with efficient processing speeds. They also could not provide for modular growth of the system without software changes which is an essential user requirement for maintaining cost-effectiveness in growing on-line applications.

Tandem, however, has brought to the marketplace the first cost-effective, designed-from-scratch system that virtually eliminates system failures, protects data bases from damage or destruction caused by electronic hardware failure, and provides for easy expansion from a mid-sized to a very large capacity system without software changes merely by adding processor modules.

The product is the Tandem NonStop 16 computer system.
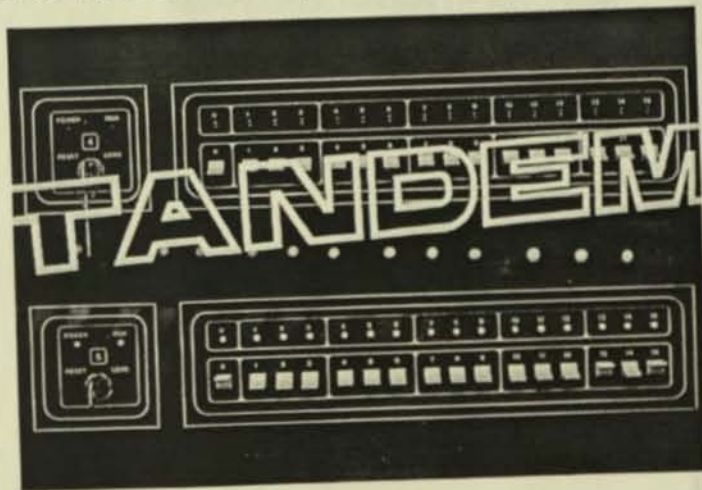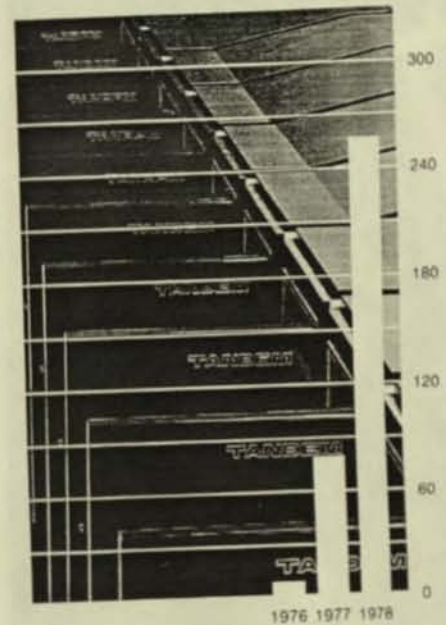
During fiscal 1978, 428 individuals from 100 customer and prospective customer organizations attended Tandem training classes worldwide. A group from one class is seen visiting with James G. Treybig (in dark suit), Tandem's president and chief executive officer.

When Barclays Bank International Limited goes on-line in London with a three-processor Tandem system and its new application program to improve management of major international currency transactions, the bank believes its proprietary Head Office Foreign Exchange System (HOFEX) will be the most sophisticated of its kind in the banking world.

With HOFEX and its Tandem system, the worldwide banking organization's currency dealers—who buy and sell huge blocks of international monies—will have at their fingertips a constant flow of exchange information. Trends in the world money market will become apparent much sooner to Barclays' foreign currency specialists, and the bank expects improved accuracies and profits from its transactions in the fast-moving, complicated money market where a buy/sell decision based on inaccurate or slow information can be extremely costly.

A two-processor Tandem system was installed at Barclays Bank International Limited during 1978 for software development, and a third processor will be added when HOFEX becomes operational in a new building in London's financial district that will house some 80 terminals linked to the Tandem.

Barclays joins a number of other financial institutions that are converting vital aspects of their businesses to on-line transaction processing with Tandem NonStop systems. At the close of fiscal 1978 they included Citibank, Chase Manhattan Bank, Nebraska Electronic Funds Transfer System, Eastern States Bankcard (Master Charge and Visa) Association Inc., Westdeutsche Landesbank, and the new Intermarket Trading System operated jointly by the American and New York Stock Exchanges.

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Rapid, widespread acceptance of Tandem systems is indicative of previously unfulfilled needs and of the high rate of growth of on-line transaction processing.

Credibility of Tandem's concept . . . as well as a clear statement of the readiness of the marketplace for a strategic on-line system . . . is well measured by the reception of the Tandem NonStop 16.

Validity of the Tandem idea and vitality of the marketplace are further gauged by the company's rapidly expanding base of satisfied customers that have rewarded Tandem with follow-on business.

As fiscal 1978 came to a close . . . 28 months after the first shipment of a Tandem system . . . the company's customers could be found in leading organizations within 22 industries.

An overwhelming majority . . . 75% . . . of the Tandem customers that acquired their initial system during fiscal 1977 have since enlarged their NonStop systems.

And nearly half . . . 44% . . . of new customers during the first half of fiscal 1978 had already taken delivery of additional Tandem processor modules by the end of the fiscal year.

Some two-thirds of Tandem's shipments have been direct to end users. The remaining third were shipped to software and system development firms that typically purchase Tandem systems to develop on-line applications for their end-user clientele.

Geographically, Tandem systems:

. . . are dispersed among the major regions of the United States, from which approximately 70% of fiscal 1978 revenues were derived;

. . . have had an early, strong acceptance in West Germany, which contributed approximately 25% to fiscal 1978 revenues; and

. . . have started to appear in other areas of the world, including the United Kingdom, Switzerland, Canada and Latin America which, combined, contributed the remaining 5% to fiscal 1978 revenues.

All of Tandem's customers acquired their NonStop systems for one or more of the following reasons:

. . . to fulfill a definite requirement for a NonStop system . . . without cost premium . . . that will keep running regardless of a failure anywhere in the system.

. . . to eliminate the possibility of a potentially catastrophic business loss . . . by protecting on-line data bases from errors or destruction that can result from hardware malfunction.

Systems Installed by Industry
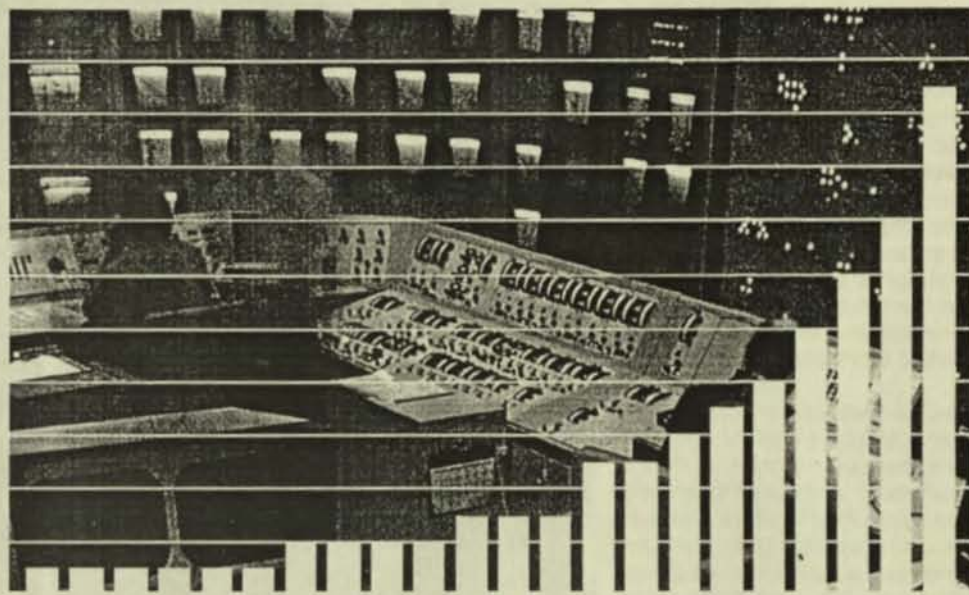
1. Electric Power 2. Postal 3. University 4. Petroleum 5. Graphics 6. County Governments 7. Credit 8. Retail 9. Legal 10. Transportation and Travel 11. Wagering 12. Library Service 13. Printing/Publishing 14. Service Bureaus 15. Telephone 16. Federal Governments 17. Other Financial 18. Software 19. Hospitals 20. Banks 21. Distributors 22. Manufacturing

1976 1977 1978

. . . to provide built-in growth potential with a single system that economically expands with on-line applications growth . . . a system that is easily expandable by increments, processor-by-processor, from a mid-sized system selling for about $150,000 to a $3,000,000 large-scale system with the speed, capacity and economics of the largest conventional computers used for on-line applications.

. . . to enhance further growth potential and ease of operation with a system that is hospitable to programmers.
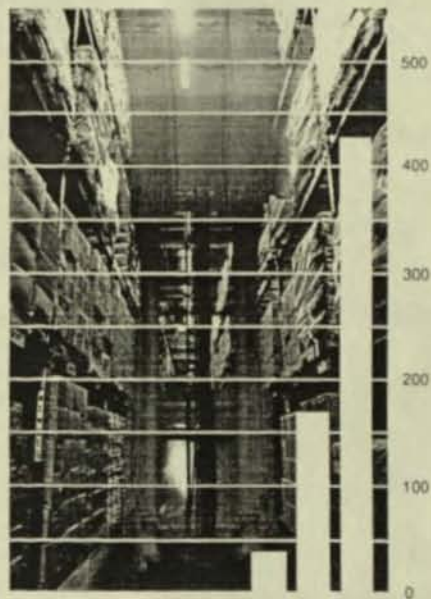
. . . to achieve low cost per transaction in their on-line applications.

Tandem is the first . . . and, to date, the only . . . source of on-line transaction processing systems that meets these combined requirements.

1976 1977 1978

Number of Customers and Prospective Customers Trained
(fiscal years)

7

Certified Grocers of Illinois went on-line with Tandem in 1978 with what the wholesaler believes is the highest throughput, most fully automated grocery warehouse under one roof in the United States. The 532,000 square-foot Chicago facility, serving 550 member grocers in five states, can automatically process and load onto trucks orders for 160,000 cases daily.

There are five miles of high-speed conveyors and another two miles of three-tier "picking" lines—all computer coordinated—that enable Certified to fill orders for 16 stores simultaneously.

Automated control over the incoming and outgoing inventory in the 5,000 picking bins and 10,000 reserve bins is accomplished on a two-processor Tandem 16. In one function of the system, operators of 25 replenishment vehicles receive constant, printed instructions from the computer on removal and replenishment of stock within the 15,000-bin inventory.

With the new system, Certified is now able to immediately locate, route and reorder stock. The wholesale grocer has eliminated a typical large warehouse problem of temporarily lost or misplaced stock and the resultant inability to fill store orders promptly. Other current functions of the system include monitoring and reporting productivity, automatically controlling stock rotation to assure freshness, and overcoming costly shorted deliveries from suppliers by automatically verifying incoming bills of lading against purchase orders.

The application was created by Logisticon, Incorporated, which acquired the Tandem 16 for Certified to meet the inherent requirement for uninterrupted operations in the computer-dependent warehouse. The Tandem system also safeguards the data base from inadvertent destruction or garbling as could occur when a conventional computer's hardware malfunctions.

Certified Grocers—founded in 1940 and the second largest wholesale grocery cooperative in the United States with annual sales of approximately $600,000,000—expects the new multi-million dollar warehouse to double previous productivity and, in bringing an elevated sense of orderliness to the warehouse operation, to provide a better working environment for its employees.

Tandem's commitment to truly NonStop computer operation goes beyond product concepts: the commitment extends throughout Tandem.

Tandem's customer service and support group . . . which comprises some 40% of the company's entire staff . . . is committed to the belief that Tandem's prosperity and growth will continue as long as its customers continue to be satisfied.

It follows, therefore, that the Tandem installed base of systems can continue to grow only at a rate consistent with the company's ability to expand its service and support organization while maintaining its present standard of excellence.

Whereas Tandem's fiscal 1978 revenues were triple those of 1977, the number of Tandem people supporting customers quadrupled. So did the number of field offices worldwide.

In the on-line computing environment, system failures are unacceptable. Yet, individual components will, in fact, fail. Although such failures within Tandem systems are transparent to the user . . . and although the probability of an identical, simultaneous multiple failure occurring that could cause a Tandem system to fail is highly unlikely . . . the service and support group understands the necessity of maintaining the full NonStop capacity of every system.

That is why:

. . . Tandem's user-oriented product development group designed a powerful diagnostic tool called DIAG LINK during 1978. DIAG LINK enables headquarters-based support personnel to remotely monitor Tandem systems in the field and help the field engineer to rapidly isolate and repair any malfunctions that elude the Tandem 16's built-in self-diagnosis capability.

And, in its initial development, Tandem's hardware and software group designed the Tandem NonStop 16 to:

. . . automatically alert the user to any malfunction (which the user would otherwise not notice because of the system's NonStop capability) and, in most cases, identify the troubled processing unit or system component that is malfunctioning.

. . . allow rapid, easy removal and replacement of modular component units.

. . . permit maintenance to be performed routinely with power on and without interrupting the customers' operations.

. . . enable enlargement of the system by adding processing units . . . again, while the system continues to operate and without disrupting the on-line application.

Elsewhere within the company, another important group . . . the manufacturing organization, with 25% of the company's total staff . . . has unique tools and techniques to assure that the design promise translates into performance reality.

The entire Tandem organization understands that all computer systems are part hardware, part software, part people. And understands that the best designed system still depends for its success on the people who manufacture and support it.
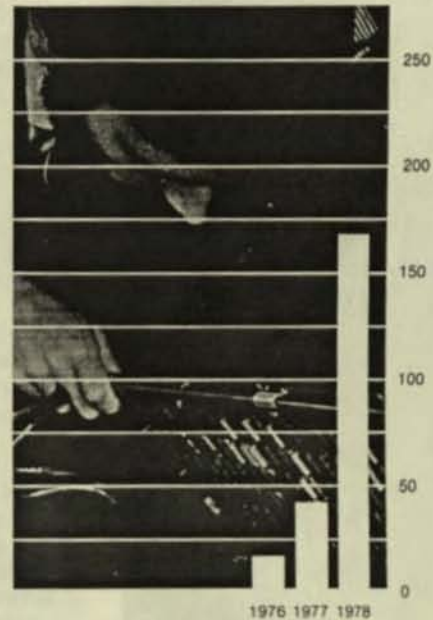
Should a module in a Tandem system malfunction, the system is designed to keep running. Other modules pick-up the work of the failed processor, while continuing to process their own workload, and the user is advised of the failure. This alerts the customer to contact the Tandem service representative, who restores full fail-safe capacity while the user's application continues uninterrupted.

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48   28:15 17NOV78 FROM 85,888 PROCESSOR 82 DOWN

****   TAKEOVER BY CPU 5  ****

41   28:37 17NOV78 FROM 82,888 PROCESSOR 82 UP
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◄ Customer training in Tandem systems was conducted during 1978 at company headquarters in California (seen here) as well as at U.S. regional offices and in Sweden, the United Kingdom and West Germany. While Tandem's 1978 revenues were triple those of 1977, the number of Tandem people directly supporting customers worldwide quadrupled.
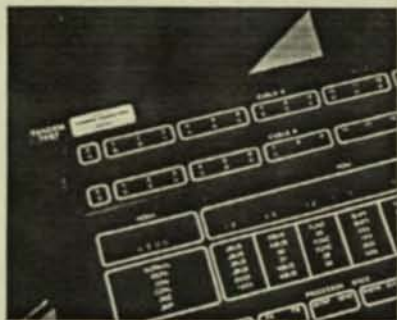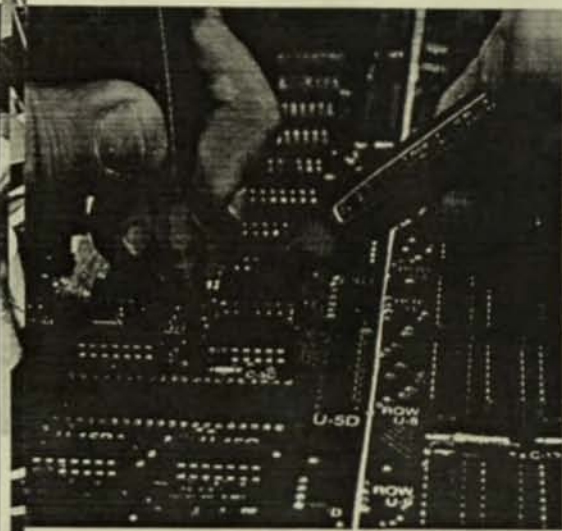
West Germany's Fegro Gross-handelsmarkt—the republic's, if not the world's, most highly automated cash-and-carry wholesale supply chain—has a unique, Tandem-aided competitive edge that is as obvious to its customers as it is to its management.

Fegro's customers' awareness of the computer goes well beyond the prominent display of a Tandem 16 in each store that directly improves customer service.

Entering the huge stores that contain over 50,000 items for retail resale, the customer's special identification card is automatically verified by the computer (West German law prohibits wholesale purchases by the general public).

Simultaneously, store management is immediately alerted when large purchasers who will need assistance in filling orders have entered the store. The Tandem entry check system also controls manpower requirements for check-out stands to minimize customers' waiting time.

Inside the store, customers can expect shelves well-stocked with fresh merchandise: Fegro's Tandem controls inventory and automatically reorders stock.

At the check-out stand, a number of customer-aid functions occur concurrently. Pricing is scanner-read for accuracy and speed, and is displayed in large type on a terminal screen. A printed invoice is computer generated at the next available cashier cage to which the customer is automatically directed. At the cage, the cashier has been computer advised as to the acceptable method of payment for the customer.

Internally, Fegro depends on its Tandem systems for instantaneous sales and profit recaps by individual check-out stands, customers, store and combined stores. The systems also measure employee productivity, make immediate price changes, and perform a variety of other administrative chores.

Each Fegro store has about 20,000 customers and daily sales of up to $500,000. Fegro has three Tandem systems, and plans to add two during 1979.

Tandem's own design memory testing device is used in the manufacturing process and by the field service organization.
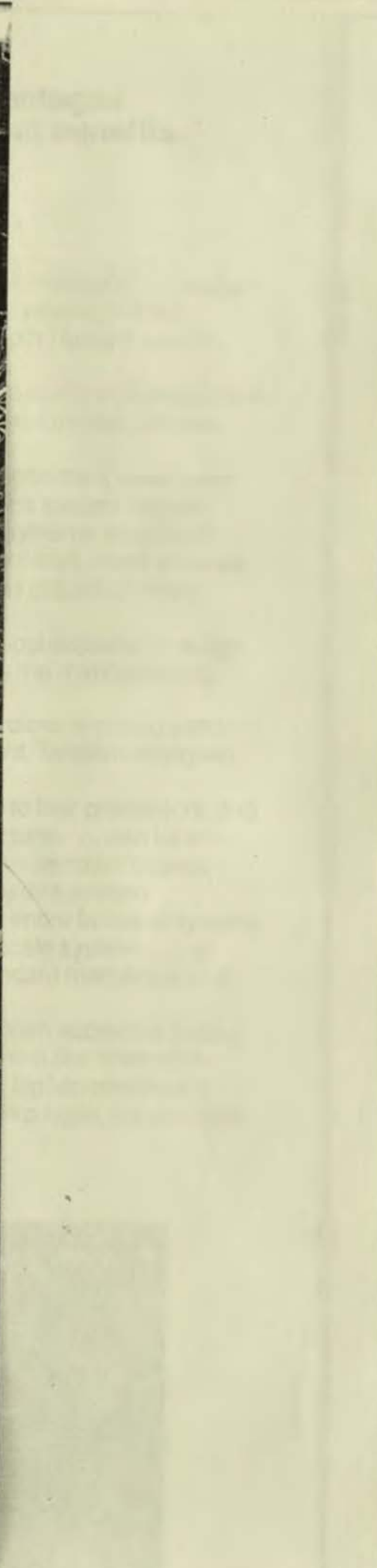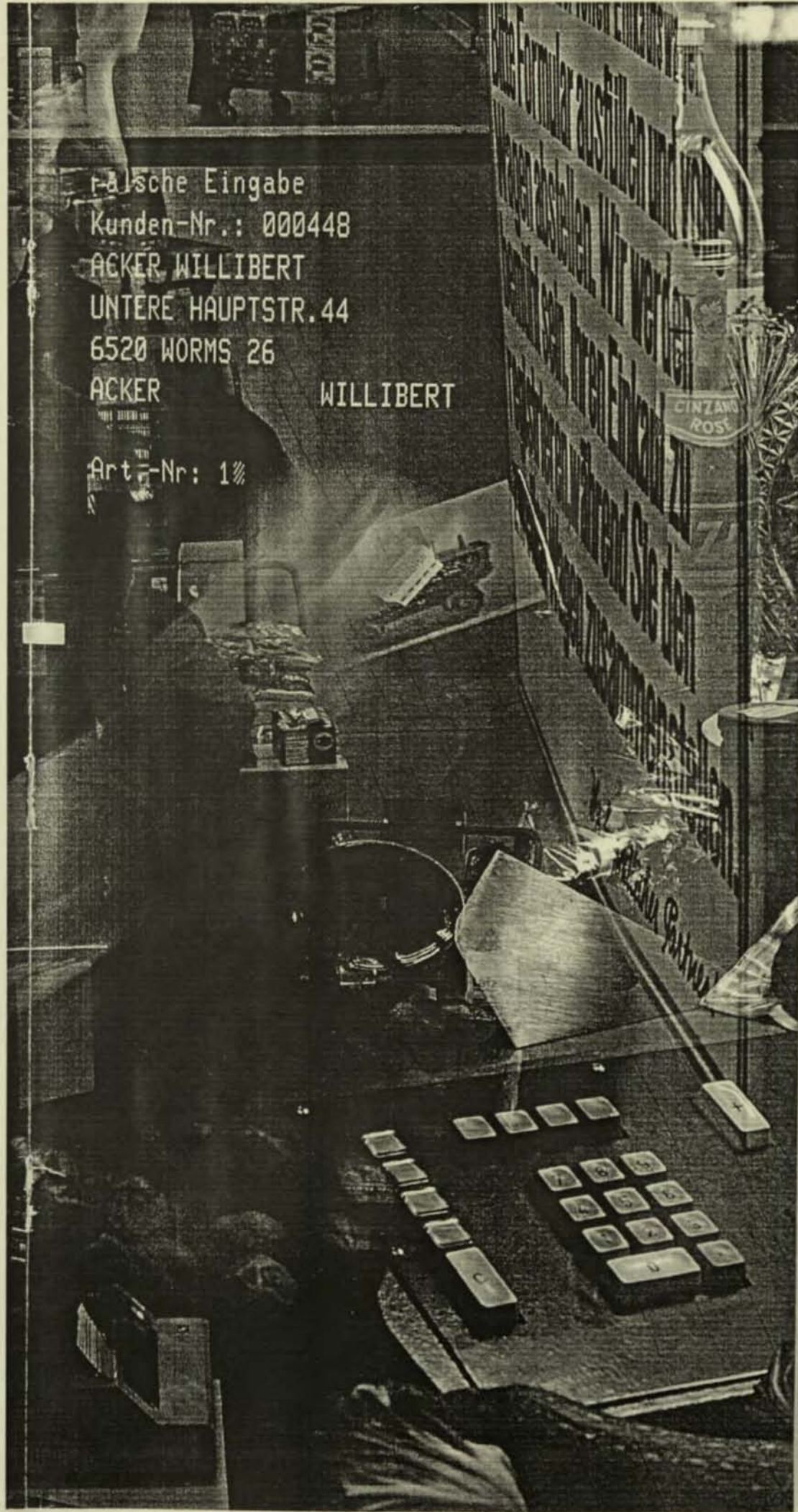
Tandem's manufacturing advantages provide customers with distinct benefits.

Key features of the Tandem system architecture . . . modularity, NonStop and integral diagnostics . . . yield significant benefits in the manufacturing process to both Tandem and its customers.

The innovative system design allows a much more rapid completion of systems integration and testing than in most conventional computers.

For the customer, this helps insure a consistent reasonable leadtime between initial order placement and system delivery.

For Tandem, the comparatively short systems integration and test cycle means better control of inventories, more accurate manufacturing forecasting . . . and a higher degree of timely responsiveness to the marketplace.
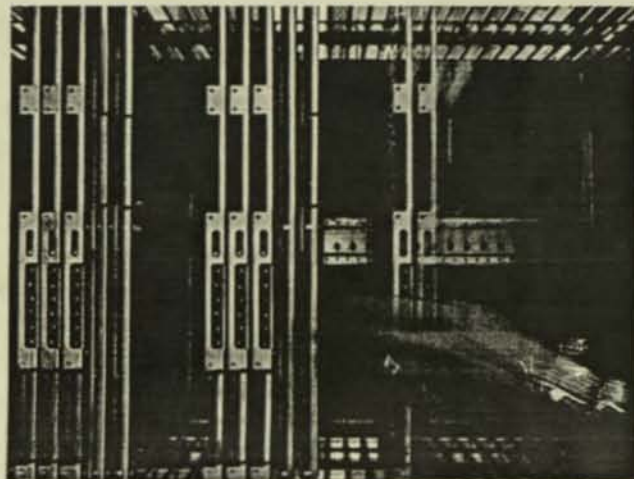
Although the Tandem architecture is sophisticated in design, the modularity of the architecture simplifies the manufacturing process.

At the heart of each system . . . regardless of configuration . . . is some combination of just 17 standard, Tandem-designed, large-capacity printed circuit boards.

Each modular cabinet can contain up to four processors, and any size system . . . from two to 16 processors . . . can be efficiently assembled and tested from the same standard boards, enabling identical software to be run on any size system.

This means that Tandem can build an entire family of systems . . . from a mid-sized model up to a large-scale system . . . at the same plant location from the same standard modules and at the same manufacturing station.

For the customer . . . who may have been subjected to long planning cycles and drawn-out delivery schedules when committing to upgrade to a manufacturer's next higher-performing model . . . the Tandem approach can mean a rapid, inexpensive

upgrade . . . often within existing cabinetry . . . right in the computer room.

Tandem's unique architectural design also enables the customer to add more power while the system continues to operate . . . with none of the disruptions, anxieties and risks often associated with replacing an existing model with a new one. There is no equipment jostling . . . no concern for software conversions or how the existing software will perform . . . and there is no retraining of people.
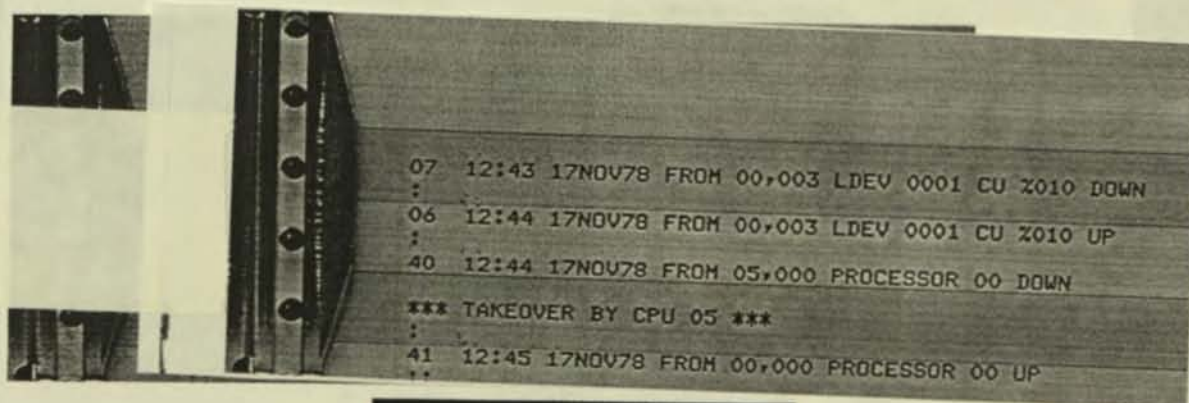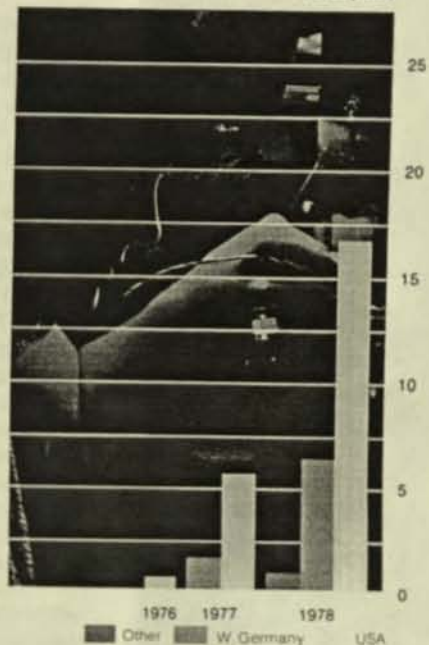
During Tandem's manufacturing test phases, exhaustive component-by-component and subassembly tests are performed. At the systems integration stage, the entire system is subjected to the most severe tests . . . the same built-in self-diagnostic circuitry that constantly monitors and reports on the system's health in the field also serves as a sophisticated quality control device.

In addition, Tandem . . . using the proprietary NonStop feature . . . intentionally creates failures within the system during test to ascertain that when a module or component fails, the system continues to operate normally.

For Tandem, this means a less complicated and more reliable testing discipline.

For the customer, there is comfort in the knowledge that the new system has undergone exhaustive testing and therefore has a high probability of coming on-line quickly and reliably.

Shipments by Geographic Area
(in millions of dollars; fiscal years)

1976 1977 1978
Other   W. Germany   USA


```
07   12:43 17NOV78 FROM 00,003 LDEV 0001 CU %010 DOWN
:
06   12:44 17NOV78 FROM 00,003 LDEV 0001 CU %010 UP
:
40   12:44 17NOV78 FROM 05,000 PROCESSOR 00 DOWN

*** TAKEOVER BY CPU 05 ***
:
41   12:45 17NOV78 FROM 00,000 PROCESSOR 00 UP
```

ase, each gorously exer-he design ance reality. ojected to a oncurrent fail-o occur in ascertain that, vere conditions. s to operate.

◄ Design simplicity facilitates manufacturing and helps ensure a consistent reasonable customer delivery cycle. At the heart of each Tandem processor . . . regardless of configuration . . . is some combination of just 17 different large-capacity printed circuit boards.

Components and subassemblies (such as this Tandem-designed printed circuit board) undergo sophisticated testing prior to systems integration and final testing.

15

upgrade . . . often within existing cabinetry . . . right in the computer room.

Tandem's unique architectural design also enables the customer to add more power while the system continues to operate . . . with none of the disruptions, anxieties and risks often associated with replacing an existing model with a new one. There is no equipment jostling . . . no concern for software conversions or how the existing software will perform . . . and there is no retraining of people.
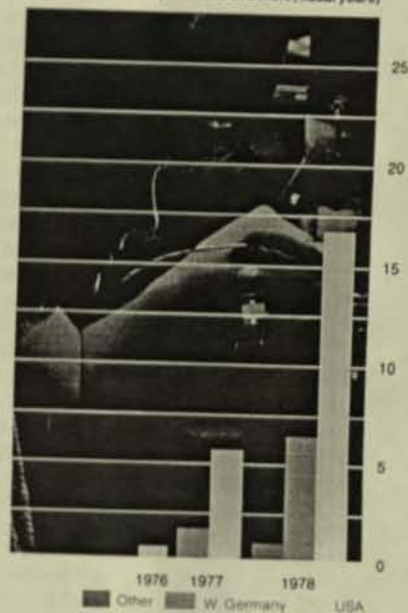
During Tandem's manufacturing test phases, exhaustive component-by-component and subassembly tests are performed. At the systems integration stage, the entire system is subjected to the most severe tests . . . the same built-in self-diagnostic circuitry that constantly monitors and reports on the system's health in the field also serves as a sophisticated quality control device.

In addition, Tandem . . . using the proprietary NonStop feature . . . intentionally creates failures within the system during test to ascertain that when a module or component fails, the system continues to operate normally.

For Tandem, this means a less complicated and more reliable testing discipline.

For the customer, there is comfort in the knowledge that the new system has undergone exhaustive testing and therefore has a high probability of coming on-line quickly and reliably.


Shipments by Geographic Area
(in millions of dollars; fiscal years)

1976 1977 1978
Other   W. Germany   USA


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07   12:43 17NOV78 FROM 00,003 LDEV 0001 CU 2010 DOWN
06   12:44 17NOV78 FROM 00,003 LDEV 0001 CU 2010 UP
40   12:44 17NOV78 FROM 05,000 PROCESSOR 00 DOWN
***  TAKEOVER BY CPU 05 ***
41   12:45 17NOV78 FROM 00,000 PROCESSOR 00 UP
```

In the final testing phase, each Tandem system is vigorously exercised to ensure that the design promise is a performance reality. Here, a system is subjected to a simulated series of concurrent failures (highly unlikely to occur in actual operation) to ascertain that, even under these severe conditions, the system continues to operate.
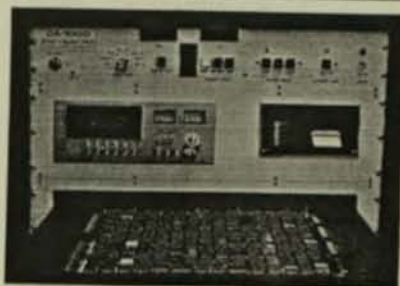
◄Design simplicity facilitates manufacturing and helps ensure a consistent reasonable customer delivery cycle. At the heart of each Tandem processor . . . regardless of configuration . . . is some combination of just 17 different large-capacity printed circuit boards.

Components and subassemblies (such as this Tandem-designed printed circuit board) undergo sophisticated testing prior to systems integration and final testing.

Tandem's product development focus . . . both hardware and software . . . is on improving the productivity of on-line transaction processing.

Librarians working at more than 2,200 computer terminals located in 47 states make some 900,000 inquiries daily of the ten-processor Tandem system at OCLC, Inc. in Columbus, Ohio. OCLC's 1,500 member libraries, with on-line access to bibliographic information on 4,000,000 books and other library materials, use their Tandem-linked terminals to catalog books, order custom printed catalog cards and maintain a computerized record of their holdings. The OCLC data base management services dramatically reduce the time consuming and costly chore of cataloging over 250,000 books weekly: OCLC affiliated libraries order—and custom edit at terminals to their individual standards— some 2,000,000 computer-generated catalog cards weekly.

Additional applications are under development at OCLC—which has two four-processor Tandem systems as well as the main ten-processor system—to expand the scope of the non-profit organization's services. Among them is a program that will enable library users to key-in a subject at a terminal and, in addition to being provided an immediate, extensive bibliography on the subject at a terminal, the Tandem system will search network-wide for locations of source materials that may not be immediately available at the searching library.

OCLC's ten-processor system, installed during 1978, is the largest Tandem system installed to date. With a total of 18 processors installed in its three Tandem systems, the Ohio facility has more Tandems under one roof than any other site worldwide.

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Continual introduction of new products is essential to serving the needs of the emerging on-line processing marketplace, as well as to Tandem's future.

Tandem's customers are entitled to expect the company to continually protect and enhance their investment in Tandem systems.

During fiscal 1978 Tandem invested over $2,000,000 in engineering and software development. Tandem sees this as an investment in its future and the future of on-line transaction processing.

Tandem intends to continue to fund new product development programs at a rate of 9% to 10% of revenues.

Product development expenditures during 1978 alone were equivalent to 86% of total development spending during the three preceding years combined. And the 1978 expenditures represent an amount almost four times that of the company's total revenues in 1976, the year the Tandem NonStop 16 was first delivered.

The results of Tandem's development efforts have been satisfying to the company's professional staff, management, and customers:

. . . During fiscal 1978, the average performance of Tandem systems was increased by approximately 30%. This performance gain was achieved through the commitment of certain key operating system functions to microcode.

Tandem is able to obtain an unusually high return on its development expenditures because the modular Tandem system is in fact a full line of products . . . from a two-processor/$150,000
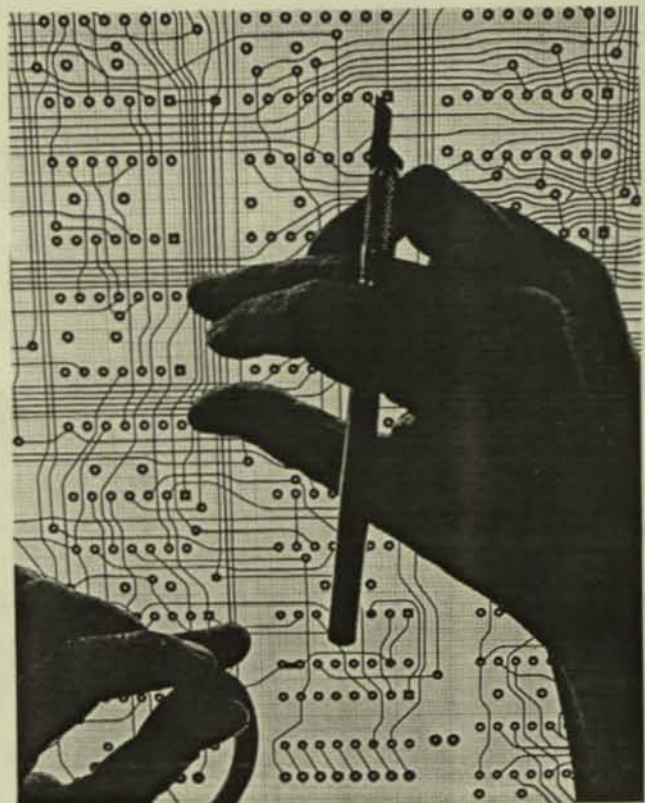
system through a 16-processor/$3,000,000 system. The company's development thrust is not diluted by efforts to fill out the product line, and all enhancements benefit the entire product line.

Product development effectiveness is further enhanced by its exclusive focus on transaction-processing developments.

Also among the new products introduced by Tandem over the last year were:

. . . XRAY, a powerful software development tool that provides customers with performance data to help determine ways to maximize the throughput in a given system by adjusting hardware or programming configurations.

. . . COBOL, a full ANSI-COBOL programming language with extensions for NonStop programming. COBOL enables Tandem system users to develop business-oriented applications utilizing all the capabilities of the company's NonStop transaction processing system. Programs written in ANSI-COBOL for other manufacturers' systems can be transferred to run on Tandem systems.

. . . FORTRAN, a full ANSI-FORTRAN programming language with extensions for NonStop programming. FORTRAN combined with Tandem's new Floating Point Arithmetic capability enables Tandem system users to execute mathematical functions quickly.

. . . Numerous other new product capabilities including a four-fold increase in the maximum memory available per processor, the capability to incorporate additional high performance peripherals into Tandem systems, and the capacity to interface with certain other manufacturers' computers.

Tandem plans to continue to focus its development resources on programs that will improve productivity . . . through advances in hardware and software . . . of on-line transaction processing. The benefit of this focus can be most clearly seen in Tandem's early fiscal 1979 product announcements . . . EXPAND and ENFORM . . . which extend NonStop system features to worldwide networks . . .

2,000
1,600
1,200
800
400
0
1976 1977 1978

◀ One of the principal results of
Tandem's fiscal 1978 development
expenditures was an increase in
the average performance of the
system by 30%.

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The first of a scheduled series of critical, on-line functions that demand continual 'round-the-clock operation are being enhanced and expanded by use of Tandem computers at the American Electric Power System's energy control centers "for the Eighties".

At the main dispatch center in Ohio—where AEP now manages the control and coordination of electric power for 6,000,000 people over a seven-state, 102,000-mile power delivery network that stretches from Virginia to Michigan— AEP's first Tandem system was installed during 1978.

When AEP's application program development is completed and its first Tandem system goes on-line in 1979, it will drive the vital function of measuring and reporting the flow and distribution of wholesale power to 99 interconnections with associated and neighboring utility companies as well as measuring the output of AEP's widely dispersed generating facilities.

With this data, AEP will update load forecasts hourly to determine the probable excess production available for sale to neighboring utilities or, conversely, to purchase energy for associated utilities in the event of an emergency. The Tandem system will also provide AEP with on-line billing information for these bulk power sales and receipts.

Peak demand over the AEP grid has been as high as 15.3 million kilowatts. According to the company, a mere 1% error in hourly demand data could result in an over-buy or under-sell situation that might cost the company as much as $50,000. A complete failure of the computer results in the loss of information necessary to optimize revenue opportunities and minimize production costs.

AEP—which is the second largest investor-owned power producer in the United States with annual production in excess of 82,000,000,000 kilowatt hours and sales of over $2,225,000,000 —has scheduled increases in on-line applications and computing power in its dispatch centers over the next five years.
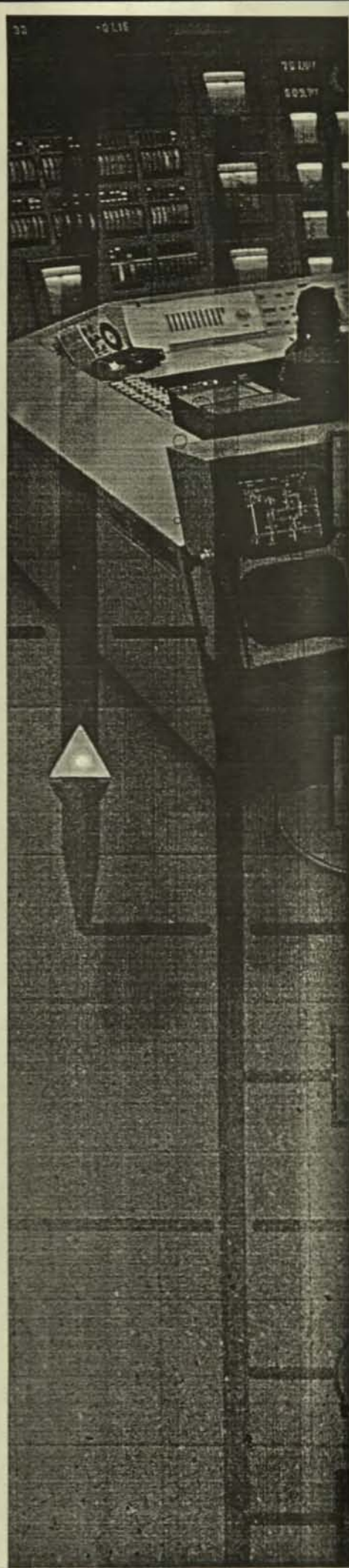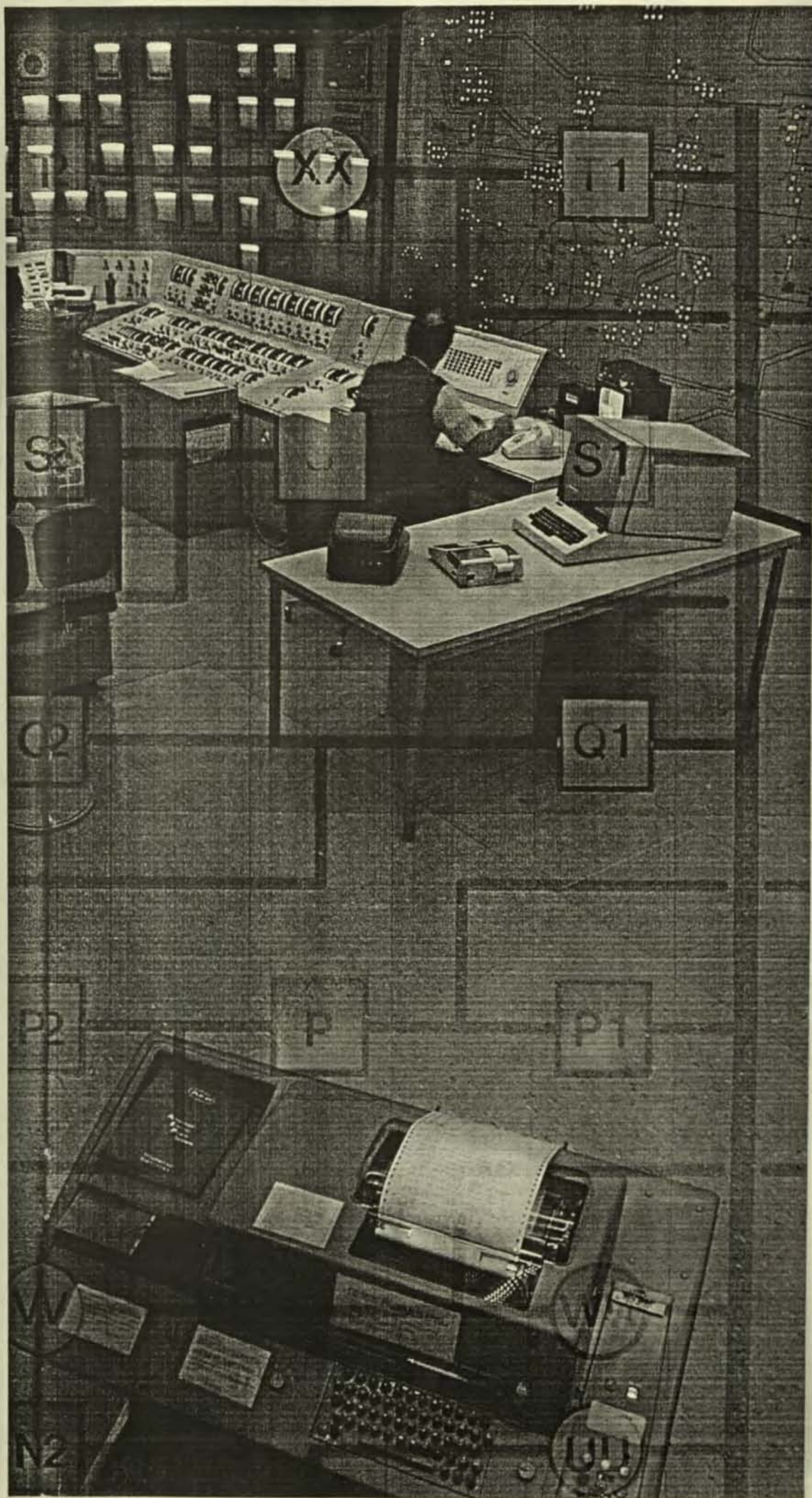
EXPAND, the company's recently announced new networking product, promises high productivity rewards for multi-location users. Working with EXPAND, ENFORM will provide an English-like language that can be used to easily produce reports from data drawn from any network system.

EXPAND and ENFORM: Far-reaching new product developments for 1979 delivery . . . outstanding contributions to on-line productivity that extend NonStop system capabilities to worldwide networks.

EXPAND: With first deliveries of this new networking software package in 1979, users of geographically dispersed Tandem systems . . . such as large national and multinational organizations . . . will enjoy dramatic performance and productivity benefits.

EXPAND users will be able to interconnect up to 255 widely dispersed Tandem systems, each with up to 16 processors, in a national or worldwide network using their in-place hardware.

Without intervention by computer operators, EXPAND will automatically route communications on optimum paths among Tandem systems in the network. Network enlargements under EXPAND will be simple: the customer, without any change in applications software, need only connect a new Tandem system to any of the Tandem systems in the network.

In addition to experiencing the same NonStop systems reliability throughout the network that they obtain from individual Tandem systems, customers:

. . . will no longer be vulnerable to the master-slave relationship of traditional hierarchical networks. Under EXPAND, all Tandem systems are ranked equally in the network and a network no longer need be dependent on the vagaries of a single central system.

. . . will not be at the mercy of a failure in line communications. In event of a line break, EXPAND automatically reroutes the connection via the shortest, most efficient transmission link, and ensures integrity of the data despite the line failure.

. . . will benefit from reduced communications costs, one of the major overhead factors in a network. EXPAND's route-through capability provides any system within the network with the capability to communicate with any other interconnected system without costly, point-to-point communications between all systems.

The company expects the impact of EXPAND on the distributed data processing marketplace to equal the original impact of the Tandem NonStop 16 on the on-line transaction processing marketplace.

With Tandem's new software product, EXPAND, customers will be able to quickly and easily develop distributed processing networks connecting up to 255 dispersed locations of Tandem systems.

ENFORM: A highly versatile data base query and report writing language, ENFORM will enable users of dispersed Tandem systems to query data from anywhere in a worldwide network, when used with EXPAND.

ENFORM employs a powerful, English-like (or German-like, Spanish-like, etc.) query language which can be easily used by non-programming personnel. And ENFORM automatically develops the most efficient strategy to extract data from a data base. Data may be retrieved from multiple files, no matter where located, even though their relationships were not anticipated during the data base design.

With ENFORM's report writing capability many of the formatting details most reports require have been automated, thus reducing report preparation to a fraction of the time required with conventional computer languages.

ENFORM's overall impact will be to dramatically lessen Tandem users' network applications programming cost.

Number of Systems Installed
(cumulative; fiscal years)

100
80
60
40
20
0

1976 1977 1978

23
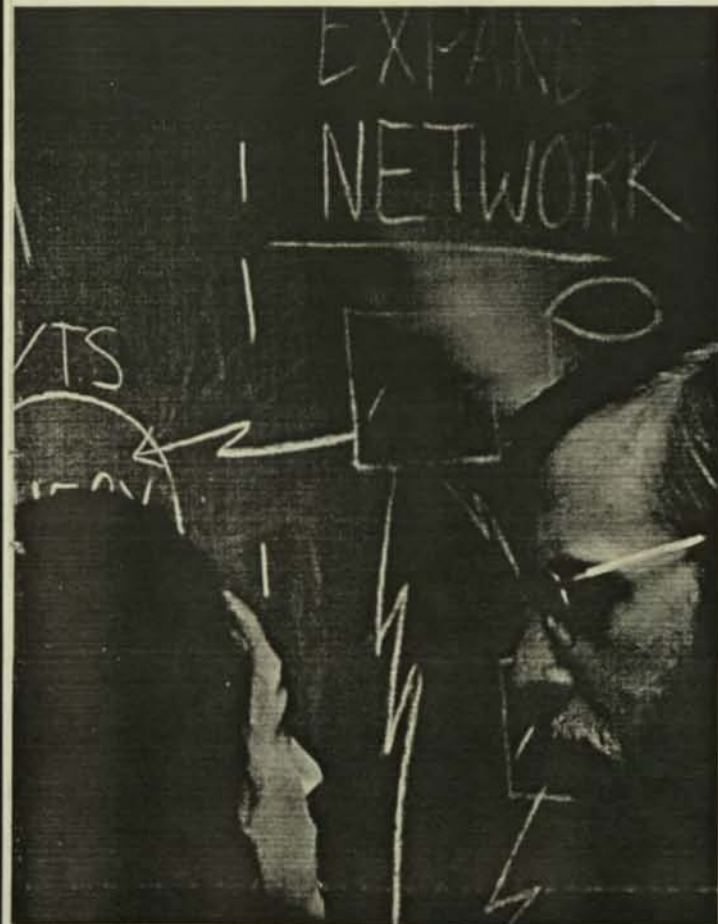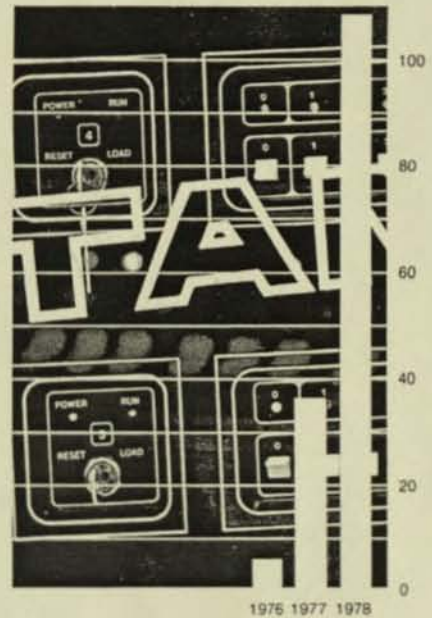
TANDEM

TANDEM

FIRST QUARTER REPORT
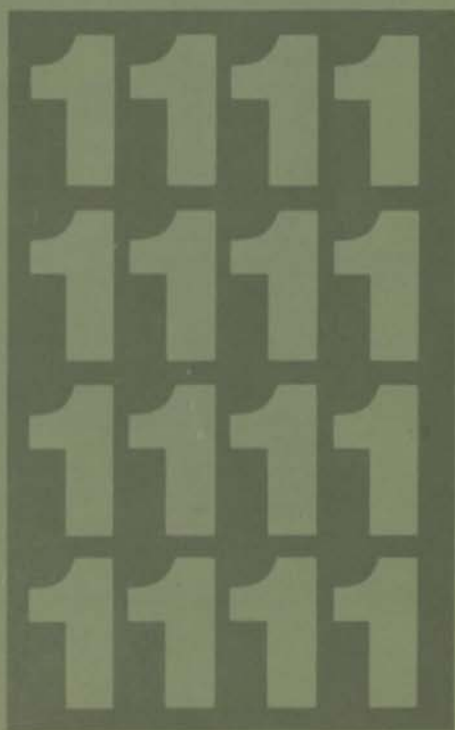
DECEMBER 31, 1979

TO OUR SHAREHOLDERS:

Tandem continued its pattern of strong and consistent growth during the quarter ended December 31, 1979. Both revenues and net income were more than double the figures for the corresponding period one year ago—quarterly revenues were $20,826,000, up from $10,398,000 the year before, and net income was $2,161,000, up from $951,000. Earnings per share improved to $.47 from $.24.

During the quarter, customer acceptance of Tandem systems was strong. We shipped 144 processors to 57 customers, 29 of whom were first-time Tandem users. These figures represent increases of 26 percent in the installed base of processors and 18 percent in the number of total customers over the levels at September 30, 1979.
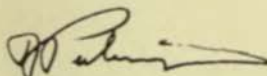
New product offerings continue to be an important part of Tandem's marketing strategy. During the quarter, we announced the introduction of PATHWAY, a software product that greatly simplifies the development of on-line transaction processing applications. Tandem also announced the 6520 video terminal, which is specifically designed for reliability and cost effectiveness in the on-line environment.

Tandem's organizational and personnel strategy reflect the need to prepare for further growth.
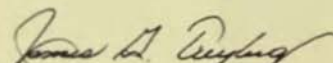
During the quarter, Robert C. Marshall, formerly Vice President—Manufacturing, was named Vice President and Chief Operating Officer. Mr. Marshall joins President James G. Treybig in a newly created Office of the President. At December 31, 1979, our employees numbered 949, up from 541 one year ago. We are proud of the competence and enthusiasm of our people, and recognize that continuing to attract and keep quality personnel is one of our major challenges.

On November 28, 1979, Tandem completed a common stock offering of 715,000 shares, which raised $24,453,000 for the company. These funds will be used to finance the working capital requirements of future growth. We were gratified by the response of investors to the offering, and believe that our future performance will continue to justify your interest.

Sincerely yours,

T.J. Perkins
Chairman

James G. Treybig
*President and Chief
Executive Officer*

TANDEM

CORPORATE HEADQUARTERS
19333 VALLCO PARKWAY
CUPERTINO, CA 95014

TANDEM

annual report 1979
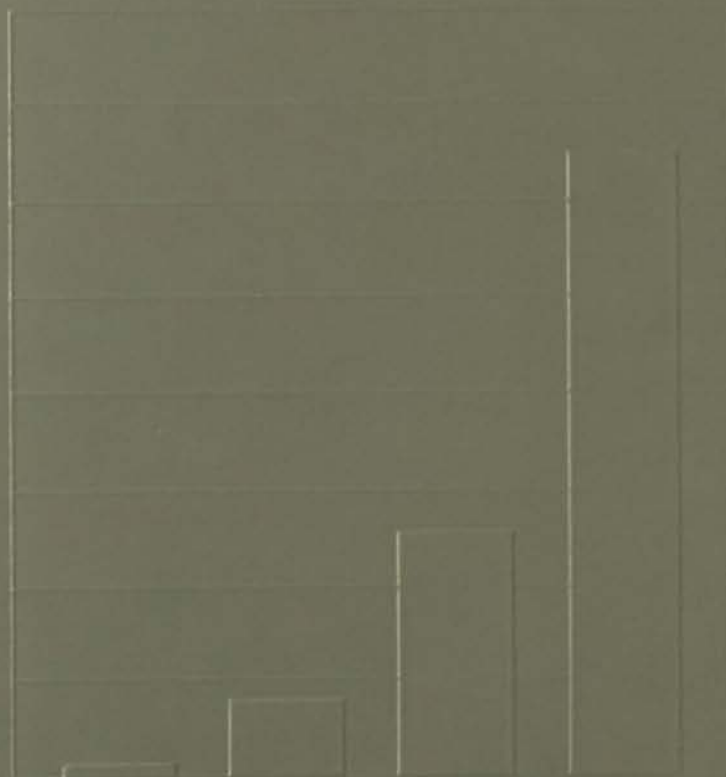
business review
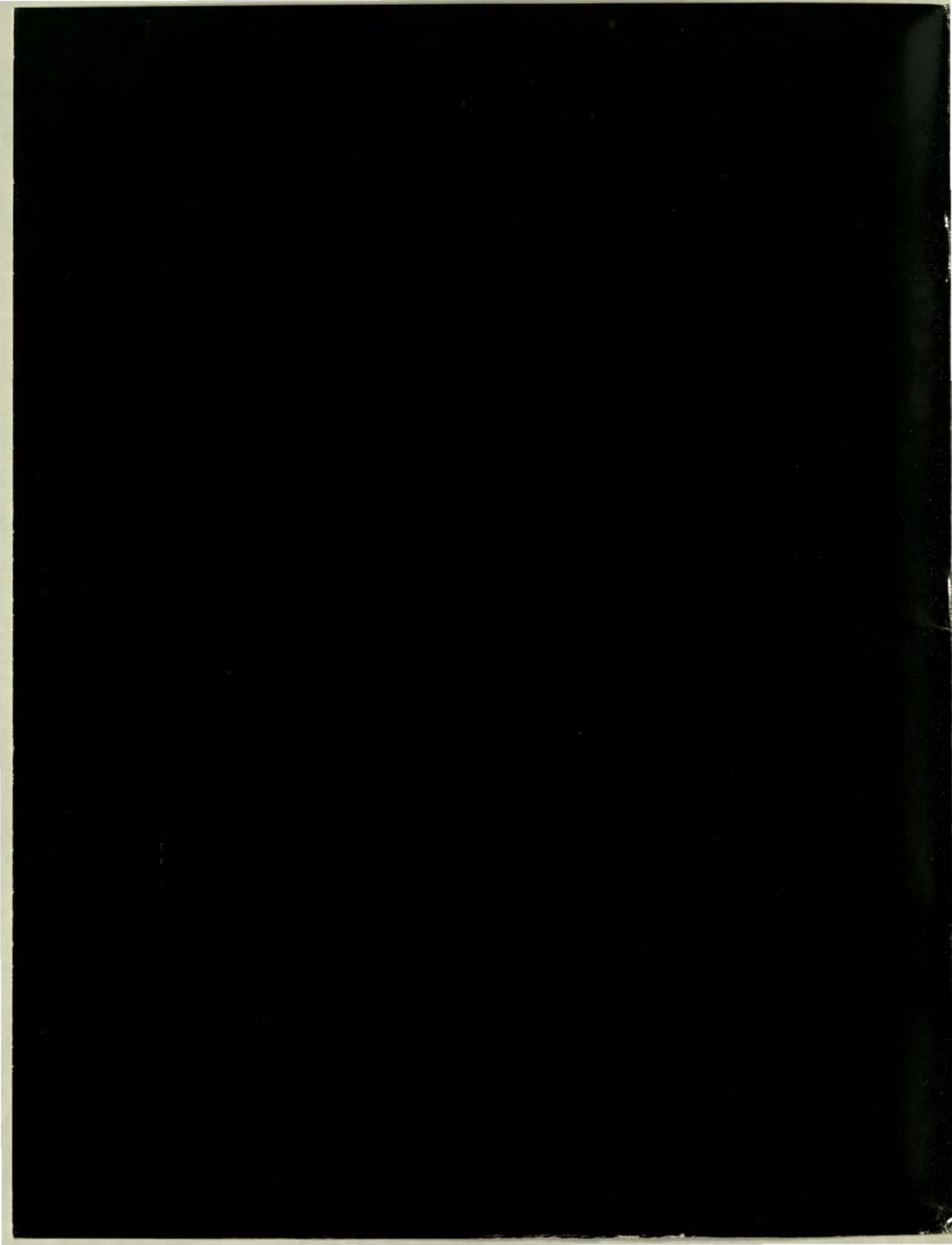
Tandem Computers Incorporated was founded in 1974 to design, develop, manufacture, market and support a unique computer system which meets the critical needs of the on-line transaction processing marketplace. Called the Tandem NonStop System, its innovative architecture virtually eliminates the risk of system failures and protects the customer's data base from damage caused by electronic hardware malfunctions. It is also the only computer system that can be expanded modularly from a mid-size to a large-scale system—or expanded into a distributed data processing network of up to 255 geographically dispersed systems—without hardware or software conversions. Today, Tandem has manufacturing operations in two locations in the United States and one in West Germany, and supports customers' systems throughout North America and Europe from 41 offices.

About this report

As Tandem and the computer industry enter a new decade, the on-line transaction processing marketplace is emerging as a fast growing segment of a rapidly expanding industry. This fact—coupled with Tandem's unique position of leadership in this marketplace—gives rise to many questions. About the industry. And about Tandem, its products and its strategies.

It is with those thoughts in mind that the forum for this year's Tandem annual report is constructed on questions from investment analysts.

Fortunately, the computer industry—by virtue of its growing importance and the vast pool of public funds invested in the industry—has attracted an unusually large body of highly qualified, fulltime investment research analysts.

Not all analysts that follow the industry are represented in this report; to do so would be impractical because of their numbers. For the same reason, space limitations prohibit the answering of all questions offered. To preserve objectivity and best serve the need to communicate, questions about Tandem were solicited from researchers who do not write reports on the company for their firms' clients as well as those who do. The company is grateful for the time, effort and interest of the investment community in aiding this project.

The reader will also find in this report a number of thumbnail case studies of Tandem customers. These are intended to serve as a sampling of the ways Tandem systems are used, and to act as a primer for understanding the broad span of industries and businesses that have committed to on-line processing.

NUMBER OF PROCESSORS INSTALLED

	1976	1977	1978	1979

Cumulative; Fiscal Years
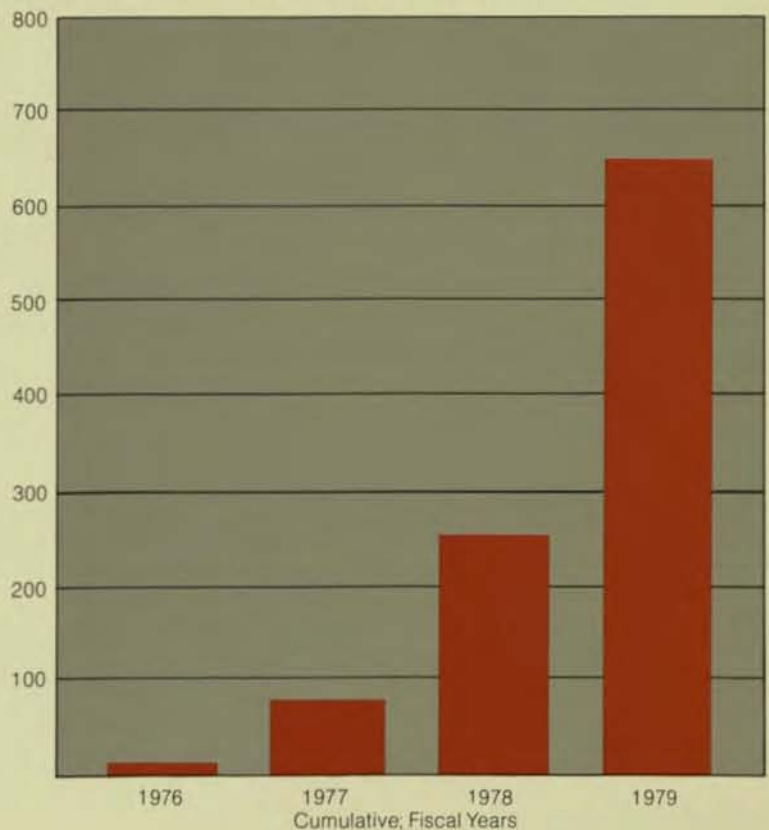
Tandem alone enters the Eighties with a computer system strategically designed to meet the critical needs and economic requirements of on-line transaction processing, whether at a single site or within a distributed data processing network.

At the core of the emerging age of automation is a segment of the computer marketplace known as on-line transaction processing. It is here that computers are most visible—to the businesses that operate in an on-line environment, and to the customers of those businesses. Businesses like banks with on-line teller stations and automated teller machines. Travel reservation systems. Merchants that use on-line services to provide instant authorization for credit card purchases. Manufacturers and distributors that can immediately tell you the precise status of your order. And scores of other businesses, hundreds of other uses where the need to instantaneously and continuously access and update information is becoming vital.

In this on-line marketplace, the computer also finds its most demanding environment. As more and more businesses come to rely upon on-line transaction processing for better management control, greater productivity and improved customer service, the need for a computer that runs without interruption is essential. In these businesses, when the computer stops—or when a computer malfunction damages or destroys the data base—the business stops.

The Tandem NonStop System is the first general purpose, commercial computer system designed specifically to fulfill the critical needs of on-line transaction processing. The innovative, fault-tolerant Tandem architecture virtually eliminates the risk of system failures and protects the customers' data bases from damage caused by electronic malfunctions. The system is also the only one on the market that can be expanded modularly—without any programming changes and even while the system is running—from a two-processor, mid-sized system up to a 16-processor, large-scale system, creating a continuous range of models priced from approximately $150,000 to over $3,000,000.

And, only Tandem systems can be geographically dispersed in a distributed data processing network without modifications to the hardware and without reprogramming—extending the benefits of uninterrupted operations, data integrity and modular expansion to large, high-volume networks.

Tandem's many software products—all of which make the Tandem system easier to use and more productive—enable users to establish distributed data processing networks with much greater ease, speed and economy than ever before known in the industry.

With the EXPAND network operating system, users can easily build a distributed data processing network of up to 255 geographically dispersed Tandem systems without replacing hardware or changing applications software.

ENFORM is a powerful software tool that makes it easier for the user's programming and non-programming personnel to query multiple files in a data base—in a spoken language-like manner—and to write reports quickly in the user's specified format. The benefits of ENFORM are compounded when used with EXPAND in a distributed data processing network: Data located anywhere in the network can be accessed from any terminal if the user has the required security clearance.

PATHWAY, announced in 1979, will further reduce user programming costs by making it easier and faster to develop on-line applications. PATHWAY handles many of the complex terminal and control functions that are an inherent part of any on-line transaction processing application. With PATHWAY, the user is free to concentrate on the applications themselves.

Also introduced in 1979 was the Tandem 6520, a new display terminal that provides high reliability and increased productivity in the on-line transaction processing environment.

As networks of dispersed Tandem systems grow, so will the importance of system serviceability. In addition to sophisticated self-diagnostic capability in hardware, DIAGLINK enables Tandem personnel to remotely diagnose a user's system via telephone link, anywhere in the world.

The Tandem NonStop System today stands unrivaled in its ability to meet the world's growing on-line transaction processing and distributed data processing needs.
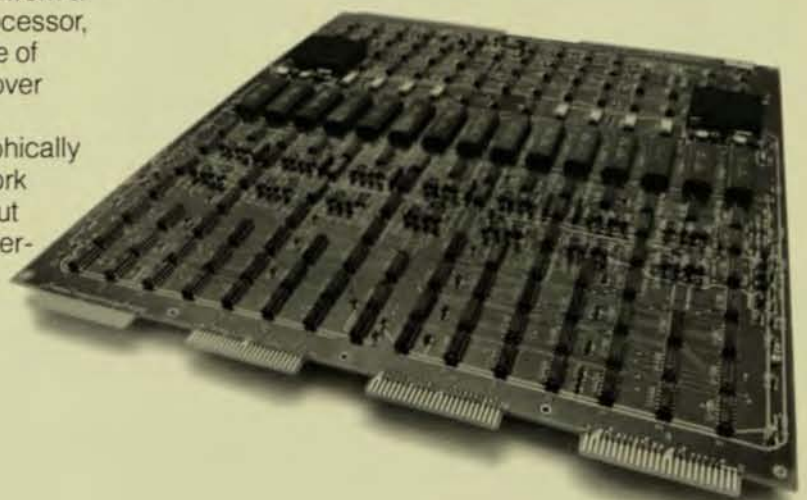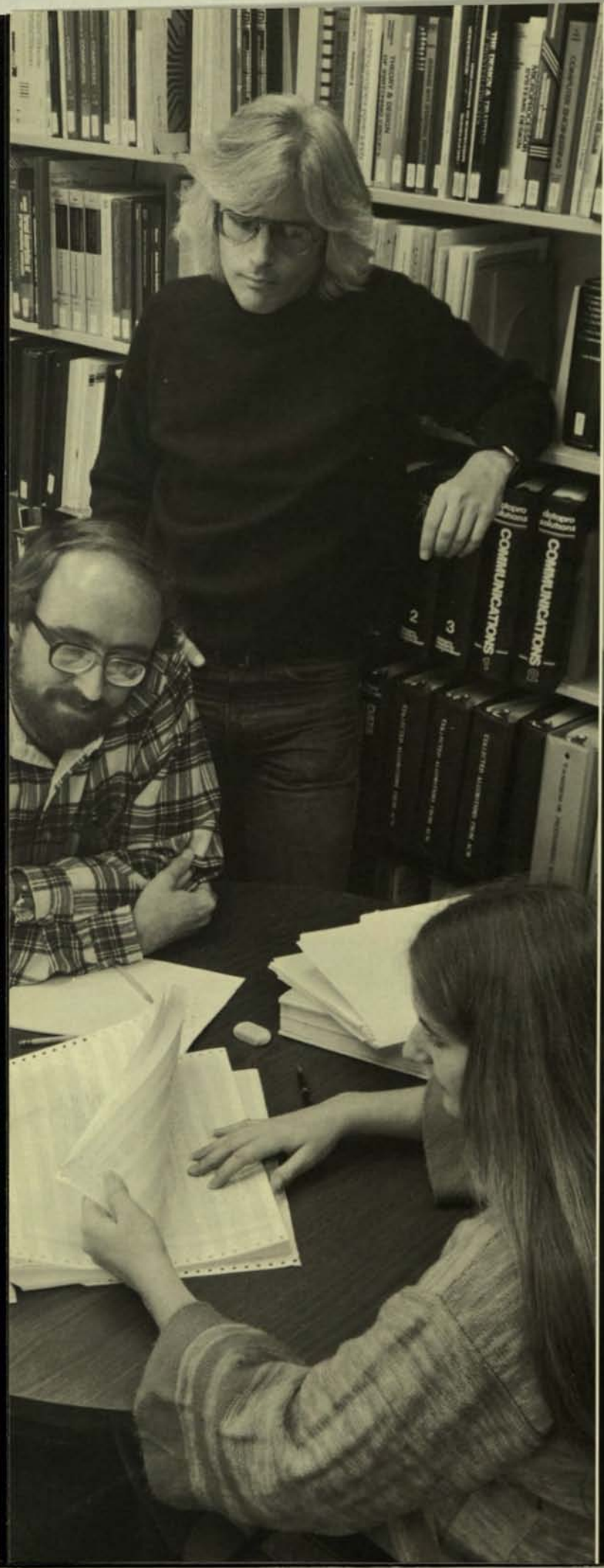
3

What is Tandem's niche in the market, that is, what is the company's expertise—should you be regarded as a hardware manufacturer or a predominantly software company?

—*Howard W. Geiger, Jr., Securities Research Division, Merrill Lynch Pierce Fenner & Smith, Inc.*

Tandem's niche is sole dedication to on-line transaction processing, and our successes to date are a result of our combined expertise in hardware and software directed at satisfying previously unfulfilled needs of the marketplace. In our focus on the on-line transaction user, we bring more to the marketplace than merely hardware and software. Like a mainframe manufacturer, we support our customer base with a large field service organization. For each salesman we have two systems analysts and two field service engineers. During fiscal 1979, Tandem's field service organization expanded 130%.

Tandem's original contribution was a state-of-the-art technology and architecture for maximizing multi-processing. The need for multi-processors existed before Tandem, but the only way it was being met was by the tremendously expensive, inefficient method of tieing together two or more conventional computers.

Subsequent to the Tandem product introduction, we have continued to make the system more useful for customers by enhancing the hardware and by developing additional software tools that make the system easier to use and more productive. The effectiveness of the software—and Tandem does have a reputation for outstanding software—is only possible because of the unique architecture of the hardware.

Is Tandem's typical customer more interested in NonStop capabilities, the high transaction rates or the networking possibilities?

—*James W. Reynolds, Vice President, Bateman Eichler, Hill Richards*

Tandem's customers are interested in the productivity advantages of the on-line environment, and recognize that NonStop operation is essential. Before Tandem, there were a number of risks associated with committing vital aspects of a business to on-line processing. Tandem has alleviated those risks.

Our customers are attracted by the Tandem advantages in combination, but with varying degrees of emphasis on any given feature. For some, continuous system availability is critical. To others, it's data integrity. For most—those users with geographically dispersed systems and distributed data bases—networking is obviously important. For virtually all, modular expandability holds great attraction. And, it is universally appealing to Tandem

One hundred forty-five hospitals in two states depend on the Missouri-Illinois Regional Blood Program for some 185,000 pints of human blood annually, and the St. Louis-based Red Cross chapter now depends on its Tandem system to match supply with demand. The organization uses the Tandem system, acquired in early 1978, for donor record keeping, to aid in recruiting donors and, once the donations have been made, to screen for blood quality and verify blood type. Most importantly, the on-line inventory system tracks the 4,000 pints of blood kept on hand, directs inter-hospital transfers, and monitors the supply's limited shelf life. Additional applications including administrative and accounting systems are scheduled to come on-line in the near future.

When PLAN-NET, the new data communications network of the Blue Cross Assn. and Blue Shield Assn., becomes operational in early 1980, all 100 regional offices in the U.S., Canada and Puerto Rico will be linked together by some 200 terminals interacting with eight geographically dispersed Tandem systems. In all, the network will come on-line with 22 Tandem processors spread over Chicago, New York, Atlanta, Tulsa, Seattle, Cleveland and Washington, D.C. as a custom turnkey system developed by International Micor Systems, Inc., a wholly-owned subsidiary of Ramada Inns. PLAN-NET replaces a slower, over-taxed system that was handling 50,000,000 characters of information daily. One of the heaviest loads on the new, high-volume network will be daily data collection for all Medicare claims throughout the U.S. Other major functions include eligibility determination for transient claimants, and balancing accounts for the Blue Cross and Blue Shield Inter-Plan Bank. PLAN-NET will be on the air 24 hours every day.

At the Canadian operations of Pilkington Glass Industries, Ltd., a subsidiary of the world's largest producer of flat glass, Tandem is the main computer. Acquired in mid-1979, Pilkington's Tandem system will take over all corporate data processing at the Toronto head office and main factory as additional processors are added. One of the company's principal reasons for converting to Tandem was the "smooth, painless upgrade path to a very high-powered system at relatively modest cost" essential to accommodating the workload. The Tandem system will be "intimately linked" with manufacturing in a company where, by necessity of the glass-making process, operations must run continuously around-the-clock, year after year. Currently, the system supports an on-line network of 35 terminals at the facility, which produces some 225,000,000 square feet of glass yearly for international markets.

Girmes AG, one of Europe's principal manufacturers of textiles and carpets with annual revenues in excess of DM 600 million, acquired its Tandem system in the autumn of 1977 and has never experienced a hardware or operating system failure. The initial two-processor Tandem went on-line in June 1978 with completion of software development for an order processing system that now ties-in the company's three factories with some 50 terminals. The system size was doubled in the summer of 1979 to handle increased workloads. Girmes is now developing applications software for a new manufacturing data capture system that is scheduled to come on-line during 1980. The company employs 3,500 people in West Germany.

Jōvan, the U.S. producer of fragrance products, went on-line with their new Tandem-powered warehouse control system in 1979 and quickly experience a near-tripling of productivity. By converting to the automated system to fill up to 4,000 orders daily for the company's 456 different products, Jōvan has improved order delivery by more than a week with dramatically greater accuracy. Further cost savings emanate from automated freight consolidation of the typically small packages. The system receives all orders; allocates inventory; selects orders; generates the transportation plan; weighs each order; provides freight rates; and prints shipping labels, bills of lading, packing slips, shipping manifests and order confirmations. Jōvan selected Tandem because of the critical importance of continual operations and the ability to add computing power without interrupting shipping of products.

Unlike most Tandem installations, the system at the Ritepoint Pen Division of Penn Corp. is used primarily as a batch processing system. Ritepoint converted to Tandem in mid-1978 to achieve greater reliability, easier programming, lower costs and higher performance. Although not dedicated to on-line transaction processing, the company has found it enjoys the benefits of faster on-line data entry and quicker error detection. The bulk of the workload is tracking up to 20,000 orders at the St. Louis plant at any given time. Additionally, the system handles all accounting, production planning and other general data processing. The division, one of the largest manufacturers of advertising specialties, selected Tandem after a six-month competitive evaluation. Penn Corp. has annual sales of approximately $30,000,000.

Number of Customers
(cumulative; fiscal years)

1976 1977 1978 1979

customers that they enjoy all of these features without cost premium while also enjoying high throughput rates at low cost.

There are Tandem systems—and some very large ones—that are in environments where continuous operation is not critical to the function of the business, but where a hardware malfunction that damages or destroys the data base represents a disaster. If you are a bank doing a multimillion-dollar electronic funds transfer when your computer malfunctions and sends the money to the wrong place and you can't get it back, the Tandem data integrity feature that prevents electronic interference with the data base is at least as important to you as the system's fault-tolerant capabilities.

The modular expansion capability is of great interest because most computer centers will need additional capacity within the foreseeable future. If you are in any business that is adding new applications or is growing, you know from past experience that it's going to cost you a lot of time, money, grief and disruption to your business to upgrade to a bigger model. The ability to easily and inexpensively add more modular processors to your Tandem system without changing a line of programming—without even shutting down the working processors—has appeal equal to the NonStop and data integrity advantages.

Modularity has its initial appeal when a customer is

When the U.S. Treasury Department's new Tandem system comes on-line in 1981, it will make electronic funds transfers of some $100 billion annually between the Treasury and more than a hundred different government programs. In addition, the system will record and monitor the sale of U.S. government gold and service grant programs such as letters of credit. The Tandem system will be dedicated to the Treasury Financial Communications System—previously run on a shared computer—to improve security and reliability, and to provide for easy add-on of computer power.

converting to an on-line application for the first time. Instead of buying in advance the capacity that will be needed when the system goes into production, the customer can buy a minimum-size system to use in developing the application software, and then later add the necessary power painlessly. Once into production, the system can grow and grow and grow—and our customers know that, and know that they've bought a clear path to a mainframe-size system, and know that they will never again have to deal with the huge costs of new programming, new hardware and retraining people.

They also understand that the system's design inherently favors networking and that, with Tandem EXPAND software, the realization of a large, productive distributed data processing network is infinitely easier and faster, and that they can save millions of dollars over a network of conventional systems in software and communications costs.

Several studies and practical experience have shown that multi-processor architectures are inherently inefficient. Why shouldn't we assume that the Tandem NonStop approach will appeal only to a limited segment of the total marketplace, thereby placing a lid on long-term growth potential?

—L. Duane Kirkpatrick, Vice President, Research, Dean Witter Reynolds, Inc.

You will no doubt find on re-examination that those studies did not include Tandem. It is true that conventional computers, designed to stand alone, lose efficiency in a multi-processor configuration. It is also true, however, that the Tandem system was designed from scratch to be optimized for multi-processing. Tandem represents an entirely new architecture which is inherently efficient.

The Tandem system bears no relationship to the concept of merely coupling together two or more stand-alone computers, aside from the fact that both express a need for computers that do not fail.

Unlike the typical multi-processors of preceding generations, the Tandem system is not functionally redundant; all elements of the system are handling the workload, and no one processor is merely waiting for another to fail. This intentional efficiency of Tandem systems is proven out in competitive benchmarking—nearly always against uncoupled single processors—and by the resultant transaction rates, price-performance comparisons and by the hundreds of Tandem systems now in service.

In view of the inherent efficiency, and considering that customers get fault-tolerance, modular growth and data integrity capabilities without additional cost, Tandem perceives the system's appeal as universal within the broad, rapidly growing on-line transaction marketplace. Tandem's participation in this marketplace is expanding at a rate consistent with the increased awareness in the business community of Tandem and of the productivity advantages of the on-line environment.
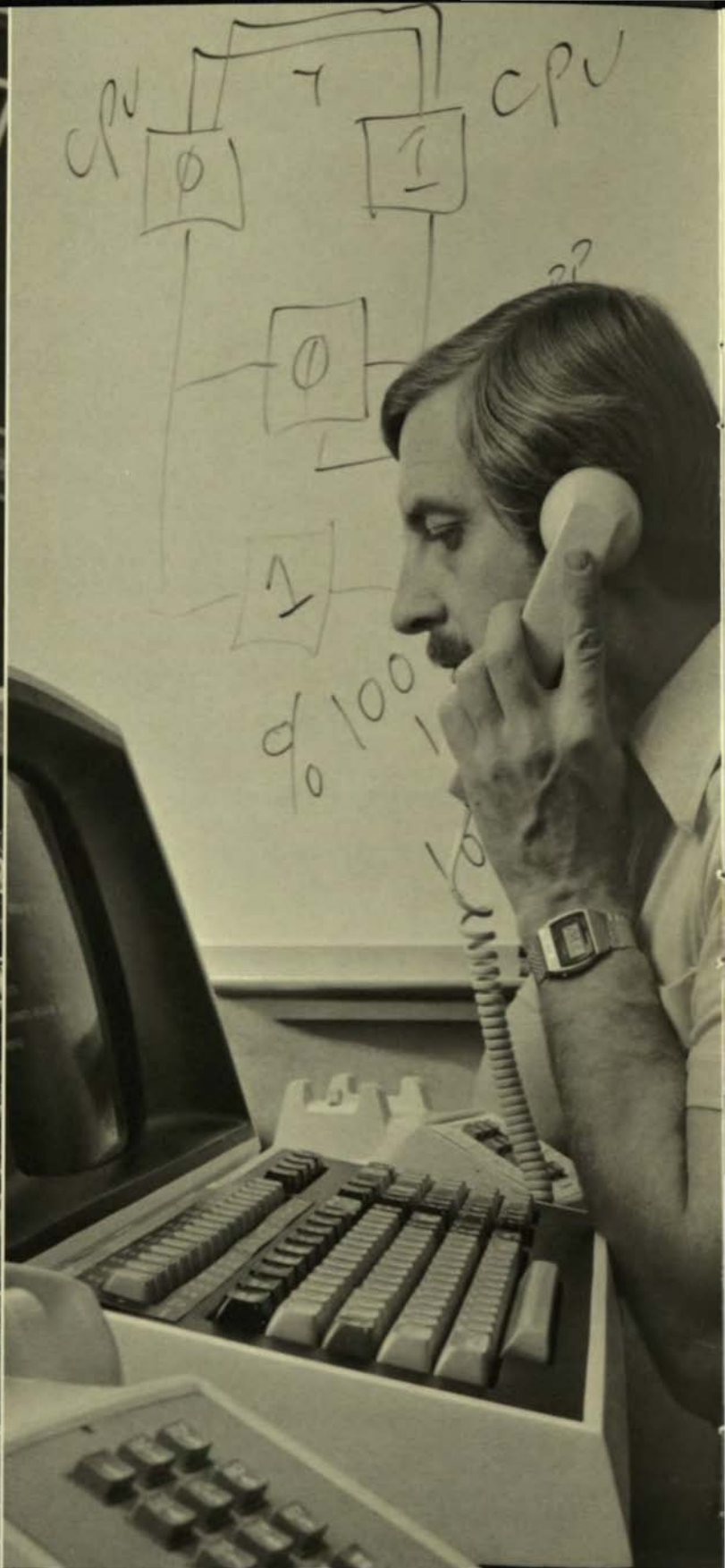
Most Tandem customers have widespread operations and will establish networks of geographically dispersed systems. For them, Tandem's EXPAND software represents a major breakthrough that will save millions of dollars in communications and programming costs, and accelerate completion of distributed data processing networks.

Describe the strategic importance of EXPAND for Tandem's movement into distributed data processing and, relatedly, data communications. When will EXPAND begin to have a meaningful impact on income?

—Michael P. DeSantis, Partner,
Robertson, Colman, Stephens & Woodman

We are extremely enthusiastic about EXPAND. Our bringing a distributed data processing capability to the marketplace that eliminates reprogramming and hardware changes does much more than merely add another exclusive feature to Tandem systems. We view EXPAND as being as important to

Tandem and the on-line processing user as the original Tandem product offering.

Strategically, EXPAND broadens our market to the extent that it makes a significant contribution to our confidence in our ability to sustain a high rate of growth. A large portion of our customers are developing distributed data processing networks to better manage and control their geographically dispersed operations.

For example, one of our EXPAND customers—a major international bank—is implementing an integrated worldwide bank management system. Tandem computers are being installed at the bank's operating centers throughout the world, some of which are extremely remote. With EXPAND, the network of dispersed Tandem systems will handle all communications and processing functions between systems. Data will be processed and stored at the geographic location where it originates, or, for better response time, at a location where it is most used, and will be routinely accessed by any location as if the information was resident at that location.

To support the growing base of EXPAND users, Tandem had 41 marketing, field service and training centers throughout North America and Europe at the close of fiscal 1979. Additional centers will be opened during 1980.

The networking capability of Tandem systems was strategically planned at the product's original development stage. It is inherent to the system architecture.   The same

First National Bank of Chicago, among the top ten U.S. banks with assets over $25 billion, employs five separate Tandem systems in three different areas of the Bank's operations. In Chicago, one Tandem system handles over 200,000 transactions monthly through 42 automated tellers; this rate will double when 200 regular teller stations come on-line in early 1980. Three more Tandem systems—in London, Paris and Chicago—are being used to develop a set of international banking applications which will be deployed with Tandem's EXPAND software in an international network of the bank's medium and large overseas installations. And, back in Chicago, a fifth Tandem system is being used to develop new programs for future applications elsewhere within the bank.

Before Chase Manhattan Bank went on-line with its account locator and verification system, the bank's controller's office was manually responding to 1,500 telephone inquiries daily. To service these inquiries, the bank employed as many as fifty people to manually access, update and file 1½ million cards on 750,000 customers. With the new Tandem system, the bank freed half of the employees for more productive work, and cost savings paid for the system within 18 months. Whereas it previously required a minute and a half to service each inquiry, it is now done in three or four seconds from any of 30 terminals located throughout the bank.

9

engineering concepts that make Tandem's fault-tolerance and modular expandability work also facilitate the networking capability and make possible the precedent-setting proficiency of EXPAND software. This distributed data processing capability is a logical extension of Tandem system advantages in concert with the needs of the market.
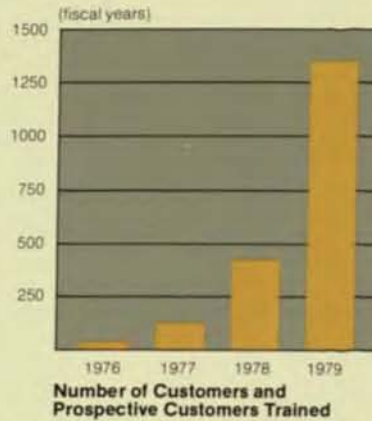
EXPAND software made immediate contribution to revenues upon availability and first deliveries in mid-year of fiscal 1979. What is important about EXPAND from the standpoint of revenues, however, is that EXPAND profoundly broadens the appeal of and demand for Tandem systems. All EXPAND buyers will be multiple system buyers over time.

It appears that one of your most significant products to date is EXPAND, your networking software. What percentage of your customer base has needed this capability? What percentage of your customer base five years hence will need EXPAND? And, how much of an edge does this software product give you over your potential competition?

—Steven P. Novak,
Assistant Vice President,
Harris Trust and Savings Bank

The majority of Tandem users are developing or planning distributed data processing networks. The reason for this is that most of Tandem's customers are large organizations with geographically dispersed operations. The early reception of EXPAND is indicative of the magnitude of the demand for the capability. First EXPAND deliveries were made near the end of our fiscal first half. By the end of the

(fiscal years)

1500
1250
1000
750
500
250

1976 1977 1978 1979

Number of Customers and Prospective Customers Trained

fiscal year—that is, within just six months—15% of our customers had already ordered the package.

Inasmuch as we do not see a shift in the nature of our customer base in the future, it is likely to remain the case that most of our new customers will be distributed data processing candidates.

EXPAND further sharpens Tandem's competitive edge in that the user's total costs for developing a distributed data processing network—whether large or small—are dramatically reduced. The Tandem system is far ahead of the industry in its capacity and competitiveness as a distributed data processing system. We have functions, features, performance and cost advantages that are unmatched.

With EXPAND, there need be no host computer, as in other networks, that can fail and jeopardize the data or continued operation of an entire network. Each Tandem processor in a geographically dispersed network sustains its own data integrity and performance integrity. Under EXPAND, any Tandem processor in the network can communicate directly with any other without costly point-to-point communications between all systems. Tandem systems are also certified to communicate on X.25 public or private packet switched networks which can further reduce communications costs. And, in the event of a communications line failure, EXPAND automatically reroutes communications and the network stays on the air.

All of Tandem's product offerings in combination—including EXPAND—arm us with a substantial lead over any competitor who will have to develop hardware and software serially. Regardless of the potential competitor's resources, that process is time consuming.

Of all the inventory control problems known to modern business, those of a large railroad are among the most complex. To Illinois Central Gulf Railroad—one of the largest in the U.S. with nearly 9,000 miles of track—one object of inventory control is keeping some 50,000 freight cars continuously productive. The task involves the complexities of matching car orders with availability; assigning cars by commodity/class; generating "switch lists" to locate and move up to 180 cars from varying positions on up to 60 tracks in a yard to make up a train; blocking the cars in destination drop-off order; waybilling to conform to regulations and to assure billing to shippers; and then turning around and repeating the process at the other end of the line. ICG inaugurated its new waybilling and yard management system during 1979 on a Tandem system at its Baton Rouge, Louisiana, yard. Other ICG yards will come on-line with additional Tandem systems in 1980 and beyond in a program to upgrade car inventory control in all of the railroad's major yards.

On opposite coasts of the U.S., seven days a week, thousands upon thousands of credit card purchases and personal checks are being instantaneously approved via Tandem systems at Telecredit, Inc., a national leader in check guarantee and credit card processing services. Since mid-1978 at Florida Service Center, a wholly-owned subsidiary of Telecredit, a Tandem system has been on-line providing complete bank credit card services involving some $15,000,000 in purchases and 650,000 transactions weekly for Master Charge and Visa. During 1979, Telecredit's second Tandem system came on-line, and is currently servicing some 8,000 on-line point-of-sale terminals providing national credit card authorizations and check approvals for many major U.S. banks and over 70,000 merchants.

Two new buildings under construction in California will ▶ more than double headquarter's square footage when completed in early 1980. At left is James G. Treybig, president and chief executive officer, with Robert C. Marshall, vice president and chief operating officer.
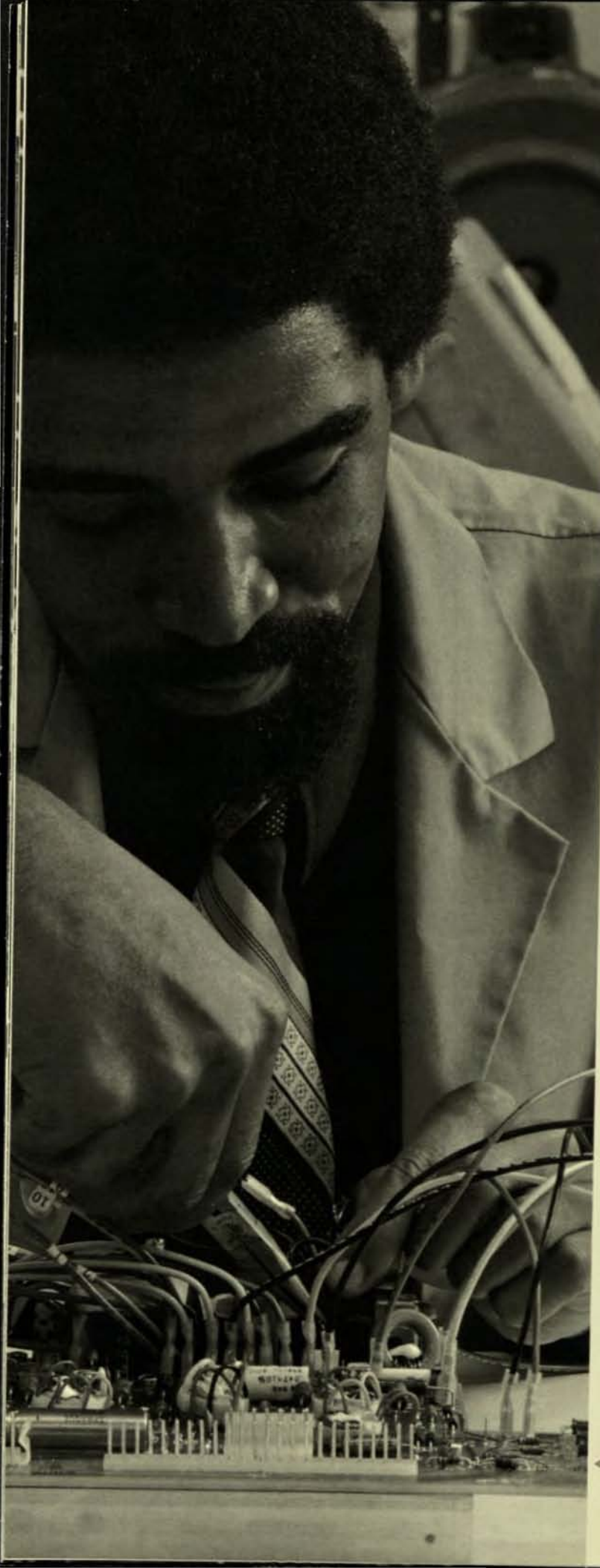
Tandem has a sound base of satisfied customers: During fiscal 1979, half of all Tandem shipments went to previous customers.

In Europe, our main concern is the ability of Tandem to continue to grow. The decision making process in the European business community is slower than in the U.S., especially in accepting a new product that involves both a new technology and a new company. The first thing your European prospects will do is contact some of your customers and ask if they are satisfied, and if they have or are ordering more systems. Are they?

—Pierre G. Mirabaud, Partner,
Mirabaud & Cie.

We find the European prospect to be extremely thorough and analytical, especially with regard to cost consciousness. This factor has been a definite advantage to us in Europe because we do very well in the cost-competitive arena. We do not, however, find the decision making process any slower in Europe. Our European prospects contact our customers which, again, is advantageous to us because we have a broad base of satisfied customers as evidenced by our unusually high rate of repeat business—over 50% during fiscal 1979—and by the fact that we have never had a system returned to us.

Virtually all Tandem customers order more capacity within a year or so after their initial purchase for three basic reasons. First, the modular expandability of Tandem systems enables customers to install only the computer power they will need over the short term. With conventional systems, the user must project needs out over several years because of the high costs of reprogramming, retraining and bringing a new system up. Tandem users have none of these costs when upgrading, and can add power on relatively short notice.

Secondly, most new Tandem systems are used for new on-line applications which entail development of applications programming by the customer. Typically, this is done on a minimum-size, two-processor Tandem system, and later the system is enlarged when it goes into production.

Thirdly, the on-line environment is highly dynamic. Our customers are most often in growing businesses that demand regular increases in computer power. Most of our customers are continually developing new on-line applications, and many will be developing distributed data processing networks of geographically dispersed Tandem systems.

◄ Tandem has manufacturing operations in two locations in California and one in West Germany.

During fiscal 1979, Tandem delivered 389 processors to 118 customers (which, incidentally, is more processors than in all previous years combined.) Of those, over 50% went to existing customers and the remainder went to new customers. Our strategy of encouraging new customers to initially acquire minimum-size systems has benefits for both the customers and Tandem. For users—who are typically using new systems to initially develop software for new applications—it is advantageous because they do not have to pay in advance for the computer capacity they will later need when the application goes into production. For Tandem, it is beneficial because we can spread our production over a wider customer base, thereby building up a reserve of customers who will return to us with additional business. In virtually all cases, we are assured of additional business as long as we continue to serve and support a satisfied customer base.

What do you see as the potential market size for Tandem's products?

—Thomas J. Crotty, Vice President,
Gartner Group, Inc.

The market potential is equivalent to the size of the market for on-line transaction processing systems and networks made up of those systems. At present, we believe it to be a multi-billion dollar market, and growing at a rate in excess of 30% per annum.

We view ourselves as the premier contender in this marketplace inasmuch as (a) we are the only company that is dedicated solely to on-line transaction processing, and (b) we alone produce a system that is designed specifically to fulfill what we consider to be the inherent, essential needs of the on-line environment. These needs include continuous availability; data bases secure from electronic damage; built-in, painless growth potential; ease of programming; ease of operation; low cost per transaction, and systems that quickly and inexpensively become a distributed data processing network.

The ultimate, definitive size of the market—as well as its continued growth rate—is dependent upon the rate at which businesses discover the efficiency, customer service and profitability advantages of the on-line environment.

As a relatively young company, our strategy has been to

Europe's largest department store chain, Karstadt AG of West Germany, has 162 outlets, annual sales of over DM 10 billion, and a growing Tandem system committed to on-line management of the company's DM 560 million furniture business. Karstadt took delivery of its first Tandem system at company headquarters in Essen in mid-1977 to develop application software to service six stores with massive furniture departments. The inventory control system with some 50 terminals enables clerks to immediately verify warehouse stock, write the order, generate shipping papers and invoice the customer. A future software development will enable sales personnel to make entries to allow a customer to customize the furniture ordered. A second Tandem system was installed in late 1978.

Providing management with constant, on-line availability of a myriad of operational reports and comparative analysis on 170 stores in 13 divisions spread over 38 U.S. metropolitan areas is just part of the Tandem role at the May Department Stores Company headquarters. Corporate officers, using the easy, English-like language of Tandem's Enform, can also access the computer through 25 terminals for detailed, product-by-product merchandising statistics and for sophisticated researching of potential new store sites. Although Tandem's fault-tolerant capabilities are not considered by the company to be critical to the current application, the data processing group reasoned, "Given the choice, why shouldn't we buy a computer that keeps running?" May Stores, headquartered in St. Louis, occupy over 33 million square feet nationally.

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concentrate our marketing activities on prospects that have identified as critical their need for Tandem's features. This allows us to build our base faster. In theory, all computer users would opt for, say, a fault-tolerant system over one that fails—especially when it does not cost any more. But, not all users will buy from a five-year-old company, even if the product has immense design advantages. As Tandem and its reputation grow, the number of users who will buy from Tandem also grows.

Discuss the market segments where you are currently active and the potential for those segments that you see yourself participating in over the next 3-5 years.

*—Irwin Lieber, Partner,
First Manhattan Company*

Tandem systems are currently being used in many industries. We are active in industries that have been quick to regard the full integration of computers into their businesses by means of on-line transaction processing as a logical, competitive step forward. Organizations within those industries are converting and committing vital aspects of their operations to on-line transaction processing to control their businesses better; to improve the management of capital, and to offer better customer service in an increasingly competitive marketplace—all with an end objective of enhancing productivity and profitability. They are converting to the extent that on-line transaction processing has emerged as a major new market. It is quite possible, although perhaps presumptuous, that the advent of Tandem and our on-line-specific technology—hardware and software—will lend further impetus to the rate of conversions.

Much of the concern and burden associated with a company's decision to commit the vital aspects of its business to on-line automation has been obviated by the Tandem hardware and software.

During fiscal 1979, systems were shipped to customers in 25 industries. Banks and manufacturers each accounted for approximately 14% of shipments. Other major economic sectors that purchased Tandem systems included medical, service bureaus, non-bank financial institutions and national governments.

As to the future, we do not see a dramatic shift over the next few years in our customer mix. We do expect to see the market in which we are now strongest to remain strong. And we anticipate increased interest in many other segments where we have no presence or where we have just scratched the surface.

Most analysts expect to see competition for your exclusive NonStop capabilities. What is your strategy for competing against established, name-brand competitors?

*—Jay Stevens, Securities Analyst,
Bear Stearns & Co.*

Eventually, all computers will have a much higher standard of reliability. The marketplace will demand it. Continuous availability, however, is just one of the Tandem capabilities. Our product incorporates other exclusive features that are equally innovative and broadly appealing to users. They are, of course, the Tandem features of data integrity, modular expandability and inherent networking ease.

Competition will lend credibility to the Tandem concepts. But, we do not see direct product competition on the immediate horizon. All computer manufacturers talk about high reliability, for instance, because of its obvious appeal to customers. We frequently hear of reliability in terms of 98% and 99% which sounds impressive.

Suppose, however, your business operates its computer

At the 1250-bed University of Alberta Hospital, an initial, two-processor Tandem system is taking over central registry, admission-transfer-discharge records and support of pharmacy and radiology functions. As the system grows during 1980 and beyond, some five processors interacting with over 150 terminals—including terminals at all nursing stations—are planned to monitor patient care services with a capacity for ordering and reporting all tests and procedures. Medical instructors at the institution, which is the leading research and teaching hospital of Alberta, will use the system to recreate past circumstances in evaluating performance of trainee staff. The system will also be used to control material management and equipment maintenance records, and will be expanded to incorporate patient-oriented services at out-patient clinics. The hospital's service domain spans thousands of miles of northern Canada, reaching virtually to the North Pole.
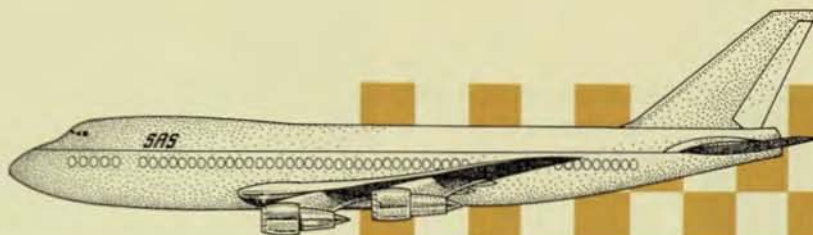
Some 400,000 packaged holiday tours by air to 60 destinations and 600 hotels are booked on-line annually by Vingressor AB, Sweden's largest tour operator and wholly-owned subsidiary of SAS (Scandanavian Airlines System.) Vingressor has 28 bureaus in Sweden, Norway, and England with 190 terminals connected via leased telephone lines to an on-line Tandem system. The rapidly growing tour operator computerized its business in 1972 and converted to Tandem in 1978 to overcome computer failures and to acquire the capability of easy expandability of computer power. "The luxury at no extra cost of Tandem NonStop has become second nature to us. It is hard to imagine how we lived without it, or how others are still living without it." Vingressor's original two-processor system was expanded to six in 1979 to accommodate peak loads.

24 hours a day. If your system fails once a month and is down for eight hours, that translates into 98.8% availability. But, it's also a full shift lost, and a lot of business lost.

Further suppose that you tie that computer into a distributed data processing network with a second, identical 98.8% availability computer. Now, your network is down twice a month; you have a failure, theoretically, every 15 days. Add a third system to the network and you're off the air once every ten days. Build a ten-system network and you're out of business every third day. Users are fully aware of this phenomenon. Once they are convinced in great numbers that the NonStop System technology really does exist, users will demand it in their systems. Ultimately, Tandem will have competition.

No manufacturer, however, can develop such a system quickly. There are basically two hurdles that have to be overcome. First, the development must progress serially. No matter how many people and dollars you put to the task, many aspects of the development cannot be undertaken in parallel. That takes time. Secondly, if you're to build a fault-tolerant system, your software has to have an unusually high level of integrity, and must undergo exhaustive quality assurance testing. Developing such software takes time. Then, having accomplished those things, a would-be competitor will have to catch up with all our other exclusive features, learn all we have learned about the on-line environment during the past five years, and then bring all of its talent to bear on translating that knowledge into meaningful products. That, too, takes time.

Our strategy toward meeting the eventual, direct competition is to continue to be a moving target. Tandem has added many unique capabilities since the original product introduction that are of significant benefit to users and effectively broaden the Tandem appeal. These new capabilities all focus on the same objective: make it easier and economically more favorable to bring an on-line system up and keep it running.

We will continue to broaden the appeal of Tandem

systems and remain a moving target for eventual competition by continually addressing ourselves to solving user problems.

Has the onset of recession and price-performance improvements by competitors made the selling of Tandem systems more difficult?

—*Richard A. Goers, Investment Analyst, Kemper Financial Services, Inc.*

What might be the impact of a recession in view of your market which is mainly new applications that would be cut first if user data processing budgets are reduced?

—*Stephen T. McClellan, Vice President, Salomon Brothers*

Despite price-performance improvements by others, Tandem systems are still highly price competitive. We have had major price-performance improvements ourselves in each of the last two years. Difficult as it may be to believe, Tandem buyers enjoy all of the unique Tandem features without cost premium as well as enjoying low costs per transaction—the true evaluation criterion.

At this writing—early in our first quarter of fiscal 1980— we have not felt the effects of the onset of a recession. It is possible that Tandem could benefit from the threat of a recession to the extent that buyers in a recession economy are more cost conscious. Any situation where critical cost analysis is paramount we believe will be favorable to Tandem.

There are opposing views as to what happens to data processing budgets in a recession. One view is that users tend to cancel new projects. In that case, Tandem would be

Shipments by Geographic Area
(in millions of dollars; fiscal years)
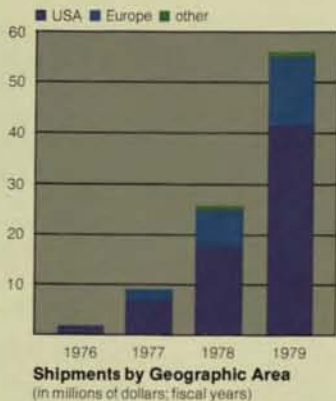
vulnerable because most of our new-customer orders are for new applications. However, the opposing view holds that inasmuch as there is sentiment in a recession for cost reductions, products such as Tandem's could be immune from the severity of a recession by virtue of the fact that they are cost-cutting, productivity machines. In either case, our strategies for coping with a recession—should it come, and should it affect Tandem— have been addressed at length, and our contingency plans are in place.

Can you tell me if the aggressive product and pricing announcements by IBM in 1979 had a meaningful impact on incoming order trends or the on-line processing market?

—*Michael P. DeSantis, Partner,*
Robertson, Colman, Stephens & Woodman

Tandem does not compete directly with IBM in that IBM products—and those of other manufacturers—do not have the functional capabilities of Tandem's. Any announcement by IBM, however, does impact the market as a whole; IBM is a powerful market force. And, certainly in a general sense, Tandem does compete with IBM for capital equipment expenditures. Consequently, many purchase decisions market-wide may be temporarily frozen while buyers investigate the new offering. Some manufacturers are directly and materially affected. The effect on Tandem was not appreciable as evidenced by our 1979 quarter-to-quarter shipment rates and net income.

Overall, we regard the implications of IBM's 1979 announcements as favorable to Tandem. They dramatically reconfirm our belief that the pricing trend of hardware is downward and that of software upward, reflecting more realistically the value added. This trend of charging more for software is immensely favorable to Tandem because we have great value-added in our proprietary software.

The company's new Tandem 6520 terminal, introduced ▶ during 1979, is on-line optimized for greater reliability and increased productivity.
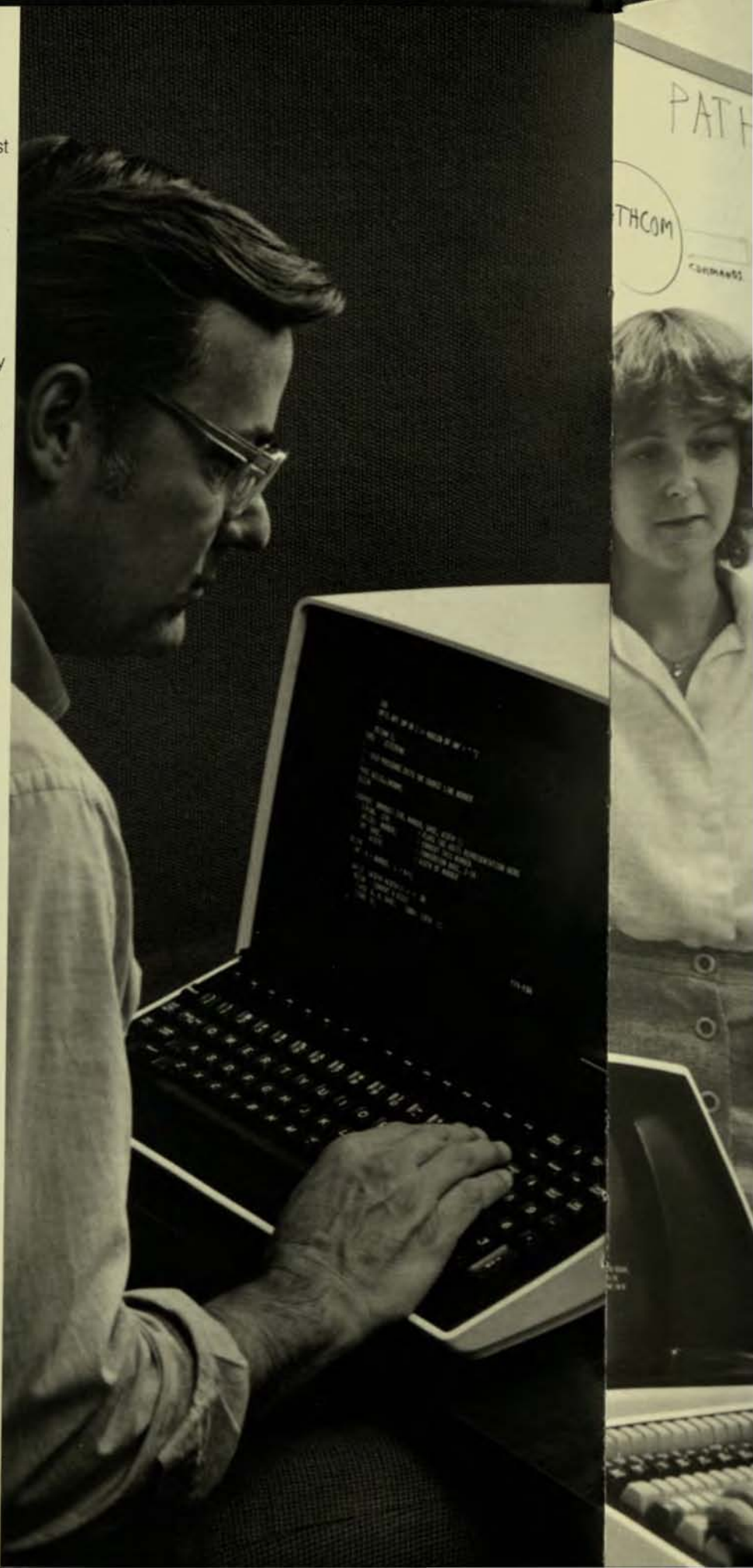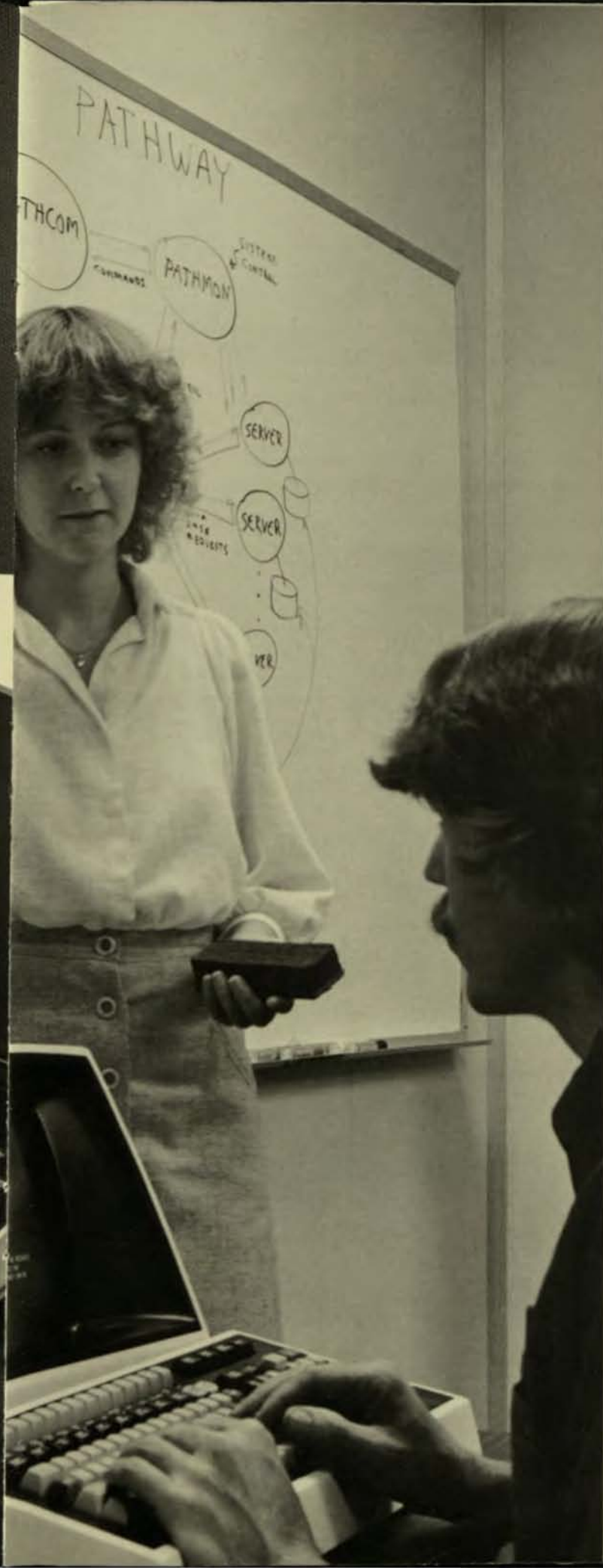
The thrust of Tandem's commitment to the on-line transaction processing marketplace in the future will be an extension of that of the past: a continuing dedication to further reduce the user's *full costs* per transaction.

Isn't the ultimate limit of Tandem's marketplace the ability of customers to program complex on-line applications and, therefore, doesn't Tandem address narrow markets rather than large, broad markets? Given that, what company strategies can be brought to bear toward solving that market limitation?

—*Peter Labé, First Vice President,*
Smith Barney, Harris Upham & Co.

As discussed earlier, Tandem is addressing the broad market of on-line transaction processing in the stand-alone and distributed data processing environments. This market has been expanding rapidly because many businesses are strongly motivated by numerous economic factors to bring functions on-line.

The market existed before Tandem was founded, and the economic incentives of on-line automation have been compelling: Users have been willing to undertake massive on-line conversion programs to achieve larger economic objectives. Tandem, through its many contributions, has significantly lowered the total costs of on-line conversions and operations, and thereby expanded the on-line appeal.

Tandem has been cognizant of the complexity of on-line applications programming, and in October 1979 we announced a major step forward—a new software tool called PATHWAY. With first deliveries in February 1980, PATHWAY will significantly reduce the user's task and costs in developing on-line applications software.

For a number of reasons, we expect PATHWAY to profoundly broaden the appeal of on-line transaction processing and the market for Tandem systems.

Before PATHWAY, programmers had to achieve an extremely high skill level before undertaking the writing of on-line applications. Consequently, the supply of these high-level programmers has been relatively scarce. PATHWAY, in effect, dramatically increases the supply of on-line-competent programmers by simplifying application programming.

PATHWAY also opens up a whole new world of applications that can be brought on-line much faster—by many months. This factor will provide potential users with added impetus to convert to on-line processing, and provides Tandem with yet another competitive lead.

And, PATHWAY drastically reduces the costs of developing on-line applications, thereby expanding the cost-effectiveness appeal of on-line transaction processing.

It is the continuing strategy of Tandem to endow our products with capabilities that make them easier to use and more productive.

◄ PATHWAY, one of Tandem's major software announcements during 1979, will make it easier, faster and significantly less costly for customers to develop on-line applications.

Lieberman Enterprises acquired its first Tandem system in 1976 to enhance profitability by converting from batch processing to on-line processing, and to provide for continued growth without costly re-programming and interrupting operations. In the preceding years, the distributor of phonograph records had undergone a number of costly mainframe computer changes to keep pace with workload demands of rapid growth. Today, the Minneapolis-headquartered company's operations are critically dependent on Tandem's NonStop capability as well. Some 160 salesmen enter orders directly into the computer from telephones in the field, using hand-held acoustical couplers, while orders received directly from customers are simultaneously entered by terminal operators. On a peak day, some 30,000 orders are handled in this manner. The Tandem system generates warehouse picking lists, and additionally performs all accounting, inventory status, and sales analysis functions. Lieberman has sales of approximately $150,000,000 annually.

Discuss the product evolution over the next 3-5 years necessary to make the company a healthy, fast-growing entity in an increasingly competitive market.

—*Irwin Lieber, Partner,*
First Manhattan Company

Tandem is now a "healthy, fast-growing entity", and the strategy to sustain that status is one of continuing to help customers solve the problems of the on-line environment by making Tandem systems easier to use, easier to maintain and functionally enhanced while simultaneously reducing users' total costs.

For all users, hardware costs are becoming relatively less significant when compared to software costs. It follows, therefore, that anything Tandem can do to reduce the users' labor-intensive software costs will attract attention and business. That is exactly what we have been doing, and what we will continue to do.

System serviceability will also grow in importance to the user in direct relationship to the growth of networks. More self-diagnostics will be built into hardware, and more central site troubleshooting capabilities will be introduced to facilitate more rapid isolation of malfunctions within a network of systems. DIAGLINK, whch enables Tandem support personnel to remotely diagnose users' systems, is an example of the trend of service sophistication.

Tandem has no need, however, to introduce a model "B" or "C" inasmuch as the Tandem system is, in fact, a

With automated wagering systems operating at over 50 pari-mutuel facilities, Delaware-based Autotote Limited placed its bets on Tandem's NonStop capabilities when going on-line at user sites with its new Autotrak system in 1979. At Autotrak-equipped facilities—the first three are at Harrisburg area's Penn National Race Course, Cleveland's Northfield Park and Miami's World Jai Alai—bettors need not go to separate windows for different denomination wagers or to cash-in winning tickets. All windows handle all types of bets of any dollar amount, and all windows are cashiers. The new Tandem-based system with four processors at each track continually updates odds and posts them; writes computerized tickets; validates winning tickets, and calculates payouts. The system also provides detailed analysis of every transaction at every window, automatically determines the state's share of revenues, and generates management reports. In another Autotote division, the company operates revenue control systems at a number of major airport and municipal parking facilities. That division's first Tandem-powered on-line system is controlling revenues from the 28 entry-exit lanes at Detroit Metropolitan Airport.
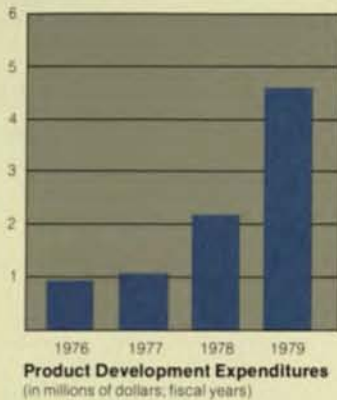
family of systems by virtue of modular expandability, with a continuous range of models from mid-size through mainframe-size. This does not imply, however, that we are not continuously investing in product development to improve the performance of our products and lower the cost per transaction to our customers.

Given Tandem's high-performance transaction orientation and inherent networking capabilities, how does the company see itself positioned to participate in the "office of the future?"

—*James W. Reynolds, Vice President,
Bateman Eichler, Hill Richards*

If we are talking about the office of the future as it relates to large organizations with multiple locations, Tandem is ideally positioned because the key to the office of the future is on-line computers connected together in a network. It is not a different marketplace, but rather a functional extension of on-line and distributed data processing networks.

The concept of the future office, as we view it, is one of increasing the efficiency and productivity of management by having the ability to easily access and move day-to-day information. This cannot be done without on-line computers, and it cannot be done over great distances without on-line networks.

The realization of the office of the future will be an evolutionary process. First one location will be automated, then another, then another. Certain office functions will be brought up on-line—such as electronic mail, text processing, and various daily reports—and then the individually automated sites will be tied together in an on-line network where data can be accessed, edited and reports sent around the world. We are already doing many of these things at Tandem. We send memos out over our network from California that are received at specific individuals' terminals at any Tandem office in the world that is tied into our network. We also edit copy on-line in California that was generated at any of our offices on the network.

Once an on-line data processing system or network is in place, there is no limit to the number of functions that can be added. Functions will amount to being only specialized software and, in some cases, specialized terminals that are easy to use by non-technical individuals. The network user has already paid for the capability and for the communications lines; The incremental costs of adding office functions will be minimal. The foundation for the office of the future, for that user, is here today.

$2136.57 5600

Pitney Bowes, a leading U.S. manufacturer of mailing equipment, came on-line in 1979 with a Tandem system which allows customers to buy postage without taking their postage meters to a post office for resetting. Known as the Remote Meter Resetting System (RMRS), this service is being operated six days per week for Pitney Bowes customers, and replaces a physical trip to the post office with a 90-second on-line toll-free phone call. Code information is requested by a computer-activated voice response, the user is issued a unique resetting number, and the meter is then credited with an amount of postage drawn from a pre-deposited trustee bank account. Pitney Bowes has installed more than 900,000 postage meters throughout the U.S., Canada and Great Britain.
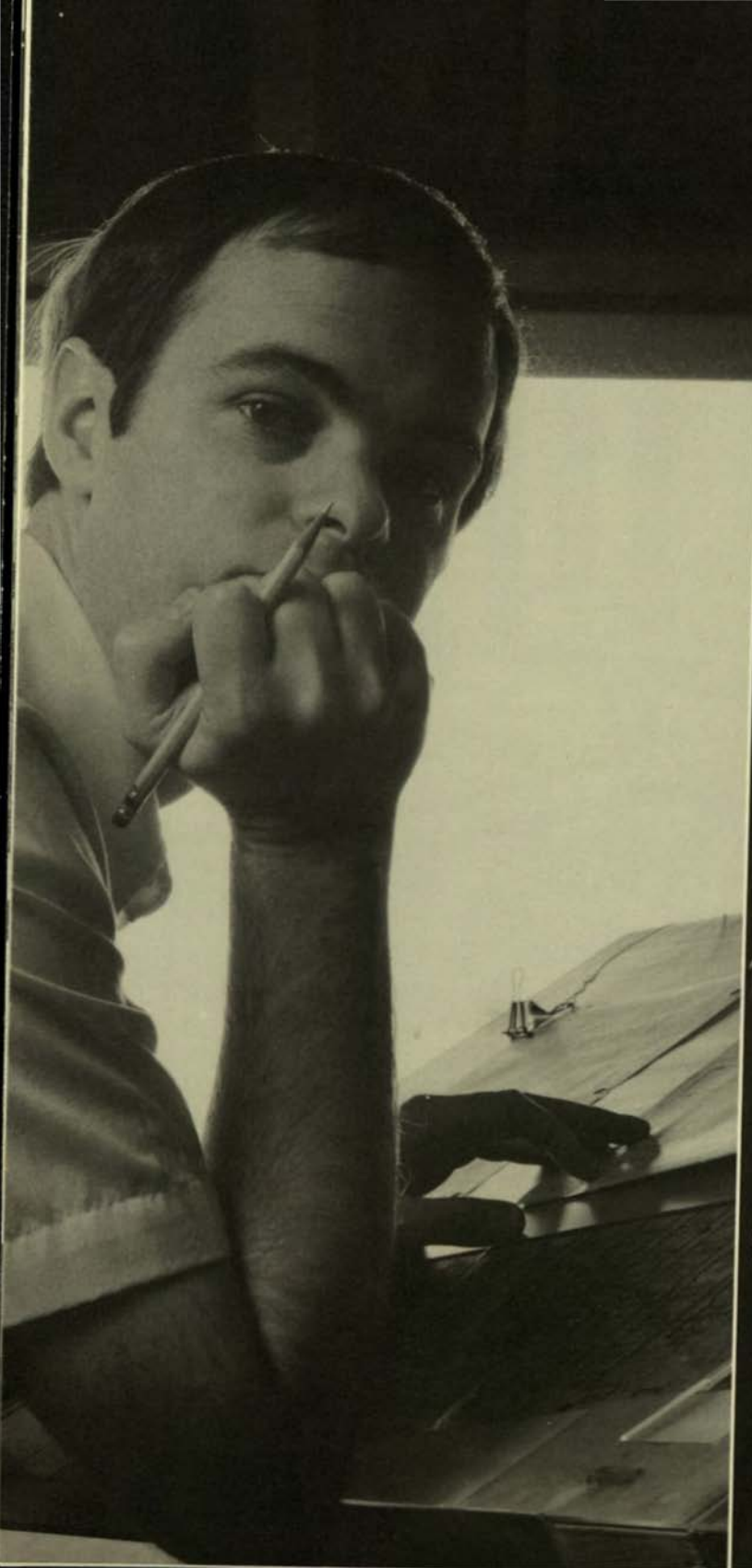
Integral to Tandem's strategies for the Eighties is a framework for controlling high growth.

In a company enjoying rapid growth, it often happens that financial controls and organizational structure are insufficient to handle the growth. What steps are being taken by the company now to build a long-term growth enterprise and avoid those problems?

—Peter Labé, First Vice President, Smith Barney, Harris Upham & Co.

As a preface, it should help to understand that the manner in which Tandem is managed is strongly influenced by the intent, since the inception of Tandem, to build a large company.

Tandem was not a "garage start-up". The original long-range plan was developed during the year prior to incorporation by several of the founders while on the staff of the venture capital firm that provided the seed money to launch the company. Tandem was then founded and went into operation five years ago with seasoned management—people who have had prior experience with cold starts that became large, successful companies.

Our current long-range plan, as with the original one, takes into account balanced growth of all functional areas of the company. We have designed control systems for each of the functional areas that envision future needs. These systems are computerized—and they are on-line. In fact, there is probably not another company of Tandem's size that uses computers in management control to the extent that we

do. These systems, by evolutionary process, are becoming more sophisticated as we grow.

The essential ingredients in our growth plan—now as in the past—are to be highly profitable, hire only good people, make sure our customers are satisfied, and have the organizational framework to handle high growth.

Financially, it is our objective to maintain a strong balance sheet and keep pretax margins in the 16% to 20% range. We do not lease our systems now and we do not intend to in the future. Approximately 10% of Tandem's systems are now financed by third-party lessors under full payout lease arrangements.

It is clear that our high growth rate cannot be financed solely by internally generated cash flow. Our options are to substantially slow the company's rate of growth or, within the self-imposed constraints of maintaining good profitability, to finance rapid growth with externally generated capital. We have chosen the latter course—using equity to maintain a strong balance sheet—to rapidly build the critical mass that will position Tandem as a long-term growth enterprise.

Explain the cost controls available with your forward, marketing/support integration versus backward, production integration strategy of traditional vendors.

—Barry F. Bosak, Vice President, Research Division, F. Eberstadt & Co., Inc.

It is my understanding that Tandem manufactures a smaller percentage of its total hardware than other computer manufacturers. Will this fact allow Tandem to grow faster?

—Thomas E. Mancino, Senior Research Officer, Citibank

In the early 1970s, Fred Meyer, the largest retailer in the northwest, reasoned that it was cashing so many checks that it should be in the banking business. Today, Fred Meyer Savings & Loan has over a half billion dollars on deposit at in-store facilities and free-standing branches. A Tandem System went on-line at Fred Meyer at the outset of 1979 to provide control and all data processing for the S&L's 30 automatic teller stations in Oregon that handle some 5,000 customer transactions daily. Another 5,000 daily transactions run through the system via 50 terminals to manage administrative and loan functions. In 1980, the growing Tandem system will begin driving all of the 150 regular teller terminals at the S&L's Oregon locations. The original applications software for Fred Meyer was developed by Applied Communications, Inc., of Omaha, Nebraska, which specializes in programs for financial institutions.

Tandem does not manufacture the peripherals portion of the Tandem system, and has no immediate plans to do so. Vertical integration of peripherals would not improve our margins at present, and would take resources away from our end-user marketing and support efforts. Our strategy is to concentrate resources on product development, marketing and support of our customers, and to build a sound base of satisfied customers as rapidly as possible while maintaining good profitability. At some point in the distant future, however, the economies of vertical integration could change. We are interested in optimizing peripherals for on-line transaction and distributed data processing efficiency, and are encouraging our OEM suppliers to add functional features toward

that end. Our new 6520 terminal, although proprietary and manufactured to our specifications, is produced for us by an OEM supplier.

The Tandem system architecture—the modularity, fault-tolerance and integral diagnostics—provide us with significant manufacturing advantages. The system design allows a much more rapid completion of systems integration and test than in most conventional computers.

For our customers, this shortens the leadtime between initial order placement and system delivery. For Tandem, the comparatively short systems integration and test cycle means better control of inventories, more accurate manufacturing forecasting, and a higher degree of timely responsiveness to the marketplace.

Although the Tandem architecture is sophisticated, the modularity aspect greatly simplifies the manufacturing process. At the heart of each system, regardless of configuration, is some combination of just 17 standard, Tandem-designed, large-capacity printed circuit boards. Each modular cabinet can contain up to four processors, and any size system—from two to 16 processors—can be efficiently assembled and tested from the same standard boards, enabling identical software to be run on any size system.

The means that Tandem can build an entire family of systems—from a mid-size model through a large-scale system—at the same plant location, from the same standard modules, and at the same manufacturing station.

Memphis Light, Gas & Water took delivery of its initial Tandem system, a four-processor unit, during 1979 with the intent of standardizing its computer operations on a single manufacturer's system. The utility selected Tandem because of the system's unique ability to handle all mini-based functions while growing into a mainframe configuration. The first major usage of the Tandem system is an on-line, automated billing system for the utility's approximately 3,500 large industrial customers. During 1980, the system is scheduled to take over all customer billing operations. MLG&W has approximately 300,000 electric customers, 230,000 gas customers and 200,000 water customers.

Busch-Jaeger-Elektro, the West German subsidiary of BBC, Brown Bovery Cie AG, automated its huge warehouse in Luedenscheid with a Tandem system in 1979 to significantly improve shipping rates and productivity. The inventory control system manages the distribution throughout Europe of some 1,700 electrical products ranging from small parts such as switches and power breakers to all kinds of electrical devices. The warehouse stocks up to 13,000 different products, both finished goods as well as parts, with a total well in excess of 1,000,000 items in stock. The Tandem system automatically processes orders for 18,000 different locations in the warehouse.

What is Tandem's strategy for attracting and keeping people to achieve continued high growth?

—William S. Deakyne, Vice President, Jennison Associates Corp.

Before discussing strategy, it is important to understand that Tandem is an interesting place to work, and a good place to work. We intend to keep it that way. We are on the leading edge of technology, we have a new way of looking at computers, and we are in an exciting market. Our high growth rate affords individuals the opportunity for career growth at a rate consistent with their abilities to manage more responsibility. All of these things attract good people to Tandem.

We have intentionally created a team spirit by having clear corporate objectives and a minimal structure. We function on individual responsibility and peer pressure—no one wants to let anyone else down. Everyone has well-defined goals and is delegated the authority to achieve those goals.

We are willing to take longer to find the right people, and then we take care of them. Because we really care. Our salaries are competitive, as are our benefits. In addition,

virtually all of our employees are shareholders or hold stock options—we want all of our people to share in the financial success of Tandem. After four years with Tandem, all North American employees are eligible for a fully-paid, six-week sabbatical in addition to regular vacation time.

Finally, we are willing to admit to our hiring mistakes by terminating individuals who do not live up to our high standards.

There are only a handful of companies that have enjoyed sustained success in the minicomputer or small computer system marketplace, and these include, most notably, broad-based, highly-integrated companies. There have been considerably more failures than successes over the years. What are the potential pitfalls that most concern Tandem? And, what are the ingredients that will make Tandem, a relatively recent entry into this marketplace now mainly populated by well-established companies, a long-term success?

—Barry Rosenberg, Senior Vice President,
G.S. Grumman/Cowan & Co.

Tandem offers a continuous range of systems from mid-size through large, mainframe-size, and is, therefore, not in the "minicomputer or small computer system marketplace." Our list of success ingredients starts with this product line and all of the user benefits associated with it as previously discussed. In summary, those benefits are unique not only in themselves, but in that they are represented in a system that is the first developed specifically to fulfill the previously unfulfilled, critical needs of on-line transaction processing and distributed data processing networks.

Tandem is not the first company to see a major new market that the "well-established companies" ignored. Early minicomputer vendors were quick to capitalize on just such a market opportunity. Tandem was founded five years ago to meet the unique needs of the emerging market for on-line transaction processing systems. We know that this market is large, and we believe that it is now among the fastest growing segments of the computer industry.

Our long-term success formula is based on five fundamentals: a strategic and superior product; quality people; satisfied customers; sustained profitability, and a framework for high growth. We will not allow the company to grow faster than the rate at which we can attract and productively use top talent.

We will not sacrifice continued customer satisfaction to achieve an arbitrarily established rate of growth. We will continue to maintain our high level of customer support, and continue to invest in the development of products and services that enhance the usefulness and productivity of Tandem systems.

Among the computerized control systems on-line at Tandem ▶ is an EXPAND-based manufacturing inventory control system that enables management to instantaneously determine the quantity of parts, sub-assemblies and finished product at any of the company's three manufacturing locations.
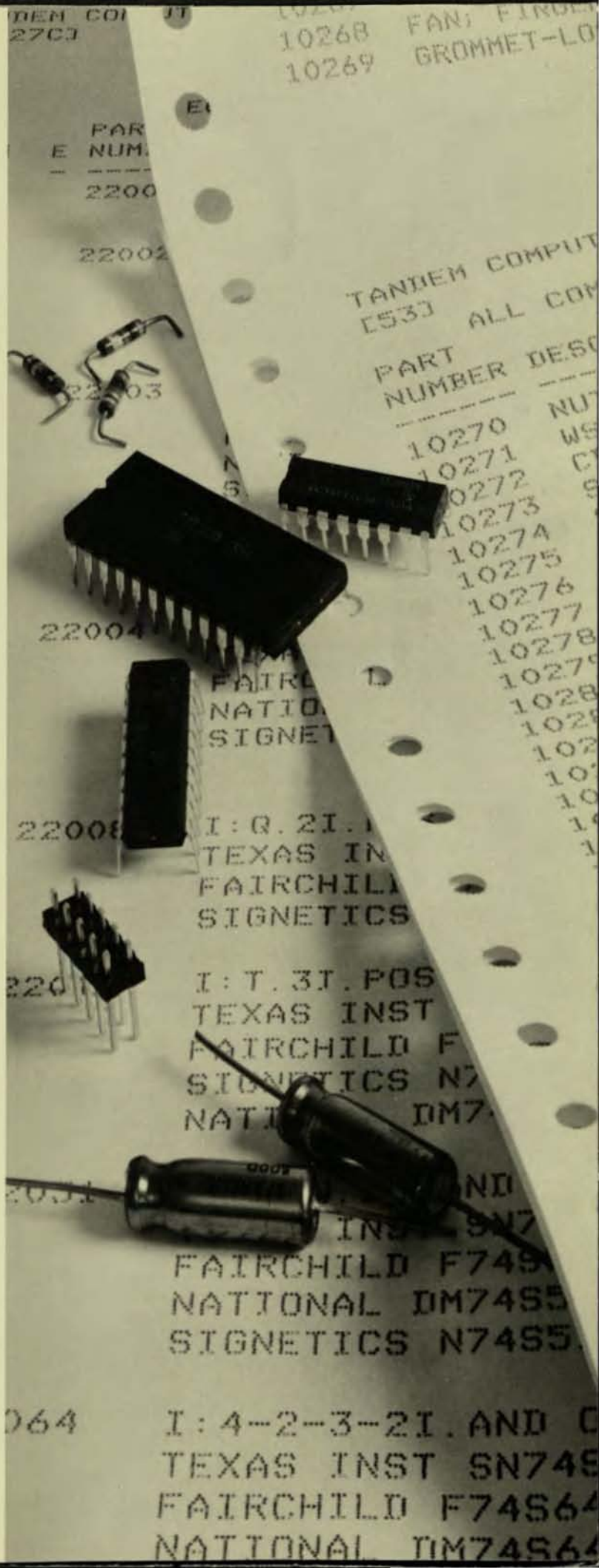
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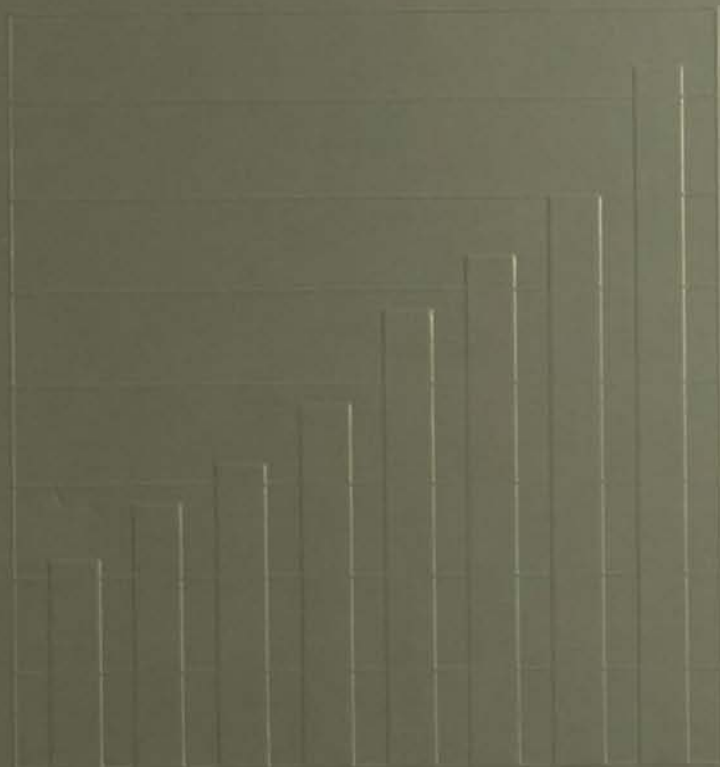
financial review

Highlights of the Year

Fiscal year ended September 30	1978	1979
Revenues	$24,305,000	$55,974,000
Income Before Income Taxes	$ 4,490,000*	$10,104,000
Pre-Tax Return on Revenues	18.5%	18.1%
Net Income	$ 2,153,000*	$ 4,920,000
Income Per Share	$.60*	$1.18
Weighted Average Shares Outstanding	3,589,974	4,178,378
Working Capital	$13,702,000	$27,096,000
Total Assets	$22,051,000	$45,947,000
Shareholders' Equity	$15,538,000	$31,530,000
Number of Employees	446	828

Quarterly Results (Unaudited)

	1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Revenues	$ 3,909,000	$ 5,259,000	$ 6,699,000	$ 8,438,000	$10,398,000	$12,471,000	$14,992,000	$18,113,000
Net Income	337,000*	532,000*	574,000*	710,000	951,000	1,123,000	1,295,000	1,551,000
Income Per Share	$.11*	$.14*	$.16*	$.19	$.24	$.27	$.30	$.37

*Before extraordinary credit

INCOME PER SHARE
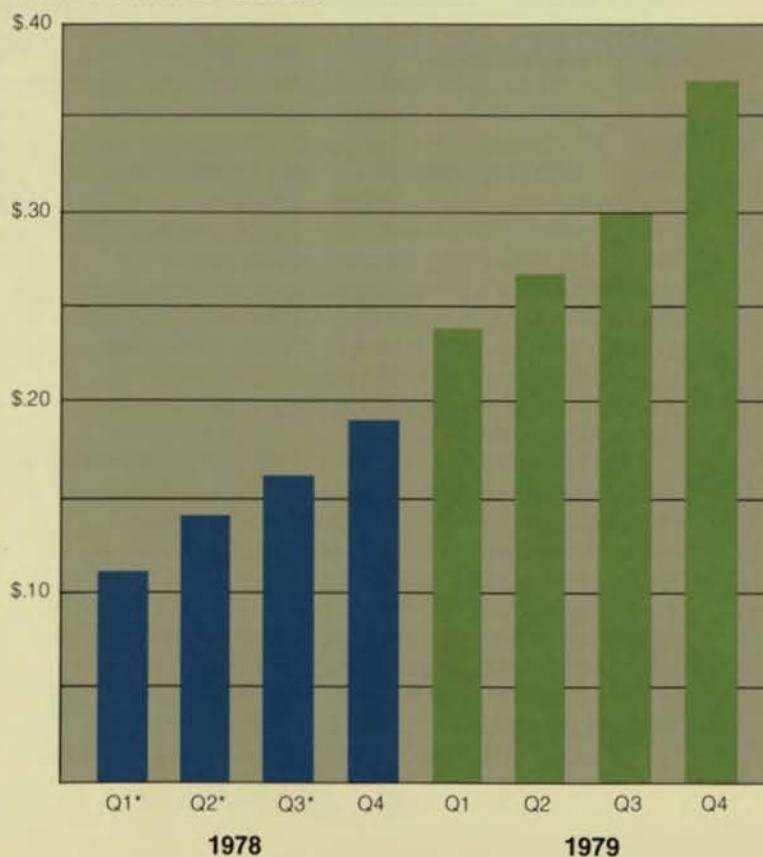
TO OUR SHAREHOLDERS:

Tandem Computers, in the five years since its founding, has become a leader in the field of on-line transaction oriented data processing. The unique Tandem contributions of NonStop computing, modular expansion, data integrity and networking—together with a strong dedication to the support of our customers—have enabled us to grow very rapidly and successfully along with this expanding, major new market. We are pleased to report these results in fiscal 1979:

- continued excellent growth and operating profit
- major new product introductions which significantly expand our opportunities and enhance our already strong competitive position
- significant enlargement of our organization with outstanding people who are dedicated to Tandem's leadership role

Tandem's revenues grew 130% in fiscal 1979 to $55,974,000. Our pretax margins of 18.1% were within our objective range of 16-20%. Income after tax advanced 129% to $4,920,000 while income per share was $1.18, up from $.60 reported on a comparable basis in fiscal 1978. We ended fiscal 1979 in a sound financial position— with $6.7 million in cash, a current ratio of 3.2:1 and a 5% debt to capitalization ratio. Our public offerings in December 1978 and November 1979 provided the company with $34,428,000, which is being used to finance the working capital required to support our growth. With these resources plus our unused bank lines of credit for $12,500,000 we believe that Tandem is in a strong and flexible financial position.

Fiscal 1979 was a year in which the marketplace increasingly came to understand Tandem's unique product features, and the importance of these features to the successful implementation of their on-line transaction processing applications. We have continued to build our end-user oriented marketing organization. At year end fiscal 1979, 474 of Tandem's 828 people were in our marketing and field service organization. Of these, approximately 15% were salespersons, and the remainder were systems analysts, field service engineers and training and headquarters marketing personnel, who together provide the high level of support that is essential to servicing our customers.

Consistent with our objective of providing a high level of customer support, we began decentralizing our manufacturing operations during the last year. A systems integration and test facility was opened on schedule in West Germany, with the objective being to bring the implicit high level of technical expertise of such an operation close to our users' sites. We have also commenced subassembly production in Watsonville, California.

We find that computer users in general are becoming increasingly sophisticated and are understanding that the *full cost* of any computer system includes not only the price of hardware, but also expenditures for system software, applications software, and maintenance of both hardware and software over the life of the system. Tandem's product thrust has been, and will continue to be in the 1980's, to offer customers the lowest *full cost* per transaction. Products announced during fiscal 1979 were illustrative of this corporate focus.
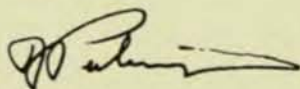
EXPAND, our network operating system, was delivered to 22 customers in the second half of the year. These customers are in the process of implementing their on-line distributed data processing applications on Tandem systems. ENFORM, Tandem's query and report writer language, which enables the user to access data using an English-like language no matter where the data might be located in the distributed data processing network, and to write reports, also enjoyed excellent initial acceptance in fiscal 1979. These two products greatly reduce the time and programming cost required for users to implement distributed data processing networks with distributed data bases. Other major product announcements over the last year include PATHWAY, a software product which performs many of the complex terminal and control functions that are an inherent part of any on-line transaction processing application, and the 6520 terminal, with unique design features that provide high reliability and improved user productivity in the on-line environment.
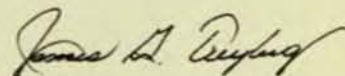
From a management viewpoint we believe that high growth requires a special structure of organization, one where at any point in time critical corporate resources— management, capital and control systems—are in place to handle volumes greatly in excess of what exists currently. We are committed to seeing that all individuals at Tandem have the opportunity for job advancement and, through option programs and the employee stock purchase plan, also have the opportunity to participate financially in the company's success. Virtually all of our employees are currently stock or option holders.

Our success over the last five years reflects the individual commitment, team effort, and pure hard work of all of our employees. We enter the 1980's in a strong position— in terms of our people, products, financial resources and base of satisfied customers—to take full advantage of the major market opportunity we identified five years ago.

Sincerely yours,

T.J. Perkins
Chairman of the Board

James G. Treybig
*President and
Chief Executive Officer*

December 5, 1979

CONSOLIDATED STATEMENT OF OPERATIONS
From date of incorporation to September 30, 1979

	(Dollars in Thousands Except for Per Share Data)				
	Year Ended September 30				
	1979	1978	1977	1976	1975*
Revenues	$55,974	$24,305	$7,692	$ 581	$ —
Costs and Expenses:					
Cost of revenues	20,786	9,096	3,514	482	—
Product development	4,654	2,169	1,094	979	456
Marketing, general and administrative	20,828	8,808	2,719	1,327	192
Interest, net	(398)	(258)	36	(38)	(2)
	45,870	19,815	7,363	2,750	646
Income (loss) before income taxes and extraordinary credit	10,104	4,490	329	(2,169)	(646)
Provision for Income Taxes	5,184	2,337	171	—	—
Income (loss) before extraordinary credit	4,920	2,153	158	(2,169)	(646)
Extraordinary Credit—Tax benefit of net operating loss carryforwards	—	1,218	167	—	—
Net Income (Loss)	$ 4,920	$ 3,371	$ 325	$(2,169)	$(646)
Income (Loss) Per Common Share:					
Income (loss) before extraordinary credit	$ 1.18	$ .60	$ .06	$ (4.33)	$(1.49)
Extraordinary credit	—	.34	.06	—	—
Net income (loss)	$ 1.18	$ .94	$ .12	$ (4.33)	$(1.49)
Weighted average outstanding shares	4,178,378	3,589,974	2,679,923	530,270	440,143

*From date of incorporation, November 29, 1974

MANAGEMENT'S DISCUSSION AND ANALYSIS OF THE
CONSOLIDATED STATEMENT OF OPERATIONS

$60 $50 $40 $30 $20 $10
1977 1978 1979
Dollars in Millions; Fiscal Years

Revenues

Revenues in fiscal 1979 increased 130% to $55,974,000. This gain resulted primarily from increased shipments of systems and software to both new and existing customers and from sales of added processors, peripherals and software for existing systems. During fiscal 1979 the Company shipped 389 processors to 118 customers.

Revenues in fiscal 1978 increased 216% to $24,305,000 from $7,692,000 reported in fiscal 1977. This gain also resulted from a substantial increase in shipments of systems, processors and peripherals. During fiscal 1978 the Company shipped 176 processors to 59 customers.

60 50 40 30 20 10
1977 1978 1979
Percent; Fiscal Years

Cost of Revenues

To meet rapidly increasing market demand for Tandem's products, manufacturing facilities were expanded during the year at the Company's Cupertino headquarters, and new plants were opened in Watsonville, California, for subassembly production and Neufahrn, West Germany, for systems integration and test. The Company's cost of revenues in fiscal 1979 increased 129% to $20,786,000, while cost of revenues as a percentage of revenues remained essentially unchanged at 37.1%.

The cost of revenues in fiscal 1978 increased 159% to $9,096,000. However, cost of revenues as a percentage of revenues declined to 37.4% from 45.7% in fiscal 1977, primarily because of per-unit price reductions and quantity discounts received by the Company due to the substantial increase in volume.

$5 $4 $3 $2 $1
1977 1978 1979
Dollars in Millions; Fiscal Years

Product Development

The Company's product development effort is dedicated to meeting the needs of computer users who are implementing on-line transaction processing applications. Expenditures on product development in fiscal 1979 were $4,654,000, up 115% over the fiscal 1978 level. In fiscal 1978 product development expenditures were $2,169,000, up 98% over the prior year. These expenditures resulted in many new product introductions in both years and funded research on future products.

Product development expenditures as a percentage of revenues were 8.3% and 8.9% in fiscal 1979 and 1978, respectively. The Company has a long-term objective of maintaining development expenditures at approximately 9% of revenues.

Marketing, General and Administrative

The Company focuses its selling efforts on the end-user market, where providing a high level of customer support is essential. These support costs are encompassed in marketing, general and administrative expenditures, which increased 136% in fiscal 1979 to $20,828,000. In fiscal 1978, marketing, general and administrative expenditures were $8,808,000, up 224% over the prior year. In fiscal 1979 and 1978 such costs represented 37.2% and 36.2% of revenues, respectively. This expenditure level reflects not only the Company's end-user marketing orientation but also the significant geographical expansion of marketing operations over the last two years and the addition of marketing personnel in anticipation of future growth.

1977   1978   1979
Dollars in Millions; Fiscal Years

Pretax Income

Pretax income increased 125% to $10,104,000 in fiscal 1979, while pretax margins (pretax income as a percentage of revenues) were 18.1% compared with 18.5% reported in fiscal 1978. The decline in pretax margins in fiscal 1979 resulted primarily from the reduction as a percentage of revenues in net interest income earned on cash equivalent investments. In fiscal 1978 pretax income was $4,490,000, as compared to $329,000 in fiscal 1977. The pretax margin improvement in fiscal 1978 resulted primarily from the reduction in cost of revenues and product development expenditures as a percentage of revenues.

The Company's effective tax rate declined slightly in fiscal 1979 to 51.3% from 52.0%, reported in both fiscal 1978 and 1977. Net income before extraordinary credit advanced 129% to $4,920,000 in fiscal 1979. In fiscal 1978 and 1977 net income before extraordinary credit was $2,153,000 and $158,000, respectively.

1977   1978   1979
Dollars in Millions; Fiscal Years

Income Per Common Share

Income per common share* increased 97% to $1.18 in fiscal 1979. Earnings* in fiscal 1978 and 1977 were $.60 and $.06 per share, respectively. Per share earnings have not increased as rapidly as net income before extraordinary credit because of increased shares outstanding. The Company completed public offerings of common stock in fiscal 1979 and 1978, and these offerings combined with the sale of stock to employees under the employee stock purchase plan and option plans resulted in increases in weighted average shares outstanding of 16% and 34%, respectively. Proceeds from the sale of these additional shares have been used to finance working capital expansion, which was necessary to support the Company's growth during this period.

*Before extraordinary credit.

1977   1978   1979
Fiscal Years

CONSOLIDATED STATEMENT OF INCOME

For the Years Ended September 30, 1979 and 1978

(In Thousands Except for Per Share Data)

	1979	1978
Revenues (Notes 1 and 8)	$55,974	$24,305
Costs and Expenses:		
Cost of revenues	20,786	9,096
Product development	4,654	2,169
Marketing, general and administrative	20,828	8,808
Interest expense	84	65
Interest income	(482)	(323)
	45,870	19,815
Income before income taxes and extraordinary credit	10,104	4,490
Provision for Income Taxes (Note 2)	5,184	2,337
Income before extraordinary credit	4,920	2,153
Extraordinary credit—Tax benefit of net operating loss carryforwards	—	1,218
Net Income	$ 4,920	$ 3,371
Income Per Common Share (Note 7)		
Income before extraordinary credit	$ 1.18	$ .60
Extraordinary credit	—	.34
Net income	$ 1.18	$ .94

The accompanying notes are an integral part of this statement.

CONSOLIDATED BALANCE SHEETS

September 30, 1979 and 1978

	(In Thousands)	
ASSETS	1979	1978
Current Assets:		
Cash (Note 4)	$ 2,198	$ 1,063
Cash investments	4,560	3,384
Accounts receivable	19,881	8,115
Inventories (Note 1)	11,304	6,319
Prepaid expenses	1,385	619
Total current assets	39,328	19,500
Property and Equipment, at cost (Notes 1 and 3):		
Production and test equipment	1,982	506
Computer equipment	2,417	1,105
Office furniture and equipment	382	176
Systems spares	2,141	775
Leasehold improvements	1,597	606
	8,519	3,168
Less—Accumulated depreciation and amortization	1,900	617
	6,619	2,551
	$45,947	$22,051

	(In Thousands)	
LIABILITIES AND SHAREHOLDERS' INVESTMENT	1979	1978
Current Liabilities:		
Current maturities of capitalized lease obligation	$ 375	$ 203
Accounts payable	5,675	3,766
Accrued expenses	1,269	953
Accrued income taxes	4,913	876
Total current liabilities	12,232	5,798
Capitalized Lease Obligation, net of current maturities (Note 3)	1,144	715
Deferred Income Taxes	1,041	—
Commitments (Note 6)		
Shareholders' Investment (Note 5):		
Preferred stock—$.10 par value, authorized 2,400,000 shares; none outstanding	—	—
Common stock—$.05 par value, authorized 10,000,000 shares; outstanding 3,675,981 shares in 1978 and 4,169,749 shares in 1979	209	184
Additional paid-in capital	25,520	14,473
Retained earnings	5,801	881
Total shareholders' investment	31,530	15,538
	$45,947	$22,051

The accompanying notes are an integral part of these balance sheets.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF SHAREHOLDERS' INVESTMENT

For the Years Ended September 30, 1978 and 1979

(In Thousands)

	Preferred Stock		Additional Paid-in Capital	Common Stock		Retained Earnings (Deficit)	Total Share-holders' Investment
	Shares	Amount		Shares	Amount		
Balance, September 30, 1977	2,074	$207	$ 4,987	626	$ 31	$(2,490)	$ 2,735
Sale of preferred stock	125	13	987	—	—	—	1,000
Conversion of preferred stock into common stock	(2,199)	(220)	110	2,199	110	—	—
Sale of common stock, net of related expenses	—	—	7,849	770	39	—	7,888
Sale of stock under stock option and stock purchase plans, net	—	—	306	81	4	—	310
Income tax benefit resulting from exercises of non-qualified stock options and early disposition of shares acquired under qualified stock options	—	—	234	—	—	—	234
Net income	—	—	—	—	—	3,371	3,371
Balance, September 30, 1978	—	—	14,473	3,676	184	881	15,538
Sale of common stock, net of related expenses	—	—	10,054	420	21	—	10,075
Sale of stock under stock option and stock purchase plans, net	—	—	758	74	4	—	762
Income tax benefit resulting from exercises of non-qualified stock options and early disposition of shares acquired under qualified stock option and stock purchase plans	—	—	235	—	—	—	235
Net income	—	—	—	—	—	4,920	4,920
Balance, September 30, 1979	—	$ —	$25,520	4,170	$209	$5,801	$31,530

The accompanying notes are an integral part of this statement.

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

For the Years Ended September 30, 1979 and 1978

	(In Thousands)	
	1979	1978
Working Capital Provided From (Used For):		
Net income before extraordinary credit	$ 4,920	$ 2,153
Add back:		
Depreciation and amortization	1,365	457
Deferred income taxes	737	—
Working capital provided from operations	7,022	2,610
Extraordinary credit	—	1,218
Acquisition of property and equipment	(5,770)	(2,387)
Net book value of equipment sold or retired	337	84
Increase in capitalized lease obligation, net of current maturities	429	399
Increase in deferred income taxes	304	—
Sale of preferred stock	—	1,000
Sale of common stock, net	10,837	8,198
Tax benefit of stock options	235	234
Net increase in working capital	$13,394	$11,356
Working Capital Increase Represented By:		
Increase in current assets—		
Cash and cash investments	$ 2,311	$ 4,338
Accounts receivable	11,766	5,513
Inventories	4,985	4,457
Prepaid expenses	766	527
Decrease (Increase) in current liabilities—		
Notes payable to bank	—	800
Current portion of capitalized lease obligation	(172)	(112)
Accounts payable	(1,909)	(2,651)
Accrued expenses	(316)	(644)
Accrued income taxes	(4,037)	(872)
Net increase in working capital	$13,394	$11,356

The accompanying notes are an integral part of this statement.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Summary of Significant Accounting Policies

Consolidation

The consolidated financial statements include the accounts of Tandem Computers Incorporated and its wholly owned subsidiaries after elimination of intercompany accounts and transactions. Foreign exchange gains and losses are not significant and are reflected in the results of operations.

Revenue Recognition

The Company generally recognizes revenues at the time of shipment.

Inventories

Inventories are stated at the lower of cost (first-in, first-out) or market and include material, labor, and manufacturing overhead. The components of inventory used to determine cost of revenues were:

(In Thousands)	September 30		
	1977	1978	1979
Purchased parts and subassemblies	$1,185	$4,196	$ 6,207
Work-in-process and finished systems	678	2,123	5,097
	$1,863	$6,319	$11,304

Income Taxes

The Company provides for income taxes on total DISC income and accounts for investment tax credits as a reduction of the provision for taxes on income in the year in which the related credits are realized.

Property and Equipment

Systems spares are depreciated using the double declining balance method. All other property and equipment are depreciated using the straight-line method. The estimated useful lives are:

	Years
Production and test equipment	5-10
Computer equipment	5
Office furniture and equipment	5-10
Systems spares	4
Leasehold improvements	Lease Term

Expenditures for maintenance and repairs are charged to operations as incurred. Expenditures for major betterments and renewals are capitalized and depreciated over the estimated remaining useful life of the asset. The net gain or loss on assets retired or otherwise disposed of is credited or charged to operations and the asset cost and related depreciation are removed from the accounts.

2. Income Taxes

The provision for income taxes for the years ended September 30, 1978 and 1979 is comprised of:

	1978	1979
Current:		
Federal	$ 755,000	$3,850,000
State	307,000	916,000
Foreign	580,000	326,000
	1,642,000	5,092,000
Prepaid:		
Federal	—	(638,000)
State	—	(7,000)
	—	(645,000)
Deferred:		
Federal	288,000	718,000
State	23,000	—
Foreign	384,000	19,000
	695,000	737,000
	$2,337,000	$5,184,000

The sources of prepaid and deferred taxes were as follows:

	1978	1979
Prepaid:		
Revenues recognized for taxes, but not for financial statements	$ —	$ 503,000
Expenses recognized for financial statements, but not for taxes	—	142,000
	$ —	$ 645,000
Deferred:		
DISC income	$ 304,000	$ 449,000
Increase in revenues deferred for foreign tax purposes	384,000	19,000
Accelerated depreciation and other, net	7,000	269,000
	$ 695,000	$ 737,000

The provision for income taxes differs from the amount obtained by applying the statutory Federal income tax rate to income before taxes as follows:

	1978	1979
Federal tax provision at statutory rate	$2,155,000	$4,698,000
State income taxes net of Federal income tax benefit	172,000	486,000
Foreign income taxes in excess of Federal tax rate	179,000	294,000
Investment tax credit	(104,000)	(216,000)
Other	(65,000)	(78,000)
	$2,337,000	$5,184,000

3. Capitalized Lease Obligation

As of September 30, 1979, the Company had leased from a bank $1,766,000 of equipment for the period through fiscal 1984 with an option to purchase the equipment at the fair market value at the end of the lease period.

The following summarizes the future minimum lease payments together with the present value of the minimum lease payments as of September 30, 1979:

Year Ending September 30	
1980	$ 443,000
1981	428,000
1982	374,000
1983	300,000
1984	259,000
Total minimum lease payments	1,804,000
Less: Amount representing interest (8%)	285,000
Present value of minimum lease payments	$1,519,000

4. Lines of Credit

In November 1979 the Company amended its revolving line of credit with a bank which provided for unsecured borrowings of up to $5,000,000. The line of credit, as amended, increases the amount of borrowings available to $10,000,000 at the bank's prime lending rate and expires on December 31, 1980. The agreement requires the Company to maintain certain financial covenants and also maintain a compensating balance of 2.5% of the commitment plus 5% of borrowings in excess of $2,500,000.

The Company has a revolving line of credit with another bank providing for unsecured borrowings of up to $2,500,000. The line of credit expires April 30, 1980, provides for borrowings at the bank's prime lending rate, and requires the company to maintain a compensating balance of 5% of the commitment plus 5% of the credit line utilized.

Borrowings in fiscal 1978 were outstanding from October 1, 1977 to December 21, 1977. The average interest rate on borrowings during this period was approximately 7.5%. The average month-end borrowing was $400,000 and the maximum borrowing at any month end was $500,000. There were no borrowings under either line of credit during fiscal 1979.

5. Stock Option and Stock Purchase Plans

Stock Option Plans

The Company has three stock option plans in effect for employees. Under all plans, the option price may not be less than 100% of the fair market value on the date of grant. Under the qualified plan, adopted in 1976, all options granted are exercisable upon the date of grant and expire five years from the date of grant or on May 20, 1981, if earlier. Under the two non-qualified plans, options are exercisable upon the date of grant and expire no later than seven years from the date of grant. The non-qualified plans were adopted in 1976 and 1979; however, options granted under the 1979 plan (42,250 shares) become exercisable only upon approval of the shareholders at the next annual meeting, to be held in early 1980.

In addition, two option plans covering a total of 4,000 shares have been adopted for two directors. Under these plans, options to purchase 2,000 shares are exercisable at $23.50 per share and an additional 2,000 options are exercisable at $30.25 per share.

At September 30, 1979 and 1978, there were options for 359,700 and 90,647 shares, respectively, available for future grant. Following is a summary of activity under the plans:

Options outstanding as of September 30, 1979:

Granted in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date of Grant	
		Per Share	Total	Per Share	Total
1976	3,000	$ .50- 1.00	$ 2,000	$ .50- 1.00	$ 2,000
1977	32,182	1.00- 3.50	52,000	1.00- 3.50	52,000
1978	151,909	3.50-30.25	2,909,000	3.50-30.25	2,909,000
1979	293,750	22.50-32.88	7,900,000	22.50-32.88	7,900,000
	480,841		$10,863,000		$10,863,000

Options became exercisable as follows:

Became Exercisable in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Became Exercisable	
		Per Share	Total	Per Share	Total
1978	249,550	$ 1.00-30.25	$ 3,408,000	$14.50-30.25	$ 4,441,000
1979	292,900	22.50-31.00	7,612,000	22.50-31.00	7,612,000

Options were exercised as follows:

Exercised in Fiscal Year	Number of Shares	Option Price		Fair Market Value at Date Option Exercised	
		Per Share	Total	Per Share	Total
1978	83,653	$ .50-16.75	$ 400,000	$ 3.50-37.00	$ 2,042,000
1979	59,119	.50-28.75	653,000	23.25-36.00	1,676,000

Stock Purchase Plan

As of September 30, 1979 and 1978, the Company has reserved 78,223 and 96,112 shares, respectively, of Common Stock for future issuance under its employee stock purchase plan adopted in fiscal 1978. Eligible employees may elect to purchase shares of Common Stock at 85% of the lower of the fair market value at the beginning or end of a three-month offering period. During 1979 and 1978, the Company issued 17,889 and 3,888 shares, respectively, of Common Stock pursuant to this plan.

Proceeds from the sale of common stock under the stock option plans and the stock purchase plan are credited to the common stock account to the extent of par value and the remainder to additional paid-in capital. No charges or credits are reflected in the income statement with respect to stock options or stock purchase plans.

6. Commitments

The Company leases its headquarters, operating facilities, field offices and automobiles under operating lease agreements which expire through fiscal 2003. Future lease payments are as follows:

Year Ending September 30	
1980	$2,223,000
1981	2,273,000
1982	1,875,000
1983	1,645,000
1984	1,109,000
1985-89	3,726,000
1990-94	156,000
1995-99	156,000
2000-03	125,000
	$13,288,000

Rent expenses included in the results of operations for the years ended September 30, 1978 and 1979, are $726,000 and $1,738,000, respectively.

The Company has entered into an operating lease for 165,000 additional square feet of office space, which is under construction. The lease term will be for 15 years, beginning with occupancy (approximately February 1980), at an initial annual rental rate of $1,145,000. The annual rental rate will be increased by 15% at the end of 5 and 10 years, respectively.

7. Income Per Common Share

Net income per common share for the years ended September 30, 1978 and 1979, has been computed based upon the weighted average number of common and common equivalent shares outstanding. Common equivalent shares in 1978 and 1979 result from the assumed exercise of stock options outstanding which have a dilutive effect when applying the treasury stock method. Total shares used in the computation were 3,589,974 for 1978 and 4,178,378 for 1979. Fully diluted income per share is substantially the same as reported income per share.

8. Geographic Segment Information

The Company designs, develops, manufactures, markets and services multiple processor computer systems. The following table sets forth information about the company's operations in different geographic areas for the years ended September 30, 1978 and 1979:

Year Ended September 30, 1978 (In Thousands)

| | Geographic Area | | | Adjustments and | |
	United States	Europe	Other	Eliminations	Consolidated
Revenues—					
Customers	$16,837	$ 7,124	$ 344	$ —	$24,305
Intracompany	3,904	—	—	(3,904)	—
Total revenues	$20,741	$ 7,124	$ 344	$(3,904)	$24,305
Income (loss) before taxes and extraordinary credit	$ 3,122	$ 1,473	$ (69)	$ (36)	$ 4,490
Identifiable assets	$17,821	$ 4,097	$ 226	$ (93)	$22,051

Year Ended September 30, 1979 (In Thousands)

| | Geographic Area | | | Adjustments and | |
	United States	Europe	Other	Eliminations	Consolidated
Revenues—					
Customer	$41,292	$13,501	$1,181	$ —	$55,974
Intracompany	8,846	102	—	(8,948)	—
Total revenues	$50,138	$13,603	$1,181	$(8,948)	$55,974
Income (loss) before income taxes	$11,127	$ 230	$ (173)	$(1,080)	$10,104
Identifiable assets	$35,667	$10,113	$1,319	$(1,152)	$45,947

Intracompany transfers are made at approximately arm's length prices, which include manufacturing profits attributable to United States operations. Identifiable assets are those assets of the Company that are identified with the operation of each geographic area.

Revenues in 1978 include sales of approximately $2,500,000 to one customer.

AUDITORS' REPORT

To Tandem Computers Incorporated:

We have examined the consolidated balance sheets of Tandem Computers Incorporated (a California corporation) and subsidiaries as of September 30, 1979 and 1978, and the related consolidated statements of income, shareholders' investment and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Tandem Computers Incorporated and subsidiaries as of September 30, 1979, and 1978, and the results of their operations and the changes in their financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Arthur Andersen & Co.

San Jose, California
November 5, 1979

TANDEM STOCK PRICE

Calendar Quarter Price	High	Low
1977 4th Quarter*	$15¾	$13¼
1978 1st Quarter	$16¾	$13¼
2nd Quarter	$24¾	$15
3rd Quarter	$36½	$23
4th Quarter	$33½	$22
1979 1st Quarter	$29¾	$22¾
2nd Quarter	$32¼	$28½
3rd Quarter	$35¾	$26¼

*December 14 and therafter.

Tandem Computers Incorporated common stock was offered to the public on December 14, 1977 at $11.50 per share and thereafter has been traded in the over-the-counter market under NASDAQ symbol TNDM. High and low closing bid prices are shown above as reported by the National Quotation Bureau. These quotations represent prices between dealers, do not include markup, markdown or commissions, and may not represent actual transactions. No dividends have been declared on the common stock.

BOARD OF DIRECTORS

Thomas J. Perkins (1),
  Chairman of the Board;
  Partner, Kleiner, Perkins, Caufield & Byers
Morton Collins (2), Partner, DSV Associates
Thomas J. Davis, Jr. (1)(2),
  Partner, Mayfield II
Franklin P. Johnson, Jr., President, Asset
  Management Capital Company
Eugene Kleiner (2),
  Partner, Kleiner, Perkins, Caufield & Byers
John C. Loustaunou, Vice President, Chief
  Financial Officer and Secretary, Tandem
  Computers Incorporated
Alvin C. Rice, President and Chairman,
  Imperial Bank
Robert G. Stone, Jr., Chairman of the Board,
  West India Shipping Company
James G. Treybig (1), President and Chief
  Executive Officer, Tandem Computers
  Incorporated

(1) Member of Executive Committee
(2) Member of Audit Committee

OFFICERS

James G. Treybig, President and Chief
  Executive Officer
Robert C. Marshall, Vice President and
  Chief Operating Officer
Michael D. Green, Vice President—Software
  Development
Lawrence A. Laurich, Vice President—
  Engineering
John C. Loustaunou, Vice President, Chief
  Financial Officer and Secretary
David R. Mackie, Vice President—
  Headquarters Marketing
Henry V. Morgan, Vice President
  and Controller
Samuel J. Wiegand, Vice President—
  Marketing
Jeanne D. Wohlers, Vice President,
  Treasurer and Assistant Secretary

AUDITORS

Arthur Andersen & Co.,
San Jose, California

REGISTRAR AND TRANSFER AGENT

Bank of America N.T. & S.A.,
San Francisco, California

FORM 10-K

**A copy of the company's Form 10-K, as
filed with the Securities and Exchange
Commission, is available on written
request. Please direct request to:**
  Treasurer's Office
  Tandem Computers Incorporated
  19333 Vallco Parkway
  Cupertino, California 95014

ANNUAL MEETING

The annual meeting of stockholders will be
held at 10:00 a.m. on Friday, February 1,
1980, at the corporation's headquarters.

TANDEM
Corporate Headquarters
19333 Vallco Parkway
Cupertino, CA 95014
(408) 996-6000

DOMESTIC OFFICES

Headquarters Marketing

James A. Katzman, Vice President—
  Marketing Support

Eastern Region

George Eckert, Vice President
Director, Eastern Region
One Penn Plaza
New York, NY 10001

Central Region

Michael Bateman, Vice President
Director, Central Region
1827 Walden Office Square
Schaumberg, IL 60195

Western Region

Charles W. Ryle, Vice President
Director, Western Region
1201 Watson Road
Arlington, TX 76011

Sales and Service Offices

Boston, Massachusetts
Chicago, Illinois
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Dallas, Texas
Denver, Colorado
Detroit, Michigan
Greensboro, North Carolina
Hasbrouck Heights, New Jersey
Houston, Texas
Las Vegas, Nevada
Long Beach, California
Milwaukee, Wisconsin
Minneapolis, Minnesota
New Orleans, Louisiana
Omaha, Nebraska
Philadelphia, Pennsylvania
Phoenix, Arizona
Pittsburgh, Pennsylvania
Rochester, New York
Salt Lake City, Utah
San Francisco, California
San Mateo, California
Seattle, Washington
St. Louis, Missouri
Tampa, Florida
Washington, DC

INTERNATIONAL OFFICES

Canada

Victor DeSouza
Managing Director, Tandem Computers
  Canada Limited
180 Duncan Mill Road
Don Mills, Ontario M3B 1Z6
Offices also located in
Edmonton and Montreal

England

Jack Chapman
Managing Director, Tandem Computers Limited
187 High Street
Uxbridge, Middlesex UB8 ILA

France

Claude Raimond
Managing Director, Tandem Computers S.A.
2 Rue Nicolas Ledoux
Silic 255
94568 Rungis Cedex

Germany

Horst Enzelmueller, Vice President
Managing Director, Tandem Computers GmbH
Bernerstrasse 34
6000 Frankfurt/Main 56
Offices also located in
Dusseldorf, Hamburg, Munich
and Stuttgart

Sweden

Bengt Rindegard
Managing Director, Tandem Computers AB
Industrivagen 20 II
S-171 48 Solna

Switzerland

Heinz Studiger
Managing Director, Tandem Computers AG
Zweierstrasse 138
8003 Zurich

Tandem, NonStop, Guardian, Expand, Enform,
Enscribe and Pathway are trademarks and
service marks of Tandem Computers Incorporated.

1980 ANNUAL REPORT

TANDEM

Tandem Computers Incorporated designs, develops, manufactures, markets and supports a unique computer system for the on-line transaction processing marketplace. Called the Tandem NonStop system, its innovative architecture virtually eliminates the risk of system failures and protects the customers' data bases from damage caused by electronic malfunctions. It is also the only computer system that can be expanded modularly from a mid-size to a large-scale system—or expanded into a distributed data processing network of up to 255 geographically dispersed systems—without hardware or software conversions.

Today, Tandem has manufacturing operations in two locations in the United States and one in Germany, and supports customers' systems in 11 countries throughout North America, Europe and Asia from over 60 offices.

In mid-1980, Tandem shipped its 1,000th processor, and ended the year with 290 customers. Fiscal 1980 earnings rose 117% on a 95% increase in revenues over the preceding year, while stockholders' equity grew 123%.

The fundamental advantages behind Tandem's success are summarized over the following pages.

Dr. Ing. h.c. F. P O R S C H E AG

PRODUKTIONSNUMMER : P O R S C H E AG

P   928510   BEZEICH
         C03 KTIONSNUMMER :   1210156   E AG
         A2A2

NG-TYP   BG   928510   BEZEICHNUNG 9 2 8 C0
TUNG   C03   MOTOR :   1210156
N   A2A2   LACKIERUNG
TATTUNG BG   RADIO BEZEICHNUNG 9 2 8 COUPE
TTUNG   MOTOR   KALIFORNIEN
UNGEN   650 A2A2   LACKIERUNG   SCHWARZ
         495 BG   RADIO   CHNUNG 9 2 8 COUPE
USSTATTUNGEN 438   MOTOR   KALIFORNIEN
TTUNGEN   650   ELEKTRISIERUNG   SCHWARZ METALLIC

◀ At Porsche, a business renowned for hand-craftsmanship and limited production, automation may at first seem improbable.

Porsche has, however, acquired two Tandem systems to take advantage of automation opportunities that will enhance efficiencies, increase productivity, provide better customer service and improve profitability.

Porsche produces just 135 hand-crafted automobiles daily. But, there are some 1,000 work stations in the factory requiring some 13,000 different parts located in 25,000 different locations in the production parts warehouse in Stuttgart. The first Tandem system installed at Stuttgart will simplify the task of parts distribution and quality control.

The second Tandem system will produce production orders and shipping papers, a complicated task because of the number of variables and options associated with each automobile.

Managing spare parts inventories is another task assigned to the Tandem systems. From the Stuttgart warehouse, 50,000 items are shipped worldwide monthly. The warehouse has 70,000 different items located in 140,000 different bins.

A Tandem system will also be used as a management planning tool to project parts requirements well in advance of need to assure components availability for the production line.

The Tandem computers at Porsche will not alter the company's traditional methods, but will help Porsche maintain its time-honored standards of excellence as demand for its products rises.

Large organizations are converting vital aspects of their daily operations to on-line transaction processing to improve customer service, to increase productivity, and to gain a competitive edge.

Tandem was founded on an unfulfilled marketplace need and remains the only computer manufacturer with sole dedication to on-line transaction processing. The company brings to the marketplace a unique computer system designed from scratch specifically to meet the critical requirements of on-line transaction processing and distributed data processing networks.

This marketplace, characterized by its fundamental need for and use of *instantaneously updated information*, is a multi-billion dollar segment of the computer industry that is rapidly expanding at a rate exceeding that of the high-growth industry itself.

SPANS ALL INDUSTRIES

The need for the instantaneous information benefits of on-line transaction processing spans all industries and represents the application of computers to countless tasks that are essential to better management and control of large businesses. The need is especially strong in organizations, both commercial and governmental, that have multiple locations and recognize the control, cost-efficiency and customer service advantages of having a distributed data base.

Tandem NonStop systems are already at work in over 25 industries at such diverse tasks as international banking, hospital patient care, tour reservations, interstate electric power monitoring, railroad yard management, emergency vehicle dispatch, and even parimutuel wagering—to mention just a few.

COMPELLING NEEDS

This is a large marketplace because the advantages of converting to on-line transaction processing are compelling. Banks, for instance, are offering their customers on-line, automated teller machines and on-line teller stations to provide better service and to increase market share. Manufacturers are going on-line with materials ordering, work flow monitoring, customer

Worldwide, the number of Tandem educational centers (such as at Frankfurt, above, one of three in the Federal Republic of Germany) nearly tripled during fiscal 1980. Over 2,800 representatives from new or prospective customer organizations underwent Tandem training during the year.

orders, inventory control, and shipping functions to provide faster deliveries while increasing productivity and profitability. Large department store chains are introducing on-line terminals to their management to track sales instantly to assure availability of fast-moving merchandise and control costs of carrying slow-moving items.

RAPIDLY EXPANDING

It is a rapidly expanding marketplace, not only because of the imperatives of customer service, productivity and profitability, but also because the demand is self-generating. When one bank in a market offers its customers automated teller machines for 24-hour banking, for example, others must follow to maintain their competitive positions. And, once an organization has developed a data base to be used in a primary application, the benefits of additional applications to be used elsewhere in the business—drawing on the same data base—become quickly apparent.

UNIQUE USER NEEDS

Conventional computers fall short of meeting the well-defined requirements of on-line transaction processing. They are prone to periodic failure, can lose the users' vital files of information, and are costly and difficult to expand at a single site and even more so in a network of geographically dispersed systems.

If a conventional, overnight batch processing computer fails and is down for several hours, the users' customers never know it. When a business' vital functions are on-line, however, loss of computer power means loss of business and serious degradation of customer service. This marketplace, then, must have a computer that will run

continuously without interruption—
and the Tandem NonStop system is the
only commercially available computer
that has that capability.

A user's data base—it could be
thousands of orders for products or
services—is also subject to sudden
and total loss from a computer system
malfunction or failure. It is, therefore,
critical that an on-line computer pre-
vent damage or loss to the data
base—another exclusive feature of the
NonStop system.

With conventional computers,
adding more computing capacity is
costly and disruptive. Re-program-
ming is necessary, and everything
stops while the new hardware is in-
stalled. With the NonStop system, how-
ever, additional processors are rou-
tinely added—while the power is on,
while business proceeds uninter-
rupted, with no retraining of personnel,
and with no re-programming.

Similarly, developing networks
with a distributed data base is a slow,
complex and costly affair with conven-
tional systems. However, the Tandem
architecture — in conjunction with
Tandem's innovative EXPAND soft-
ware — inherently allows the quick,
simple and economic building of net-
works with absolutely no change in the
users' applications programming.

The marketplace for Tandem com-
puters is large and rapidly expanding
because of the universal appeal of on-
line transaction processing, and be-
cause computer users are increasingly
recognizing that, to be successful with
their on-line applications, they need
the unique system features available
only with Tandem NonStop systems.

(CUMULATIVE)

Year	Number
1976	6
1977	30
1978	73
1979	160
1980	290

NUMBER OF CUSTOMERS

Computers working at on-line tasks are interacting directly and constantly with people having immediate need to acquire and update information that is essential to the normal conduct of business.

On-line transaction processing is, therefore, the most demanding environment for a computer system—and the most visible to users and to their customers.

CONTINUOUS OPERATION

When an on-line computer stops in a business that is dependent on its computers for vital business transactions, business stops.

The Tandem NonStop system is the only commercially available computer system designed to run without interruption even if a component fails. It is also the only computer system that can be repaired—parts removed and replaced—when the power is on and the system continues to perform the user's work.

Previous attempts to create a high-availability system by connecting together conventional computers have proved to be costly and inefficient. With the Tandem system, however, there is no cost premium, no performance degradation, and no idle standby processors.

Continuous availability, however, is just one of the critical requirements

At United Airlines Maintenance Operations Center in San Francisco—the largest commercial aircraft maintenance facility in the world—three computer applications coming on-line in early 1981 will reduce energy consumption, improve fire safety, and tighten plant security.

With 8,000 employees working in three million square feet of buildings, United's maintenance operation is, itself, larger than many companies.

One of the main purposes of the new Tandem-driven system is to reduce energy costs by monitoring and automatically controlling lighting, ventilation and heating. In addition to reducing costs, the system will facilitate United's compliance with local utility company conservation standards.

United is also upgrading fire safety with the Tandem system by being able to immediately identify the nature and location of fire, provide a video display of the endangered area and actual fire, and eliminate costly false alarms.

In a third application, the system will automate plant security by controlling entry, movement within the facility, and departure of the 8,000 employees.

United is the free world's largest airline, with a fleet of over 300 jet aircraft. Application software for the system was developed and managed by Eyring Research Institute of Provo, Utah, one of the many software houses that acquire Tandem systems and develop programs for their customers.

Customer acceptance of Tandem's NonStop system is widespread because it is the only commercially available computer with proven capabilities to run continuously, safeguard data, expand modularly, and to be integrated economically into a network of geographically dispersed systems with a distributed data base.

UNITED AIRLINES
MAINTENANCE OPERATIONS FACILITY
San Francisco International Airport

(CUMULATIVE)

PROCESSORS INSTALLED

1976	1977	1978	1979	1980
12	81	257	646	1299

of on-line computing. Uniquely, Tandem fulfills all these other customer needs:

DATA INTEGRITY

Malfunctions in a conventional computer system can damage, even destroy, a business' on-line data base—the files of information essential to day-to-day operations.

If the data base is destroyed, it can mean the loss of thousands of business transactions. If it is damaged, the garbling can cause irreversible and costly errors—such as a funds transfer to the wrong account. However, because Tandem's NonStop architecture provides continuous operation, data bases are inherently safeguarded and data integrity assured.

MODULAR EXPANSION

The Tandem NonStop system, unlike all other computer systems, can be quickly and easily expanded from a mid-size, two-processor system to a large-scale, 16-processor system ranging in price from $150,000 to over $3,000,000 with no downtime, no retraining of personnel and no re-programming. Tandem customers enjoy substantial savings by installing a minimum-size system for applications development work, and then adding processing power for the production system only when it's needed.

Later, as business grows or as new applications are added, Tandem customers again add processors to their working systems without disrupting operations—while the power is on, while work flow proceeds, and with exactly the same software.

INHERENT NETWORKING

Just as each NonStop system can be expanded at a single site, users of

EXPAND software can link multiple sites and create a network of up to 255 Tandem system nodes with a distributed data base—without costly and disruptive hardware or software changes. The unique networking capabilities of the NonStop system are inherent in the Tandem architecture.

Unlike other approaches to distributed processing where the data bases are distributed, but kept independent, Tandem views the network as one *single* data base with multiple files distributed geographically. With proper security, any file within the network may be accessed and updated. What this means to users is simple: instantaneous access to critical business information which is updated automatically as new information is entered. This is truly on-line operation.

Once a business has put critical operating information on-line, it must be sure that it can get to the data and that the data is accurate. Only Tandem provides an integrated hardware and software solution to this important business need.

Network communications costs can be minimized using EXPAND because the automatic route-through capabilities of the software eliminate the requirement for point-to-point communications lines, and preserve NonStop operation in the event of a single communication line failure.

PRODUCTIVE SOFTWARE TOOLS

In converting to on-line transaction processing, or when developing a network of on-line systems, the user's major expenditures of time and money are on programming.

In addition to EXPAND, Tandem's many other software products enable users to implement on-line systems and distributed data processing (DDP)

With the Tandem NonStop system, the same architectural features that virtually eliminate system failures, protect data bases, and enable modular expansion also provide for an inherent capability to build distributed data processing networks quickly and economically. Using Tandem's EXPAND software, all of the NonStop system's capabilities are extended to large, geographically dispersed networks without reprogramming. Tandem shipped its 1,000th processor during fiscal 1980.

networks with much greater ease, speed and economy than ever before experienced in the industry.

For example, with ENCOMPASS, Tandem's relational data base management system, on-line applications go into operation at a fraction of the typical time and cost because the software package handles most of the complex terminal, transaction control and monitoring functions. Users' programmers are free to concentrate on their applications.

Another powerful software tool, Tandem's relational query/report writing language called ENFORM, makes it easier for users to extract information from multiple files in a data base and write reports quickly. The benefits of ENFORM are compounded when used with EXPAND in a DDP network because information can be swiftly and simply accessed regardless of its geographical location.

All of Tandem's innovative software products increase users' productivity, make the system easier to use, and represent major breakthroughs in reducing programming time and costs.

CENT
FRANCS

FRANCE

100

B.1233

B.

THE FIRST NATL BANK OF CHICAGO HK TEL 259006 TX 73931 FCHK
SPOT   ACU BID
                                  O/N   12.750
US/DMK   1.8014-19   T/N   12.750
                                  S/N   37.250
STG/US   2.4140-50   WEEK   12.875
                                  1MTH   12.875
US/YEN   206.65-80   2MTHS   12.875
                                  3MTHS   13.125
US/HKG   4.9970-00   6MTHS   12.875

                                           10.16

RATES AT CLOSE TUES

                        REUTER MONITOR   1633

FIRST CHICAGO
The First National Bank of Chicago

First Chicago Corporation, with assets over $28 billion ranking it among the top ten U.S. bank holding companies, is bringing up a number of innovative, on-line applications in its developing worldwide distributed data processing network using Tandem computers and EXPAND software exclusively.

In many of the world's major financial centers, First Chicago has Tandem systems to manage international currency transactions. The principal benefits of the application are greater speed and accuracy and reduced transaction processing costs on purchases and sales of huge blocks of currency.

A number of other advanced, automated international banking applications together with the bank's EXPAND-based network will come on-line during 1981 to give First Chicago an edge on customer service and competitiveness.

In the U.S., some five million transactions annually are being handled by First Chicago's Tandem-driven automatic teller machines and on-line teller stations. Other Tandem systems in Chicago and overseas are dedicated to developing future applications.

First Chicago acquired its first Tandem systems in early 1979. By the close of Tandem's 1980 fiscal year in the fall, the total complement of Tandem processors at First Chicago had grown to 31.

Six years ago, in 1974, Tandem was founded on the then-unfulfilled, critical needs of the on-line transaction processing marketplace.

Today, Tandem remains the only computer manufacturer concentrating solely on this marketplace. Although there is intense selling competition in the computer industry, the company's

the continual introduction of system enhancements and software products that have established new productivity standards.

Tandem's original contributions of NonStop architecture, data integrity, modular expansion and inherent networking have been compounded with added features, functions and software systems in response to marketplace

Tandem has no direct product competition, leads the industry in experience in on-line transaction processing, and is years ahead of any potential competition.

exclusive, market-specific hardware and software products are without direct competition, and have been proven at hundreds of customer sites.

MOVING TARGET

Over the years, Tandem has been a moving target for potential competition as the company's competitive advantages have rapidly multiplied.

Clearly, Tandem has more experience in on-line transaction processing than any other organization. This experience has been translated into

experience.

Fault-tolerant hardware, for instance, demands *fault-free* software. Without it, the system architecture is meaningless.

PROVEN SOFTWARE

Tandem's software, like the system hardware, has been proven in billions upon billions of working transactions in customer business. All of Tandem's software products build on the company's experience in on-line transaction processing and are designed to

Tandem systems undergo extensive quality control testing before leaving the company's plants in the United States and Germany. After component and subassembly testing and final system integration, all NonStop systems are subjected to a series of simulated failures to assure that, even under such severe, unlikely conditions, the system continues to operate.
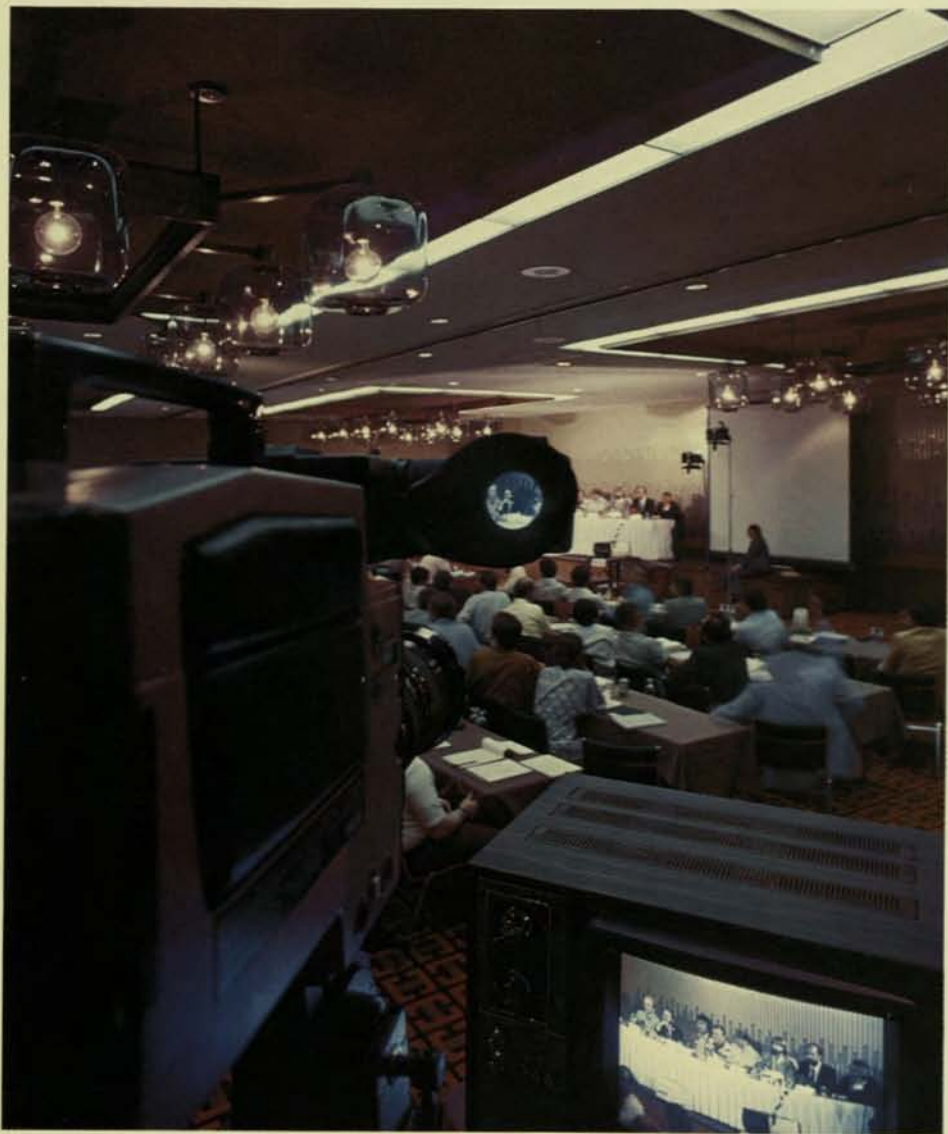
Nearly 300 representatives from Tandem customer organizations around the world participated in the third annual Tandem Users' Group meeting in 1980 in San Diego, California.

increase the efficiency and productivity of the customers' programmers and end users.

Many new software products—as well as hardware innovations—that have already undergone extensive development and testing will continue to be introduced to benefit Tandem users.

LONG LEAD

Ultimately, competition will emerge because it is inevitable that all computer users will demand systems with the Tandem capabilities, and because the market is large and rapidly growing. Tandem, however, is committed to remaining a moving target and increasing its long competitive lead.

(DOLLARS IN MILLIONS)

1976	1977	1978	1979	1980
$.97	$1.09	$2.16	$4.65	$8.78

PRODUCT DEVELOPMENT EXPENDITURES

Computer users select system suppliers only after conducting thorough studies and analyses of a complex set of competitive factors.

Of particular interest to potential buyers are cost per transaction, equip-

98.8% availability—a highly respectable number for a non-Tandem computer—the 1.2% downtime is unacceptable in on-line transaction processing. It means that the system, if it must operate 24 hours a day, will be

Tandem customers internationally have a high regard for the company and its products as evidenced by strong repeat business and as confirmed by major independent surveys ranking Tandem among the highest of all computer companies in overall customer satisfaction.

ment reliability, software productivity, programming ease and after-sale support.

When the system to be installed is to serve front-line duty at on-line transaction processing tasks, the importance of those primary selection factors is magnified many times.

UPTIME CRITICAL

Whereas a user will, for instance, install a conventional computer for batch processing that has a history of

inoperative for an average of once a month for a full eight-hour shift.

The problems of downtime are magnified many times in a DDP network. If the same 98.8%-availability computer is tied into an identical machine in a DDP network, the entire network will be down for an average of eight hours *twice* a month. Add a third system, and the network will stop working three times a month. And, in a hypothetical 10-system network, transactions would be interrupted for *eight*

The Securities Industry Automation ▶ Corporation (SIAC), subsidiary of the New York and American Stock Exchanges, develops and operates automated information-handling systems. These systems support securities order-processing, trading, reporting, and clearance and settlement for stocks, bonds, options, and financial futures.

In all, SIAC uses Tandem equipment in six different systems. Among the most widely known is the Intermarket Trading System (ITS), which was created in 1978 to provide the competition among exchanges requested by the U.S. Congress in its mandate for a national market system. ITS provides an electronic link for six participating stock exchanges—New York, American, Boston, Philadelphia, Midwest, and Pacific. A participant in one exchange may send a buy or sell order to another for execution at a better price and rapidly receive a report of the transaction. At present, nearly two million shares are traded over ITS each day.

SIAC also uses Tandem equipment in support of order delivery and execution reporting systems for the New York and American Stock Exchanges.

653

389

176

69

12

1976   1977   1978   1979   1980

REPEAT BUSINESS VS.
TOTAL PROCESSORS SHIPPED

hours every third day.

In addition, the time required to recover distributed data bases after a failure in a network of conventional systems may exceed system downtime itself, as recovery must involve stopping operations so that complex, concurrent reconstruction of the data bases can take place at each system node in order to preserve data integrity.

Availability, then, is a critical consideration in on-line transaction processing. It is absolutely essential to the successful implementation of an on-line DDP network.

A great deal of customer satisfaction with the Tandem system obviously comes from the computer's unmatched NonStop capability. But, this only partially explains the high level of Tandem customer satisfaction. Tandem's significant repeat business results directly from the commitment of its people to excellent customer support.

HIGHEST CUSTOMER SATISFACTION

In the *1980 User Ratings of Computer Systems* published by Datapro Research Corporation, Tandem scored highest in overall customer satisfaction among all manufacturers with 10 or more survey respondents: 3.8 on a 4.0 scale.

Nearly 5,000 computer users in the Datapro survey rated the significant advantages and disadvantages of 44 suppliers. They were asked 87 questions in 14 categories.

Fully 100% of Tandem customers surveyed said they would recommend Tandem to other users.

HIGHEST CUSTOMER LOYALTY

In another major survey of users, conducted by G.S. Grumman/Cowen and

Datamation, Tandem scored the highest in customer loyalty—users reporting that they had no intention of changing suppliers.

This high level of customer satisfaction and loyalty is also evidenced by Tandem's rate of repeat business:

During fiscal 1980, half of all Tandem processors shipped went to previous customers.

QUALITY SYSTEMS SUPPORT

Tandem customers in the Datapro survey also rated Tandem above average in effectiveness and responsiveness of field service. One half of all of Tandem's people work at activities that directly support the company's customers. Each sales representative is backed by at least seven support professionals—including customer engineers, systems analysts and customer training instructors—to maintain Tandem's solid base of satisfied customers.

Tandem's commitment to helping its users serve their customers better is evidenced not only by the NonStop system but also by the existence of over 60 customer support offices worldwide. Over half of all Tandem employees are engaged in customer support activities (such as the system analyst at right, above, working with data processing executives at the Forward Trust subsidiary of Midland Bank in Birmingham, England.)

To capture a larger share of the $31 billion travelers check market, Citicorp—which has the second largest-selling travelers check in the world—introduced in late 1980 its new automated PassWord Service.

Unlike other travelers check services that require a trip to a bank during normal business hours and the laborious signing of each check, Citicorp's new PassWord checks are ordered by phone, processed by a Tandem system and delivered by Express Mail—presigned.

The checks can be ordered 24 hours a day, seven days a week by telephoning a toll-free number. An operator enters the customer's password and order information into the Tandem system. The system debits the customer's checking or savings account or a designated credit card and passes the order to the equipment which signs the checks and packages them for mailing.

The customer's signature—previously digitized from a sample provided at the time of enrollment in the service—is printed at the top of the check.

To speed development of the system, Citicorp used many software tools developed by Tandem including features of the ENCOMPASS relational data base management system.

PassWord Service, said to be the most sophisticated of its kind, can process more than 1,000 orders per hour. Forty on-line terminals are tied into the Tandem system which currently has three processors.

Approximately 18 additional terminals are tied into a two-processor system which supports software development and training for the telephone representatives.

Tandem truly cares about its people, and its people truly care about Tandem. That is why the company has product leadership and an effective organization. And it explains how Tandem earned the industry's highest overall customer satisfaction and customer loyalty ratings.

TOP TALENT

In an industry continuing to experience an acute shortage of quality people, Tandem is able to attract top talent in all disciplines because of the excitement of the company's leading edge position and its favorable reputation, attitudes, policies and stimulating work environment.

Tandem also keeps its good people. Employee turnover during 1980 was 8%, or one-third the average of the U.S. computer industry.

Job satisfaction at Tandem is largely the result of an intentionally created team spirit that evolves from having a clear corporate focus and a minimal organizational structure. The company endeavors to bring to employees an understanding of corporate objectives within the context of how the business works and the impact of each individual's specific work on the company as a whole.

Tandem functions under individual responsibility and peer pressure. Everyone has well-defined goals and is delegated the authority to achieve those goals. Responsibility is pushed downward to nourish creativity and the development of managerial talents.

PRODUCTIVE

Tandem sales per employee exceeded $98,000 during fiscal 1980, or more than double the average of the U.S. computer industry. This achievement was aided by the design concept of the NonStop system.

In manufacturing, the simplicity of the design—each processor is made up of some combination of just 17 printed circuit boards—has many productivity and inventory control advantages.

In marketing, the productivity of salesmen is also enhanced by the modularity feature. Inasmuch as the

> # Tandem's success emanates directly from the conscientious, competent hard work of its people. And their productivity is enhanced by the product concept itself.

NonStop system represents the equivalent of a family of systems ranging from mid-size to large scale, any one salesman can address the needs of virtually any size user.

In field support, Tandem's customer engineers and systems analysts are more efficient because the NonStop system eliminates the likelihood of working under the pressure of customer irritation with a down system. And the modularity feature makes customer engineers equally proficient in servicing small and large systems, while repairs are simplified because the system is maintained while the power is on and running the customer's work. There is only one set of spares for any size system, and repairs are made by simply removing and replacing modular components.

Even in research and development, expenditures and productivity are highly leveraged because all
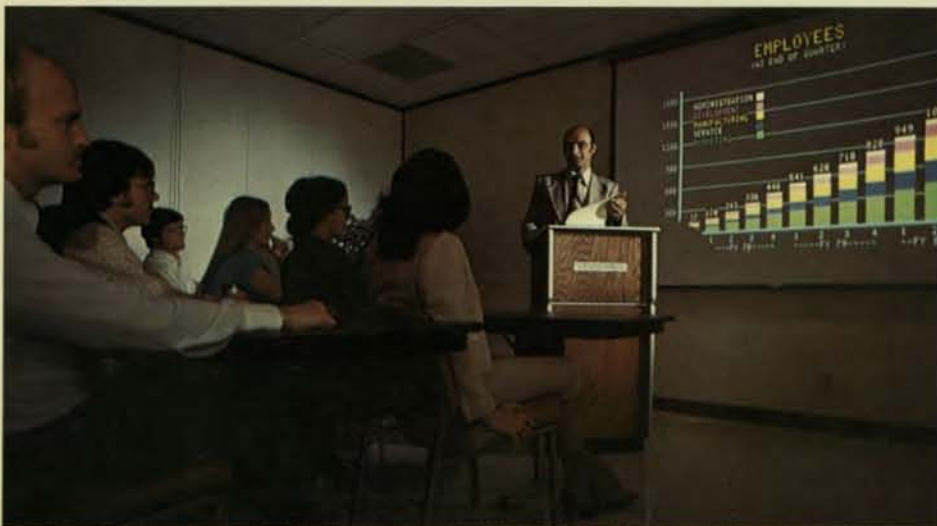
Highly qualified people with the ability to accept responsibility are imperative to the success of rapidly-growing, high-technology companies. At upper left, Jim Treybig (third from left), Tandem president and chief executive officer, reviews progress with the engineering design team responsible for Tandem's first LSI chip, one of the many programs demonstrating the company's commitment to advanced technologies. In adjacent photo, a Tandem software development team takes their meeting outdoors while working on Hyper Link, one of the five new data communications products introduced by Tandem in late 1980. Bob Marshall, senior vice president and chief operating officer (in bottom photo), talks to a group of new Tandem employees about the company's philosophy and goals. Total employment grew by 68% during fiscal 1980.

software and hardware enhancement programs apply across the board to any system size or network configuration.

UNIQUE BENEFITS

These productivity advantages have enabled Tandem to implement many unique benefits that express the company's recognition of the importance of its people to the continued growth of the company. Among them:

☐ Tandem is committed to having its people share in the company's financial success. Virtually all employees are stockholders or option holders. In fact, Tandem employees represent one of the company's largest stockholder groups.

☐ The company operates on a flexible working hours policy, enabling employees to arrive and leave on a schedule that best suits their needs in concert with the demands and responsibilities of their positions.

☐ Tandem believes that its people are the best judge of where the company should direct its expenditures on general benefits, hence employees have a voice in deciding benefit programs.

☐ After four years with Tandem, all North American employees are eligible for a fully-paid, six-week sabbatical in addition to vacation time. (Elsewhere in the world, Tandem employees take extended vacations annually in accordance with local customs.)

Opportunities at Tandem abound because management is committed to providing and nurturing a fertile environment, and because the company's rapid growth affords individuals career growth at a rate consistent with their abilities to manage more responsibility.

(DOLLARS IN THOUSANDS)

$98.4

$87.9

$83.4

$74.0

$12.0

1976   1977   1978   1979   1980

SALES PER EMPLOYEE

Focal to Tandem's original and ongoing strategy are high growth with sustained profitability, experienced management, and a strong financial position.

It has been Tandem's intent since the time of founding to build a large company. This continuing objective gains momentum from numerous advantages that include the explosive growth of the marketplace, the unique compatibility of Tandem's products with marketplace needs, the company's rapidly expanding base of large users, and Tandem's well-qualified people.

Of equal importance to Tandem's current and future success, however, is the solid framework within which the company manages and finances high growth. Key elements of the framework are:

Consistent Revenue and Profit Growth. Tandem has enjoyed excel- lent revenue growth, while maintaining pretax operating margins in the 16-20% range since commencement of volume shipments in early 1977. Revenue and profit goals of the business plan have been consistently met within 5% throughout the company's history, and Tandem has re- tained all profits to reinvest in growth.

Equity Financing. As a result of consistent financial performance, Tandem enjoys investor recognition of the company's potential. This recogni- tion, in turn, has enabled Tandem to fund growth in excess of that possible with internally generated cash through equity financing.

Financial Strength. Significant re- tained earnings and equity financing

Moving into the office of the future ▶ today with a new nationwide elec- tronic mail service, GTE Telenet came on-line with its Tandem-driven Tele- mail in mid-1980.

Intended to increase office pro- ductivity, particularly among execu- tives and managers, the new service provides instantaneous delivery of messages anywhere in the U.S. on a 24-hour basis. Telemail enables users, through GTE Telenet's nationwide common carrier network for data communications, to send, receive and file messages electronically with a wide variety of existing data terminals and communicating word processors.

Telemail provides each user with an electronic "mail box" which can be accessed from office, home or any out- of-town location using a telephone and a desk-top or portable terminal.

Over the next several years, the subsidiary of General Telephone & Electronics Corporation intends to expand Telemail into a high-speed, multi-media information distribution system incorporating electronic data bases. The U.S. market for electronic mail is expected to grow to $2.5 billion by 1984.

Tandem headquarters facilities in California more than doubled during fiscal 1980 with the addition of 165,000 square feet of manufacturing, marketing, and research and development space. Elsewhere during the year Tandem opened 16 new offices and 10 additional educational centers for customer training.

have yielded the strong balance sheet essential to high growth. Total assets have grown from $5.4 million immediately prior to the company's initial public offering of common stock in December 1977 to $95.7 million at the close of this fiscal year in September 1980.

Financial Flexibility. With virtually no debt and having equity approaching $100 million, Tandem has a large capacity to fund future growth with borrowings as a back-up to its equity financing strategy.

Aside from the marketplace advantages, consistent profitability, and financial strengths, Tandem is run by experienced managers with proven capabilities to thrive on and function efficiently in a rapid growth environment. Management has established and is aided by control systems—computerized and on-line—that envision future needs for each functional area. These systems are tied together in a network of Tandem computers using EXPAND software and a distributed data base to coordinate and control the company's worldwide operations.

In fact, there are probably few companies of Tandem's size that use computers in operations control to the extent of Tandem. As the company grows, these control systems increase in sophistication and effectiveness to strengthen further Tandem's high-growth framework.

Tandem's financial strength and strategy, coupled with the company's unique products and high-quality people, constitute the vital resources for continued success.

(DOLLARS IN MILLIONS)

$108.99

$55.97

$24.30

$7.69

$.58

| 1976 | 1977 | 1978 | 1979 | 1980 |

REVENUES

BOARD OF DIRECTORS

Thomas J. Perkins (1),
  Chairman of the Board;
  Partner, Kleiner, Perkins,
  Caufield & Byers
Morton Collins (2), Partner,
  DSV Associates
Thomas J. Davis, Jr. (1)(2),
  Partner, Mayfield II
Franklin P. Johnson, Jr., President,
  Asset Management Capital
  Company
Eugene Kleiner (2),
  Partner, Kleiner, Perkins,
  Caufield & Byers
Robert C. Marshall, Senior
  Vice President and Chief
  Operating Officer, Tandem
  Computers Incorporated
Alvin C. Rice, President
  and Chairman, Imperial Bank
Robert G. Stone, Jr., Chairman
  of the Board, West India
  Shipping Company
James G. Treybig (1), President
  and Chief Executive Officer,
  Tandem Computers Incorporated

(1) Member of Executive Committee
(2) Member of Audit Committee

OFFICERS

James G. Treybig, President and
  Chief Executive Officer
Robert C. Marshall, Senior
  Vice President and Chief
  Operating Officer
Michael D. Green, Senior
  Vice President
Lawrence A. Laurich,
  Vice President—Engineering
David R. Mackie, Vice President—
  Headquarters Marketing
Henry V. Morgan, Vice President,
  Controller and Secretary
Jeanne D. Wohlers, Vice President,
  Treasurer and Assistant Secretary

AUDITORS

Arthur Andersen & Co.,
San Jose, California

REGISTRAR AND TRANSFER AGENT

Bank of America N.T. & S.A.,
San Francisco, California

FORM 10-K

A copy of the company's Form
10-K, as filed with the Securities
and Exchange Commission, is
available on written request.
Please direct request to:
    Treasurer's Office
    Tandem Computers
    Incorporated
    19333 Vallco Parkway
    Cupertino, California 95014

ANNUAL MEETING

The annual meeting of stockholders
will be held at 10:00 a.m. on Friday,
January 30, 1981, at the
corporation's headquarters.

TANDEM
Corporate Headquarters
19333 Vallco Parkway
Cupertino, CA 95014
(408) 725-6000

DIVISIONAL HEADQUARTERS

EASTERN DIVISION

Victor DeSouza, Vice President
One Penn Plaza
New York, NY 10119

CENTRAL DIVISION

Michael Bateman, Vice President
1827 Walden Office Square
Schaumberg, IL 60195

WESTERN/INTERNATIONAL DIVISION

Charles W. Ryle, Vice President
245 Santa Ana Court
Sunnyvale, CA 94086

EUROPEAN DIVISION

Horst Enzelmueller, Vice President
Bernerstrasse 34
6000 Frankfurt/Main 56
Germany

DOMESTIC SALES AND SERVICE OFFICES

ARIZONA, Phoenix
CALIFORNIA, Los Angeles,
    San Diego, San Francisco,
    San Mateo, Santa Clara
COLORADO, Denver
FLORIDA, Tampa
GEORGIA, Atlanta
ILLINOIS, Chicago, Schaumburg
INDIANA, Indianapolis
IOWA, Cedar Rapids
KANSAS, Kansas City
LOUISIANA, New Orleans
MASSACHUSETTS, Boston
MICHIGAN, Detroit
MINNESOTA, Minneapolis
MISSOURI, St. Louis
NEBRASKA, Omaha
NEVADA, Las Vegas
NEW JERSEY, Hasbrouck Heights
NEW YORK, New York City,
    Rochester
NORTH CAROLINA, Greensboro
OHIO, Cincinnati, Cleveland,
    Columbus
OKLAHOMA, Tulsa
OREGON, Portland
PENNSYLVANIA, Philadelphia,
    Pittsburgh
TENNESSEE, Memphis
TEXAS, Dallas, Fort Worth, Houston
UTAH, Salt Lake City
VIRGINIA, Falls Church
WASHINGTON, Seattle
WISCONSIN, Milwaukee

INTERNATIONAL SUBSIDIARIES

CANADA

Bjorn Ahlblad, Managing Director
Tandem Computers Canada Limited
180 Duncan Mill Road
Don Mills, Ontario M3B 1Z6
    Offices also located in Calgary,
    Edmonton, Montreal and
    Vancouver

ENGLAND

Jack Chapman, Regional Manager
John Louth, Managing Director
Tandem Computers Limited
Peel House, 32-34 Church Road
Northolt, Middlesex UB5 5AB

FRANCE

Claude Raimond, Managing
  Director
Tandem Computers S.A.
1, Place Des États Unis
Silic 255
94568 Rungis-Cedex

GERMANY

Horst Enzelmueller, Vice President
Tandem Computers GmbH
Bernerstrasse 34
6000 Frankfurt/Main 56
    Offices also in Dusseldorf,
    Hamburg, Muenchen and
    Stuttgart

ITALY

Oreste Rospetti, Managing Director
Tandem Computers Italia S.P.A.
Via del Ghisallo 20
Milano

JAPAN

Kazu Adachi, Managing Director
Tandem Computers Japan Limited
3-1-1 Hagashi Ikebukuro
Toshima-Ku
Tokyo

THE NETHERLANDS

Carl Brandt, Managing Director
Tandem Computers B.V.
Koningin Juliana Plein 30-20
2595 AA Den Haag

SWEDEN

Bengt Rindegard, Managing
  Director
Tandem Computers A.B.
Industrivagen 20 2TR
S-171 48 Solna

SWITZERLAND

Heinz Studiger, Managing Director
Tandem Computers A.G.
Zweierstrasse 138
8003 Zurich

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ENCOMPASS, and ENFORM are
trademarks and service marks of
Tandem Computers Incorporated.

TANDEM

HIGHLIGHTS OF THE YEAR

Fiscal year ended September 30	1979	1980
Revenues	$55,974,000	$108,989,000
Income Before Income Taxes	$10,104,000	$ 21,082,000
Pre-Tax Return on Revenues	18.1%	19.3%
Net Income	$ 4,920,000	$ 10,687,000
Income Per Share*	$.59	$1.06
Weighted Average Shares Outstanding*	8,356,756	10,080,372
Working Capital	$27,096,000	$ 61,232,000
Total Assets	$45,947,000	$ 95,701,000
Stockholders' Equity	$31,530,000	$ 70,294,000
Number of Employees	828	1,387

QUARTERLY RESULTS (Unaudited; dollars in thousands except per share amounts)

	1979				1980			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Revenues	$10,398	$12,471	$14,992	$18,113	$20,826	$24,877	$29,194	$34,092
Net Income	951	1,123	1,295	1,551	2,161	2,414	2,773	3,339
Income Per Share*	$ .12	$ .14	$ .15	$ .18	$ .23	$ .24	$ .27	$ .31

*Adjusted for two-for-one stock split in June, 1980.

INCOME PER SHARE
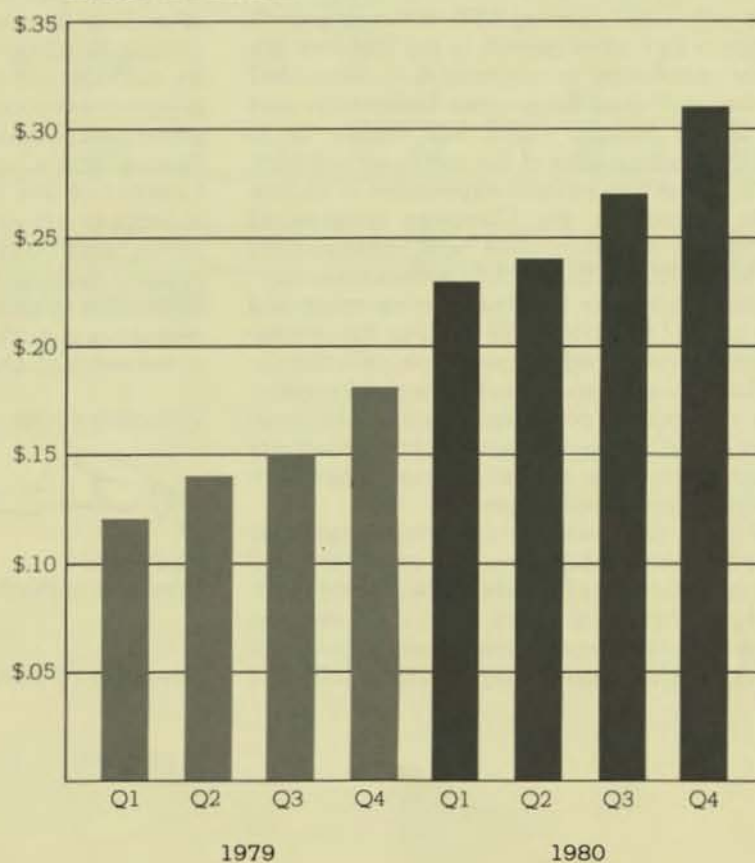
TO OUR STOCKHOLDERS:

We are pleased to report another year of record growth in revenues and profits. The key to our success has been a continued emphasis on excellence — in people, products and service.

Without question, the effort of each individual Tandem employee was vital to the Company's exceptional record of performance in 1980. Outstanding people are Tandem's most valuable resource, and we remain committed to preserving a stimulating work environment which encourages and rewards productivity, creativity and personal growth through increased individual responsibility. The investment we have made in hiring and developing outstanding people has paid off. Last year productivity at Tandem was among the highest in the computer industry, and turnover was among the lowest.

Tandem is dedicated to maintaining its steady, planned profitable growth, and we are confident that we are well positioned to do so. Geographically based divisions, created in November 1979, have provided the decentralized management structure we believe necessary to support a much larger company while, at the same time, emphasizing a positive working environment and providing high-level technical service and support closer to our customer base. Our management structure has been broadened by numerous internal promotions, and in August 1980, Robert Marshall, Senior Vice President and Chief Operating Officer, was appointed to the Board of Directors.

We continue to increase our R&D program to keep pace with 1980's strong 95% revenue growth and to prepare for further growth in the Eighties. We have made substantial commitments to advanced technologies, including large scale integration and computer aided design, which will enable us to remain on the leading edge of the computer industry.

Building upon five years of experience in on-line transaction processing, the Company announced ENCOMPASS, a relational data base management system, in May 1980. ENCOMPASS software automatically performs complex terminal management and data base control functions and ensures the consistency of information stored in a geographically distributed data base through a unique transaction monitoring facility. This product provides users with additional software tools that increase programmer productivity and decrease the time and costs associated with application software development.

Major new data communications capabilities were added to our product line in November 1980 with the announcement of several software and hardware products that allow users of Tandem systems to interface with mainframes and minicomputers of other vendors while continuing to utilize fully the exclusive software features of the NonStop system for on-line transaction processing.

Tandem has always viewed customer satisfaction and support as a critical part of our success. We are pleased that repeat business continues to represent a substantial portion of our sales volume.
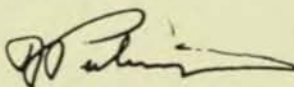
Over the past year, the Company continued to expand its global sales, service and support facilities consistent with our growing customer base. Worldwide, Tandem now maintains over 60 facilities in eleven countries, and employs more than 1400 people. Sixteen new offices were opened during the year, and ten additional educational centers for customer training were opened.

This geographic distribution is important for increasing sales, training new users, and for servicing the multi-location and multinational needs of existing customers, who typically use Tandem systems to convert critical aspects of their business to on-line operations.
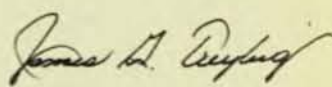
Financially, our results speak for themselves. Revenues increased to record levels for the fifth straight year. Net income during fiscal 1980 reached $10,687,000, up 117% over last year, and on a quarterly basis revenues and net income have advanced steadily for 14 consecutive periods. Our balance sheet remains strong with a current ratio of 4 to 1 and a 3% debt to capitalization ratio.

In the six years since its founding, Tandem Computers has become a leader in shaping the future of on-line transaction processing. The Company's unique NonStop systems—providing high availability, modular expansion, data integrity, and increased programmer productivity—are without equal. We are committed to making the investment in product development and support which will keep Tandem at the forefront of the industry. The critical corporate resources to achieve this goal — dedicated personnel, a strong and flexible financial position, and control systems designed for high growth — are in place. Our dedication to maintaining the excellence of these vital resources is our best assurance of continued success in the years ahead.

Sincerely yours,

T.J. Perkins
Chairman of the Board

James G. Treybig
President and
Chief Executive Officer

November 10, 1980

CONSOLIDATED STATEMENT OF OPERATIONS
For the Five Years Ended September 30, 1980

(Dollars in Thousands Except Per Share Amounts)

	Year Ended September 30				
	1980	1979	1978	1977	1976
REVENUES	$108,989	$55,974	$24,305	$7,692	$ 581
COSTS AND EXPENSES:					
Cost of revenues	40,831	20,786	9,096	3,514	482
Product development	8,786	4,654	2,169	1,094	979
Marketing, general and administrative	40,049	20,828	8,808	2,719	1,327
Interest, net	(1,759)	(398)	(258)	36	(38)
	87,907	45,870	19,815	7,363	2,750
INCOME (LOSS) BEFORE INCOME TAXES AND EXTRAORDINARY CREDIT	21,082	10,104	4,490	329	(2,169)
Provision for Income Taxes	10,395	5,184	2,337	171	—
INCOME (LOSS) BEFORE EXTRAORDINARY CREDIT	10,687	4,920	2,153	158	(2,169)
Extraordinary Credit—Tax benefit of net operating loss carryforwards	—	—	1,218	167	—
NET INCOME (LOSS)	$ 10,687	$ 4,920	$ 3,371	$ 325	$(2,169)
INCOME (LOSS) PER COMMON SHARE:*					
Income (loss) before extraordinary credit	$ 1.06	$ .59	$ .30	$ .03	$ (2.17)
Extraordinary credit	—	—	.17	.03	—
Net income (loss)	$ 1.06	$ .59	$ .47	$ .06	$ (2.17)
Weighted average shares outstanding*	10,080,372	8,356,756	7,179,948	5,359,846	1,060,540

*Adjusted for a two-for-one stock split in June, 1980.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF
THE CONSOLIDATED STATEMENT OF OPERATIONS

REVENUES

Revenues in fiscal 1980 increased 95% to $108,989,000. This gain resulted primarily from increased shipments of systems and software to both new and existing customers and from sales of added processors, peripherals and software for existing systems. During fiscal 1980 the Company shipped 653 processors to 198 customers.

Revenues in fiscal 1979 increased 130% to $55,974,000 from $24,305,000 reported in fiscal 1978. This gain also resulted from a substantial increase in shipments of systems, processors and peripherals. During fiscal 1979 the Company shipped 389 processors to 118 customers.

Dollars in Millions; Fiscal Years
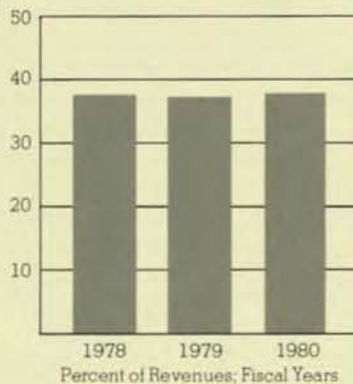
COST OF REVENUES

Tandem's products are manufactured at the Company's Cupertino headquarters, and in Watsonville, California, and Neufahrn, West Germany. Production facilities at these locations were expanded by approximately 50% during fiscal 1980 to meet the increased demand for the Company's products.

The cost of revenues in fiscal 1980 increased 96% to $40,831,000. In 1979, cost of revenues advanced 129% over the fiscal 1978 level to $20,786,000. Cost of revenues, as a percentage of revenues, has remained essentially unchanged over the last three years.
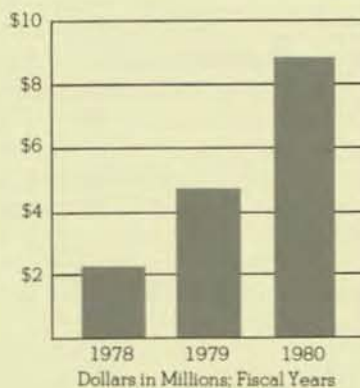
Percent of Revenues; Fiscal Years

PRODUCT DEVELOPMENT

The Company's product development effort is dedicated to meeting the needs of computer users who are implementing on-line transaction processing or message handling applications. Expenditures on product development in fiscal 1980 were $8,786,000, up 89% over the fiscal 1979 level. In fiscal 1979 product development expenditures were $4,654,000, up 115% from the prior year. These expenditures resulted in many new product introductions in both years and funded research on future products.

Product development expenditures as a percentage of revenues were 8.1% and 8.3% in fiscal 1980 and 1979, respectively. The Company has a long-term objective of maintaining development expenditures at approximately 8% to 9% of revenues.

Dollars in Millions; Fiscal Years

MARKETING, GENERAL AND ADMINISTRATIVE

The Company focuses its selling efforts on the end user market, where providing a high level of customer support is essential. These support costs are encompassed in marketing, general and administrative expenditures, which increased 92% in fiscal 1980 to $40,049,000. In fiscal 1979 marketing, general and administrative expenditures were $20,828,000, up 136% over the prior year. In fiscal 1980 and 1979 such costs represented 36.7% and 37.2% of revenues, respectively. This expenditure level reflects not only the Company's end user marketing orientation but also the significant geographical expansion of marketing operations over the last two years and the addition of marketing personnel in anticipation of future growth.

Dollars in Millions; Fiscal Years
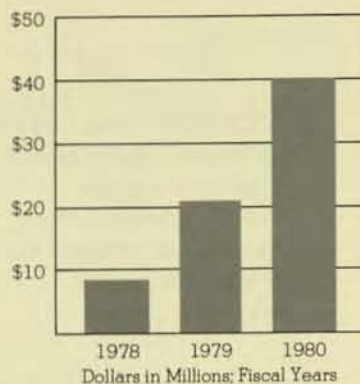
PRETAX INCOME

Pretax income increased 109% to $21,082,000 in fiscal 1980, while pretax margins (pretax income as a percentage of revenues) were 19.3% compared with 18.1% reported in fiscal 1979. The increase in pretax margins in fiscal 1980 resulted primarily from the increase as a percentage of revenues in net interest income earned on cash equivalent investments. In fiscal 1979 pretax income was $10,104,000, as compared to $4,490,000 (18.5% of revenues) in fiscal 1978.

The Company's effective tax rate declined in fiscal 1980 to 49.3% from 51.3% and 52.0%, reported in fiscal 1979 and 1978, respectively. Net income advanced 117% to $10,687,000 in fiscal 1980 from $4,920,000 in fiscal 1979. In fiscal 1978, net income before extraordinary credit was $2,153,000.

Dollars in Millions; Fiscal Years
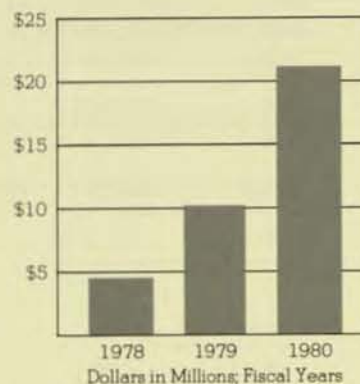
INCOME PER COMMON SHARE

Income per common share increased 80% to $1.06 in fiscal 1980. Earnings in fiscal 1979 and 1978* were $.59 and $.30 per share, respectively. Per share earnings have not increased as rapidly as net income before extraordinary credit because of increased shares outstanding. The Company completed public offerings of common stock in fiscal 1980 and 1979, and these offerings combined with the sale of stock to employees under the employee stock purchase plan and grants under option plans resulted in increases in weighted average shares outstanding of 21% and 16%, respectively. Proceeds from the sale of these additional shares have been used to finance working capital expansion, which was necessary to support the Company's growth during this period.

Fiscal Years
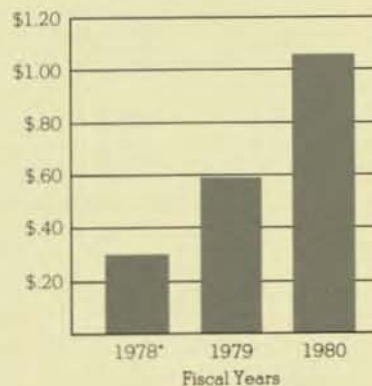
*Before extraordinary credit.

CONSOLIDATED STATEMENT OF INCOME

For the Years Ended September 30, 1980 and 1979

	(In Thousands Except Per Share Amounts)	
	1980	1979
REVENUES (Notes 1 and 8)	$108,989	$55,974
COSTS AND EXPENSES:		
Cost of revenues	40,831	20,786
Product development	8,786	4,654
Marketing, general and administrative	40,049	20,828
Interest expense	293	84
Interest income	(2,052)	(482)
	87,907	45,870
INCOME BEFORE INCOME TAXES	21,082	10,104
Provision for Income Taxes (Note 2)	10,395	5,184
NET INCOME	$ 10,687	$ 4,920
INCOME PER COMMON SHARE* (Note 7)	$ 1.06	$ .59

*Adjusted for a two-for-one stock split in June, 1980.

The accompanying notes are an integral part of this statement.

CONSOLIDATED BALANCE SHEETS

As of September 30, 1980 and 1979

		(In Thousands)
ASSETS	1980	1979
CURRENT ASSETS:		
Cash (Note 4)	$ 9,265	$ 2,198
Cash investments	6,980	4,560
Accounts receivable, net of $1,016,000 allowance for doubtful accounts in 1980, none in 1979	42,552	19,881
Inventories (Note 1)	20,901	11,304
Prepaid expenses	1,965	1,385
Total current assets	81,663	39,328
PROPERTY AND EQUIPMENT, at cost (Notes 1 and 3):		
Production and test equipment	4,135	1,982
Computer equipment	4,702	2,417
Office furniture and equipment	1,083	382
Systems spares	4,391	2,141
Leasehold improvements	4,054	1,597
	18,365	8,519
Less—Accumulated depreciation and amortization	4,327	1,900
	14,038	6,619
	$95,701	$45,947

		(In Thousands)
LIABILITIES AND STOCKHOLDERS' INVESTMENT	1980	1979
CURRENT LIABILITIES:		
Current maturities of capitalized lease obligations	$ 476	$ 375
Accounts payable	11,063	5,675
Accrued expenses	3,216	1,269
Accrued income taxes	5,676	4,913
Total current liabilities	20,431	12,232
CAPITALIZED LEASE OBLIGATIONS, net of current maturities (Note 3)	1,651	1,144
DEFERRED INCOME TAXES	3,325	1,041
COMMITMENTS (Note 6)		
STOCKHOLDERS' INVESTMENT (Note 5):		
Preferred stock—$.10 par value, authorized 2,400,000 shares; none outstanding	—	—
Common stock—$.025 par value, authorized 20,000,000 shares; outstanding 8,339,498 shares in 1979 and 10,024,918 shares in 1980	251	209
Additional paid-in capital	53,555	25,520
Retained earnings	16,488	5,801
Total stockholders' investment	70,294	31,530
	$95,701	$45,947

The accompanying notes are an integral part of these balance sheets.

CONSOLIDATED STATEMENT OF STOCKHOLDERS' INVESTMENT
For the Years Ended September 30, 1979 and 1980

(In Thousands)

	Preferred Stock		Common Stock		Additional Paid-in Capital	Retained Earnings	Total Stockholders' Investment
	Shares	Amount	Shares*	Amount			
Balance, September 30, 1978	—	$ —	7,352	$ 184	$14,473	$ 881	$15,538
Sale of common stock, net of related expenses	—	—	840	21	10,054	—	10,075
Sale of stock under stock option and stock purchase plans, net	—	—	148	4	758	—	762
Income tax benefit resulting from exercises of non-qualified stock options and early disposition of shares acquired under qualified stock option and stock purchase plans	—	—	—	—	235	—	235
Net income	—	—	—	—	—	4,920	4,920
Balance, September 30, 1979	—	—	8,340	209	25,520	5,801	31,530
Sale of common stock, net of related expenses	—	—	1,430	36	24,243	—	24,279
Sale of stock under stock option and stock purchase plans, net	—	—	255	6	2,986	—	2,992
Income tax benefit resulting from exercises of non-qualified stock options and early disposition of shares acquired under qualified stock option and stock purchase plans	—	—	—	—	806	—	806
Net income	—	—	—	—	—	10,687	10,687
Balance, September 30, 1980	—	$ —	10,025	$ 251	$53,555	$16,488	$70,294

*Adjusted for two-for-one stock split in June, 1980.

The accompanying notes are an integral part of this statement.

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

For the Years Ended September 30, 1980 and 1979

	(In Thousands)	
	1980	1979
WORKING CAPITAL PROVIDED FROM (USED FOR):		
Net income	$10,687	$ 4,920
Add back items not requiring the use of working capital:		
Depreciation and amortization	2,547	1,365
Deferred income taxes	2,284	737
Working capital provided from operations	15,518	7,022
Acquisition of property and equipment	(10,255)	(5,770)
Net book value of equipment sold or retired	289	337
Increase in capitalized lease obligations, net of current maturities	507	429
Increase in deferred income taxes	—	304
Sale of common stock, net of repurchases	27,271	10,837
Tax benefit of stock options and stock purchase plans	806	235
Net increase in working capital	$34,136	$13,394
WORKING CAPITAL INCREASE REPRESENTED BY:		
Increase in current assets—		
Cash and cash investments	$ 9,487	$ 2,311
Accounts receivable	22,671	11,766
Inventories	9,597	4,985
Prepaid expenses and other	580	766
Increase in current liabilities—		
Current portion of capitalized lease obligations	(101)	(172)
Accounts payable	(5,388)	(1,909)
Accrued expenses	(1,947)	(316)
Accrued income taxes	(763)	(4,037)
Net increase in working capital	$34,136	$13,394

The accompanying notes are an integral part of this statement.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

CONSOLIDATION
The consolidated financial statements include the accounts of Tandem Computers Incorporated and its wholly owned subsidiaries after elimination of intercompany accounts and transactions. Foreign exchange gains and losses are not significant and are reflected in the results of operations.

REVENUE RECOGNITION
The Company generally recognizes equipment sales revenues at the time of shipment.

INVENTORIES
Inventories are stated at the lower of cost (first-in, first-out) or market and include material, labor, and manufacturing overhead. The components of inventory used to determine cost of revenues were:

(In Thousands)	September 30		
	1980	1979	1978
Purchased parts and subassemblies	$11,832	$ 6,207	$4,196
Work-in-process and finished systems	9,069	5,097	2,123
	$20,901	$11,304	$6,319

INCOME TAXES
The Company provides for income taxes on total DISC income and accounts for investment tax credits as a reduction of the provision for taxes on income in the year in which the related credits are realized.

PROPERTY AND EQUIPMENT
Systems spares are depreciated using the double declining balance method. All other property and equipment are depreciated using the straight-line method. The estimated useful lives are:

	Years
Production and test equipment	5-10
Computer equipment	5-7
Office furniture and equipment	5-10
Systems spares	5
Leasehold improvements	Lease Term

Expenditures for maintenance and repairs are charged to operations as incurred. Expenditures for major betterments and renewals are capitalized and depreciated over the estimated remaining useful life of the asset. The net gain or loss on assets retired or otherwise disposed of is credited or charged to operations and the asset cost and related depreciation are removed from the accounts.

2. INCOME TAXES

The provision for income taxes for the years ended September 30, 1980 and 1979, is comprised of:

	1980	1979
Current:		
Federal	$ 6,022,000	$3,850,000
State	1,682,000	916,000
Foreign	1,120,000	326,000
	8,824,000	5,092,000
Prepaid:		
Federal	(281,000)	(638,000)
State	(29,000)	(7,000)
	(310,000)	(645,000)
Deferred:		
Federal	2,104,000	718,000
State	82,000	—
Foreign	(305,000)	19,000
	1,881,000	737,000
	$10,395,000	$5,184,000

The sources of prepaid and deferred taxes were as follows:

	1980	1979
Prepaid:		
Increase in revenues recognized for income tax reporting, but not for financial statements	$ 115,000	$ 503,000
Expenses recognized for financial statements, but not for income tax reporting	195,000	142,000
	$ 310,000	$ 645,000
Deferred:		
DISC income	$ 1,638,000	$ 449,000
Increase (decrease) in revenues deferred for foreign tax purposes	(403,000)	19,000
Accelerated depreciation and other, net	646,000	269,000
	$ 1,881,000	$ 737,000

The provision for income taxes differs from the amount obtained by applying the expected Federal income tax rate to income before taxes as follows:

	1980	1979
Federal tax provision at expected rate	$ 9,678,000	$4,698,000
State income taxes net of Federal income tax benefit	937,000	486,000
Foreign losses with no tax benefit and foreign income taxes in excess of Federal rate	352,000	294,000
Investment tax credits	(611,000)	(216,000)
Other	39,000	(78,000)
	$10,395,000	$5,184,000

3. CAPITALIZED LEASE OBLIGATIONS

The Company leases certain equipment under agreements that extend through fiscal 1987. The following summarizes the future minimum lease payments together with the present value of the minimum lease payments as of September 30, 1980:

Year Ending September 30	
1981	$ 607,000
1982	554,000
1983	529,000
1984	449,000
1985	283,000
1986-1987	126,000
Total minimum lease payments	2,548,000
Less: Amount representing interest (7%)	421,000
Present value of minimum lease payments	$2,127,000

4. LINES OF CREDIT

The Company has a revolving bank line of credit which provides for unsecured borrowings of up to $10,000,000 at the bank's prime lending rate. The agreement requires the Company to maintain a compensating balance of 2½% of the line of credit amount plus 5% of borrowings in excess of $2,500,000. The line of credit expires December 31, 1980.

The Company has a revolving line of credit with another bank providing for unsecured borrowings of up to $5,000,000. The line of credit expires on June 30, 1981, provides for borrowings at the bank's prime lending rate, and requires the company to maintain a compensating balance of 5% of the commitment.

There were no amounts outstanding under either line of credit during fiscal 1980.

5. STOCK OPTION AND STOCK PURCHASE PLANS

Stock Option Plans

The Company has three stock option plans in effect for employees. Under these plans, the option price may not be less than 100% of the fair market value on the date of grant. Under the qualified plan, adopted in 1976, all options granted are exercisable upon the date of grant and expire five years from the date of grant. Subsequent to May 20, 1981, however, such options will not be eligible for special tax treatment. Under the two non-qualified plans, adopted in 1976 and 1979, options are exercisable upon the date of grant and expire no later than seven years from the date of grant.

8. GEOGRAPHIC SEGMENT INFORMATION

The Company designs, develops, manufactures, markets and services multiple processor computer systems. The following table sets forth information about the Company's operations in different geographic areas for the years ended September 30, 1980 and 1979.

1980 (In Thousands)

	Geographic Area			Adjustments and Eliminations	Consolidated
	United States	Europe	Other		
REVENUES—					
Customers	$78,758	$25,760	$4,471	$ —	$108,989
Intracompany	17,452	1,868	56	(19,376)	—
Total revenues	$96,210	$27,628	$4,527	$(19,376)	$108,989
INCOME BEFORE INCOME TAXES	$21,469	$ 801	$ 140	$ (1,328)	$ 21,082
IDENTIFIABLE ASSETS	$76,181	$19,889	$2,109	$ (2,478)	$ 95,701

1979 (In Thousands)

	Geographic Area			Adjustments and Eliminations	Consolidated
	United States	Europe	Other		
REVENUES—					
Customers	$41,292	$13,501	$1,181	$ —	$ 55,974
Intracompany	8,846	102	—	(8,948)	—
Total revenues	$50,138	$13,603	$1,181	$ (8,948)	$ 55,974
INCOME (LOSS) BEFORE INCOME TAXES	$11,127	$ 230	$ (173)	$ (1,080)	$ 10,104
IDENTIFIABLE ASSETS	$35,667	$10,113	$1,319	$ (1,152)	$ 45,947

Intracompany transfers are made at approximately arm's length prices, which include manufacturing profits attributable to United States operations. Identifiable assets are those assets of the Company that are identified with the operation of each geographic area.

United States customer revenues include export sales of $3,973,000 in 1980, and $1,663,000 in 1979.

9. UNAUDITED QUARTERLY FINANCIAL DATA

Shown below are quarterly financial data (in thousands except for per share amounts) for the two years ended September 30, 1980 and 1979:

	Quarters Ended			
	Dec 31	March 31	June 30	Sept 30
Year Ended September 30, 1980:				
Revenues	$20,826	$24,877	$29,194	$34,092
Costs and Expenses:				
Cost of revenues	7,535	9,272	10,915	13,109
Product development	1,542	2,013	2,426	2,805
Marketing, general and adminis-				
trative	7,733	9,339	10,759	12,218
Interest, net	(305)	(576)	(451)	(427)
	16,505	20,048	23,649	27,705
Income Before Income Taxes	4,321	4,829	5,545	6,387
Provision for Income Taxes	2,160	2,415	2,772	3,048
Net Income	$ 2,161	$ 2,414	$ 2,773	$ 3,339
Net Income Per Common Share*	$ .23	$ .24	$ .27	$ .31
Year Ended September 30, 1979:				
Revenues	$10,398	$12,471	$14,992	$18,113
Costs and Expenses:				
Cost of revenues	3,446	4,791	5,725	6,823
Product development	976	1,039	1,208	1,430
Marketing, general and adminis-				
trative	3,978	4,589	5,500	6,763
Interest, net	(57)	(214)	(53)	(74)
	8,343	10,205	12,380	14,942
Income Before Income Taxes	2,055	2,266	2,612	3,171
Provision for Income Taxes	1,104	1,143	1,317	1,620
Net Income	$ 951	$ 1,123	$ 1,295	$ 1,551
Net Income Per Common Share*	$ .12	$ .14	$ .15	$ .18

*Adjusted for two-for-one stock split in June, 1980.

AUDITORS' REPORT

To Tandem Computers Incorporated:

We have examined the consolidated balance sheets of Tandem Computers Incorporated (a Delaware corporation) and subsidiaries as of September 30, 1980 and 1979, and the related consolidated statements of income, stockholders' investment and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Tandem Computers Incorporated and subsidiaries as of September 30, 1980 and 1979, and the results of their operations and the changes in their financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Arthur Andersen & Co.

San Jose, California
November 6, 1980

TANDEM STOCK PRICE

Calendar Quarter Price	High	Low
1978 1st Quarter	$ 8⅜	$ 6⅝
2nd Quarter	12¼	7½
3rd Quarter	18¼	11½
4th Quarter	16¾	11
1979 1st Quarter	14⅞	11⅜
2nd Quarter	16⅛	14¼
3rd Quarter	17⅞	13⅛
4th Quarter	21¼	15⅜
1980 1st Quarter	27⅛	18½
2nd Quarter	29½	19⅝
3rd Quarter	56	29¾

Prices prior to June 30, 1980, have been adjusted for a two-for-one stock split effective on that date.

Tandem Computers Incorporated common stock is traded in the over-the-counter market under NASDAQ symbol TNDM. The above quotations represent prices between dealers without adjustment for markup, markdown or commissions, and may not represent actual transactions. No dividends have been declared on the common stock.

1981 ANNUAL REPORT

TANDEM

BUSINESS REVIEW
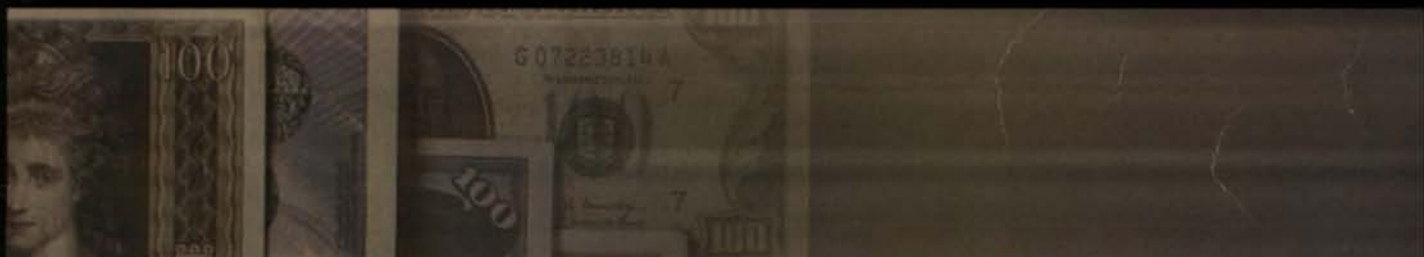
Tandem Computers Incorporated designs, develops, manufactures, markets and supports a unique computer system for the on-line transaction processing marketplace. Called the NonStop system, its innovative architecture virtually eliminates the risk of system failures and protects the customers' data bases from damage caused by electronic malfunctions. Tandem systems can be expanded modularly from a mid-size to a large-scale system, or extended into a distributed data processing network of up to 255 geographically dispersed systems, without hardware replacement or software conversion.

Tandem has manufacturing operations in five locations in the United States and one in Germany. The company supports customers' NonStop systems throughout North America, Europe and Asia from 77 offices.

By the end of fiscal 1981, Tandem had shipped over 2,500 processors to 460 customers. Fiscal 1981 earnings per share rose 106% on a 91% increase in revenues over the preceding year, while stockholders' equity grew 191%.

The data processing industry is undergoing a rapid, evolutionary change from centralized, batch-processing computers to distributed, on-line transaction processing systems communicating in networks. This evolution represents the area of greatest growth in commercial data processing. Tandem, with revolutionary concepts embodied in the company's NonStop and NonStop II on-line transaction processing systems, is having a fundamental impact on the changing marketplace. The company believes its advanced hardware/software solutions not only are favored by the market trends, but that the company is in a better position than any other to evolve as the major force in the new wave of data processing in this decade. This report explains why.

Broad acceptance of Tandem's concept

Tandem systems are being used by virtually all industries throughout the world. Here, attendees at the Tandem Users' Group in Europe are seen during a break in sessions held in Munich during the summer of 1981.

"There seems little doubt that Tandem has developed and is executing a clearly defined set of strategies designed to establish the company as a leader in on-line transaction processing for big industrial companies and financial institutions." *Computerworld*

It was less than seven years ago that Tandem was founded to develop a far-reaching new concept in computing: the NonStop system.

In that relatively short span of time, the concept—in all of its facets—has had a fundamental impact on the industry. It has changed not only the way businesses think about computing, but has accelerated evolutionary changes in the ways businesses, themselves, are being conducted.

Today, Tandem on-line transaction processing systems are enabling businesses in virtually all industries throughout the world to improve efficiencies and customer service, reduce costs, and gain new competitive advantages—by using leading-edge technologies that have been available only from Tandem.

By the end of fiscal 1981, 460 organizations were using over 2,500 Tandem processors to make their businesses better for themselves and for their customers. (On the following pages you will find a dozen brief customer reports that speak of some of the ways this is happening.)

Tandem has evolved from a start-up to one of the industry's most highly regarded companies. Its customers express the highest level of satisfaction with and confidence in the company and its concept, its products, its support, and its future.

In a major, independent survey of computer users during 1981, Tandem was the only manufacturer whose polled customers were unanimous in voicing their satisfaction and confidence:

Fully 100% of Tandem users said they are not intending to change vendors.

In fact, over half of Tandem's shipments during fiscal 1981 went to previous customers to expand their applications, or to inaugurate new programs.

Even more indicative of the future of the company and the marketplace, however, is the rapid, spreading acceptance of the Tandem concept by businesses that are not, as yet, Tandem customers.

In the same 1981 survey, 48%—nearly half of the 6,168 respondent users—said "Yes" to the question, "Would you like...a non-stop capability like Tandem Computers?"

Nearly half of industry already wants Tandem's NonStop capability—a computer that continues to run without interruption even if a component fails. But NonStop processing is just one aspect of the multi-faceted Tandem concept.

To understand the full scope and effect of the company's concept and strategies, as explained throughout these pages, is to understand why Tandem customers are so loyal; why the company believes that business trends favor Tandem; and why the company, like its customers, has great confidence in its future.

is indicative of the future
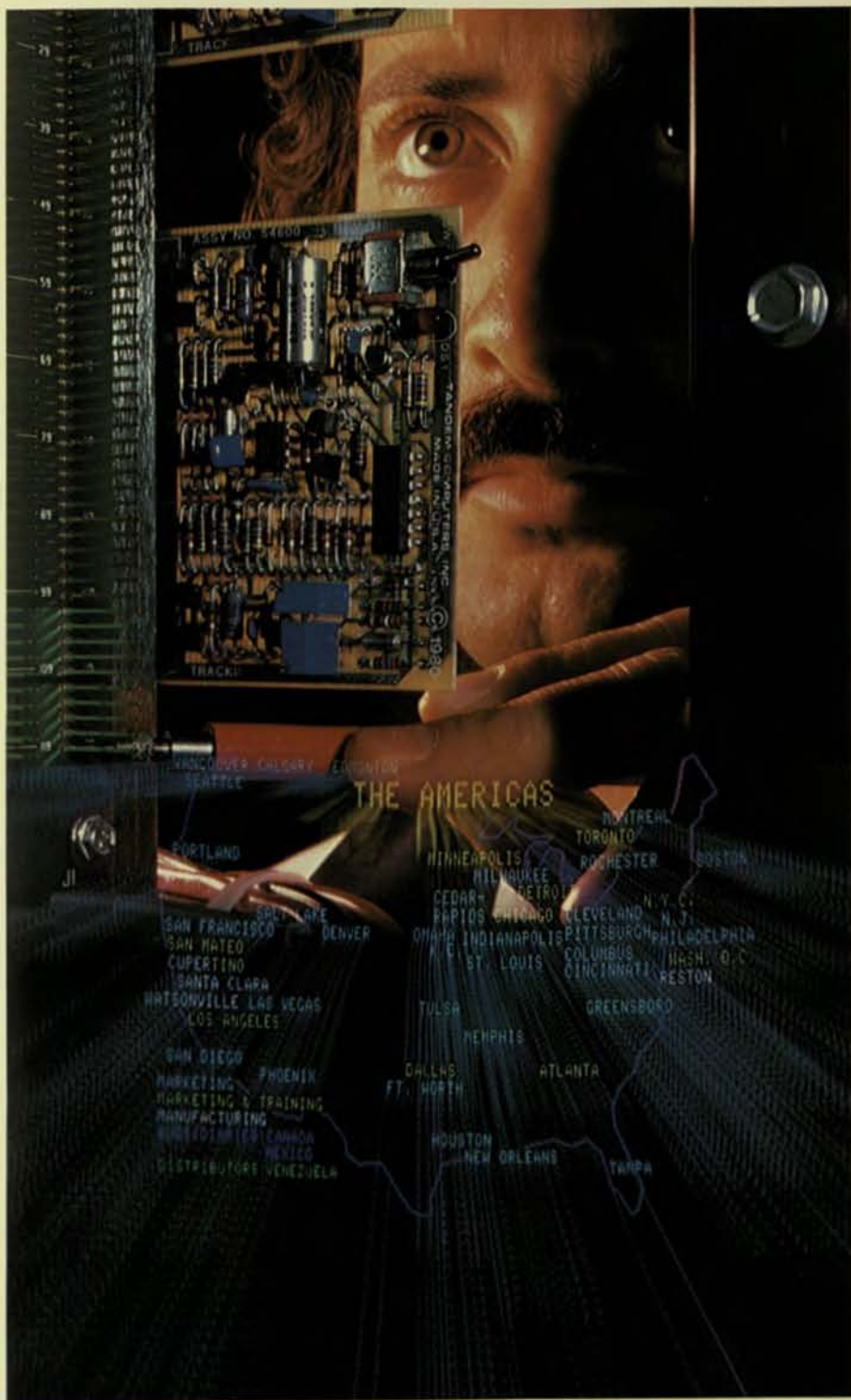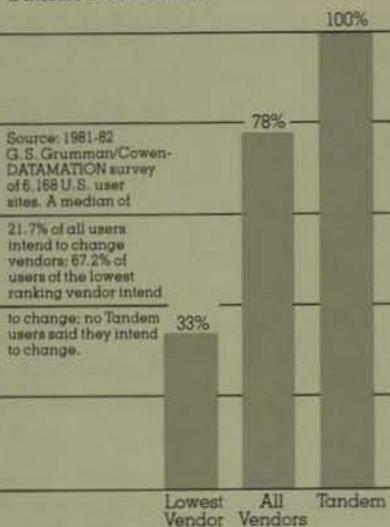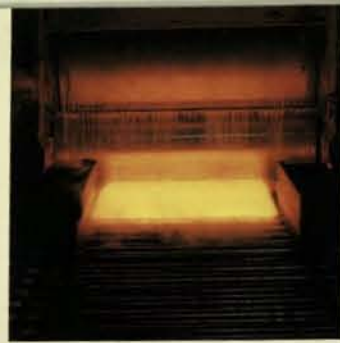
It is no coincidence that Thyssen Aktiengesellshaft, Europe's largest non-government owned steel producer, was Tandem's first customer on that continent. Thyssen is a recognized leader in on-line transaction processing, having installed its first on-line computer in 1965—long before the rest of industrialized Europe.

Thyssen ordered its first Tandem system in 1977 to achieve the uninterrupted production operations essential to a steel plant that must continually run 24 hours a day.

Here, up to 32-ton slabs of hot steel from the smelter are pressed into giant coils at a rate of up to one every minute, or 400,000 tons per month.

Since its first Tandem system, Thyssen has been aggressively upgrading automation at its widespread, massive facilities in Western Germany. By mid-1981, Thyssen had systematically added processor modules to create a complement of 7 systems with 21 processors. The systems currently order materials and control the complex production flow at three separate plants which interact in an EXPAND network.

The company's EDP management, in its on-going, on-line upgrade program, specifically cites the advantages of Tandem's relational data base and the modularity feature in achieving goals rapidly.

"With Tandem it has not been necessary to define the entire, complex distributed data processing problem before taking action. We are doing it one area at a time, and then easily integrating that system into the EXPAND network."

Thyssen has over 150,000 employees, and in its most recent fiscal year had revenues of approximately $13.5 billion.

Talk to anyone in the electronics industry: the semiconductor segment—the business of fabricating the miniature circuitry and microprocessors used in advanced products—is fiercely competitive.

Talk to anyone in the semiconductor industry, and they will add that the business is also incredibly complicated.

Motorola, for instance, produces over 300,000 different devices used by makers of a wide variety of products including computers, communications equipment, automobiles and consumer electronics.

At Motorola's Mesa, Arizona facility alone, the company has millions of devices undergoing a complex series of delicate processes. The task of merely tracking the process is monumental.

Add to that the crucial quality requirements to control and classify yields and the task appears to be impossible.

Now, multiply those tasks over a vast, worldwide network of facilities, and the belief that the semiconductor industry is "probably one of the most data-intensive in the world" begins to take on meaning.

To help sharpen its competitive edge, Motorola installed its first Tandem system in the fall of 1980 to track, on-line, progress and quality of semiconductor wafers during the fabrication processes. Using ENCOMPASS software to speed development of application software, the first production system was running in the first quarter of 1981.

With built-in capabilities to interconnect readily—without programming changes—the worldwide-dispersed systems in a massive, distributed data processing network using Tandem's EXPAND software, Motorola has the option of later providing its managers with the ability to view instantly the status of many billions of devices undergoing fabrication around the world.

Tandem's innovativeness has fueled consistent, profitable growth

Tandem is one of only a few hundred of the thousands of publicly-held companies in the U.S. that addressed the New York Society of Security Analysts during 1981. Seen at the mid-year meeting are Jim Treybig (above, at left), Tandem president and chief executive officer, and Bob Marshall, (opposite page), Tandem senior vice president and chief operating officer.

"Planning for $1 billion in sales is neither arrogant nor farfetched. The Cupertino, Calif.-based company has one of the hottest track records in a hot industry." *Forbes*

The timing of Tandem's contributions is propitious. It neatly dovetails with the rapidly-paced changes that are sweeping the computer industry.

Worldwide, businesses are caught between a critical need to control the unprecedented escalation of costs of doing business, and a seemingly contrary, compelling requirement to invest even more resources in improving customer services to meet competitive challenges.

At the same time, individual businesses are growing more complex. To survive and prosper, all types of businesses are actively searching for ways to gain better control of their operations. It is a much faster moving world today than it was just ten years ago.

Not long ago, getting vital information to the people who need it on a daily basis was done exclusively by a relatively slow, costly computing method called batch processing. As the name implies, vast amounts of data—such as customer orders, raw materials flow, inventories, invoices and bookkeeping records— were processed in batches at some point in time *after* the updating information occurred.

Today, the costs/services/control dilemma is exerting strong pressure on large numbers of organizations, spanning all industries, to abandon batch processing programs and convert their vital business functions to *on-line transaction processing*—to achieve instantaneous updating of information at the point and moment of each transaction.

That is why Tandem prospers: Tandem is the only experienced company that is dedicated solely to the new wave of on-line transaction processing with a total concept that fulfills the specific, critical needs of organizations converting from batch processing.

Making other businesses more efficient has been good business for Tandem. In fact, Tandem is one of the fastest growing publicly-held companies in the world.

Consistently, for 18 consecutive quarters through Tandem's fiscal 1981 year-end, every period has been record-setting.

Revenues have grown from under $8 million in fiscal 1977 to over $208 million in 1981. Operating margins during the past four years have been between 17.3% and 19.4%.

This consistent performance is in accordance with the company's long-term plans, as is the manner in which Tandem has financed its growth through retained earnings and equity offerings instead of borrowings.

Stockholders' equity has increased nearly 75 times since fiscal 1977, from under $3 million to over $204 million. At the close of fiscal 1981, debt represented less than 1% of total capital.

Much of this uncommon growth with exceptional financial soundness can be attributed to another of the innovative aspects of the Tandem concept: true modularity. Because NonStop systems represent a full family of systems ranging from mid-size to large-scale—by merely adding processor modules—the company's products fill a broad spectrum of customer requirements. Tandem also benefits from the product modularity because product development expenditures are highly leveraged: all software and hardware enhancements apply across the board to any system size or network configuration. Manufacturing operations, as well as the management of field service spare parts, are also simplified by the product's modularity. Likewise, Tandem's marketing, support and training functions share the productivity benefits of the product's simplicity.

NonStop systems also play an important role in management of Tandem's operations. The entire company is run on a worldwide network of over 100 NonStop systems at more than 40 locations.

Similarly, the combination of Tandem's dedication to on-line transaction processing and the product simplicity give the company a unique control advantage in being able to forecast and prepare for demand.

Most of all, however, Tandem's remarkable growth emanates from the increased awareness among progressive companies of the fundamental impact on their businesses of all aspects of the innovative Tandem concept.
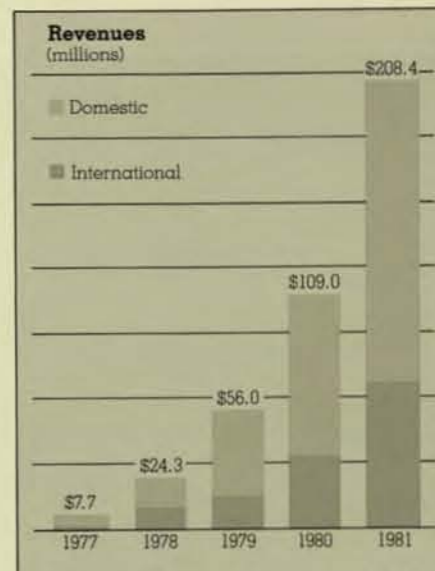

Revenues (millions)

- Domestic
- International

$208.4
$109.0
$56.0
$24.3
$7.7

1977 1978 1979 1980 1981

The Scandanavian Airlines System, the cooperative domestic and international airline of Denmark, Norway and Sweden, has always had a fine reputation for innovativeness and customer service.

It was SAS that developed the necessary systems to fly the first Polar Route, shortening flight time between the Euro-

pean and overseas continents. SAS was also among the first airlines to convert from batch processing to on-line, laying down system-wide plans in 1969, and was first, in 1971, with an automated cargo system.

Today, SAS is the first international carrier to "break the old philosophy of mainframe computers" by developing a data processing network including Tandem's EXPAND software to improve efficiencies and customer service further. By the end of 1981, in an evolutionary process that will continue through the decade, SAS had eight Tandem systems with a total of 26 processors. Their 5-node EXPAND network includes Oslo, Stock-

holm and Copenhagen.

The Tandem systems are controlling station operations, group tour bookings, and accounting functions.

At Linjeflyg, the SAS Swedish domestic airline serving that country's 25 airports, the entire airline is now running on Tandem systems. Over 300 programs were developed within two years on the Tandem network to control all aspects of managing an airline, including an entire airport management system at Stockholm.

SAS decided during late fiscal 1981 to develop a new cargo handling and sales system on Tandem's NonStop II systems to cope with the fact that cargo rates will not increase at a rate consistent with major increases in the cost of manpower and fuel. The new system will reduce aircraft departing with less than full loads, will keep high service levels in sales and handling, and, by distributing up-to-the-minute information to SAS cargo agents, will provide SAS cargo customers with better service.

SAS is replacing the mainframe computer used in its cargo handling system with Tandem systems because of the ability to distribute the system in the future using Tandem's EXPAND network. SAS is the first carrier worldwide to put key applications on Tandem systems, enabling SAS to market them to other airlines.

Norton, Lilly & Co., Inc. (NL), like all other companies that have developed on-line networks to run complex, fast-moving businesses, cannot afford a computer failure.

NL is one of the nation's largest general agents for foreign-flag steamship companies, with offices in all major U.S. ports. It is the oldest ship-

ping company in the U.S., founded in 1841 as John Norton & Company, merchants and charterers, and owners of sailing packets to South America. Over the years, the company has been involved in all aspects of international ocean transportation.

Although today it owns no ships, in practice the company

functions as if its customers' ships were their own.

When one of their ships is in a U.S. port, NL is responsible for all aspects of the ship's business. NL arranges tugs, berths, stevedores, cargo distribution over land, and, even provides fuel and provisions as well as paying the crews.

At all times, NL is the

American marketing force for 14 major steamship lines and scores of tramp vessel owners. Each month, the company generates over 12,000 bills of lading and controls 15,000-20,000 freight containers. Annually, NL controls 4,000 port calls.

NL also acts as the lines' American bookkeeper—pay-

ing all bills and collecting all its customers' receivables.

Prior to converting to a Tandem system with four processors in 1979, NL was vulnerable to computer failures.

"When the old system went down, the whole country went down." Interaction between New York headquarters and NL's 18 branch offices came to

a virtual standstill.

In sharp contrast, today NL believes it offers "leading-edge services" with a network that responds three times faster and is always on the air.

"Total service to both the shipping community and the shipping line is our goal, and we now find ourselves in a most advantageous com-

petitive position."

And NL is prepared for significant increases in its business: Another reason the company converted to Tandem is the ability for their system to grow quickly without reprogramming, and, in fact, without even shutting down the working portion while additional processors are added.

The uniqueness of Tandem's concept paves the way for the future

"By bringing out a system [NonStop II] that contains significant enhancements to its original product, the company has reaffirmed its intention to keep its place in the forefront of the on-line transaction processing market...the complete software compatibility and serviceability features show a real concern for the customer's needs and welfare." *Dataquest*

Thousands of organizations around the world that are changing their ways of doing business through on-line transaction processing have one common, principal concern:

When an organization commits its vital business functions to on-line transaction processing, the business becomes truly computer-dependent. The ramifications are manifold.

Before Tandem, any organization considering on-line transaction processing had to weigh carefully a series of risks against the anticipated benefits. Because, before Tandem, no other company addressed all of the critical needs of on-line transaction processing, nor was any other company dedicated solely to providing simple, practical and cost-effective solutions to the emerging on-line transaction processing marketplace.

Among the user's concerns and risks were:

If the computer system stops, the business stops.

Tandem's NonStop systems are designed to run continuously, even during component failure—and even during maintenance, with parts being removed and replaced.

In the past, attempts to achieve uninterrupted computer operations have been approached by either installing idle back-up computers or by developing special purpose hardware and software—both of which were expensive and inefficient. With Tandem, the entire system performs productive work.

If the computer manufacturer's support organization is not responsive and effective, the business remains stopped.

If a NonStop system should require service, Tandem's field support personnel perform maintenance while the system continues to run the customer's programs. Tandem has a ratio of one field support person for each customer, and the field organization is backed-up by headquarters experts who assist trouble-shooting with Tandem's state-of-the-art, remote diagnostics system.

Before Tandem, system contamination of the user's on-line data base, or electronic malfunctions that could send data to the wrong place would disrupt business and profits.

Every Tandem system automatically protects the users' data bases from damage or destruction caused by electronic malfunctions. Tandem's data integrity features also prevent hardware errors from sending data to the wrong place.

Before Tandem, when a company's business grew and new computers were brought in to increase capacity, reprogramming and retaining costs soared, and the business, again, was disrupted.

Each Tandem system can be expanded to 16 processors with no reprogramming and no retraining of personnel. That is, a user can start with a two-processor Tandem system

to develop applications programming, add processors when the application goes into production, and then continue to add processors as the business and applications grow. In effect, the user has a painless, incremental growth path from the power of a mid-size system through a large-scale mainframe.

Before Tandem, when geographically dispersed company locations were tied together in a distributed data processing network, programming and equipment costs again soared, the business was again disrupted—and all of the above concerns were amplified many times.

NonStop system users can distribute data processing over geographically dispersed locations with ease and efficiency—using Tandem's unequalled, powerful EXPAND software—effectively to build a regional, national or worldwide network of up to 255 16-processor systems with thousands of terminals in a fraction of the time, and at a fraction of the cost, of networks based on conventional computers.

And even before the conventional system was put to productive work—or when new applications were later developed— the leadtimes and costs of writing programs frequently exceeded estimates.

Programming for on-line applications on NonStop systems requires no specialized software to be written by customers, nor does the customer have to hire a large staff of highly-skilled programmers experienced in on-line applications.

Tandem's NonStop software is as innovative as the NonStop hardware, and is integral to the architecture. For example, Tandem's relational data base management system, ENCOMPASS, makes programming for on-line applications as easy as for batch processing. With ENCOMPASS software, on-line projects become productive much faster and at much lower cost because the Tandem software handles the complex terminal, transaction control and monitoring functions.

From the beginning, Tandem

Processors Installed
(cumulative)

Year	Value
1977	81
1978	257
1979	646
1980	1299
1981	2509
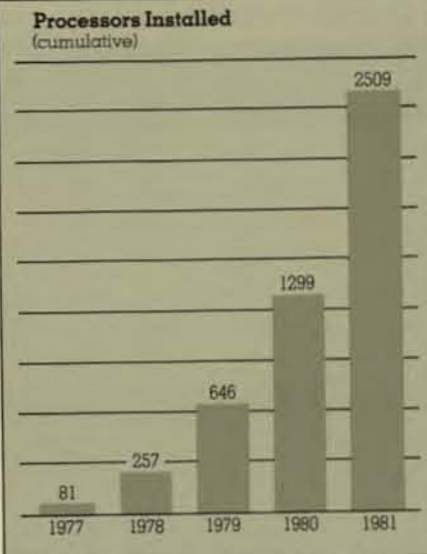
takes the worry, long leadtimes, and excessive costs out of developing on-line transaction processing with practical, integrated hardware/software solutions proven at hundreds of user sites throughout the world.

And Tandem's dedication to on-line transaction processing carries through with commitments to remain at the forefront. The company focuses all of its experience, and product development resources, on continual efforts to increase the users' on-line data processing productivity.

During 1981, Tandem introduced and began delivering the new NonStop II system with even greater capabilities and capacities. The NonStop II system, compatible with the original system, improves price/performance for users implementing very large on-line transaction processing applications, incorporates state-of-the-art fault-isolation techniques to speed servicing, and can significantly out-perform other computers in an on-line transaction processing environment.

Even more importantly, the NonStop II system is engineered to accommodate significant system enhancements over the next several years as Tandem aggressively addresses the growing needs of the on-line transaction processing marketplace.

Established in 1853, Samuel Montagu & Co. Limited is a major merchant bank in the city of London. It is a member of the Accepting Houses Committee, which is the trade association of the leading merchant banks in London, as well as one of five members of the London Gold Market which meets twice daily to determine the price of gold.

Samuel Montagu operates in the United Kingdom through five divisions—banking, corporate finance, dealing, international capital markets, and investment.

The major part of its business is made up of fewer, more complex and relatively higher value transactions than clearing banks in the U.K. or state banks in the U.S., with the largest number of daily transactions originating from the dealing division.

It was, therefore, understandable that in 1980 Samuel Montagu decided to turn to Tandem's NonStop system, with its emphasis on reliability and data integrity, for its future computers development, and away from its old, batch processing computer system.

When fully developed, the new Tandem-based system will enable the dealing division to have up-to-date information on-line and instantly available.

"We must have our transaction data entered rapidly, and deliver the results quickly to those who need them."

Essential, also, is a highly flexible system that can be programmed and expanded easily to respond to changes in the dynamic markets in which Samuel Montagu operates.

"With Tandem, we know we can add on additional processors as our computer developments proceed and our business grows."

With interest rates on $1 billion exceeding $400,000 daily, any business involved with massive transfers of funds—such as Crocker Bank, which daily transfers many billions of dollars internationally—puts an extremely high priority on speed, accuracy and reliability of the transfer mechanisms. Crocker's international division, headquartered in San Francisco, is a leading provider of money transfer and cash management services to foreign banks and large corporations.

Before 1979, Crocker had complex, separate automated functions spread throughout its international operations. There were many redundant functions that were costly to operate and, more importantly, delayed the movement of funds.

"In the international arena, you live and die on your communications capabilities. Because of international time differences, they must run constantly, 24 hours a day."

In mid-1979, Crocker inaugurated its high-speed, fully-integrated International Data Automation (IDA) network using Tandem computers and Tandem's EXPAND networking software to improve speed, accuracy, reliability and cost of international funds transfers.

By the end of 1981, Crocker offices in San Francisco, Los Angeles, New York, Chicago and London were tied together by the on-line IDA network, with the New York-Los Angeles link backed-up by satellite. Crocker will have a total of five Tandem systems with 23 processors to support the IDA network and for developing future links and applications. During 1982, Hong Kong, Tokyo, Manila and Seoul are scheduled to be added to the network.

The network also provides for connections with all of the major record carriers, as well as Fedwire, CHIPS, and SWIFT.

A quarter of a century ago, at the University of Alberta Hospitals (UAH) in Canada's northern most major city of Edmonton, that country's first open heart surgery was successfully performed. Since then, UAH has done over 5,000 of the delicate operations, and today the 1400-bed hospital, through its many achievements, has earned an international reputation for quality health care and medical research.

As short a time as ten years ago, this premature child at UAH's Neo Natal Intensive Care Unit, weighing barely two pounds at birth, probably would not have survived. Today, he has a 50% better chance.

The hospital's approach to computerization embraces the same high standards. Complete patient care records—from admission through discharge, and including such activities as drug administration and radiology—are maintained on UAH's 4-processor Tandem system (which has doubled in size since installed in mid-1979 as the first customer of Tandem Canada Limited.)

Additional capabilities automate the management of materials and equipment maintenance, and provide instant patient movement data to the laboratory and administrative/financial systems.

UAH has been awarded a $300 million grant by the provincial government for medical research, and will complete the first phase of the new Walter C. McKenzie Health Service Center in early 1982. With the opening of the center, each nursing station will have a Tandem terminal. In the second phase, terminals will increase from 90 to 150.
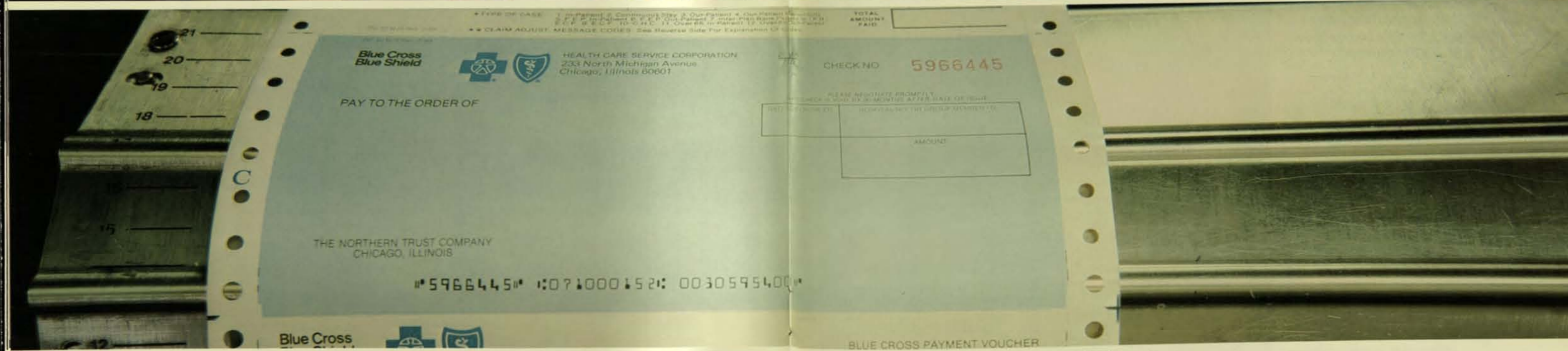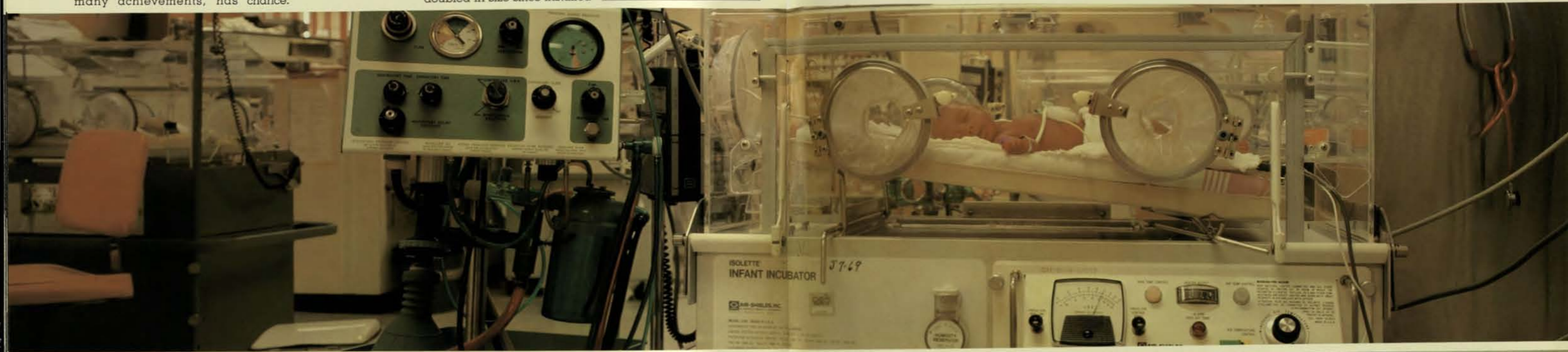
To improve customer service by speeding-up the processing of claims, and to gain a cost-competitive advantage by reducing administrative and communications costs, the Blue Cross and Blue Shield Associations implemented in 1980 a massive data communications network called PLAN-NET.

The network links together 96 regional sites throughout the U.S. to facilitate faster and more accurate flow of information used to verify Blue Cross and Blue Shield subscribers' eligibility and coverage.

In addition, the network, (driven by eight geographically dispersed Tandem systems with a current complement of 21 processors) administers the heavy reimbursement workload between Plans caused by subscribers of one Plan filing claims within another state or region. PLAN-NET also acts as an intermediary in collecting and processing claims information from throughout the U.S. for the federal government's Medicare program.

While PLAN-NET is already moving data at some 16 times the rate of the replaced system, the two Associations view the network as a foundation for the future.

"PLAN-NET was designed to be adapted quickly to future system needs of Plans, even those needs which aren't practical yet or even apparent today."

Custom applications software for PLAN-NET was developed by International Micor Systems, Inc., of Phoenix, a wholly-owned subsidiary of Ramada Inns.

Tandem's distributed data base and network software are the wave of the future

"Tandem's advanced networking software EXPAND, combined with ENCOMPASS -- an excellent relational data base management system—provide an important competitive edge." *E.F. Hutton*

Along with the fundamental shift from batch to on-line transaction processing, large organizations are searching for efficient ways to distribute and exchange vital business information among their far-flung operations.

In fact, *on-line distributed data processing* is a primary focus of most large-organization data processing departments. It is also the area of highest growth in the commercial computer industry.

The basic idea is to decentralize data processing to improve efficiencies and vastly reduce costs. Instead of concentrating all data processing under a single roof with large, batch computers—which is the way computing began—smaller, on-line systems are now being distributed throughout an organization's many locations.

Each location manages its own essential business data, thereby dramatically reducing response time, central computer overhead burden, and the cost of telecommunications (a major data processing expense).

But any given company location also needs, from time-to-time, information from other locations. A European marketing office of a New York-headquartered company with manufacturing operations worldwide may, for instance, need to know immediately if product is available to fill a large order.

With on-line distributed data processing, then, comes a need for *on-line computer networks*—the linking together of geographically dispersed on-line computers to enable the instantaneous sharing of constantly updated information essential to the efficient, competitive conduct of business.

The need is not new, but has been constrained by two key factors.

First, businesses have been reluctant to expose themselves to regional, national or worldwide computer failures that bring businesses to a halt.

The most dependable conventional computers boast of availability in the high 90% range. For batch processing, the implied periodic failure is an inconvenience. For on-line networks, it is a catastrophy.

A conventional computer with a respectable 98.8% availability history that runs 24 hours a day will, statistically, fail once every month for a full eight-hour shift.

Whereas a batch processing operation can, perhaps, make up the lost time, a business conducted by on-line transaction processing depends on constant computer availability.

Imagine, now, a company-wide network of the same conventional computers at, say, 10 locations: Statistically, *a portion of the network will be inoperative, and normal business operations will be interrupted, for eight hours every third day!*

That stark reality has seriously constrained the growth of computer networking; the risks, obviously, have outweighed the benefits.

Tandem has changed all of that.

The reliability inherent in the NonStop architecture is extended across networks of Tandem systems, as are Tandem's data integrity and modularity features.

Over a third of Tandem's large base of customers are already planning or conducting business routinely on reliable Tandem distributed data processing networks.

The second major constraining factor to users developing extensive networks has been the unavailability of easy-to-use, effective networking software.

Before Tandem, developing software for a large computer network was an extremely complicated, expensive and time-consuming task requiring highly-skilled user programmers. With Tandem's remarkable EXPAND software, the user's batch-trained programmers can write an on-line, distributed, NonStop application completely in COBOL with unprecedented ease, speed and economy.

Consequently, users' programmers are free to concentrate on solving the business application problem, because Tandem has

Number of Customers
(cumulative)

Year	Value
1977	30
1978	73
1979	160
1980	290
1981	460
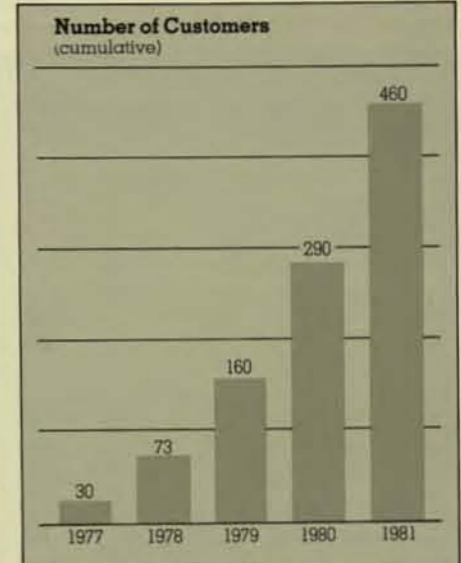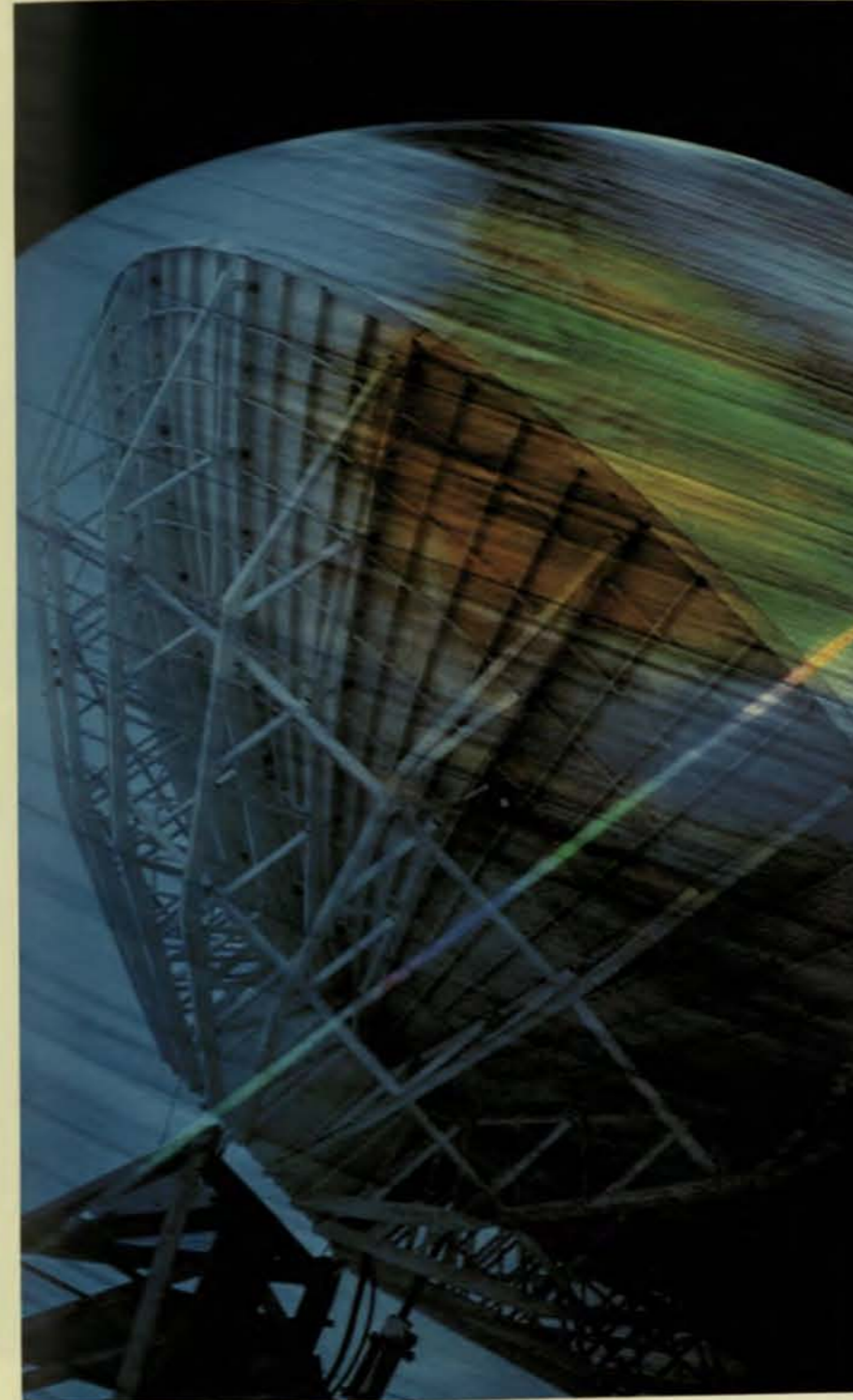
solved the complex networking problem.

When the Tandem network comes on-line, it also manages data in a unique manner. Unlike other approaches that distribute data bases, but keep them independent, Tandem's EXPAND networks update data with consistency across multiple systems regardless of a communications line failure or power outage.

Tandem's superior distributed data processing and networking capabilities cannot be duplicated in other systems because the capabilities are integral to the architecture of NonStop systems—as opposed to the conventional, less efficient technique of grafting software onto software.

The full impact of Tandem's long technological lead in this area is yet to come. Tandem's advanced capabilities provide its users, as well as Tandem itself, with a strong foundation to exploit the opportunities that lie around the corner with the convergence of data processing and communications. Therein lies the next wave of the future, and Tandem and its users are in the best possible position to enjoy its benefits.

America's first two-way, interactive cable television service went on the air in late 1981 in a pilot program in San Diego, offering the first of a series of revolutionary in-home services.

Developed and introduced by Cox Cable Communications, INDAX™ transforms ordinary television sets into computer terminals. It will enable subscribers of the Cox Cable San Diego cable system—the nation's largest cable TV system—to bank and shop at home.

INDAX users gain access to Cox Cable's Tandem systems by means of a small, hand-held keypad. With a secret code, a family can look at their current bank balance, pay bills and see the balance immediately updated, and make funds transfers. The INDAX user can also do catalog shopping—even see complete product demonstrations—and order and pay for merchandise at their TV set.

In the near future, INDAX will be offered to subscribers in Cox Cable's new cable franchises in Omaha, Vancouver, New Orleans and Tucson, as well as in two of its existing cable systems in Santa Barbara and Macon. As the service grows, additional programs will be offered—such as airline and hotel reservations, entertainment tickets, home security, and educational programs that turn subscriber's homes into classrooms for one-on-one instruction.

After development work on a 3-processor Tandem system in Cox Cable's Atlanta-based Science Center, Cox Cable initiated INDAX in San Diego and Omaha with 2-processor systems, and will add processors at all INDAX locations as the service grows. Cox Cable, the fourth largest cable provider in the U.S. with 62 cable systems serving more than one million subscribers, projects a need for one 16-processor NonStop II system for each 15,000-20,000 INDAX subscribers.

The company believes its innovative, two-way interactive INDAX communications service gives it a strong edge in competing for new franchises.

There are currently some 19.3 million cable users in the U.S., or 25% of the total TV market. The market is projected to grow to 45 million, or 50% of the total, by 1990.

INDAX services across the U.S. will be tied together in an EXPAND network.

Imagine you are a Canadian businessperson who has been travelling much of the week. Mail and memos have stacked up on your desk along with telephone calls and notes.

You were unable to call the office today, and, at the end of the busy day, it's too late to reach the office—especially if you're on the opposite side of the continent and the office closed three hours ago.

Too bad, because some urgent matters needed your immediate attention. The delay could be costly.

If, however, you are in (or out of) the "office of the future" with Envoy 100, the new, national electronic mail service of the Computer Communications Group (CCG) of the TransCanada Telephone System, you can be in constant touch with your office, at your convenience, regardless of where you are or the time of the day.

Using any of a variety of compact, portable terminals, you merely dial-up your personal Envoy 100 access code to reach your "mailbox." You can scan all messages, read those that are urgent and immediately respond, and file the remainder for later action or recall.

Once back at the office, Envoy 100 works the same way. Letters are instantaneous rather than days in the mail. Memos are simultaneously and instantly distributed to selected persons. And Envoy 100 services cost surprisingly little: a 60-word "letter" anywhere in Canada costs 35 cents because it is digitized and packet-switched over Datapac, a network service of CCG and the TransCanada Telephone System.

Envoy 100 was introduced nationally in mid-1981, supported by an initial four-processor Tandem NonStop II system. It is the first in a family of Canadian communications services for the "office of the future." A similar U.S. national service, called Telemail and operated by GTE Telenet, is also driven by Tandem computers.

Technology applied to end-user needs sharpens Tandem's leading edge

"Tandem Computers has achieved impressive business growth with an outstanding set of well differentiated products. We expect the company to be a major participant in the convergence of communications and data processing in the mid-1980s." *E.F. Hutton*

The future looks bright for Tandem and its marketplace.

No other company has invested the time, energy and resources to meet the onrush of demand for systems capable of efficiently and reliably driving an array of users' innovative on-line applications.

Nor is any other company better prepared, or better positioned, to emerge as a major force in the changing marketplace during this decade.

With a unique, multi-faceted concept that embodies all that the marketplace needs today as well as anticipating its needs for tomorrow, Tandem has filled a long-standing requirement for practical, proven systems for on-line transaction processing, distributed data processing and on-line networks that are without peer.

No other company has the critical mass of Tandem to effectively serve the new evolution:

☐ An advanced concept expressed in total integration of unique, problem-solving hardware with advanced, highly-productive software that has been proven by hundreds of users in billions of on-line transactions.

☐ More years of dedicated experience in on-line transaction processing than any other company.

☐ A widespread base of satisfied, loyal customers—each with rapidly expanding applications—that span virtually all industries.

☐ Strong financial and talent resources to support customers' current applications, and to continue to provide leading-edge solutions for the future.

☐ The ability to enable organizations quickly and relatively inexpensively to build large, on-line networks of up to 255 16-processor NonStop systems with thousands of terminals.

☐ The new NonStop II system that is already proven in demanding environments, and is specifically engineered to accommodate readily future technological advancements.

☐ A unique, inherent advantage in the modular product concept that enables the company to concentrate all of its product development resources toward a common goal, a leveraging ability not shared by others who must dilute efforts over a range of independent, non-modular models with incompatible goals.

☐ An active awareness of the evolving role of the integration of data processing and communications with technologies addressing information management of the future.

E.F. Hutton, in a research report published for institutional investors a half a month prior to the close of Tandem's fiscal year-end in September, 1981, put it this way:

"The information processing arena is currently undergoing dramatic changes. The once separate spheres of data processing, office products and communications are merging rapidly. Emphasis is shifting from individual hardware products to overall systems and the many subtle factors involved in their installation and implementation. This changing emphasis is expected to dramatically reshape the data processing marketplace, bringing to the fore companies that can respond to the evolving opportunities. Tandem Computers is well positioned with outstanding products and an effective communication networking strategy. We expect Tandem to participate strongly in this rapid evolution."
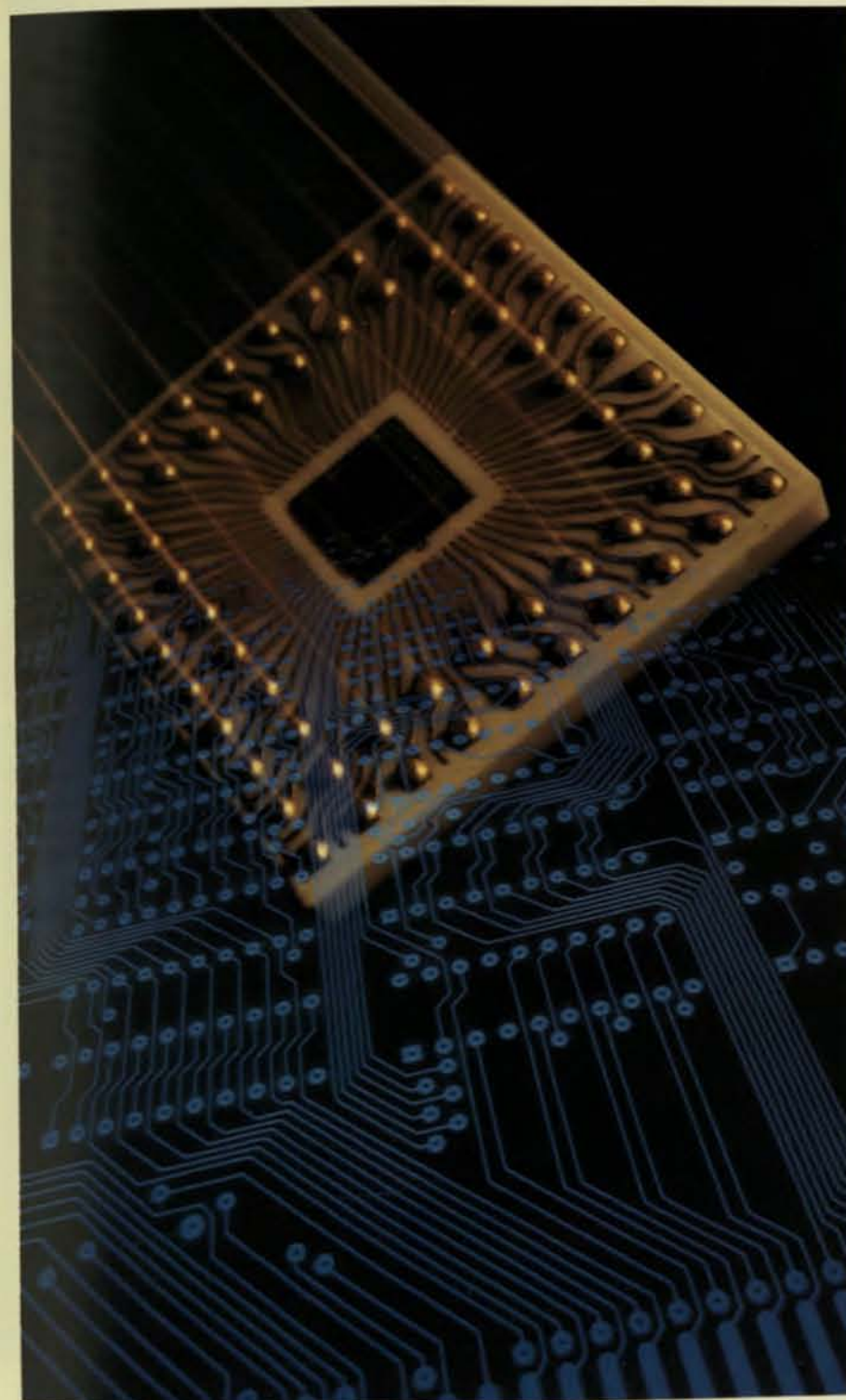

Product Development Expenditures
(millions)

1977	1978	1979	1980	1981
$1.1	$2.2	$4.7	$8.8	$17.8

Although tegut Handelszentrale, one of Germany's large food distributors, now regards itself as the most advanced user of automatic data processing in that country's grocery business, just two years ago the company viewed its massive warehouse operation as typically "chaotisch."

With over 36,000 different inventory items located along 65 aisles, tegut management was spending a lot of time, money and paperwork to control the inventory for the 100 stores in its Ha We Ge and OKAY Kauf chains.

In late 1978, tegut installed its first, 2-processor Tandem system to convert the company's operations from batch computing to on-line transaction processing. By mid-1981, tegut's Tandem system had grown, along with the company, to eight processors. And a series of dramatic changes occured.

Fifteen new stores were opened during the period with no increase in warehouse staff.

Warehouse orders are being filled much faster. Whereas it used to take over a half hour from receipt of order to pick the goods in the warehouse, the average order is now processed in two and a half minutes.

Positive control has been gained over stock rotation. Using small, portable infra-red terminals tied into the Tandem system, warehousemen are directed to the first-in stock for all items to be picked—and the inventory is instantly, automatically adjusted.

And many other warehouse administrative tasks that used to take a day to complete are now done in an hour.

As a result, customers of Ha We Ge and OKAY Kauf stores are always receiving fresh merchandise, and, because tegut is able to handle much greater volumes with significantly lower manpower costs, its customers benefit from lower prices.

Meanwhile, tegut has increased its confidence in its ability to grow rapidly as a result of the better control and its competitive advantages.

The company plans to improve further its competitiveness with the installation of point-of-sale terminals at its stores that will create suggested replenishment orders, enabling managers automatically to place store orders directly to the warehouse Tandem system.

The May Department Stores Company began implementing a far-sighted program in 1978 that will link together the major retailer's 138 department stores, 45 discount outlets and 20 principal warehouses across the U.S. in a totally interactive network. Other May operating companies, such as the 1100-store Volume Shoe Corp., may also be tied into the network.

The foundation for the growing, nationwide network has been established using Tandem's EXPAND software to tie together St. Louis, Los Angeles, Cleveland and Washington, D.C., with the Los Angeles-Washington telecommunications land lines backed- up with a satellite link.

The objective of the project, which began with a single, 2-processor Tandem system that had grown to six systems with 19 processors by the end of fiscal 1981, is to put powerful tools in the hands of store personnel to increase efficiency, accuracy, and customer service.

At the same time, the distributing of data over the on-line network eventually will enable the shifting of more personnel resources to selling floors from back-office, batch processing functions.

A myriad of new functions to improve management control are being introduced. At the May Company in California, one of the 13 store companies of the parent firm headquartered in St. Louis, buyers are now using interactive terminals to simplify the involved task of merchandise planning while assuring customers of well-stocked stores, at the same time satisfying the complex criteria of timing, values and gross margin planning.

On the merchandise receiving end, a new purchase order management system now in the trial stages will automate the labor-intensive checking and marking of incoming goods.

Another new program undergoing tests will provide instant sales audit through cash register balancing. From some 200 registers in the pilot program, it will grow to include many thousands.

And, at corporate headquarters, on-line management terminals now provide the capability to generate constantly up-dated analysis of comparative store performance.

Confidence in the future comes from a clear sense of direction

Tandem's employees, aided by the basic product concept, are over twice as productive as the industry median. Tandem also has one of the industry's lowest employee turnover rates, and all of the original design team (including Mike Green, at left on opposite page, now a senior vice president) are still with the company.

"...most reassuring of all is that Tandem is developing corporate muscle tone now, in the heady growth days, that should serve it well..." *Forbes*

A great deal has been written in national publications about Tandem's management philosophy and the resulting employee productivity.

The philosophy is not complex.

In essence, Tandem believes that its success emanates from a clear sense of direction throughout the company, and from a sharing of responsibilities and rewards with all employees.

Tandem is an exciting place to work, and a good place to work. Because the company is on the leading edge, the environment is stimulating and challenging. Because the company is growing rapidly, advancement opportunities abound for capable people who can take the initiative in accepting responsibility.

Individual performance is nurtured by an open door policy, and by the company's belief that self-management and peer pressure, in a high-technology environment, is more productive than a strict structure.

The Tandem philosophy encourages teamwork by sharing corporate objectives with all employees. Through various communications techniques, from one-to-one sessions at weekly informal gatherings to the company's quarterly journal, *Center*, Tandem strives to give employees opportunities to see where they fit in the overall scheme of the business. The company's objective is to impress upon everyone that each area of the company and each individual contributes to Tandem's success.

Interrelationships between the varied functions of the company are explained to employees to foster a clear understanding of Tandem's goals. The intent is to aid Tandem's employees in making correct judgements in their own areas of expertise, for it is they who are responsible for making the company's strategic plan work.

The company's attitudes and practices not only make Tandem a good place to work, but serve the company well.

In a survey late in fiscal 1981, 83% of employees said they believe advancement opportunities at Tandem are greater than at any other place they have worked. Tandem believes that promotions from within will perpetuate consistency and produce the management quality essential to the company's continued, prosperous growth.

Tandem's philosophy and environment also enable the company to keep its good people. In an industry that, nationwide, experiences a 26% annual turnover of employees (almost 29% in California's Silicon Valley where Tandem is headquartered), only 6.7% left Tandem during fiscal 1981. Some of those 6.7%, of course, are asked to leave; 98% of Tandem employees, according to the survey, believe Tandem is the best place they've ever worked.

And Tandem employees are more productive. While the electronic industry's median revenues per employee is under $50,000, Tandem employees during fiscal 1981 averaged over $100,000.

Because all employees, through their individual good work, have contributed to the company's success, Tandem believes that they should share in the rewards.

Virtually all employees, regardless of position, are stockholders or optionholders. In fact, employees represent one of the largest blocks of company ownership.

Exceptional employees are recognized and rewarded through the company's TOPs (Tandem Outstanding Performers) program.

After four years, every Tandem employee in the U.S. and Canada earns a six-week, fully-paid sabbatical that can be taken in addition to the earned three weeks vacation. (Outside North America, Tandem employees take the customary longer vacations annually.)

A great deal of the company's confidence in the future comes from the belief that everyone at Tandem understands where the company is headed, and has the drive and ability to get it there.

Employee Productivity
(sales per employee; thousands)

1977	1978	1979	1980	1981
$74.0	$83.4	$87.9	$98.4	$101.2

TANDEM

Blue Cross
Blue Shield

HEALTH CARE SERVICE CORPORATION
233 North Michigan Avenue
Chicago, Illinois 60601

$\frac{2-15}{710}$

CHECK NO. 5966445

PAY TO THE ORDER OF

PLEASE NEGOTIATE PROMPTLY
THIS CHECK IS VOID SIX (6) MONTHS AFTER DATE OF ISSUE

DATE CHECK ISSUED	HOSPITAL NO. OR GROUP MEMBER NO.
	AMOUNT

FINANCIAL REVIEW

TANDEM

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

For the fiscal year ended September 30, 1981   Commission file number 0-9134

TANDEM COMPUTERS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**94-2266618**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
19333 Vallco Parkway	
Cupertino, California	**95014-2599**
(Address of principal executive offices)	(Zip Code)

(408) 725-6000
(Registrant's telephone number including area code)

Securities registered pursuant to Section 12(b) of the Act:

None

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, $.025 par value

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.   Yes √   No.   .

The aggregate market value of voting stock held by nonaffiliates of the registrant as of December 1, 1981: $929,365,098.

The number of shares of Common Stock outstanding as of December 1, 1981: 36,695,072.

Documents Incorporated by Reference

(1) Portions of the 1981 Annual Report are incorporated by reference in Parts I, II and IV.

(2) Portions of the definitive Proxy Statement dated December 16, 1981 for the 1982 Annual Meeting of Stockholders are incorporated by reference in Parts I and III.

PART I

ITEM 1: Business.

Tandem Computers Incorporated ("Tandem" or the "Company") designs, develops, manufactures, markets, and supports multiple processor computer systems, designated *NonStop* systems, that have been designed to minimize the risk of system failure. The Company offers a range of system configurations including from two to 16 processors, together with controllers, peripherals, operating system software, and programming languages. Among its software products, Tandem offers a network operating system, *Expand*, that allows up to 255 geographically dispersed Tandem systems to be interconnected in an on-line distributed data processing network. The systems, whether operating in a stand-alone environment or in a distributed data processing network, are designed to minimize cost per transaction and are intended primarily for use by organizations that depend on the continuous availability of their computer systems, such as businesses with heavy volume on-line transaction processing or message handling requirements. In addition, Tandem systems are designed to protect the information stored or in process from damage due to a module failure, and to provide for flexible modular expansion without reprogramming.

Products: Tandem systems include the NonStop system, for mid-size applications, and the *NonStop II* system, which was introduced in April 1981 to meet the needs of users with larger applications. Tandem systems are software compatible: Customers can upgrade from the NonStop system to the NonStop II system without reprogramming, and they can link both together in a network. In addition, these systems are supported by a variety of systems software designed to make it significantly less costly and time consuming for users to program their on-line transaction processing applications on Tandem computers. Such software includes:

Guardian operating system, which also includes:
  Xray system performance monitor
  Spooler storage utility
  Enscribe data base record manager
Encompass data base management system, which consists of:
  Data Definition Language and data dictionary
  Enable program generator
  Enform query/report writing language
  Pathway transaction processing system
  Transaction Monitoring Facility
Expand networking software
Axcess on-line terminal communications interface
COBOL 74, FORTRAN 78, and MUMPS languages
TAL system language.

The Company also designs communications products that allow data transfer with other manufacturers' computers, including:

Exchange remote job entry emulator
Tandem to IBM Link
Tandem Hyper Link
TR3271 IBM terminal emulator software.

Tandem also offers training classes on a fee basis in the use of its systems and software products. During fiscal 1981, customers attended over 6300 weeks of software education courses. Classes are held at 22 training centers throughout the world, seven new centers having been added in fiscal 1981.

Tandem, NonStop, NonStop II, Axcess, Enable, Encompass, Enform, Enscribe, Exchange, Expand, Guardian, Pathway, and Xray are trademarks and service marks of Tandem Computers Incorporated. Federal, state and foreign applications for registration have been granted or are pending with respect to certain of these trademarks and service marks.

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Tandem generally provides warranties on its systems of 90 days to end users and 30 days to original equipment manufacturers. Warranty liabilities have been nominal to date. In addition, the Company offers post-warranty maintenance service under contract. A substantial proportion of customers have maintenance contracts in effect with the Company.

Customers and Applications: Tandem systems are sold to a wide variety of customers. Typical applications include electronic funds transfer, inventory control, manufacturing control, travel reservations, bank credit verification, and message switching. Sales have been made to approximately 25 different industries, including manufacturing, banking and other financial services, wholesale and retail distribution, health care, computer services, transportation, printing and publishing, legal services, and utilities. Systems have also been installed with government agencies in Australia, Mexico, the Netherlands, the United Kingdom, the United States, Venezuela, and West Germany.

In the fiscal year ended September 30, 1981, Tandem shipped systems and add-on processors for a total of 1210 processors to 310 customers. These systems sold at prices ranging from $132,000 for a two-processor system, to more than $2,500,000 for a 16-processor system.

Since the Company's inception, and during fiscal 1981, a majority of its sales have been to end users who either develop their own applications software or subcontract its development. The remaining sales have been to software and systems development companies (who are under contract to end user customers to develop applications software) and original equipment manufacturers (who on their own initiative add peripherals or software for resale for standard applications). No single customer accounted for more than 3% of sales in fiscal 1981.

For fiscal year 1981, revenues from foreign subsidiaries, foreign distributors, and United States exports were $71,402,000, representing 34.3% of total sales. See the information contained in Note 6 of Notes to Consolidated Financial Statements on page F12 of the Company's 1981 Annual Report, which information is incorporated by reference.

Marketing: Tandem markets its computer systems primarily through its own sales organization, comprised of marketing, training, field service, and software support personnel. The marketing organization is divided into four divisions with a total of 77 sales and service offices throughout the world. In addition to sales subsidiaries in Canada, Denmark, England, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Singapore, Sweden, and Switzerland, the Company has distributors in Australia, Finland, Greece (also serving the Middle East), Korea, Mexico, the Philippines, Taiwan, and Venezuela. In the foreseeable future, the Company intends to continue to expand its direct marketing operations in the United States and abroad, and to increase selectively international distributor representation.

In keeping with the Company's end user orientation, the Company tries to minimize the time that elapses from receipt of purchase orders to the date of shipment of systems. Typically, the Company ships its systems to customers within 90 days after receipt of orders. For this reason, and because of the possibility that customers will change delivery schedules or cancel orders, the backlog as of any particular date may not be representative of the Company's actual sales for any succeeding fiscal period.

The Company has not generally financed, rented, or leased any of its systems, nor is such a program contemplated. Customers are free to obtain third party financing on their own.

Competition: Important considerations for potential purchasers of computer systems include systems performance, software capability, systems reliability and maintainability, capability of a manufacturer to develop new products and enhance existing products, and price, including the relationship of price to one or more of these other factors. The market for computer systems is highly competitive. Many companies have established reputations in the computer industry and have far greater financial, technical, and operating resources than Tandem. Present competitors are companies that offer redundant computer systems, including Burroughs Corporation, Data General Corporation, Digital Equipment Corporation, Hewlett-Packard Company, Honeywell Information Systems, Inc., and IBM Corporation. Management

believes that sales of dual processor systems constitute only a small proportion of such competitors' total computer sales, and that none of these companies presently offers a system with the same capabilities as NonStop systems. However, management also believes that these or other data processing companies could develop and market systems similar to or competitive with NonStop systems, and that one or more companies is likely to enter the market in the future.

The computer industry is also characterized by rapid technological advances. The Company could be adversely affected if its competitors introduced technological advances. Accordingly, Tandem expects to continue to incur substantial engineering and software development expenses. Tandem is committed to the development of new hardware and software products as well as the improvement and refinement of existing products. During fiscal years 1979, 1980, and 1981, the Company's product development expenses were $4,654,000, $8,786,000, and $17,833,000, respectively. See the information under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations" on pages F4 and F5 of the Company's 1981 Annual Report, which information is incorporated by reference.

Manufacturing: Manufacture of NonStop systems requires assembly and test of circuit boards, power supplies, and memory systems; and the final assembly and testing of completed computer systems. In general, the Company manufactures its systems from components and prefabricated parts such as integrated circuits, printed circuit boards, and metal parts fabricated by others. Tandem also purchases major assemblies such as disc drives, tape drives, and other peripheral equipment. Certain of the items manufactured by others, such as printed circuit boards and mechanical parts, are made to the Company's specifications.

Approximately 40% of the production labor for the assembly of printed circuit boards, power supplies, and cables incorporated into the Company's processors, main memories, and controllers takes place at the Company's manufacturing facilities. The remaining 60% of the production labor for these items is provided by subcontractors. All purchasing, inspection functions, functional testing, final assembly, and systems integration and testing are performed within the Company's manufacturing facilities.

The Company purchases substantially all of the components and all the peripheral devices for its systems from other manufacturers. Most of the components and peripherals used in the Company's systems are available from a number of different suppliers. Virtually all components are purchased from multiple sources and are standard, commercially available parts. Major items such as peripherals are generally purchased from single sources of supply. The Company believes that alternative sources could be developed if necessary. Although the Company has not experienced any significant problem in obtaining required supplies, future shortages of components or peripherals could result in production delays that would adversely affect its business.

Patents: Tandem has been awarded a patent on its system architecture claims by the United States Patent Office and by the Patent Office of Great Britain. Patent applications are pending with the United States Patent Office concerning numerous claims regarding other aspects of Tandem's products. Foreign patent applications are also in process in a limited number of countries. There can be no assurance that any of these applications will result in the award of a patent or that the Company would be successful in defending its right to the patent should there be subsequent patent infringement actions.

Because of the rapid technological development in the computer industry with concurrent extensive patent coverage, and the rapid rate of issuance of new patents, certain components of the Company's products may involve infringement of existing patents. If any such infringements do exist, the Company believes that, based upon industry practice, any necessary licenses or rights under patent may be obtained on conditions that would not have a materially adverse financial effect on the Company.

Employees: As of September 30, 1981, the Company employed 2730 people.

ITEM 2: Properties.

The Company is headquartered in Cupertino, California where it leases a three-building complex totaling approximately 300,000 square feet. Two-thirds of the space is devoted to manufacturing and product development functions, while the remaining one-third houses marketing operations and administration. The Company expects to occupy a fourth, adjacent building during fiscal 1982, which will provide an additional 140,000 square feet.

Tandem also leases other facilities devoted to manufacturing, product development, marketing, and administration: one in McLean, Virginia, one in Neufahrn, West Germany (a suburb of Munich) and six in California for a total of 450,000 square feet. The Company intends to open facilities in Reston, Virginia and Austin, Texas during the next fiscal year.

Marketing, field service, and training offices are leased at 77 locations in North America, Europe, and Asia.

For information with respect to Tandem's lease and other commitments, see the information contained in Note 3 of Notes to Consolidated Financial Statements on page F11 of the Company's 1981 Annual Report, which information is incorporated by reference.

ITEM 3: Legal Proceedings.

The Company is not involved in any material legal proceedings.

ITEM 4: Security Ownership of Certain Beneficial Owners and Management.

Reference is made to the information appearing under the captions "Stock Ownership of Management" and "Principal Stockholder" on pages 3 and 6, respectively, of the Company's definitive Proxy Statement dated December 16, 1981 for its 1982 Annual Meeting of Stockholders for information regarding security ownership of certain beneficial owners and management, which information is incorporated by reference.

Executive Officers of the Registrant.

Name		Position or Office and Principal Occupation
James G. Treybig	(age 41)	President and Chief Executive Officer since 1974. Mr. Treybig is the principal founder of the Company and has been its president since its formation. From 1968 through 1973 Mr. Treybig served as a marketing manager of the computer and peripheral equipment divisions of Hewlett-Packard Company. Mr. Treybig has been a director of the Company since 1974.
Robert C. Marshall	(age 50)	Senior Vice President since 1980. Vice President and Chief Operating Officer since 1979. Mr. Marshall joined the Company in 1975 and was Vice President—Manufacturing from that time until 1979. From 1974 until his employment by Tandem he served as a vice president of advanced operations of the Diablo Division of Xerox Corporation. From 1969 to 1973 Mr. Marshall was vice president of manufacturing of Diablo Systems, Inc. (which in 1972 was acquired by Xerox Corporation). Mr. Marshall has been a director of the Company since 1980.

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Name		Position or Office and Principal Occupation

Michael D. Green .... (age 38)   Senior Vice President since 1980. Vice President—Software Development from 1975 to 1980. Mr. Green is one of the founders of the Company. For eight years prior to the formation of Tandem, Mr. Green was employed by Hewlett-Packard Company in various technical and management positions in their computer division software development groups.

Lawrence A. Laurich .... (age 38)   Vice President—Engineering since joining the Company in 1978. From 1967 until his employment by Tandem, he served in various engineering management positions with IBM Corporation in the office products, general products, systems development, and components divisions.

David R. Mackie .... (age 43)   Vice President—Headquarters Marketing since 1979. Mr. Mackie joined the Company as director of product management and support in 1975. Prior to joining Tandem, he was employed by Hewlett-Packard Company in product development and marketing, and spent nine years with the Royal Air Force developing fail-safe computer systems.

Henry V. Morgan .... (age 42)   Secretary since 1980 and Vice President and Controller since 1979 when he joined the Company. From 1967 until that time, he was employed by Hewlett-Packard Company in various management positions in accounting and financial control, including controller of European operations.

Charles W. Ryle .... (age 48)   Vice President since 1981 and General Manager of the Western/International Division since 1979. Mr. Ryle joined Tandem in 1976 as manager of the Western Region. Prior to joining Tandem, he was with Diablo Systems, Inc. as head of European operations and as director of marketing.

Jeanne D. Wohlers................................. (age 36)   Vice President and Assistant Secretary since 1979 and Treasurer since joining the Company in 1978. From 1975 until her employment by Tandem, she served as treasurer of Heizer Corporation. She previously held various positions including investment officer with The Northern Trust Company.

There are no family relationships among the executive officers.

PART II

ITEM 5: Market for the Registrant's Common Stock and Related Security Holder Matters.

(a) As of September 30, 1981, there were approximately 7870 holders of record of common stock of the Company.

(b) Reference is made to the information regarding market price range and dividend information appearing under the caption "Tandem Stock Price" on page F12 of the Company's 1981 Annual Report, which information is incorporated by reference.

ITEM 6: Selected Financial Data.

Reference is made to the information regarding selected financial data for the fiscal years 1977 through 1981 under the caption "Selected Financial Data" appearing on page F3 of the Company's 1981 Annual Report, which information is incorporated by reference.

ITEM 7: Management's Discussion and Analysis of Financial Condition and Results of Operations.

Reference is made to the information appearing under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing on pages F4 and F5 of the Company's 1981 Annual Report, which information is incorporated by reference.

ITEM 8: Financial Statements and Supplementary Data.

Reference is made to the Consolidated Statement of Income, Consolidated Balance Sheet, Consolidated Statement of Stockholders' Investment, Consolidated Statement of Changes in Financial Position, Notes to Consolidated Financial Statements, and Auditors' Report on pages F6 through F12 of the Company's 1981 Annual Report, which information is incorporated by reference.

PART III

ITEM 9: Directors and Executive Officers of the Registrant.

Reference is made to the information regarding Directors appearing under the caption "Election of Directors" on pages 1 and 2 of the Company's definitive Proxy Statement dated December 16, 1981 for its 1982 Annual Meeting of Stockholders, which information is incorporated by reference.

Reference is made to the information appearing under the caption "Executive Officers of the Registrant" in Part I of this report, which information is incorporated by reference.

ITEM 10: Management Remuneration and Transactions.

Reference is made to the information appearing under the captions "Remuneration" and "Certain Transactions" on pages 4 and 5, respectively, of the Company's definitive Proxy Statement dated December 16, 1981 for its 1982 Annual Meeting of Stockholders, which information is incorporated by reference.

PART IV

ITEM 11: Exhibits, Financial Statement Schedules, and Reports on Form 8-K.

(a) Documents filed as a part of the report:

1. All financial statements.

Index to Financial Statements	Page in 1981 Annual Report
*Selected Financial Data for the Five Years Ended September 30, 1981.........	F3
*Consolidated Statement of Income for the Three Years Ended September 30, 1981..	F6
*Consolidated Balance Sheet as of September 30, 1981 and 1980....................	F7
*Consolidated Statement of Stockholders' Investment for the Three Years Ended September 30, 1981...	F8
*Consolidated Statement of Changes in Financial Position for the Three Years Ended September 30, 1981	F9
*Notes to Consolidated Financial Statements..	F10
*Auditors' Report	F12

Separate financial statements of the registrant are omitted since the registrant is primarily an operating company and all subsidiaries included in the consolidated financial statements being filed, in the aggregate, do not have minority equity interests and/or indebtedness to any person other than the registrant or its consolidated subsidiaries in amounts which together exceed five percent of the total assets as shown by the most recent year-end consolidated balance sheet.

2. Financial statement schedules.

Index to Schedules	Page
Schedules for the three years ended September 30, 1981	
VIII—Valuation and Qualifying Accounts..	10
X—Supplementary Income Statement Information..............................	11
Report of Independent Public Accountants on Schedules.............................	12

All other schedules have been omitted because the required information is not present or not present in amounts sufficient to require submission of the schedule or because the information required is included in the consolidated financial statements or notes thereto.

3. Exhibits required by Item 7 of Regulation S-K.

Exhibit Number	Exhibit
3.1**	Certificate of Incorporation of the Company, filed as Exhibit 5.1 to the Company's Quarterly Report on Form 10-Q, dated March 31, 1980.
3.2**	Certificate of Amendment of Certificate of Incorporation, effective June 30, 1980, filed as Exhibit 5.1 to the Company's Quarterly Report on Form 10-Q, dated June 30, 1980.
3.3**	Certificate of Amendment of Certificate of Incorporation, effective June 30, 1981, filed as Exhibit 5.1 to the Company's Quarterly Report on Form 10-Q, dated June 30, 1981.
3.4**	By-laws of the Company, filed as Exhibit 5.2 to the Company's Quarterly Report on Form 10-Q, dated March 31, 1980.

* Incorporated by reference from the Company's 1981 Annual Report, included as Exhibit 13.1 to this report.

** Incorporated by reference.

Exhibit Number	Exhibit

10.1**   Lease Agreement dated September 20, 1978 between Vallco Park, Ltd. and the Company, filed as Exhibit 13.20 to the Company's Registration Statement on Form S-1, Registration No. 2-63019.

10.2**   Option Agreement dated September 20, 1978 between Vallco Park, Ltd. and the Company, filed as Exhibit 13.21 to the Company's Registration Statement on Form S-1, Registration No. 2-63019.

10.3**   Reimbursement Agreement dated October 3, 1978 between Vallco Park, Ltd. and the Company, filed as Exhibit 13.22 to the Company's Registration Statement on Form S-1, Registration No. 2-63019.

10.4**   Amendment dated June 5, 1979 to Lease Agreement dated August 24, 1977 between the Company and Four-Phase Systems, Inc., filed as Exhibit 13.14 to the Company's Registration Statement on Form S-1, Registration No. 2-65964.

10.5**   Form of Non-Qualified Stock Option Plan and Agreement between the Company and Alvin C. Rice, filed as Exhibit 5.4 to the Company's Registration Statement on Form S-1, Registration No. 2-63019.

10.6**   Form of Non-Qualified Stock Option Plan and Agreement between the Company and Robert G. Stone, filed as Exhibit 5.5 to the Company's Registration Statement on Form S-1, Registration No. 2-63019.

10.7**   Commitment letter dated February 27, 1981 from Bank of America National Trust and Savings Association, filed as Exhibit 20 to the Company's Quarterly Report on Form 10-Q, dated March 31, 1981.

10.8**   Commitment letter dated July 29, 1981 from the First National Bank of Chicago, filed as Exhibit 20 to the Company's Quarterly Report on Form 10-Q, dated June 30, 1981.

13.1   1981 Annual Report. (Except for the portions of the 1981 Annual Report expressly incorporated herein by reference, the 1981 Annual Report is furnished for the information of the Securities and Exchange Commission and is not to be deemed "filed.")

22.1   Subsidiaries of the Company.

A.   Definitive Proxy Statement dated December 16, 1981 for the Company's 1982 Annual Meeting of Stockholders.

(b) Reports on Form 8-K during the fourth quarter, 1981: None.

** Incorporated by reference.

CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation by reference of our report dated October 30, 1981 appearing in the 1981 Annual Report to Stockholders of Tandem Computers Incorporated and incorporated by reference in this Form 10-K for the year ended September 30, 1981.

ARTHUR ANDERSEN & CO.

San Jose, California
December 28, 1981.

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

VALUATION AND QUALIFYING ACCOUNTS
For the three years ended September 30, 1981

Column A	Column B	Column C	Column D	Column E
Description	Balance at Beginning of Year	Additions Charged to Costs and Expenses	Deductions	Balance at End of Year
Valuation accounts deducted from assets to which they apply:				
Doubtful Accounts Receivable—				
September 30, 1981	$1,016,000	$ 809,249	$ 825,249	$1,000,000
September 30, 1980	—	$1,016,000	—	$1,016,000
September 30, 1979	—	—	—	—
Inventory Reserves—				
September 30, 1981	$ 227,209	$2,933,105	$1,552,034	$1,608,280
September 30, 1980	—	$ 664,507	$ 437,298	$ 227,209
September 30, 1979	—	$ 98,734	$ 98,734	—

TANDEM COMPUTERS INCORPORATED AND SUBSIDIARIES

SUPPLEMENTARY INCOME STATEMENT INFORMATION
For the three years ended September 30, 1981

Column A	Column B		
	Charged to Costs and Expenses		
Item	1981	1980	1979
Advertising Costs........................	$3,033,000	$1,620,000	$717,000

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS
ON SCHEDULES

To Tandem Computers Incorporated:

In connection with our examinations of the consolidated financial statements included in the 1981 Annual Report to Stockholders of Tandem Computers Incorporated and incorporated by reference in this Form 10-K, we have also examined the schedules listed under Item 11 of this Form 10-K. Our examinations were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The schedules are presented for purposes of complying with the Securities and Exchange Commission's rules and regulations under the Securities and Exchange Act of 1934 and are not otherwise a required part of the basic financial statements. The schedules have been subjected to the auditing procedures applied in the examinations of the basic financial statements and, in our opinion, fairly state in all material respects the financial data required to be set forth therein in relation to the basic financial statements taken as a whole.

ARTHUR ANDERSEN & CO.

San Jose, California
October 30, 1981

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

TANDEM COMPUTERS INCORPORATED

By _____ JEANNE D. WOHLERS

Jeanne D. Wohlers
*Vice President, Treasurer
and Assistant Secretary*

December 28, 1981

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By _____ JAMES G. TREYBIG   December 28, 1981

James G. Treybig
*President, Chief Executive
Officer and Director
(Principal Executive Officer,
Principal Financial Officer
and Director)*

By _____ HENRY V. MORGAN   December 28, 1981

Henry V. Morgan
*Vice President, Secretary
and Controller*

By _____ ROBERT C. MARSHALL   December 28, 1981

Robert C. Marshall
*Senior Vice President,
Chief Operating Officer
and Director*

By _____ THOMAS J. PERKINS   December 28, 1981

Thomas J. Perkins
Director

By _____ EUGENE KLEINER   December 28, 1981

Eugene Kleiner
Director

By _____ ALVIN C. RICE   December 28, 1981

Alvin C. Rice
Director

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