

DIGITAL EQUIPMENT CORPORATION

DEC Is Strong Second In Canada

The rivalry between Avis and Hertz that has become such a familiar trademark of the car rental business is being copied these days in computer circles where the rivalry is not so much for the number one position but rather, for the number two position.

Most competitors have acknowledged the fact that IBM has a commanding lead in all aspects of the computer market and are content to accept the number two position. Recent figures published in the U.S. indicate that DEC is fifth in terms of the number of computer installations in this country.

In Canada, however, the picture is different. The Canadian computer market is considerably smaller than in the U.S. but nevertheless Digital can feel proud to claim the number two position in terms of installations. A recent census indicates that the 200* computers that have been installed by DEC in Canada is second only in number to the 1000* that have been installed by IBM. *Approx figures.

There are less than 2500 computers of all types installed in Canada. The Canadian computer market was slower in developing since Canadian firms often relied heavily on their U.S. affiliates to get their "feet wet" first before attempting automation on their own.

Now the Canadian computer market is actually growing at a faster rate than

the U.S. computer market and reliable estimates, based on government studies, indicate that it will continue to grow at a 50% per year rate over the next five years.

Digital's strong position in Canada is even more remarkable when it is remembered that our Company got started later than some of the larger firms.

At the time of opening a sales office in Ottawa in 1963, Digital had only one computer in the country. It was a PDP-1 that was being used for nuclear physics research at the Atomic Energy of Canada labs at Chalk River. (John Leng, now Digital's European Manager, supervised the installation of this system.)

Cont'd. on Page 2

PDP-10 Making Great Debut

Digital's largest computer - the PDP-10 - is making a very auspicious debut.

Sales during the first six months since the first delivery are well ahead of expectations and PDP-10's initial performance record is enviable. Production, now being stepped up, is already committed for seven months.

Vice President Win Hindle cites several reasons for the early success. "It has a significantly better price/performance ratio of any computer offering time-sharing," he states. "Secondly, we are not just advertising time-sharing, we are delivering it."

He also points to the over one million time-sharing console hours accumulated on the PDP-10 and its predecessor, the PDP-6. Win also attributes the PDP-10's excellent showing to the foresight of the designers of the PDP-6.

Cont'd. on Page 6



Module Production at Digital's San German, Puerto Rico plant has now started. Helping get operations going are: (rear) Bill Owens and Cy Kendrick; (center) Nason Wilkins, Raul Inesta, Steve Spaulding, and Jaime Ferrá; Linda Brown and Barbara Stebbins.

Cont'd. from Page 1

We're Second In Canada

Since that time DEC computers have been used in nearly every conceivable application and installations are to be found in some of the remotest locations in the country. They stretch over a 3500 mile distance from St. John, Newfoundland, to Vancouver, British Columbia.

A PDP-9 is being used at the Dominion Radio Astrophysical Observatory in the interior of British Columbia for geophysical studies. In Edmonton, there are 15 computers being used in such applications as pipe line control, petrochemical research, telemetry, and student training.

Across the Canadian Prairies there are 25 PDP-8/S computers being used as controllers on the Interprovincial Pipe Line which runs between Edmonton, Alberta, and Sarnia, Ontario.

The majority of installations, however, are in Ontario and Quebec where most of Canada's industry is concentrated in a 700-mile corridor stretching from Windsor, Ontario to Quebec City. This area takes in the highly-industrialized cities of Toronto and Montreal and all of the smaller cities along the St. Lawrence Seaway.

Our computers are being used as traffic controllers on the St. Lawrence Seaway. At the Chalk River Nuclear Labs, there are now 22 DEC computers. In Ottawa, where most of Canada's research and development is concentrated, there are approximately 30 computers. Included among these are seven very large PDP-9 systems which are used for such applications as film-reading, exploring the characteristics of the upper atmosphere, on line acquisition, and meteorological studies.

In the Eastern part of Canada, a PDP-8/S is being used at the Research and Productivity Council of New Brunswick at Fredericton for studying improved methods of utilizing that province's natural resources.

There are nine DEC computers in Halifax, and five of these are being used by the Bedford Institute of Oceanography for ship-borne and ground-based data acquisition work. In the province of Newfoundland, a PDP-8/S is being used for training at the College of Fisheries in St. John's.

When one considers the complexities of selling a highly sophisticated product such as computers in a territory as large and as diversified as the Canadian territory, it is indeed a tribute to our Canadian sales staff to have achieved such a dominant position in the Canadian market in such a short time.

PDP/8 Assists At Conventions

Columbia Broadcasting System's television coverage of the recent Republican and Democratic conventions was the first time that a computer was used to compile vote totals as balloting for the candidates took place.

In a system, based on a PDP-8/S and supplied to CBS by Visual Electronics Corp., convention balloting was tabulated and instantaneously displayed to the home audience.

Not only did the PDP-8/S alleviate, by instantaneous recalculations, the

difficult problem in vote tabulation that occurred when, after the completion of a roll call, a state asked for the floor and changed its vote, but it also gave vote totals for all candidates and showed the number of votes allotted to a state and how it cast them.

As balloting at the conventions proceeded, votes for each candidate were typed on a teletypewriter and fed into the PDP-8/S. Totals were tabulated and displayed almost instantaneously to the viewing audience.



Don Randall, Field Service, makes a final check on a LAB-8 signal averaging system, the first of eight recently delivered, only two months after the introduction of the LAB-8.

100+ Referrals Already



The first referral, Chester Tocci of Fitchburg, referred by Bob Gage of the PDP-10 group, was on the job as a wireman less than 48 hours after his application was received in Personnel.

Since the Employee Referral Program was started last month the Personnel Department has interviewed over 100 applicants referred by DEC employees and about 20 job offers have been made.

Digital's staffing needs are still extensive. The sales force is expanding rapidly; as new systems are installed, more field service technicians are needed; the machine shops are establishing a second shift...almost every department has openings to fill.

The greatest personnel needs are in the following areas:

Sales Engineering - In filling sales positions Digital seeks technically qualified individuals usually electrical engineering graduates or persons with solid scientific or engineering backgrounds.

Sales engineering needs can be divided into two areas: module sales specialists and computer system sales engineers. There are also needs for sales engineers with knowledge of specific applications.

Field Service Engineering - Digital's rapidly increasing sales are creating many new openings in most field offices for experienced Field Service Engineers and technicians to install and service our computer systems.

Accounting - The growing Accounting Department has a number of new openings for accountants and financial analysts, including general accountants,

accounts receivable accountant, and a payroll supervisor.

Technical Writing - The Technical Documentation Department has several openings for experienced engineering writers, preferably with electrical engineering or physics degrees.

Programming - Openings in the Programming Department include: Senior programmers for time sharing systems; PDP-10 software development programmers; product test programmers; systems programmers; and diagnostic programmers.

Marketing - A variety of positions exist for marketing specialists and engineers in various product line groups, including: marketing analysts; PDP-9 industrial marketing; physics applications specialists; communications applications specialist; product support manager.

Software Support - Software support specialists are needed in many field offices to back-up sales activities in "pre" and "post" sales situations.

Engineering - Design engineers are needed in a variety of areas including: linear circuitry, A/D converters, high speed memory systems, and high speed logic circuit boards, memory design, special computer systems.

Secretaries - In Maynard there are over 30 new openings for secretaries with all levels of experience, senior and junior.

K. Olsen Receives 2 Appointments

President and Chairman of the Board, Ken Olsen, recently received two important distinctions.

He was appointed to the National Academy of Sciences Computer Science and Engineering Board. He and Jerrier A. Haddad, an IBM Vice President, are the only two computer industry representatives on the Board, which is made up for the most part of members of the academic community.

He was also appointed for a three-year term to the M. I. T. Corporation's Visiting Committee for the Department of Electrical Engineering.

Scholarship Recipient



David Faldasz, recipient of the first Digital Equipment Corporation Scholarship to be awarded to a Maynard High School senior, will use the scholarship toward first-year tuition at Northeastern University, Boston.

The Digital Scholarship, first awarded this year, was for a local student showing promise of success in the fields of science or engineering. The award amounts to \$200.

The selection of the recipient was made by the Maynard High School scholarship committee.

David, whose favorite course in high school was mathematics, plans to study electrical engineering. He was one of two Maynard High School students selected to participate in the M.I.T. high school studies program last year.

Unique Training Program



Drafting Manager Roger Melanson, center, and Lowell Trade High Teacher Henry Lisien, left, supervise a student in the special ten-week drafting course they organized this summer.

A unique apprentice course, designed to produce qualified detail draftsmen in just ten weeks, and taught by an instructor at a local trade school, was added to Digital's constantly-expanding training program this summer.

According to Drafting Manager Roger Melanson, the course, which features on-the-job training, as well as classroom work, will accomplish in less than three months what it takes many industry-sponsored programs six or more months and school programs a year or more to do.

"We feel those who complete the course will be fully qualified in company drafting procedures," Melanson said.

The course is divided into two phases: a seven-week course of a general nature, and a three-week program which concentrates on the requirements of the Printed Circuit Department. One section is taught by Digital Instructor Bob DiMeo.

"It gives us a chance to learn first hand the latest changes in industry," he points out. The experience Lisien gains can be used to implement the courses he teaches at Lowell Trade,

taking into consideration the latest methods used in computer manufacturing.

The course is divided into two phases: a seven-week course of a general nature, and a three-week program which concentrates on the requirements of the Printed Circuit Department.

The first 12 students, none of whom had any drafting experience, were selected on the basis of interviews and tests. On-the-job recommendations and screening by departmental supervisors played key roles in the selection of trainees.

Candidates were given a series of tests that included aptitude for drawing and ability to master spatial relationships. Some of the dozen are just out of high school, while others come from positions in the Drafting Department.

Course graduates will enter a period of six-months on-the-job training in all areas of the Drafting Department before being assigned to a specific section. Present plans call for the course to be run only as the need arises, so it has been set up to be given whenever necessary.

'Has Beens' Win

Neither rain, nor wind, nor a 10-run deficit could stop the determined "Has Beens," a softball team which included President Ken Olsen and all of Digital's Vice-Presidents, when it met a Digital softball league All-Star team at Maynard's Crowe Park last month.

After the first inning, it looked as if the game was going to turn into a rout of the "Has Beens" as the All-Stars, behind the pitching of Freddy Cutting, leaped to a 10-0 lead.

Manufacturing Vice-President Pete Kaufmann organized the "Has Beens" team which challenged the softball league All-Stars, consisting of two substitute players from each of the Digital Employee's Softball League teams.

Corporation Counsel Ed Schwartz and Machine Shop Supervisor John Trebendis refused to halt the game despite the deluge.

But then came the rain, descending by the barrelfuls, submerging the batter's box and home plate beneath a six-inch deep pond, surfacing the base paths with slippery mud, and creating a checker-board of puddles in the outfield.

Through the wind and water, the "Has Beens" chipped away at the All-Star lead, and in the fifth inning, Vice-President Nick Mazzaresse's home run tied the score at 13-13. The "Has Beens" went on to win 20-13.

"Zasp," a selection of music performed under the control of a PDP-8/S, won second prize in the International Federation for Information Processing (IFIP) Congress '68 computer-composed music competition. The selection was submitted by Peter Zinorieff and Alan Sutcliffe of the United Kingdom.

Incredible Softball Game



The "Has Beens", left to right: Mike Ford, Nick Mazzarese, Bob Lassen, Ken Olsen, Harry Mann, Peter Kaufmann, Bill Hansen, Stan Olsen, Ted Johnson, Fred Gould, Win Hindle and Empire Ed Schwartz.



Umpire Ed. Schwartz places a marker to show the location of home plate.



Depth-charge effect is created by ball landing in puddle opposite batter Dick Clemente.



the Digital Softball League Substitute All-Stars, (left to right): Dick Heald, Steve Grady, Jerry Haisland, Jim McHugh, Jack Gorman, Bob Corbeil, Chuck Campbell, Paul Morin, Ray Grossman, John Redone, Max Dietrick, Fred Cortuzzo.

Purchasing Makes Changes

Yet another department - Purchasing - has been reorganized to keep pace with the changing needs of our rapidly growing company.

The changes include:

Henry Crouse from Purchasing Agent to Purchasing Manager

Lon Beaupre to Purchasing Agent

Phil Wood to Material Control Manager

Bob Hughes to Component Engineering Manager

Henry Crouse joined DEC in 1959 just two years after it was founded. He served as the first full time buyer and helped build the Purchasing Department. He is a native of Everett, a graduate of Everett High School, and a business administration graduate of Boston University.

Lon Beaupre becomes Purchasing Agent comes less than a year after joining DEC as an administrative assistant. He is a resident of Attleboro, and earned Bachelor's and Master's degrees at the University of Massachusetts.

In his new position, Phil Wood will be responsible for inventory control, expediting, material control, and receiving. He came to DEC last year from Texas Instruments, Inc. where he was Production Control Planner. He is a graduate of the University of Massachusetts.

Component Engineering Manager, Bob Hughes, was among the Company's first 20 employees. He is now responsible for all activities relating to the specification and testing of discrete components.

PDP-10 Making Great Debut

Cont'd. from Page 1



A PDP-10 system is readied for delivery to the First National City Bank, New York, the nation's second largest bank. This will be the first use of PDP-10 in the banking industry.

In machines the size of the PDP-10, it is not uncommon to discover problems after the computers are in the field. Yet the PDP-10 to date has been remarkably trouble-free. One confident customer recently accepted a PDP-10 system without putting it through the usual 24-hour tests to which new computers are normally subjected following delivery.

The PDP-10, which carries price tags starting at \$155,000 and ranging up to \$900,000, is doing well in all the

areas for which it was intended: research, time-sharing, and hybrid simulation. Its acceptance has been worldwide. Orders are coming in from throughout the U. S., several locations in Europe, and four have already been ordered by Australian organizations.

"The Production Department has certainly done an excellent job," states PDP-10 Product Line Manager Bob Savell, "in enabling us to meet or beat our delivery appointments."

Promotion



Gabe d'Annunzio has been appointed Advertising and Sales Promotion Manager. In this position, he is responsible for all advertising product public relations and sales promotion activities for Digital's products.

He came to Digital early this year from Honeywell, Inc., Wellesley Hills, where he was Sales Promotion Manager for the EDP Division. He is native of New York, and a graduate of St. Lawrence University.

LINC-8 Plays Unusual Stock Market Role

As the computer analyzes what is happening to stocks, comparing changes to facts that have been put into it by one of the firm's four programmers, it presents its recommendations visually. A group of selected stocks show up on the screen in the same code name given them by the New York Stock Exchange. After the name of the stock is its latest price, its trend and its potential. Projections are based on what the stock will do in a day, but they are altered as each trade is reported.

The LINC-8 is attempting to analyze what is happening to a stock as changes occur. It detects buy and sell pressures and their interaction, undervaluation in a stock and any potential not yet discovered. It attempts to measure scope of institutional and "insider" buying before it actually happens. While the final investment decisions are up to the firm's account managers, the assistance of the LINC-8 has helped Spear & Staff achieve a record that will compare well with any firm in its field.

At the closing of the New York Stock Exchange, the LINC-8 is not through for the day. Programs are changed, and it automatically begins studying what happened that day, comparing all stocks to each other and predicting market trends. This information is used by the firm in its investment bulletins. On days when the Exchange is closed and on weekends, new programs and theories from the firm's market analysts are tested. "The LINC-8 is in use 24 hours a day, seven days a week," Vurpillat said.

That Spear & Staff should turn to a computer designed for use in the physical, life and behavioral sciences could be considered logical, since several people on its staff are from those fields. The programmers came from industrial research laboratories, following a long-time interest in the stock market. Others intimately involved with the computer and the work it is doing are scientists. Several possess advanced science degrees.



Roger E. Spear of Spear & Staff, Inc., investment counselors, and Operations Director Victor Vurpillat watch the screen of the LINC-8 their firm uses to analyze stock market changes.

Instant - by - instant changes in the prices of common stocks on the New York Stock Exchange flashed on a display screen in one corner of an air-conditioned room, while in another corner, a Digital LINC-8 computer hummed to itself as it gobbled up quotations, analyzing them and making projections almost before they appeared on the display.

The location is Spear & Staff, Inc., an investment counseling service on the campus of Babson Institute of Business Administration in Wellesley, Mass. The stock price changes are making stock analysis and projections line directly from computers at the New York Stock Exchange.

Spear & Staff's use of a computer for making stock analysis and projections as each trade occurs is believed to be a first in the investment field.

Spear & Staff, a pioneer in the use of computers to measure stock market changes, has employed the LINC-8 for this unusual purpose for about a year. Prior to this, it rented time on an outside computer. But, as Victor V. Vurpillat, the firm's operations director and the man responsible for installing the LINC-8, explained, "Leasing was not only more expensive, but it also made any real-time application almost an impossibility."

Success with its first LINC-8 has Spear & Staff thinking of adding three more to connect to the American Stock Exchange and the commodity and bond exchanges. In the future, according to Vurpillat, is a plan to have computers linked to all financial market centers, so account managers might take advantage of the full range of investment opportunities.

By adapting the LINC-8 and its wide range of capabilities, Spear & Staff, one of the oldest of the more than 10,800 firms registered as investment advisors, has been able to offer to many a service once reserved for the very wealthy. The firm will accept accounts as low as \$5,000, although it also works for clients with up to \$2-million in the market.

Company officials estimated that it costs only \$7.50 an hour to operate the LINC-8, versus \$300 an hour for the large data processing computers without real-time applications. The LINC-8 lets five employees do the work of 23, officials said. Market analysis bulletins, another of the firm's services, along with a column that appears in 90 newspapers, now are produced daily, where they were formerly available only on a biweekly basis.

July Anniversaries

3 years

Janet Allaby
Joan Bedford
Richard Clayton
Robert Dooley
Peter Herke
Margaret Pratt
Ethel Putz
Paula Reini
John Sanquedolce
Jessie Winters

4 years

Donald Adams
Gail Rod Belden
Dave Cotton
Geoffrey Finch
Elliott Hendrickson
Hilary Cheeks Jones
Richard Manion
Lawrence Seligman
Ed Steinberger

5 years

Donald Call
Signe Chapman
Ron Chestna
Angela Cossette
William Lee
Esther Williams

6 years

Rosalie Borzumato
Ronald Britton
Howard Painter

7 years

Ron Deyo
Leo Gossel
David Kicilinski
Ken Larsen
Jack Shields
Ed Unis

8 years

David Dubay
Stephen Lambert
Elizabeth Mariano

August Anniversaries

3 years

Vernon Bandy
Renate Beauregard
Rebecca Cuddy
Gina DiMarzio
Leonila Edwards
Arlene Gintner
Mary Hamel
Teresa Holmes
Joan Kilpatrick
Richard Krauchune
Harry S. Mann
Vincent Marshall
Gertrude Nill
Jacqueline Page
Barbara Schleyer
Peter Sheback
Paul Stapel
Lillian Tremblay
Eugene Yonchak

4 years

Paul DiMouro
Dave Edwards
Jean Haynes
Richard Lewis
Sarah Mele
Dorothea Palaima
Walter Spittle
Lorna Wright
Robert Yurick
Robert Ziman

5 years

Don Busiek
Earl Cain
Mary P. Colombo
Lincoln Daigle
Marjorie Goodridge
Jennie O'Clair
Frances Pieciewicz
Loretta Pieciewicz
Winifred Rakiey
Barbara Stebbins
Anna Tatarunas
Edith Wilson

6 years

Mary Baum
Paul Daigneault
Robert Korsman
Pauline Molle
George Silva
Priscilla Smith

7 years

Lawrence Conley
Miriam Dailey
Donald Desrosiers
Richard Dreslinski
John Duffy
Alice Johnson
Jack Williams

8 years

Mary Delgado
Katherine Fagan
Edward Mayall

9 years

Arthur Clockedile
Gertrude Loynd

Sales Up 47%

A 47% increase in sales from \$38,895,785 to \$57,339,400 was reported by Digital at the conclusion of its 1968 Fiscal Year.

Income after taxes was up 51%. Increases in sales were noted in modules and the entire computer line. Deliveries of the PDP-10, which started in December, had a significant effect on results for the last half of the year.

	FY 1968	FY 1967
Net Sales	\$57,339,400	\$38,895,782
Income Before Taxes	12,934,690	8,319,760
Provision for Income Taxes	6,078,000	3,778,555
Income after Taxes	6,856,690	4,541,205
Income Per Share	2.34	1.56
Shares Outstanding	2,926,600	2,910,000