ON LINE

May
1969

PDP-15 Succeeds PDP-9

New Medium-Sized Computer

The PDP-15 is the PDP-9's successor. Like the PDP-9, it will be used mostly for real time applications.

Digital's third generation of medium-sized computers, the PDP-15 line, was officially introduced at the Spring Joint Computer Conference this month.

"The PDP-15 product line is a series of high-performance, low-cost computer systems, with emphasis on the systems," said Marketing Manager Bob McInnis "By 'system' we mean integration of the computer, peripherals, and software."

"The PDP-15 is less expensive, more reliable, and easier to operate than its predecessor, the PDP-9," said John Jones, Product Line Manager for both computers. "Its integrated circuitry accounts for greater reliability, and its simplified software allows easier operation."

All PDP-15 models will be less expensive than comparable PDP-9's with the greatest saving offered by the PDP-15/20; Bob anticipates that this model will account for half the sales. The PDP-15 will cost 20 percent less than the PDP-9 on the average, but the PDP-15/20 will afford 33 percent savings.

"The computer's three major units, the input-output processor, the central processor, and the memory, operate autonomously," added John. "This gives a greater hardware flexibility than did the PDP-9."

The PDP-15 is also faster than the PDP-9. Hardware improvements contributing to the speed are input-output and arithmetic processing units. The I/O processor allows the user to store information in or retrieve it from the memory without interrupting operations in the central processing unit.

Like the PDP-9, the PDP-15 will be sold mostly for real time applications; about 95 percent of the PDP-15's will be interfaced with real-time analytical or control instruments.

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Special Systems Leads Change

At the front of Digital's trend to complete computer systems is the Computer Special Systems Department.

This department, led by Brad Vachon, was organized primarily to help DEC customers solve problems that could not be solved by standard products alone.

Most often, the department designs interfaces between DEC computers and customers' equipment. This involves the Special Systems people in a variety of cross-product, cross-market tasks.

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1st Nine Months, Fiscal Year '69

	Operating Results for Nine-Months Ending: March 29, 1969	March 30, 1968
Net Sales	$ 58,269,000	$ 37,646,000
Income Before Taxes	12,163,500	8,595,000
Provision for Income Taxes	6,152,300	4,126,000
Income After Taxes	6,011,200	4,469,000
Income Per Share *	2.01	1.53
Shares Outstanding	2,993,701	2,913,311

*Based on an average number of shares outstanding at end of each period.

For the nine-month period ending March 29, 1969, volume on sales was 55 percent higher than for the corresponding period last year while profit was 42 percent higher for that same period last year.

New Managers: Programming

Marv Horovitz

Jim Murphy

Four managers have been appointed in the Programming Dept.

Marv Horovitz has been named Manager of Diagnostic Programming. The group designs and writes hardware diagnostic programs for all product lines except Special Systems. Diagnostic programs are ones that test computers to insure that they function properly.

He has been in the computer field for 12 years as an industrial methods engineer, military applications and defense communications programmer, and system diagnostic program supervisor. He is one of the principal designers of the automatic checkout system for the PDP-8/I and PDP-8/L production lines, and presented his paper "Automatic Check-Out of Small Computers" at Spring Joint Computer Conference.

Jim Murphy has been appointed Manager of PDP-9 Software Development. He has 9 years experience in programming system software (mostly designing monitors, compilers and assembler programs). Jim has been with DEC for 4 years and for the last 2-1/2 years has been supervisor of PDP-9 software development. He is currently designing the PDP-9 Background-Foreground Monitor system, which is adaptable to many real-time applications.

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Branch Manager Duane Sheppard

Huguette Vaillencourt

Bonjour , DEC Montreal

Denise Laterreur

Field Service Manager Ray Vaillencourt

DECUS Staff Serves 4,000 Users

Nine Digital employees in a corner of Building 12-2 punch and reproduce 4,000 program paper tapes each month, mail the programs to customers, arrange quarterly symposia for up to 400 delegates, publish reams of technical information, reply to dozens of user requests daily, and perform countless other services to link customers with each other and with Digital.

These nine people comprise the staff of DECUS (Digital Equipment Computer User's Society), eight years old and with over 4,000 members, the computer industry's second-largest such group. The society is guided by a Board of Directors composed of users and one Digital representative.

DECUS performs a variety of user services, among them maintaining its own program library. The software has been contributed by DEC users and ranges from general utility programs to specific applications.

"Last year, we mailed about 30,000 punched paper tapes to customers," said DECUS Supervisor Angela Cossette, "but this year our total should hit between 45,000 and 50,000."

Another user service performed by Angela, the seven women working with her, and part-time stock boy is organizing and running symposia where users gather to exchange ideas. The spring and fall meetings include all users and attract about 400 delegates. Organizations as famous as Bell Laboratories, Western Electric, and M.I.T. and as little known as small high schools are represented. The University of Tokyo will send representatives to this spring's symposium. The other two technical meetings are the Canadian and European regional symposia.

"DECUSCOPE" is the best-known DECUS publication, but by no means the only one. Publishing ranks as another important customer service. The DECUS Group prepares Program Library catalogs, program documentation, and meeting proceedings.

Angela Cossette (standing), DECUS Supervisor, reviews DECUSCOPE layout with Frances Gaviglia.

"This variety makes working for DECUS educational and interesting," said Angela. "The girls here are exposed to programming and learn customer contact, computer operation, publication, bulk mailing, application processing and more."

"We are also deeply involved in JUG (Joint Users' Group)," she added. "This is an association of the major user groups like ours, IBM's, CDC's, Univac's, and so forth. We try to keep lines of communication open within the computer industry."

DECUS keeps users in touch with not only each other, but with Digital. Working with marketing groups, especially cross-product ones, Angela and the others help keep customers informed about DEC.

If popularity is any measure of success, DECUS could hardly be judged anything less than very successful. Each week, the group processes nearly 100 applications for membership. Among Digital's customers at least, good news must travel fast.

Gloria Porazzo Recalls

12 Modules - Huge Order

No one at Digital supervises as many people as does Gloria Porazzo, and only four have worked for the company longer.

Gloria Porazzo

"Stan Olsen hired me in 1957 as DEC's sixth employee," Gloria recalled. "He was the Personnel Department, the Sales Department, and several other functions."

"Actually, in those days, everyone did everything. If you needed an assistant, you recruited, hired, and trained him. Ken and Andy (Harlan Anderson) were the maintenance crew and plant engineers. They set up the partitions, swept the floors, and did everything."

Gloria said that when she joined Digital there was no stock room attendant. When an order came in, someone would get the necessary parts from a shelf and all six employees would sit around a table and assemble the modules.

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Promotions & Appointments

Bob Walsh

Bob Reed

Jim Milton

Bob Walsh has joined Digital as Contracts Manager. In this capacity, he is responsible for negotiating and administering the company's contracts with customers. This encompasses such areas as patents, warranty, acceptance, and system modification. Bob came from the Atlantic Research Co., Alexandria, Va., where he served in a similar capacity. He is a graduate of the University of Rhode Island and Suffolk Law School and a member of the American Bar Association. He lives in Randolph, Mass., where he is Conservation Commission Chairman, Planning Board Member, and Town Meeting Member.

Bob Reed has been named Product Support Manager for Traditional Produsts. Bob's responsibilities include the continued production and checkout of older Digital products (Traditional), the refurbishing of all products returned to Digital, sales support and installation planning and production/delivery scheduling for PDP-1,4,5, 6,7,8,8/S Systems and Add-ons. Bob has been with Digital for over eleven years and has had hands-on experience with virtually every Digital computer related products. This experience is invaluable to the many new Digital salesmen and customers confronted with expanding or duplicating their systems.

Jim Milton has joined Traditional Products as Engineering Manager. His responsibilities are to engineer Digital's older computer systems and newer computer options so that they will operate together and assure the customer continued growth and performances from his existing system. Jim spent many years selling Digital products in both the United Kingdom and Canada.

Al Walker has been promoted to Module Applications Engineer. Al has been with Digital for over five years, most recently involved in Computer Production. He jointed the Module Group approximately eight months ago as a Senior Technician working in Module Applications. During this time he demonstrated his engineering talent on many customer applications. Al's performance was reviewed by the Engineering Review Board in March and found to be more than sufficient to warrant the promotion.

Roger Gagne, A/D Development, has been reclassified to engineer under

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Al Walker

Roger Gagne

New Managers: Programming

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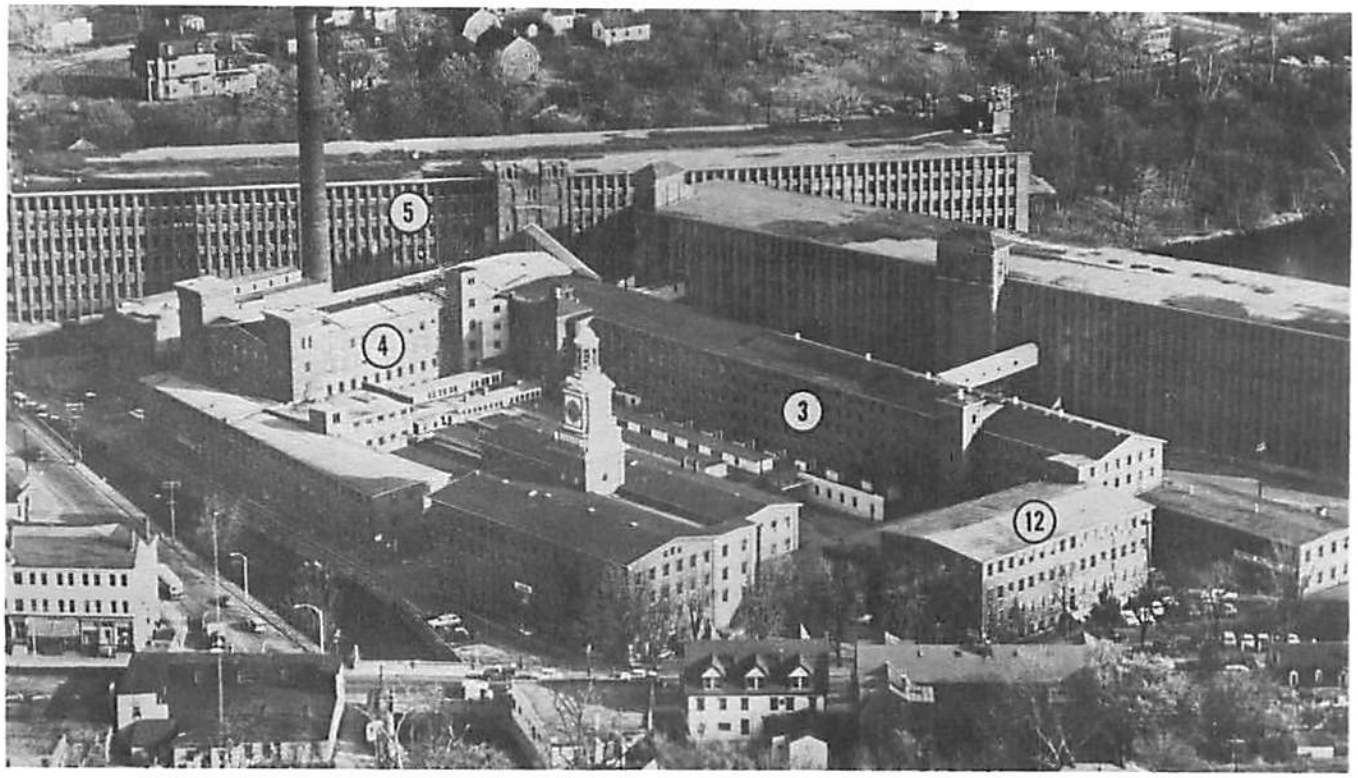
Bill Melesky

Bill Melesky is Manager of Software Services. His responsibilities include three areas in Programming Dept: Product Test (which assures the high quality of system software); Software Maintenance (which helps DEC customers with software problems); and Automated Drafting (which designs and maintains the programs which the Drafting Dept. uses to produce computer generated block schematics, wire lists and module parts lists).

George Arnold

George Arnold is Manager of Software Documentation, and is responsible for preparing software manuals which are used by DEC customers.

The Software Writing Group recently wrote "Introduction To Programming", now widely used in training courses and schools and by PDP-8 customer programmers.



The Maynard Mill Complex where Digital's main offices are located.

Maynard Mills Photography Contest

There's a lot of history in Digital's Maynard Mills.

Your attempt to capture on photographic film the history, utility or any aspect of the Maynard Mills can win money. Below are the photo contest rules.

Discussing textile mills similar to DEC's, the "Boston Globe" said that Manchester, New Hampshire's Amoskeag Mills provide "one of those rare instances in the field of city planning and design when the social, economic, and technological characteristics of an age combined with the shape of the particular site, the vision of the planners, and the sensitivity of the designers in such a way as to produce a wholly original work of art."

This article underlines a seldom-mentioned aspect of New England Mills like ours and Manchester's -- they are over one century old, yet not obsolete. Constructed in the early 19th century, these buildings have outlived the industries they were built to house, but have not outlived their usefulness.

ON LINE PHOTO CONTEST RULES

1. ELIGIBILITY: All DEC employees and members of their immediate families may enter (except ON LINE and Photo Lab staffs, judges, and their families).

2. ENTRY RULES: Photographs must be black and white. The contestant will submit one copy of his photo with a separate sheet of paper giving his name, address, and the DEC office where he or his relative works. There should be no identification on the photograph itself.

3. SUBJECT MATTER: Entries must include part of the exterior of the Maynard Mills. (No cameras are permitted inside the Maynard Buildings.)

4. DEADLINES: Entries must be received by Dimitri Dimancesco, Hugh Ryan, or Phyllis Malinski, Personnel/Public Relations, 5-5, post 40D, by 5 P.M. June 27, 1969.

5. AWARDS: Three prizes will be given:

First Prize	$50
Second Prize	$25
Third Prize	$10

6. NUMBER OF ENTRIES: More than one member of a family may enter, but each person may submit only one photo.

7. JUDGES: Selection of winners will be made by a committee consisting of Vice-President Win Hindle, Advertising Manager Gabe d'Annunzio, and Photo Lab Supervisor Bill Edmonds.

8. All entries will become the property of Digital Equipment Corporation.

9. PUBLICATION: Winning photographs will be published in subsequent issues of ON LINE.

Another photo contest will be sponsored for Digital employees who do not work in the Maynard Mill complex. Dust off your cameras, and watch for the announcement.

12 Modules: Huge Order

(continued from page 3)

"During the first year, a big shipment was a dozen modules; that represented a whole month's work," added Gloria. "When the goods were mailed, we'd celebrate with ice cream sodas."

Digital expanded gradually in the beginning; at the end of the first year, the work force numbered no more than 20 people. December, 1958 found about 30 employees having soft drinks and snacks together - - the company's first Christmas Party. A major increase in business came when DEC began producing the FLIP CHIP (TM) modules about seven years ago.

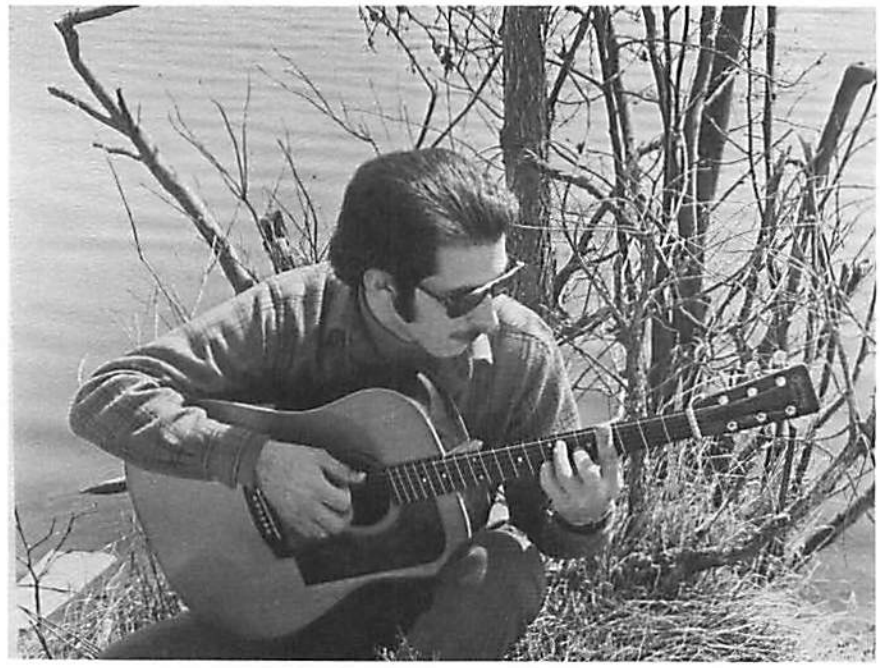
As DEC grew, Gloria grew with it. She became the first group leader when she was appointed to supervise one girl. Now 13 group leaders report to Gloria.

"For me, the hardest aspect to become accustomed to was to direct the efforts of others rather than doing the job myself. I enjoyed using my hands as well as my mind, and it took me a while to get used to using only my brain. When I came to work here, I had no intention or desire to supervise."

The 200 women whose efforts Gloria directs produce up to 150,000 modules per month and many computer subassemblies.

"As Digital has grown, I think we've been able to largely preserve the informality, the feeling of working together in a joint, almost family, effort. At least I think that feeling prevails in this section."

Gloria has not only witnessed Digital's growth, but been an integral part of it. Helping to build a worldwide corporation from six people assembling modules is a satisfying experience; it should even compensate for the unfortunate development that a module shipment no longer merits an ice cream soda.



Michael Harris, Programming Dept., counts guitar-playing, piano-repairing, and auto racing among his avocations.

Programmer Is Pro-Strummer

Michael Harris's eyes sparkled and his hands gestured freely, betraying the glee with which he discussed his musical activities.

Michael, who tests PDP-10 software for the Programming Dept., has been a professional guitar player for almost ten years and wrote "Beginning Guitar Methods" for "Sing Out" magazine.

His interest in the subect was first aroused in fall, 1960, when he was a student at Yale University. Strains of flamenco guitar music seeping up through the floor of his dormitory room attracted him to the musician in the room below. More music and discussions of folk songs led Michael to study guitar playing.

Six months later, he had left Yale and was playing professionally in Greenwich Village (New York City) coffee houses. He also helped found the Atlanta (Ga.) Folk Music Society.

The society presents concerts, subsidizes singers, and acts as a booking agent. Its annual folk festival attracts names like Bob Dylan, Pete Seeger, and Buffie St. Marie.

Michael's love of folk music has led him from Yale to more cities than New York and Atlanta. He has entertained in coffee houses in Chicago, Houston, Denver and Baltimore.

In addition to live performances, he has recorded on ABC Paramount and Vanguard long-playing albums. He was lead guitarist for a three-man group, The Appalachians.

Michael has also designed scenery for professional theatres, founded a solid-state electronics manufacturing firm, and raced sports cars and motorcycles.

Between these activities, Michael is looking for weekend musical work, so don't be surprised if you look up from your coffee cup in a Boston coffee house some Saturday night and see him on the stage.

His interest in American folk, rock, and jazz has spread to Indian music, which he says is far more complex and difficult to master than Western music. His favorite instrument is the veena, 1,200 year-old Indian version of the guitar.

Computer Lab Good Therapy

A novel use for Digital's Computer Lab has been discovered inadvertently. Designed as a teaching aid, the Lab has proved valuable in hospital patient therapy.

Martin Jacobs of Quincy, Mass., an electrical engineering student at Boston's Northeastern University, was bedridden in a local hospital recently for three months, and had exhausted the activities open to him.

He began studying the Computer Lab and discovered that it provided entertaining and educational diversion for hours. His background in electrical engineering and a programming course he had taken at Northeastern made the Lab specially interesting to him.

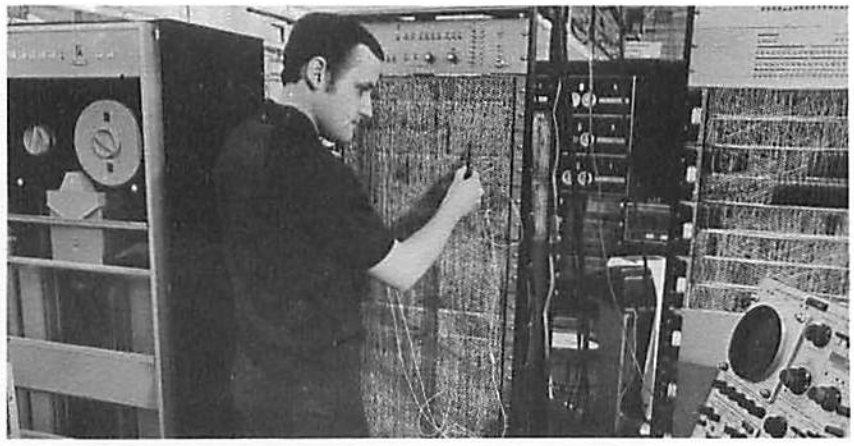
He is out of the hospital now and expects to return to Northeastern next fall. When he does, he will have an increased interest in computers - thanks to a Digital Computer Lab.

Bedridden Martin Jacobs converted hours of boredom into an interesting education with Digital's Computer Lab.

Promotions

(continued from page 4)

Digital's recently established procedure for reclassification of technicians. For the past few months Roger has been responsible for getting the new GLC-8 system into production. He has worked in A/D Development ever since joining DEC in 1961. Roger has taken advantage of the Tuition Refund Program for several years and expects to receive a B.S. in electrical engineering from Lowell Tech next month.



Fred Capone checks out some Computer Special Systems Dept. hardware interface for a PDP-10.

Special Needs ? Special Systems

(continued from page 1)

"Virtually all of Digital's special physics hardware in the field originated with us," said Nick Wells, who coordinates the projects of the 13 engineers and 12 technicians in the department. "Last year we shipped 163 systems that required special equipment."

U.C.L.A. used an interface, designed by the Special Systems group, between a space research project's telemetry equipment and a PDP-8/I. The university orbits monkeys for weeks at a time. The telemetry equipment reads the monkeys' reactions and records them with the PDP-8/I via Special System's interface.

Not as exotic as U.C.L.A.'s monkeys in the sky, yet important, is Computer Graphics' use of a PDP-8/I and slide projectors as classroom aids. Through Special Systems-designed interfaces, the computer controls up to 12 projectors and many student response boxes.

This department works with DEC's larger computers too. Alex Campbell and Charlie Valentine contributed heavily to the PDP-9's success in physics applications. Special Systems at times must devise hardware for discontinued models, as when they supplied a special hybrid computer sub-system with a refurbished PDP-1 for government agency.

Because the department deals with all products and markets, it makes an excellent training ground. Engineer trainees will work there for a year or more before moving to the sales force or to a product line in a marketing or engineering capacity.

"With 60 or more projects and 25 engineers and technicians, you can see that each of our skilled men must manage between two and three jobs at once," said Brad. "That, plus continuous cross-product line exposure are some reasons why they learn a lot here."

Although Special Systems has traditionally been restricted to hardware, it is beginning to branch into software. Brad wants to be able to provide customers with a "total solution" to their unique requirements including custom software.

Bob Maguire, programming supervisor for the department, recently approved the first custom software package to be used with a 680 communications system using a special interprocessor buffer to a larger computer. "Recent interest in custom software is an indication of the services that customers want with our special computer systems," Bob said.

To supply close order special hardware support to our customers in Europe, Special Systems has also developed a similar capability in Reading, England.

New Insertion Machine

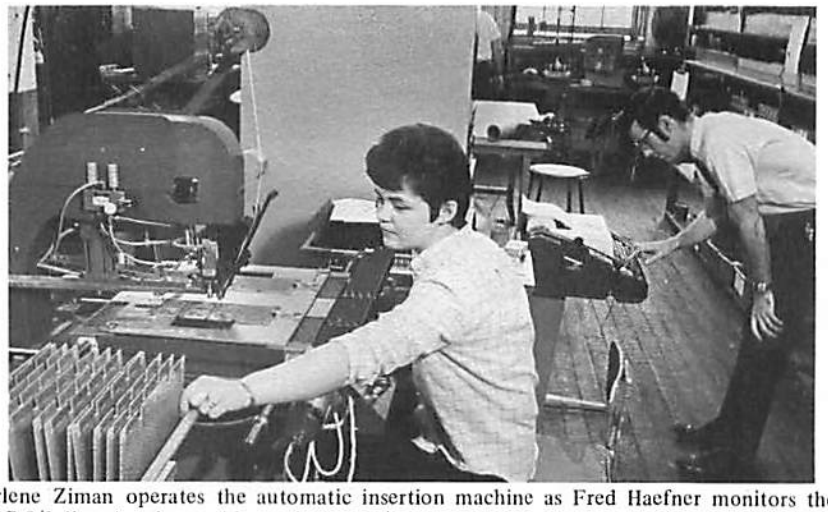
PDP-8/L Aids Module Assemblers

Another contribution toward more efficient manufacturing practices by Digital has been made by the Process Engineering Dept.

The department has produced a PDP-8/L-operated insertion machine to fasten electronic components (diodes, resistors) automatically to circuit boards.

The machine, developed by Tom Stockebrand and Fred Haefner, will save time and money in four ways:

- It will increase module production per worker by 16 to 20 percent. This will help Digital keep pace with increased demand.
- Templates, which cost DEC nearly $30,000 per year, will be unnecessary.
- The number of electronic components damaged in manufacturing will drop.
- Module design changes can be made in five minutes by modifying the tape that describes the module. There used to be a two week wait for a new template.



Arlene Ziman operates the automatic insertion machine as Fred Haefner monitors the PDP-8/I directing the machine. The PDP-8/I will be replaced by a PDP-8/L.

Templates are steel plates with holes drilled in patterns corresponding to the patterns of electronic components on modules and are used as guides in fastening components.

PDP-8/L's will guide the automatic insertion machines in placing the components, just as templates guide the assemblers.

The machine boasts several sophisticated devices. For instance, if a component is damaged during insertion, the machine automatically stops, and a light labeled "crunch" flashes.

Tom and Fred designed the machine with automatic and manual settings. When a malfunction causes the machine to switch from automatic to manual, it stays on manual until the mistake is repaired. It then switches itself back to automatic.

The Process Engineering Department has been working on this instrument for about six months. Judging from its first few days on line, it will prove well worth the effort.

May Anniversaries

10 Years

Anne Simoes

9 Years

Russ Doane
Dennis Healy
Don White

8 Years

William Colburn
Rena Hebert
Frank Kalwell
Bob Lassen
Don Murphy
Douglas Raymond

7 Years

Lisbeth Klein
Dennis O'Connor
Josephine Reilly
Francis Schipper
Helen Smith

6 Years

Don Bevins
George Bourbeau
Charles Flint
Barbara Hatch
Bob Lane
Joseph Michel
John Richardson
Don Strait

5 Years

David Ambrose
Eleanor Mariano

4 Years

Jeffrey Blundell
Christine Cobb
Glenda Jones
Freda Jones
Valentine Kassessinoff
James Kelly
Al Kimmel
Bonnie Korsman
James McHugh
Jennie Vincent
Taimi White
Claire Yanchewski

PDP-15

(continued from page 1)

The PDP-15 is particularly suited for hybrid computation and analytical instrumentation. The former refers to the PDP-15's programs that enable it to converse with analog computers as though they were digital devices.

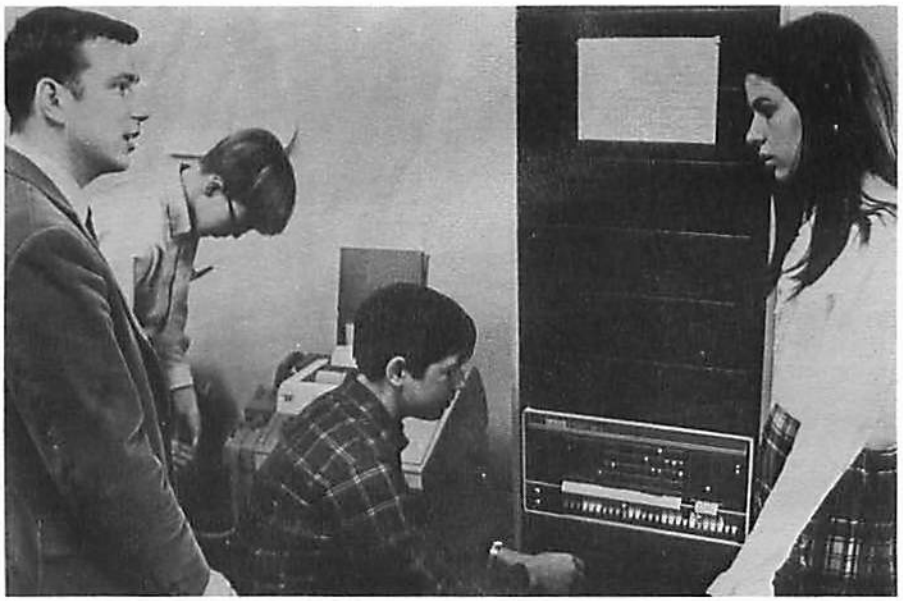
In analytical instrumentation, a computer receives data from a scientific research device, like a gas chromatograph, analyzing and compiling the data.

Success with the PDP-15 is expected in areas where Digital's 500 PDP-7 and PDP-9 installations have provided the company with valuable experience. This experience allows DEC to provide multi-task applications programs designed for broad, but well defined, uses.

H.S. Students Use PDP-8/I in Genetics

Can the computer in the secondary school function as a laboratory, enabling students to comprehend concepts presently beyond their grasp, or is it a programmed instructional device?

If early results of a two-year study underway in New York's Suffolk County are an indication - - and experts believe they are - - the computer can be made to function as a laboratory, a tool by which teachers can broaden the scope of their teaching well beyond present limits. This is the goal of the "Huntington Project," so called because most of the high schools involved are in the Town of Huntington.



Students at Cold Spring Harbor High School check their work on a PDP-8/I.

Among the teacher-developed programs in the project are routines for the study of genetics, light ray refraction and the economy of the United States. In a study of epidemics, the student defines a population, immunication and infection percentages, and the recovery rates. The computer then plots the course of the disease.

Typical of the teachers using the computer to simulate experiments heretofore impossible is Mrs. Mae Cort of Walt Whitman High in Huntington. The school's PDP-8/I has been equipped with a switch, giving Mrs. Cort and her biology class complete control of the computer for a variety of experiments, several in the genetics area.

Other students learn to calculate half-life of radioactive materials on a PDP-8/I. Half-life is that point at which the material uses half its radioactivity and is a method of determining the age of an object. The object in question may be thousands of years old. The PDP-8/I tells a student whether he has calculated correctly in minutes.

company highlights

TRADE SHOWS

To better coordinate advertising and publicity activities with trade shows, the Trade Show section has been moved from the Sales Department to the Advertising and Sales Promotion Department. "We hope that my being in the same department as the advertising and public relations staff will enable us to present DEC's equipment to the public more effectively," said Roy Gould, Trade Show Supervisor. Digital participates in dozens of trade shows annually.

SCHOOL GRANT

Virginia Polytechnic Institute has received a $2,000 grant from Digital to help support a Chemistry Department project to produce an educational film on the use of digital computers in chemistry laboratories.

TIME ARTICLE

A PDP-7 has appeared in "Time" magazine. The Behavior section of the April 18 issue carries a story titled "Decision Theory: Guide to Choice-Making," which describes University of Michigan Psychologist Ward Edwards' use of a computer in research. The computer referred to is a PDP-7. A picture with the story illustrates one of Edwards' experiments in a Las Vegas gambling casino, and in the background is the PDP-7 scope and cabinet.

DURABLE PDP-9

From Australia comes a report of the durability of a PDP-9. Latrobe University, Australia, owns a PDP-9 that stood in 18 inches of mud for nine hours, was extricated and sterilized, and finally repowered to run every single Maindec without a failure.

DEC Managers In W P I Course

Jerry Butler, PDP-9 Engineering Manager, has been accepted for Worcester Poly Tech's selective, four-year industrial management course. Jack Shields, Field Service Manager, is enrolled in the current course.

W.P.I. allocates places in the course to a few select companies. Each company can nominate a manager for the course, but the school makes the final choice of participants after intensive screening.

The program uses the case method of problem solving. This involves studying specific examples rather than general theories. Subjects covered include human relations, financial management, political economy, production management, marketing, and personnel.