

From Maynard...to Vietnam... ...to Crows Nest



George Suller, a PDP-8 systems technician at Maynard, on leave from Army duty in Vietnam, recently stopped in to chat with Branch Manager John Kilkenny of Digital Equipment Australia in Crows Nest, Sydney, Australia, during a rest and rehabilitation break.

Need PDP-1 Specs? They're Available

If you should need the specification drawings for the original PDP-1, as well as for all the changes that were ultimately made to it, you could get them more easily than you think.

Jim Quinn, Supervisor of Information Services, a section within the Drafting Department, asserts that within a short time his staff can find nearly any drawing, original or revised, for any Digital computer ever made. This is possible because of a well maintained, accessible system of storage.

Each engineering drawing is filed in several ways. Two copies are stored on microfilm, made with a 35 mm. Planetary camera. One is filed on a keypunched card in Information Services, while the other is stored in a steel file in Security, in the event of fire. The original vellum is kept in a drawing file in Information Services. Automated wirelists and block schematics are filed on magnetic tape and DECTape.

(Ctd. on Page 2)

New DECade Launched With Introduction of PDP-11

"The PDP-11 will redefine the concept of the minicomputer as a small package sold at a low price but having large computer capabilities," said Roger Cady, Engineering Manager for the much-anticipated computer recently unveiled by Digital.

In emphasizing that the PDP-11 introduces a whole new product line and not just a different version of an existing computer, Roger asserted, "It embodies several new concepts never before available in minicomputers."

The PDP-11 was the result of many months of market surveying and, according to both Roger and Ken Hedberg, of PDP-11 marketing, will be versatile enough to appeal to many markets. Not only will the PDP-11 fit into laboratory systems, but it will also be at home in an office, a school environment, or for use as a control system.

The new computer had its inception a year ago May with a small group of men working on various design concepts and features. It wasn't until January of 1969 that Roger and Ken were put on the PDP-11 full time. Several months ago, Julius Marcus was appointed Marketing Manager, and recently, Andy Knowles became Product Line Manager.

During the year from January 1969 to January 1970, the PDP-11 Group devoted their full time to development of the 16-bit computer. Sixty to seventy-hour weeks were not uncommon. Hal McFarland, now with Peripheral Engineering, contributed to the conceptual design, Bruce Delagi worked on systems design, Jim O'Loughlin was responsible for the central processor, Paul Janson, the Unibus® and peripherals, while Bob Hamel and Peter Durant designed the memory system. Andy Verostic and Chuck Dewey of Field Service and Art Spear and Rick Cygan of Production were instrumental in debugging the prototype systems. Charlie Learoyd was responsible for the console and also helped with the debugging. Dave Nevala of Mechanical Engineering and Chuck Blasi were responsible for the mechanical design. It was, according to Roger, "a team effort."

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Part of the Team:



The PDP-11 group (or part of it!), 1. to r., Bruce Delagi, Mal Fritz, Paul Janson, Andy Verostic, Jim O'Loughlin, Charlie Learoyd, Rod Duane, Ken Hedberg, Dick Cygan, Dave DiGirolamo, Bob Hamel, and Roger

Cady. Missing: Steve Polednak, Steve Rothman, Pete Durant, Vince Bastiani, Erik Eriksen, Andy Knowles, Chuck Blasi, Larry Condon, Dick Manion, Ron Miller, Serge Shammass, and Ellen Pellegrini, secretary.

Film Library Expanding

In common with more and more companies that are recognizing the value of films for training, sales, and many other purposes, Digital is building a film library.

As of this writing, three films are available from Public Relations to departments desiring their use: "The Small Computer in the Chemical Laboratory," made in cooperation with Virginia Polytechnic Institute, shows what a small computer is and how a PDP-8/I is used in the chemistry laboratory at VPI. Selected for showing at WESCON last summer, "Small Computer" is a color film running for 30 minutes.

"LINC With Tomorrow," originally televised on Channel 2, shows the LINC-8 used for medical patient interviews and for the clinical analysis of a blood sample. The film is in black and white and runs for 30 minutes.

"GRAPHIC 2" is another film originally produced on videotape and converted to 16mm. Taken at the Bell Telephone Laboratories, it shows a graphic system built around a PDP-9, which is used for engineering analysis. The film is in black and white and runs for 12 minutes.

Additional films are in the planning stage and will be publicized as they become available.

To borrow one of the existing films, contact **Stephen Kallis** in Maynard at X2777 or **Rhonda Blanchard** in Maynard at X2211. If you prefer to write, address either of the above % Public Relations, 5-2, in Maynard. Please allow sufficient "lead time," as the films may be out and the number of copies is limited.

Did You Know That...

-Digital uses 207 of its own computers - 120 in production.

-Digital uses 700 oscilloscopes company-wide.

-Digital has 500 field service people working out of 80 field centers.

-Digital has 280 sales engineers.

-28,000 class days are spent annually by Digital employees in training.

-9,000 class days are spent annually by our customers in our training programs.

Name of the Game is Ship

The Module Stockroom takes up a large portion of the second floor of Building 21. Moreover, the volume of assorted modules and components that Digital inventories "on the shelf" has necessitated adding a temporary subsidiary stockroom on 1-1.

When you enter the wire-enclosed Module Stock Room, you are confronted with row after row of colored plastic bins, which rise several feet above your head. Each bin is labelled with a customer's name and the date on which the order was received. Customer names range from institutions such as Case Western Reserve University to Xerox, to names of companies in many foreign countries. The empty bins contain back-orders waiting to be filled.

Every month, **John Fortier**, Module Stock Room Group Leader, decides which additional modules or components he will need for the following month, based on what remains of the previous month's stock and sales records for the last several months.

The stock is labelled in alphanumeric sequence and the rows stretch nearly the entire length of the fenced-in area. The color-coded bins contain modules, power supplies, mounting panels, R series logic labs, K series logic labs, Lab-K materials, cables, computer lab parts and other components.

Customers can buy components for "do-it-yourself" modules and logic boards, and John recently began to stock Digital cabinets, both assembled and unassembled, which are now being sold separately.

All modules and components are sealed in plastic to protect them from dust. **DeLayne Johannes** operates a machine that seals a module and its schematic in their own plastic bag, averaging 40,000 individual packages each month. They are sent in special, drawer-type shipping containers, which act as storage units upon receipt.

On the same floor, **Don Trotter** maintains a smaller stockroom called "Customer Suppliers" or "Product Line 99." Under Don's supervision, **John Dora** fills customers' orders for such items as DECtape, both formatted and unformatted (formatted tape is precoded by DEC), fanfold tape, oiled tape for Teletypes, ribbons for line printers, LINCtape, disk packs, paper tape trays, and carrying cases for tape.

John formats the tape himself, using a PDP-4, which has been programmed by Don. Customer Supplies is the only stockroom that has a computer.

John Woodman supervises both stock rooms, reporting to **Frank Kalwell**, Manager.



Al Thibodeau and John Fortier check the customer backlog.

Unibus Feature Makes PDP-11 Unique Computer

(Ctd. from Page 1)



The PDP-11 is checked out by representatives of three of the many groups responsible for the various phases of its design and test: (l. to r.) Jim O'Loughlin of Engineering, and Dick Cygan of Quality Control.

Tester Simulates 20 Years' Use

An ingenious testing device was recently used in the Graphics Displays Group to test the durability of display keyboards.

The device struck the keys relentlessly night and day to determine how long they could hold up. The keys were pounded 2,000,000 times with only two or three failures.

"Not bad," stated Graphics Products Manager Bob Collings, "considering the fact that the tests simulated 20 years of normal use."

Referrals Help

Last spring, the engineering group discarded nearly all its previous design work and started anew, completing a new design and building a test system by the end of summer. A second, or "breadboard," system was completed in September and several prototypes were finished in November and December. As of this writing, six PDP-11's are operational.

Julius has been encouraged by customer response so far: "We've been able to displace orders for competitors' equipment simply by telling prospective customers a few of the capabilities of the PDP-11."

Andy Knowles, Product Line Manager, explains the Unibus, a unique feature of the PDP-11, as "a high speed bus, which all peripherals, the central processor, and the memory share, allowing them to communicate with each other without going through the processor."

The PDP-11 comes in two models: an 11" high x 20" wide x 24" deep tabletop model and a 10½" high x 19" wide x 23" deep rack-mounted model, available with or without a programmer's table. It sounds like a best seller already!

When the small computer needs of the marketplace had been determined, the PDP-11 was developed in what Roger terms "iterative stages." Improvements were made slowly and carefully; working meticulously, the team took tiny but definite steps forward. Preliminary "benchmarks" were made, in which the PDP-11 was compared with other computers.

Computer Lab Way Up North

The DEC Computer Lab is being used as a teaching aid in a high school in Yellowknife, Northwest Territories, a town of about 6,000 inhabitants located approximately 1,000 miles north of Edmonton, Alberta, Canada.

We feel that ON-LINE readers would be interested in the fact that DEC products find their way into such far-off places, and also in knowing a little more about a town like Yellowknife. Most of us think of the Canadian North as being barren and snow covered, inhabited only by Eskimos.

Yellowknife is a booming frontier town, the capital of the Northwest Territories, and it serves as a supply depot for the extensive oil and mineral explorations currently underway in the far north. It has modern houses, paved streets, excellent schools, a hospital, and a 14-story high rise apartment building. Winter temperatures will frequently dip to -60°F and there are only a few hours of daylight, but in the summertime, the sun does not set until after 10 p.m., rising again about 2 a.m. It is located only a few hundred miles south of the Arctic Circle (see map). The town is accessible from Edmonton by highway or by plane, (there is a Boeing 737 jet flight every day). The main industry of the town has been gold mining up to this time, and the demand for labor of all types is high, as are the wages.



The Yellowknife Public School is introducing a course involving the teaching of basic computer principles, taught by Mr. Bob Jenkins, who has been a teacher in the Canadian North for the past several years. Yellowknife to him is a part of the banana belt, since it is about 600 miles south of the town where he taught previously. That town was Inuvik, which is at the mouth of the Mackenzie River, where it flows into the Arctic Ocean. Mr. Jenkins, like most inhabitants of the Canadian North, is extremely happy with it and would be reluctant to leave. He enjoys the fishing, hunting, skiing, snowmobiling, and all of the other outdoor activities that are so much a part of life in the Canadian North. When asked about the winters in the north he points out that the difference between 25° below zero and 50° below zero is purely psychological.

DECKing the Halls at Christmas....

In England...



At DEC's Reading Plant receptionist Margaret John puts the finishing touches on her tree.



Jim Crowther, the U.K.'s ad man, holds open the foyer door for two weary shoppers, Sandra Netrval, typesetting secretary (1) and Margaret Hazell, mailing clerk, who are returning from a hectic lunch hour of Christmas shopping.

In the Field...



Eleanor Williams of the San Francisco Office assembled the ingenious holiday tree (above left), using teletype parts, modules, jumper cables, etc. In Palo Alto, Phyllis Strickland made the tree (above right) out of cone-shaped chickenwire, with California teasels (thistles to easterners) sprayed with gold.



In Maynard...



Receptionist Kaye Ward decorates the tree in Maynard's Main St. lobby.

In Puerto Rico...

Promotions and Appointments



Austen



Burke



Dixon



Gortler

Howard Austen was recently appointed Insurance Manager, responsible for all corporate insurance excluding employee benefits. Austen came to Digital from a similar position with Continental Can Company.

Dennis Burke recently joined Digital as Manager of Management Development. In that position, he will be responsible for preparing management development programs for supervisors and managers. In addition, he will work with individual managers to develop special programs to meet specific departmental needs and will maintain information about other programs so that he can offer advice on outside courses and seminars. Burke has served with the professional employment department at the Raytheon Corporation and as an assistant professor at the University of San Francisco.

Peter Dixon recently took over the position of S.E. Area Field Supervisor in the U.K. Peter joined Digital two years ago from IBM, where he was involved in work on the IBM 7030 "stretch" computer and the 3060 model 40. Previous to this position, he had served 11 years in the RAF.

Richard Gortler was recently appointed branch manager of the Parsippany, New Jersey, office. Dick came to Digital as a sales engineer in 1968 from the Westinghouse Electric Corporation in New York City. A native of Staten Island, Dick attended Staten Island Community College and the New York Institute of Technology, from which he received a B.S. in electronics in 1962.

David F. Lawrence was recently appointed Field Service Manager for Digital's U.K. Headquarters and plant at Reading, Berkshire, England. David joined Digital in August of 1966 as a Field Service Supervisor for the London area, after working as a computer engineer for RCA at Yorks. His previous position was that of Divisional Electronics Engineer at Mitcham.

Michael J. Marshall was recently named branch manager of Digital's Princeton, New Jersey, office. Previously employed as a systems engineer at the Frankford Arsenal's Computer Research Laboratory, Mike was project engineer for the MAIDS MARK III System, a computer-controlled automatic checkout system for the U.S. Army's wheeled vehicles. He joined Digital in 1967 as a sales engineer. Born in Norristown, Pennsylvania, Mike received a BSEE from Drexel Institute in 1962 and subsequently attended graduate school for computer science at both the University of Michigan and the University of Pennsylvania.



Lawrence



Knowles



Dodge

Andrew Knowles was recently appointed product line manager for the PDP-11. For the last nine years Knowles was associated with RCA Corporation, most recently as Manager of Applications Engineering for memory devices and systems. His previous work with RCA included various sales, marketing, and engineering activities.

David Dodge was recently appointed branch manager of the Ann Arbor, Michigan, branch office. David joined Digital's field sales staff more than four years ago and has served as manager of the Parsippany, New Jersey, office during the last two. Prior to joining Digital, David was responsible for the design of automated test and manufacturing systems for the Precision Products Division of Litton Industries.



Bob Hathaway of Finished Goods has both feet off the floor and a very determined look on his face as he drives for a layup during a game in the Digital Basketball League's schedule. Fran Delaney (no. 10) and Gerry Haviland (no. 1) of the PDP-9/Drafting team, seem to doubt that they can stop him but are prepared to give it a college try. The League is divided into two divisions, which play once a week at the Maynard Junior High School gymnasium. As of the end of the year, By-Products, with a 7-0 record, led the National Division and Programming, with a 5-2 record, topped the American Division.

Spec? ECO? — Information Services Has It

(Ctd. from page 1)

If anyone wants a print of a drawing, company standard, or specification he may get it in one of several ways. For short-term use (for reference or if there are going to be changes), he would probably get a print from a microfilm card. If he wants a full-size print, a "whiteprint" will be made. Should the engineer require any quantity of the same drawing, Jim's section has the facilities for making a paper plate from microfilm and running it on a 17" x 22" offset press.

The section supplies computer print sets for each machine sent to a customer and keeps a record of that set as Engineering Change Orders are made to the drawings. The Reproduction group makes all prints used for training, production, and field service, averaging 100,000 to 125,000 per month.

Drawings stored on microfilm can be "blown back" to 24 times the film size and printed within a matter of seconds on the 3M 333 operated by Orlando Valdez. Hilja Cutter is "the lady at the window," who processes every order for a print. The Reproduction group is under the direction of Mark Bush.

Another group, Configuration Control, under Ray Makela, maintains a master list of all Digital customers and exactly what equipment they have, down to the last bolt. The group is responsible for assigning a number to every engineering drawing and insuring that it conforms to company standards. The numbering system makes it easier to keep tabs on the drawing during its many changes and printings.

The ECO group (Engineering Change Orders) documents and controls the more than 150 changes that are made to engineering drawings each month. Group leader Art Vartanian estimates that there are between 20,000 and 30,000 ACTIVE drawings in the ECO file, each of which undergoes approximately .79 changes per year.

A record is maintained of the revision status of all engineering drawings; i.e., Are they being changed? What is the revision?, etc. A complete list of DEC customers and the hardware they have is maintained according to customer and serial number cross reference. Each time there is a change in customer equipment, the record is updated and the customer receives a new print to confirm the change. When you call to find out who owns a PDP-9 with serial number 104, the voice on the other end of the line will probably belong to Nat Crowley.

The Specification Control group, under the direction of Ed LoTurco, keeps track of Digital's more than 1,000 specifications for equipment. This group is the newest addition to Information Services and, in the past six months, has revitalized the Purchase Specification Program. All nonstandard items purchased by Digital are documented to vendors with both a technical write-up and a drawing. The group has published and maintains a three-volume manual of items now specified to Digital standards.

Information Services was organized as a section of Drafting approximately two years ago with the function of supplying information pertaining to engineering documentation and of maintaining control over changes to that documentation. Prior to that time, it was simply known as the Reproduction Department.

Orlando Valdez: Budding Picasso?



The Reproduction section of Information Services may have a budding computer programmer and/or a budding Picasso.

Orlando Valdez came to the United States unwillingly in 1965. His mother, who was living in New York at the time, suggested that he come here from Guatemala City, Central America, to finish his education and possibly to stay. Having heard how crowded and fast-paced the USA is — especially New York — Orlando hesitated. He agreed, however, to spend Christmas of 1965 with his mother on a trial basis. He is now eagerly awaiting the time when he will be eligible for citizenship.

"It's great," he beamed, "I could never go back. I love Digital and I love the United States!"

Orlando completed his first two years of high school in New York and then he and his mother, having heard how peaceful and calm Massachusetts is, moved to Leominster, and he finished high school at Clinton High.

When he heard that Digital recruiters were going to address the senior high school class, Orlando tried to get out of attending but was trapped into it. That did it. Sold on Digital, he applied and started work in the Reproduction section in June of 1969. Orlando runs the 333 Printer, which converts microfilm drawings to enlarged copies in a few seconds.

Two evenings a week he attends the Electronic Computer Programming Institute in Worcester, with the hope of going into programming some day. "I'm excited about being a part of the computer industry," he said. "There's so much to learn and I feel lucky to be exposed to a lot of it here at work."

Art was his favorite subject at school and Orlando has done a lot of studying on his own. His idol is Picasso: "He's great! He's a challenge and I enjoy accepting it," Orlando asserted. "I have painted ever since high school days — mostly oils — but I enjoy putting objects together to form interesting arrangements." His "Christmas tree" is one example. (see page 5) On non-class evenings, Orlando stayed many hours after work until he had the "tree" just the way he wanted it. "It's my own form of a Picasso," he commented.



Ed LoTurco, Specifications Group Leader, confers with draftsman Linda Sullivan, while Linda Owen types a purchase specification.