

Computer Advances

January/February 1984

Personal computing at the touch of a finger

The new HP 150 personal computer with HP touch allows you to run computer programs with the touch of a finger or a pen.

By touching the screen or special function keys, rather than memorizing complex commands, you can easily work with many popular software programs.

The MS-DOS 2.0 operating system, which is industry-standard software, lets you run programs such as VisiCalc[®], WordStar[®] and Condor's Data Base Manager, modified to take advantage of the HP 150's special screen.

Application software

About 30 of the industry's most popular application programs are being modified for HP touch and will be available in late 1983 and early 1984. These programs include Lotus 1-2-3, dBase II[™], Context MBA, MicroPlan and BPI General Ledger.

In addition to these programs, the HP 150 runs other core software packages designed to maximize the benefits of touchscreen technology. They are Series 100/Graphics, Personal Card File, MemoMaker, SpellStar[™], MailMerge[®] and MicroSoft's BASIC.

Compact, yet complete

The size of an average in-basket, the HP 150 with storage devices and printer needs only 1.7 square feet of desk space.

A complete HP 150 system includes a keyboard; bit-mapped graphics display monitor; 256 Kb of internal memory expandable to 640 Kb; dual microfloppy 3½-inch disc drive; built-in data communications ports. Two ports are available for accessories.



Managers of small businesses, such as the sporting goods store above, can take advantage of spreadsheet and database management software on the HP 150.

An optional built-in thermal printer fits within the display casing. Two hard-disc options are available. The HP 45655A, a 5 Mb disc drive, and the HP 45660A, a 15 Mb disc drive (both with 3½-inch flexible disc backup), fit in the same desk space with the HP 150.

Networking capability

Series 100/DSN/Link, a versatile HP 150 communications package, not only transfers files between the HP 150 and mainframes like the HP 3000, but also between the HP 150 and other microcomputers. This program also allows you to customize the interface with commercial time-sharing services such as *The Source* and the *Dow Jones News Retrieval Service*.

Features and options

Built-in terminal features let the HP 150 act as a full-featured, intelligent workstation without using accessory cards in the two option slots. There are two RS-232 data communications ports and one HP-IB port to accommodate a full range of system peripherals and mainframes.

The HP 150 will have an optional plug-in emulator card that can be linked to IBM mainframes to serve as a communications facility for information exchange. This IBM 3278 accessory card gives the HP 150 a di-

(continued on back page)

 **HEWLETT
PACKARD**

Superchip production pays off for buyers

With up to five times improvement in yields, HP's proprietary "superchips" used in the HP 9000 family of engineering workstations are a real success.

Current yields for HP's NMOS III process, in which circuits are placed one micron apart, are about the same as yields for more common industry processes with separations of three or four microns.

The process improvements are the result of using HP computer-monitored manufacturing tools and process control databases. These systems make comprehensive measurements of process parameters and enforce adherence to design and process rules. The bottom line is strict control of the 350 process steps required to make HP's NMOS III chips.

These yield improvements have allowed a 25% price reduction for the HP 9000 Series 500 32-bit computer systems. System maintenance costs have been reduced as much as 50%, also reflecting technology success.

New graphics capabilities

Along with the price reductions, HP offers you a large-screen, color

graphics display for the HP 9000 Series 500 Model 520A workstation. This new 19-inch color CRT display provides high-resolution graphics and eight planes of display memory.

If you use an external graphics processor, you can get fast vector generation on the order of one million pixels per second. This display provides extra capabilities for design graphics and imaging in applications such as computer-aided design and simulation.

Common to both graphics products is a feature called color mapping. It increases the resolution of the display and the number of colors that can be displayed simultaneously. It lets you convey more information in a simple, concise format.

Expanded datacom capabilities

Two new networking products for the HP 9000 Series 500 are available now. Remote Job Entry (RJE) is supported on the HP-UX (UNIX*) operating system. It offers a reliable link to other mainframes for file transfer. This software provides terminal emulation of the IBM 2780 and 3780.

Shared Resource Management (SRM) is designed for the BASIC operating system. It gives you the capability to link several Series 500 computers in a star network with other HP desktop computers. SRM lets you share data, programs and peripherals.

*UNIX is a trademark of Bell Laboratories.



The superchips produced in this clean room represent state-of-the-art semiconductor technology in which circuits are placed 1/100 of a human hair apart.

HP 9000 Series 200 computers are up to 50% faster, offer HP-UX operating system

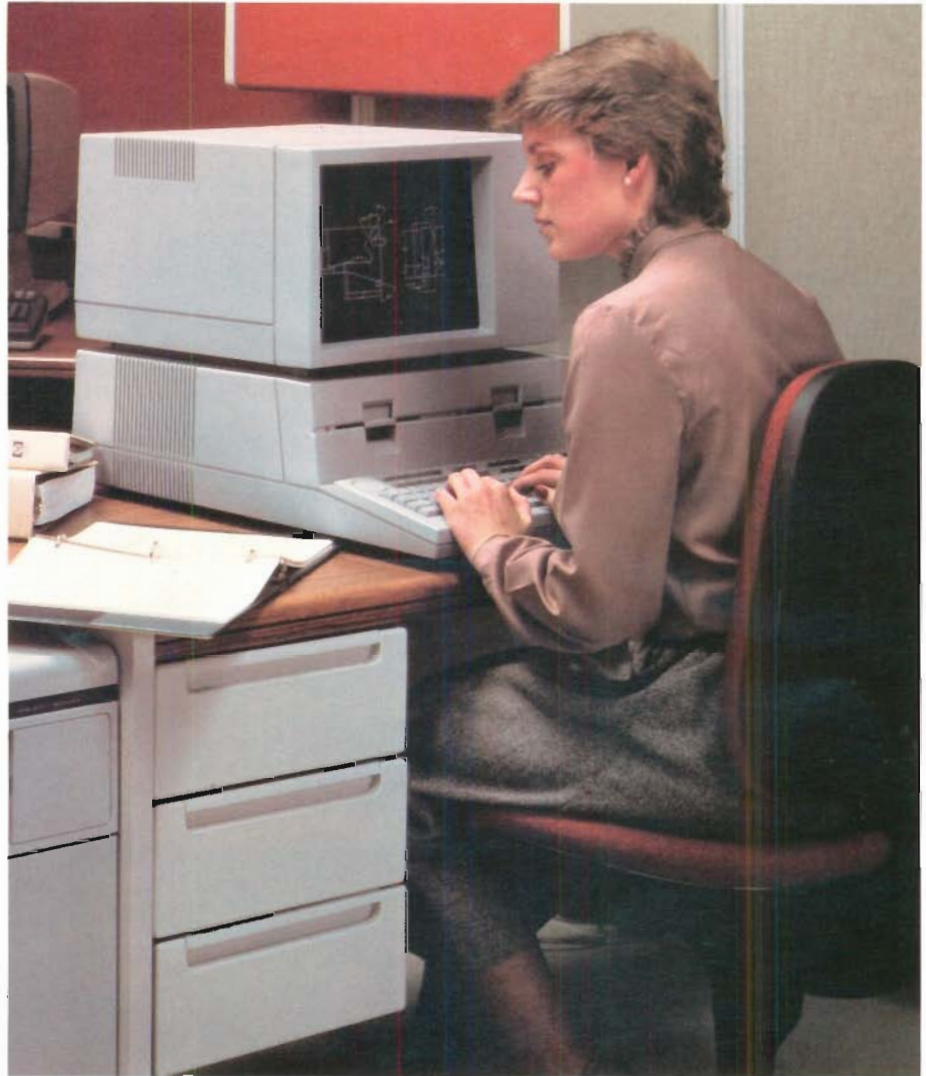
These 16-bit engineering workstations now feature a fast new Motorola MC68000 central processor that boosts performance by up to 50%. This 12.5 MHz chip provides the speed to handle the HP-UX operating system without sacrificing system performance. HP-UX is HP's extended-function UNIX* operating system.

Making HP-UX common to the HP family of workstations enables you to mix and match computers of varying size and power within an HP Engineering Productivity Network. HP's system software strategy is to provide increasing capability, consistency and software portability with HP-UX.

HP-UX now is offered across the HP 9000 family of scientific and engineering workstations. This includes all of the Series 500 workstations as well as three models of the Series 200 HP-UX computers (not the Model 216):

- The Model 236 is an integrated workstation with keyboard, two disc drives and 12" monochrome CRT. You can accommodate another user by adding a terminal.
- The Model 236C is similar to the Model 236, except it has a four-plane, bit-mapped color CRT that allows displaying simultaneously up to 16 colors from a palette of 4,096.
- The Model 220 is a "box computer" for terminal-based systems. You can purchase a processor board upgrade kit to convert a Series 200 Model 220, 226, 236 or 236C to the similar Series 200 HP-UX product in either single-user or multi-user configurations.

The fully-supported HP-UX operating system for the Series 200 computers features HP Pascal and Fortran 77 compilers, a device-independent graphics library and



The HP Series 200 family includes this model 236C, which provides a high-resolution, color CRT in an economical package.

extensions from Berkeley 4.2 to the Bell Laboratories System III UNIX* operating system. A 'C' language compiler, command sets, intrinsics and utilities are included in HP-UX.

Other features are mail, file transfer, remote console and related data communications capabilities. A number of printers, plotters, discs, data tablets, tape drives and other peripherals are supported on the Series 200 HP-UX system.

The Series 200 HP-UX products are available in both bundled and un-

bundled systems.



*UNIX is a trademark of Bell Laboratories.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

New measurement and control system for industry

Do you need more power for your industrial automation applications? HP has combined its fastest microcomputer, a new real-time software package and increased networking capabilities to form the Control/1000 industrial automation system.

Designed for process control, machine automation and other measurement and control applications, Control/1000 systems are intended for applications requiring more than 100 control points.

More computational power

A typical Control/1000 system combines an HP A600 microcomputer with an HP 2250 measurement and control system. With the computer's real-time operating system and new Control/1000 software, the system can control a user-selectable set of high-performance analog and digital function cards.

The function cards are in turn connected to different sensors, transducers and actuators commonly used in laboratories, on factory floors and in process plants.

A single Control/1000 system can support up to 64 function cards handling a total of 1,920 analog or digital inputs or outputs.

1 MIPS microcomputer speed

The HP A600 computer now built into Control/1000 systems is a 1-million-instructions-per-second CPU with 512Kb of memory. Using the A600 reduces the role of the supervisory host computer. The A600 independently performs detailed measurement, control and



processing tasks, which previously had to be done by the host computer.

Software for solutions

The new Control/1000 software package enables you to write automation application programs in Fortran or Pascal. A simple, menu-driven program lets you verify and calibrate the Control/1000 hardware.

Networking capabilities

Previously using HP-IB to connect to a host HP 1000 computer, Control/1000 now uses a Distributed Sys-

tems/1000 DS link, which provides high-speed communications to other HP 1000 computer systems.

This means you can share information and peripherals with other HP computers in an in-plant or geographically dispersed network. Networking features include automatic message re-routing, secure message integrity protocol and a choice of high-speed point-to-point connections.

Flexible bar code readers offer many solutions

Two new bar code readers for factory and office environments give you rapid data entry, accuracy and ease of use.

The new HP 39800A and HP 39801A bar code readers can be used with any HP computer, from the portable HP-75C to the HP 3000 business

computer. They can also be configured with a range of HP terminals.

These bar code readers support all popular commercial and industrial bar codes. The primary difference between the two models is in software. Programmable features allow

you to use the HP 39800A as an interactive, independent bar code data entry station. The HP 39801A is non-programmable and will generally be used with a CRT terminal, desktop computer or personal computer.



AUSTRALIAN AREA NEWS



Hewlett-Packard announces improved Customer Training facilities

Hewlett-Packard recently announced major changes to its Customer Training operations in Australia.

HP's Systems Engineering Manager, Bruce Marsh, said the company had developed new facilities, new courses and improved administration for its training operations in Sydney and Melbourne. New training techniques have been introduced to enable HP customers to meet their implementation and production productivity goals through effective classroom training.

Regular courses are run in Melbourne and Sydney for networking, data communications, languages, utilities and applications for HP3000, 1000, 9000, 98XX and personal computers. A comprehensive Course Schedule is available from Hewlett-Packard.

All courses are structured for effective learning and are presented by trained Systems or Applications Engineers. Special courses can also be conducted at customer sites or at other Hewlett-Packard offices throughout Australasia.

"Hewlett-Packard truly believes in the importance of effective customer training to develop computer personnel and improve productivity," said Mr. Marsh. "The learning experience should be a pleasant one and attendees should be fully satisfied with the end result."

Evaluations of each course are carried out in order to assess any improvements which may be introduced in future courses.

Training registrars handle course logistics,

scheduling bookings, registrations, messages, etc. They ensure the student is not interrupted and can focus on the learning process.

"Hewlett-Packard have an extensive range of hardware and software in each location to support their facilities and students go away with a knowledge of how best to integrate their specific needs onto a Hewlett-Packard system," said Mr. Marsh.

"We try to do that little bit extra to ensure that the course is pertinent and relevant for each student. We call this our "Added Value" program. I believe it is a demonstration of HP's continued commitment to the support of its customers through the provision of professional training services to meet the needs and opportunities of the dynamic computer industry."

WA students in the "Chips"

Two University of WA engineering students recently spent six weeks in Silicon Valley in the United States studying the latest developments in electronic technology.

The students, Robert Newman (20) of Mt. Lawley and Robert Comito (22) of Maylands, were members of a party of 21 third year engineering students from UWA who took part in the Gledden Tour of the U.S.A. The Gledden Tour is funded by the University of WA with contributions from students and sponsorships from several WA companies.

The tour lasted three weeks, but Mr. Newman and Mr. Comito stayed in the US until the end of January as guests of Hewlett-Packard Australia Limited.

They were employed by HP on a work/study program designed to give them an insight into the latest technological advances in silicon

chips and computers. The two students worked as laboratory technicians in the research and development laboratories at HP's Cupertino headquarters.

Garland Smith of HP's Perth Office said the experience would help the students gain a higher level of understanding of how technology is changing from day to day. "They saw developments on the drawing boards which will not be on the market for another two or three years, so that will put them that far ahead," he said.

Dr. Michael P. Norton, lecturer in mechanical engineering, who led the Gledden Tour said it was the first visit to the United States. Previous tours had been within Australia, to South East Asia, the United Kingdom and Japan.

The group visited the Boeing Aircraft Corporation, the NASA Ames Research

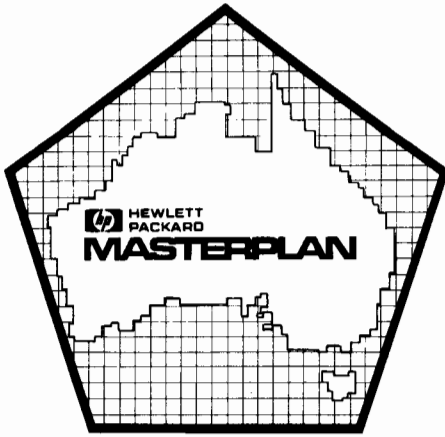
Establishment and several "new technology" companies in Silicon Valley, and included a full day tour of Hewlett-Packard.

"The object of the tour was to further the engineering education of the participants by visits to engineering centres outside our own region," Dr. Norton said.

"The diversity of new technology industries on the West coast allowed the students to gain an appreciation of the progress and impact of the silicon chip on modern technology," Dr. Norton said.

● **PRODUCTIVITY '84 MELBOURNE - MARCH 18-23**

PRODUCTIVITY '84 SYDNEY - MARCH 26-30



The Australian Solution

Hewlett-Packard, in a joint venture with the Commonwealth Department of Science and Technology and the Royal Melbourne Institute of Technology (RMIT Technisearch) are bringing the best of Australian technology to small and medium sized manufacturers.

H.P. MASTERPLAN heralds one of the greatest opportunities that has come to manufacturers in recent years because it offers a new way of managing a manufacturing organisation. Management is the key to running a successful business and MASTERPLAN provides the tools to allow managers to make timely decisions and regain the competitive edge.

Research by the Royal Melbourne Institute of Technology has identified the need for a low Cost Manufacturing System which combines accounting and budgeting features with monitoring and reporting of Purchase, Supply, Raw Material Inventory Management, Engineering Production Scheduling and Control, Finished Goods Inventory Management, Market Sales, Order and Despatch.

HP MASTERPLAN is designed to meet all these requirements and the flexibility to accommodate future enhancements. MASTERPLAN will, for the first time within Hewlett-Packard, provide a software product designed, constructed, tested and marketed in Australia.

In the following pages, we are proud to introduce to you the team behind MASTERPLAN.



ANDRE BLOM is the M.I.S. Program Manager based at HP's Melbourne Office. Andre was previously a Major Account District Manager with HP South Africa. The MASTERPLAN Project is a Public Interest Project under the Industrial

Research and Development Act to provide a low cost Management Information System to small Manufacturing Companies. Andre will liaise with the Federal Department of Science and Technology and R.M.I.T. Technisearch Limited.



ROSE-MARIE TODES provides administrative support to all members of the MASTERPLAN team. Rose-Marie has applied her wide secretarial experience to the development of her own secretarial training school. Prior to this Rose-Marie was

in the Cosmetics Industry in the area of research and development. She is married with three children and emigrated from South Africa seven years ago.



ROD KENDALL is the M.I.S. Product Development Manager and prior to his involvement in the MASTERPLAN Project, Rod gained extensive experience as a systems engineer on the HP 1000 series computer. In his new role, Rod will draw

heavily on his industry experience in Hardware and Software designs which he has applied while working at John Perry Engineering and L.M. Ericsson Pty. Ltd. Rod is a Bachelor of Electrical Engineering.



DOUG O'HARA is a Sydney based Manufacturing Consultant for Hewlett-Packard concentrating on the MASTERPLAN Project. Trained as a Mechanical Engineer, Doug has 20 years of manufacturing experience covering

Processing, Packaging Fabrication and Contracting industries. His consulting role enables manufacturing companies to successfully make the transition to a computer based management system. Doug draws on years of practical consulting experience from a number of Australian companies and has covered Manufacturing, Distribution and Accounting Systems.



BILL KITHER is the Melbourne based Manufacturing Consultant for MASTERPLAN. Trained as an Industrial Chemist, Bill worked for Nicholas Pty. Ltd., concentrating on Quality Control, Production and

Project Management, co-ordinating the implementation of a computer based manufacturing system, together with related

administrative procedures. Bill later joined I.C.L. (Australia) Ltd., as a manufacturing specialist to support their manufacturing system and an accounting package. His role at Hewlett-Packard will allow manufacturers to draw on Bill's considerable expertise to assess their requirements for a MASTERPLAN System, and to support the implementation of the product.



KIM WOOD is a System Specialist for the MASTERPLAN Project. A graduate in Electronics and Communications Engineering from RMIT, Kim has worked in a number of engineering roles at the State Electricity Commission and later

became a lecturer in Electrical Engineering at the Bendigo College of Advanced Education. Kim has worked for Hewlett-Packard as a staff and field engineer and brings to his new role a considerable expertise.



STAN KARPOWICZ is the Melbourne based representative for MASTERPLAN. His experience with Hewlett-Packard spans 8 years and during that time he has assisted companies in finding a successful solution to their

computer problems. Stan is well versed in Chemical Engineering and Engineering Equipment, Bar Coding Equipment for retail and wholesale application and Desk Top Computers. This collective experience enables Stan to assist manufacturers when purchasing technical and manufacturing systems from Hewlett-Packard.



PETER COLQUHOUN is the Sydney based representative for MASTERPLAN. His experience in the computer industry covers 10 years. Peter is a highly experienced Systems Analyst, Programmer and Systems Engineer,

who has worked for two major computer manufacturers and a university computer centre, a white goods manufacturer/distributor and a software house. Peter brings considerable experience to his role as a MASTERPLAN representative and is well equipped to understand the manufacturers' problems and develop the MASTERPLAN solution to suit their needs.



BRIAN JACQUES is the Marketing Consultant for the MASTERPLAN Project. An Industry Association Executive with 10 years experience, Brian was Marketing Manager of the Victorian Employers Federation and was responsible for the successful implementation of a Marketing and Membership Computer System. Brian's involvement with Industry Associations will ensure that the MASTERPLAN Project is tailored to meet the requirements of specific industry groups.



DAVID VIGOR and his wife **SUSAN** are partners in 'Management Aid', a software development consultancy firm which has contracted with Hewlett-Packard Australia to develop the MASTERPLAN Software. David Vigor, the senior partner in 'Management Aid' has been in the computer industry since 1958. In 1960 David worked at Monash University as one of its first computer people and in 1966 lectured in Computer Science at Glasgow University, where he developed the first Data Base Management System in the United Kingdom for

medical diagnosis. David also worked at Edinburgh on experimental programmes, including robotics and served as an adviser on a number of Government bodies.

David's consulting experience was called upon as a technical director and worldwide field consultant of Tate & Lyle - and John Hoskyns & Associates, where he developed a manufacturing package. From 1970 to 1974 David was head of Data Processing at the South Australian Institute of Technology and director of the Computer Centre.

SUSAN VIGOR shares the responsibility for 'Management Aid' as a partner. A graduate in Bio-chemistry, Susan was a research assistant at Sydney, Monash and Glasgow Universities, and a lecturer in microbiology at Roseworth Agricultural College. Susan has been involved in computer programming since 1962.



GREG COLLETTE is the Technical Author for the MASTERPLAN Project. A partner of Greenway Publications, his organisation will produce all documentation associated with the system. Greg's experience in the technical writing field spans 10 years and during that time he has accumulated 6 years' experience with Hewlett-Packard equipment, such as the 3000 series documentation. Projects of note which Greg has worked on include documentation for British Airways Boadicia House Computer Centre at Heathrow.

During his career, Greg has worked with Australian Industrial Publications Pty.Ltd., Technical Writing Services Pty.Ltd. (UK), Australasian Training Aids Pty.Ltd., and has produced a wide range of computer oriented handbooks written for users, administrators and support personnel which have been read throughout North America, Europe, South East Asia, the Middle East and Australia.

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Hewlett-Packard (N.Z.) Ltd.,
5 Owens Road,
Epsom, Auckland
Phone: 687 159

Now VisiCalc® runs on HP 3000 computers

Now you can run an electronic spreadsheet with advanced features on your HP 3000 computer. VisiCalc®/3000 is the first true VisiCalc® program on a minicomputer.

With HP's expanded feature set, you can budget, track, forecast and plan for your company or department. Your HP 3000 computer also can receive and manipulate VisiCalc® worksheets from HP and non-HP personal computers, including the IBM PC.

This enhanced, multi-user version of standard VisiCalc® runs on the HP 3000 and gives everyone with HP block-mode terminals access to an electronic spreadsheet capability. Using VisiCalc®/3000, you can save the purchase price of multiple personal computers, printers and disc drives. And since your HP 3000 computer already is a multi-user system, you don't need numerous single copies of software for each personal computer.

VisiCalc®/3000 offers a number of major advantages over a standard VisiCalc® program. Among them:

- Larger spreadsheets
- On-line help facility that is context sensitive
- Variable column widths
- Protected and hidden cells
- Extensive formatting options
- Easy-to-use printing options, including printing of equations.

Localized versions of VisiCalc®/3000 will be made available through International Applications Centers worldwide. For more information, please contact your local HP Sales Rep.

VisiCalc® is a U.S. registered trademark of VisiCorp.

More software for the HP 150

Now you can find even more packages that run on the HP 150 touch-screen personal computer. The chart below shows 16 software packages currently available on the HP 150 in seven different areas.

All of these applications have been enhanced to take full advantage of the touchscreen. This means you don't have to memorize commands. Simply move the cursor, make selections and give commands by touching the screen. You only need to type file names and data.



Word Processing WordStar®, MailMerge™, SpellStar™ from MicroPro
MemoMaker from HP

Electronic Spreadsheet Series 100/VisiCalc® from HP and VisiCorp

Database Management† Personal Card File from HP
Condor 20-1 and Condor 20-3 from Condor Computer Corporation
dBase II™ from Ashton-Tate

Graphics Graphics from HP
Picture Perfect™ from Computer Support Corporation

Financial Applications BPI General Accounting from BPI Systems
MicroPlan™ from Chang Laboratories

Data Communications DSN/Link from HP

Programming Language Series 100/BASIC from HP and Microsoft

Eleven more software packages will be available for the HP 150 in the first quarter of 1984:

- Diagraph™ from Computer Support Corporation
- Compiled Basic, Pascal, Cobol, Fortran and Multiplan® from Microsoft
- BPI Accounts Receivable and BPI Personal Accounting from BPI Systems
- Context MBA™ from Context Management Systems

- Lotus 1-2-3™
- GRAPHWRITER™ from Graphic Communications, Inc.

WordStar® is a U.S. registered trademark of MicroPro International Corporation.
MailMerge™ and SpellStar™ are U.S. trademarks of MicroPro International Corporation.
dBase II™ is a U.S. trademark of Ashton-Tate.
Diagraph™ and Picture Perfect™ are trademarks of Computer Support Corporation.
CONDOR® is a U.S. trademark of Condor Computer Corporation.
MicroPlan™ is a U.S. trademark of Chang Laboratories, Inc.
Multiplan® is registered trademark of Microsoft.
Lotus 1-2-3™ is a trademark of Lotus Development Corporation.
GRAPHWRITER™ is a trademark of Graphic Communications, Inc.
Context MBA is a trademark of Context Management, Inc.

New printers give you better quality at a lower cost

Designed for existing HP customers, as well as the OEM marketplace, four new printers offer improved print quality and printing features, with a substantial decrease in cost.

The HP 2930 family of printers

Based on a new high-density, high-speed matrix print head, the HP 2930 family of printers offers 200 cps printing with a noise level below 63 dBA. This family, consisting of a general-purpose printer, a remote workstation printer featuring bar code, and a dual-mode printer with letter-quality printing, will meet business, technical, manufacturing and personal workstation printing needs. Last-form tearoff, a straight paper path and an adjustable tractor feed mechanism are among the features of the HP 2930 family.

The new print head is based on a technology which produces quality character formations. It's inexpensive and easy to replace.

A fixed platen and a straight paper path enable paper to move easily through the printer. In addition, the last-form tearoff feature lets you remove the last printed sheet of continuous paper without wasting a blank sheet.

Print selections include an expanded (5 cpi), normal (10 cpi) and a compressed (16.36 cpi). Both serif and sans-serif fonts are available. Line drawing, math symbols and character sets in 10 languages are also standard.

The HP 2930 family of printers suits a variety of applications. The HP 2932A provides the print speed, forms handling capability and quiet



operation required for distributed printing applications. To meet the needs of data capture applications, the HP 2933A factory data printer features large character generation and bar code printing, including Intermec, Code 39*, Industrial 2 of 5, Matrix 2 of 5 and Interleaved 2 of 5. The HP 2934A distributed office printer, designed for business and personal use, provides 67/40 cps letter-quality print and 200 cps memo/correspondence-quality print.

The HP 2563A system printer

Printing at 300 lines per minute, the HP Series 300 Model 2563A is designed for use in all areas of a business network, including accounting, engineering, manufacturing, shipping and the data center. This general purpose dot matrix printer offers the throughput for jobs that

exceed the capabilities of serial printers.

Featuring compressed print, multinational and OCR character sets, raster graphics and bar codes, the HP 2563A prints at a quiet 60 dBA with sound abatement options in either remote or local environments. It also offers automatic paper jam detection and easy recoverability.

Interfaces include HP-IB, RS-232, Centronics and Dataproducts, giving OEMs and end-users compatibility with a number of systems. In addition, special customized interfaces for the OEM will be available.

Graphics enhancements for Series 80 computers

The Graphics Presentations Pac (Revision C) now supports the 19 character sets provided by the HP 7475A plotter. Enhancements include provisions that integrate the multiple character set support of the plotter with the nationalized key-

boards of the HP-86B portable computer.

Enhancements also have been added to allow you to use of the electronic disc. If your system has an E-disc and at least 192K of total memory, then the Graphics Presentations Pac will automatically

load and execute all screen forms from E-disc. This makes it easy to design or change forms.

Upgrades are available if you have a prior version of the software. Graphics Presentations is available on 3½" or 5¼" media.

Electronic postal system puts stamp of approval on HP laser printer

Like the vanishing breadbox, the mailbox may soon become an endangered species.

While chemical preservatives and improved distribution methods spelled doom for the breadbox, the demise of the mailbox—although not imminent—might become a result of the computer age.

MCI Communications—America's largest alternative long-distance telephone company—recently began marketing MCI Mail, the company's new nationwide electronic postal system. The service will be offered internationally soon.

Electronic mail probably won't consign the mailbox to museum status right away, as seen in the company's U.S.-aired television commercials, but MCI estimates the time-sensitive mail market at nearly \$8 billion a year.

With a need for high-quality, reliable print-out capabilities, MCI chose Hewlett-Packard to supply laser printers, a critical link in their electronic postal system.

Networking and printing capabilities were key factors in MCI's choice of Hewlett-Packard printing products.

Since there are other computer and data-communication vendors contributing services and products to MCI's electronic mail system, HP was chosen for ability to communicate directly with other vendors' equipment and the printing capabilities of laser page printers.

The HP 2685 print station used in MCI Mail features an HP 2680 laser page printer, an HP 3000 Series 40 computer, HP graphics software, terminals and disc tape and storage devices. With custom software from HP, it links other vendors' computer equipment and software incorporated into the network.

With 45-pages-per-minute capability, HP's print stations will be lo-

cated at 15 MCI postal centers around the U.S.

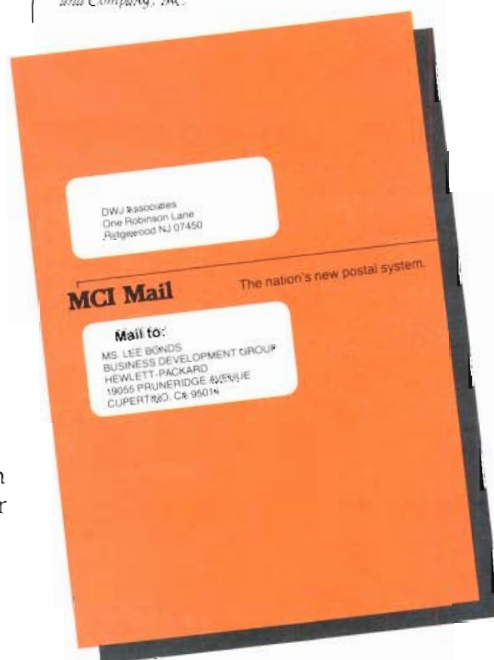
MCI Mail can be accessed with a computer terminal, personal computer, a telex or TWX machine, a word processor or an electronic typewriter. After composing the letter, you phone a toll-free MCI number and transmit the letter via a 212-compatible modem. Messages can be sent directly to other MCI Mail subscribers' terminals.

Messages for non-subscribers are sent to the nearest MCI Mail postal center, printed on the Hewlett-Packard laser printer. You select the preferred method of delivery: four-hour, overnight or MCI letter.

The HP 2685 can print any combination of text, letterhead, logos and signatures. Graphics information is input via a digital-camera scanner using graphics software customized by HP for this application.

An MCI spokesman said the company has signed up more than half the 100,000 subscribers of the Dow Jones News/Retrieval[®] service and expects to sign up the rest soon.

Dow Jones News/Retrieval is a registered trademark of Dow Jones and Company, Inc.



Computer Advances

In Brief

- Looking for a 1/2" tape drive for backup, archival storage, data interchange or tape processing applications? The new HP 7974A 1/2" tape drive can handle multiple applications. This dual density tape drive with start-stop and streaming mode operation is designed for mid-range system backup.

- Find out how HP replaced the slide rule with the HP-35 calculator in a new book of HP's technological milestones. This book tells the history of major product developments and provides insights into the company atmosphere that has motivated HP inventors for the past 30 years.

With an introduction and chapter prefaces by William R. Hewlett, *Inventions of Opportunity: Matching Technology with Market Needs* mirrors the evolution of the Silicon Valley and America's electronics industry. The 364-page book covers 33 years of engineering at HP through articles reprinted from the *Hewlett-Packard Journal*.

You can order the book by calling toll-free (800) 538-8787 if you are in the U.S. From California, please call (408) 738-4133. You can also order through a local HP sales office. Ask for part number 92233B.

- "Productivity '84: The Computer Solutions Seminars" is HP's computer show that combines hands-on demonstrations and 16 idea-packed seminars to help you be more productive. The free, two-day show will visit 14 cities in the U.S. and Canada. Other countries are also planning Productivity '84 shows. Please read your *Computer Advances* Area News for more information.

(continued from front cover)

rect, high-speed coaxial-cable connection to the IBM host, which can be operated with remotely or locally attached controllers. The card will be available in the first quarter of 1984.

As an intelligent workstation, the HP 150 functions as an HP 2623 alpha block-mode and graphics terminal which operates with all HP 3000 software without modification. The HP 150 is compatible with the Tektronix 4000 Series.

The ergonomically designed HP 150 has a green phosphor display that is 80 columns by 24 rows with user-adjustable focus and brightness. The new thin keyboard has an adjustable tilt, tactile home row, clustered cursor-control keys and a numeric pad.



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You can buy an HP 150 from Hewlett-Packard sales offices or authorized dealers. Software packages will be introduced throughout the coming months for the HP 150.

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How the touchscreen works

A cowl around the screen contains a set of infrared light-emitting diodes. When you touch the screen your finger interrupts their invisible beams and establishes the coordinates you touched. This enables you to create graphics, move paragraphs of text or find a file simply by touching the screen.

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