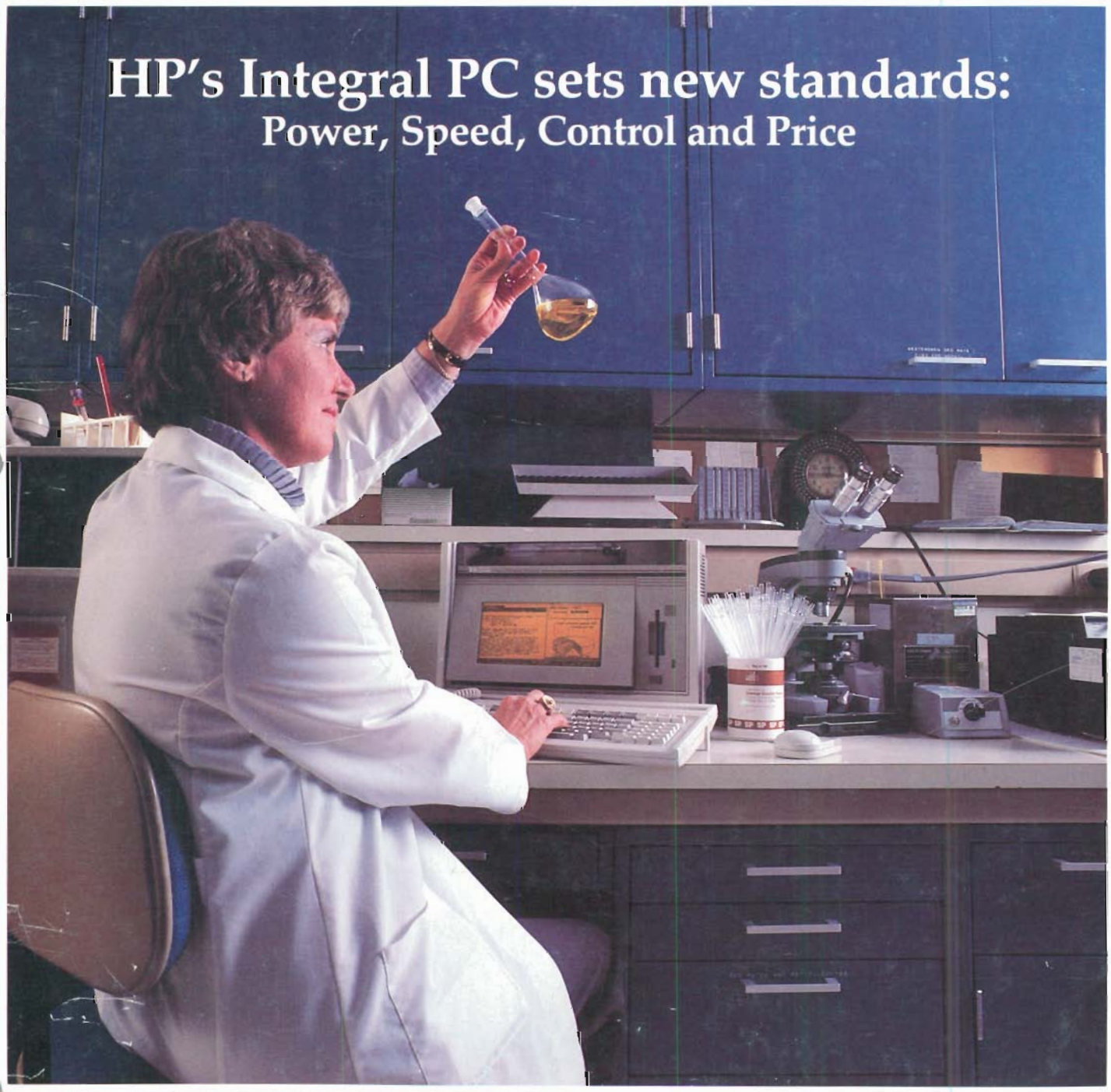
Computer Advances

HEWLETT PACKARD

March/April 1985

HP's Integral PC sets new standards:
Power, Speed, Control and Price



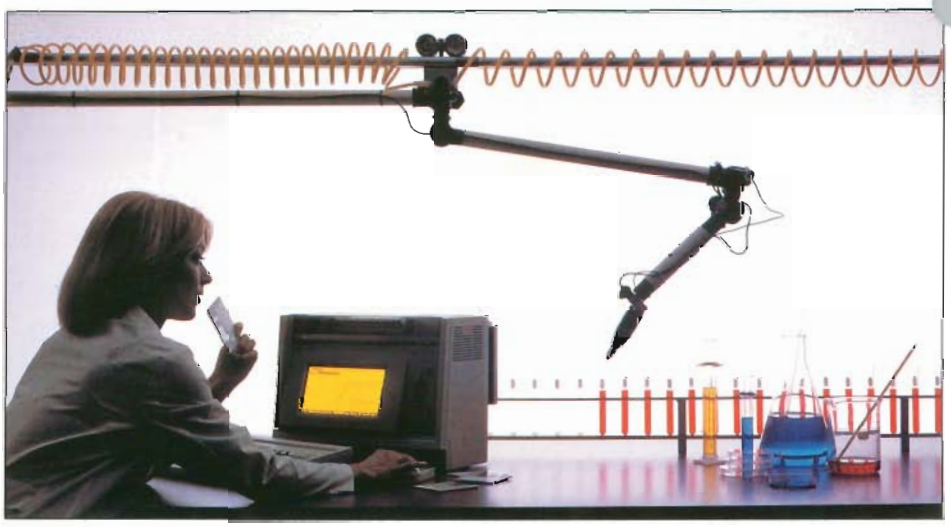
Now technical professionals can have a complete, ready-to-go transportable computer with all the performance benefits of a 32-bit UNIX™ operating system.

(continued on page 2)

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

The new HP Integral PC has everything technical professionals need for full computing power—ThinkJet printer, keyboard, monitor, mass storage, and an optional HP Mouse—neatly integrated in one package. You can set up the Integral PC in less than a minute and produce some powerful results wherever computers are needed. Anywhere you find an electrical outlet, you can plug in the Integral and get things done. In a client's office, on a business trip or project site, at an engineer's lab bench, or in the office down the hall. And, the built-in ThinkJet printer means you can get information on paper anywhere you happen to be working.



With its integrated features, the Integral PC provides new capabilities for instrument control, software development or office use.

A masterful juggler

The new HP Integral Personal Computer, running on HP-UX, an enhanced version of the AT&T Bell Laboratories UNIX System III operating system, unlocks a whole range of computing power. Because of its power, the Integral PC can do things—like multi-tasking—which were previously impossible on a fully integrated and transportable system.

Multi-tasking is the ability to run several programs simultaneously on a single computer. The Integral PC's window manager, "HP Windows," provides the ability to view many applications at one time for enhanced control.

HP Windows is like having a telephone with multiple lines and a hold button. You can put one project "on hold" while you get information from another. Once you get the information you need, you can pick up the first project right where you left off. This means that you can have a bar chart in one window, a pie chart in another and write a report in the third window that talks about both charts.

The Integral PC's Personal Application Manager (PAM) simplifies the use of the HP-UX operating system making it easy to use HP Windows, start application programs, manage files, or change the Integral's configurations.

Software solutions to help you manage

From software development to productivity applications, Hewlett-Packard has solutions that will give the Integral PC the power to produce results anywhere. Engineers and scientists can use the Integral PC for computer-aided work, including technical analysis and general-purpose productivity applications such as word-processing and spreadsheet analysis. The Integral PC is an excellent engineering tool for:

- Computer-aided test
- Software development—tools include compilers and HP-UX Technical BASIC
- Specific design solutions for chemical engineering, structural engineering, and surveying.

Real-time extensions available through HP-UX provide powerful instrument control capabilities.

The Integral PC offers more than any other computer in its price range. In addition to being a low-cost instrument controller, the Integral PC is an excellent office assistant for the technical professional—thanks to general business packages like Microsoft®, Multiplan®, MicroTrak™, TK!Solver™ and HP's own MemoMaker.

Integrated into the Integral PC is a ThinkJet printer, 3½-inch double-density disc drive, a 9-inch electroluminescent display and a full-size keyboard. The mouse is optional.

Transportable and integrated

With its integrated features, the

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The Integral is multitasking and allows the technical professional to print a spreadsheet, compile a program and search a data base—all at the same time.

Integral PC offers a liberating alternative to a stationary desktop computer. It comes with a remarkable 512K bytes of memory expandable up to 1.5M bytes. The single 3½-inch, double-sided disk drive has a capacity of 710K per disk.

The Integral PC incorporates a high-contrast, amber display with square pixels for a sharper image. The amber color makes the screen easy on the eyes, which is important when using the computer for long periods of time. You can even adjust the tilt of the screen to give you the best view.

Because the Integral PC was designed to be transportable, it is rugged. Its 25-pound package is comfortable to carry and a snap to set up. With a padded handle and compact design, it is easy to take along. The whole package with its sleek European design takes up less than one square foot of desk space.

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Microsoft, Multiplan are U.S. trademarks of Microsoft Corporation.
MicroTrak is a U.S. trademark of SofTrak Systems.
TK!Solver is a trademark of Software Arts, Inc.

Integral PC adds new dimension to biotechnology lab

Using the new HP Integral personal computer, scientists at HP Genenchem* have begun automating microtitration, a fundamental process in genetic engineering and other disciplines of biotechnology, with a combined hardware and software product called TiterCalc.

Microtitration, as it is currently performed in most laboratories, is a tedious process. Highly-skilled laboratory personnel spend an average of one half-hour to manually transcribe data from ELISA (Enzyme Linked Immunosorbant Assay) readers. With no check against the possibility of transcription errors, they then spend about forty-five minutes on each microtitration plate performing repetitive statistical analyses.

With TiterCalc, this process is performed in less than two minutes—acquiring, displaying, manipulating, and storing data from ELISA readers with assured accuracy. The result is significantly decreased product development time.

Combining software from HP Genenchem with the Integral PC, TiterCalc automates the data processing of microtitration in biotechnology laboratories.

Simple system design delivers flexible solution

Further increases in productivity result form the HP Integral PC's multi-tasking capability, which allows more than one process to be executed in parallel.

With this powerful combination of capabilities, users can, for instance, compare old and new data; or monitor the acquisition of data from an ELISA reader in a background window while working on a lab report in a foreground window. In fact, multi-tasking means that with additional software, TiterCalc's hardware will be able to control the modules HP Genenchem adds to its automated microtitration system.

As a further investment in accuracy and productivity, an optional bar code reader will soon be available. By simply passing the wand over a bar code on a microtitration plate, users will instruct TiterCalc to reference stored plate formats, calculations, and report formats—producing a complete report with the results. Not only does this minimize the risk of incorrect plate formatting or data calculations, it eliminates redundant keystrokes.

**HP Genenchem develops and manufactures instrumentation for the biotechnology industry. The company was formed in July, 1983, as a joint venture between Hewlett-Packard and Genentech, a leader in the field of recombinant DNA technology.*

Now an HP laser printing system for IBM® mainframes

The HP 2689A subsystem combines the HP 2680A laser printer with a separate control unit that plugs into an IBM mainframe.

Hewlett-Packard's new IBM-compatible laser printing system puts HP into your organization—cost effectively. The HP 2689A Laser Printing System, which includes an HP 2680A laser printer with an IBM channel-control unit, offers a better way to put computer-generated information directly into decision makers' hands. Data can be prepared and presented in a more timely, meaningful, cost-effective manner with maximum flexibility in formatting output, character selection, high quality printing, and information distribution to meet office and data processing needs.

The 2689A Laser Printing System combines the HP 2680A Intelligent Page Printer and a channel interface to an IBM mainframe. The system is designed to operate on-line as an IBM 3211 printer replacement and can be connected to the IBM System 370, 43XX, 303X or 308X byte or block multiplex channels. The laser printing system also is fully integrated with HP 3000 computer systems. This combination allows users throughout the organization to take advantage of the high quality output and flexibility inherent in laser printing.

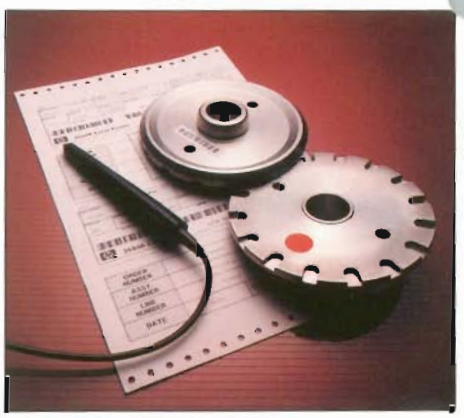
Printing versatility for every application

Whether it be for bar code printing for inventory tracking, page reductions for archival storage, or logos and signatures for office correspondence, this 45 page-per-minute workhorse offers the printing versatility your business demands.

Unlimited positioning of images on paper offers new capabilities for your computer-generated output. Data combined with variable character sizes and electronic forms produce more useful reports on manageable, notebook-size paper.

Electronic forms replace expensive, preprinted forms, reducing the costs of storage, printing, and data center paper handling. HP offers Output-Design Service (ODS) to create these designs for you. In addition to forms design, ODS provides customized logo design and electronic scanning of signatures.

Copying documents for volume distribution is also reduced because every user receives an original. The effort required to generate and distribute operating information is minimized, improving the efficiency of the decision makers who use the data.



With applications such as bar code printing for inventory tracking, the HP 2689A offers the printing versatility your business demands.

The HP laser printing system offers a medium-speed printing alternative for applications printing 100,000 to 800,000 pages per month. For output requirements exceeding 800,000 pages per month, more than one HP 2689A can be added to the mainframe.

®IBM is a registered trademark of International Business Machines Corporation.

AUSTRALIAN
AREA NEWS

FOXBORO, HEWLETT-PACKARD REACH WORKING AGREEMENT FOR INTEGRATED SYSTEMS

The Foxboro Company and Hewlett-Packard Company, USA, have announced the formation of a strategic partnership designed to provide integrated information networks for use in the process and energy producing industries.

The agreement focuses on an OEM arrangement which makes available information-based systems using Foxboro process control technology in combination with Hewlett-Packard distributed data processing and real-time systems. The agreement calls for Foxboro to adopt HP computer products as its standard for use in such integrated systems, although Foxboro will provide information interface compatibility with other computers if requested.

The Australian subsidiaries of both companies will be party to the US agreement.

Hewlett-Packard Australia's Managing Director, Dr. David Booker, believes the agreement will further enhance the close working relationship which has existed between the two companies in Australia.

Commenting on the partnership, Mr. John Watson, Managing Director of Foxboro, said, "The combined resources of our two organizations give process industries access to the most effective information-based plant management and control systems available today.

"Foxboro is a leading worldwide supplier of process control systems, and HP enjoys a similar position as a supplier of distributed data processing and other levels of computer systems. The two companies can make a powerful joint response to the needs of industries now engaged in the transition from stand-alone, measurement-based systems to integrated, information-based networks."

HP's MD, David Booker, (left) with John Watson (right) MD of Foxboro, during a recent tour of Foxboro's Lilydale facility.

Good News about Financing your new HP equipment

Equipment planning and financial planning go hand-in-hand and Hewlett-Packard offers specialised advice on both.

No-one knows more about HP equipment than we do and Hewlett-Packard Australia Finance Ltd. can tailor the equipment-finance package best suited to your individual needs.

Flexibility is the keynote.

- Flexibility of finance type to suit your business needs, be it leasing, commercial purchase or selected rental.
- Flexibility of structured payment finance, with your choice of fixed or variable rates.
- Flexibility in future financing needs.

When the time comes to up-grade or add-on to your equipment, you will find us able to re-finance your requirements without fuss.

You will not find a comparable solution that matches Hewlett-Packard Australia Finance's flexibility, ease of implementation and cost effectiveness. Our finance representative would be pleased to help you assess your equipment-finance requirements.

For further information call HP's in-house finance company on (03) 895 2888.

Water Commission drowns its ledgers

One of the State's oldest Statutory Authorities, the Rural Water Commission of Victoria (formerly the State Rivers and Water Supply Commission) is pulling out the plug on its turn of the century ledger system. It's being replaced with computerised information systems, combining commercial accounting, administrative support and technical applications, worth over $3/4 million.

The Commission is responsible for the operation, maintenance and construction of works required to supply 80% of Victoria's water to rural Victoria for minor urban, irrigation, and domestic and stock use.

Water management powers and responsibilities of the Commission also include salinity investigation and water quality control, stream and flood plain management, the provision of drainage and the assessment, investigation and management of the State's surface water resources as well as management of ground-water resources.

Mr. David Constable, General Manager of the Commission, said that since the Commission's inception in 1905, the role of the Commission had changed considerably, but the Commission's financial accounting and administrative support systems to assist with the management of the State's most limited and natural resource – water – had changed at a somewhat slower rate.

"Now, with the introduction and implementation of current up-to-date technology computer systems, the Commission will become more effective and efficient; we will move closer to our objective of becoming self-financing".

The Commission has had little experience with computers in the past having only purchased a Hewlett-Packard 3000 Series II in the late 70's for use on engineering and technical applications and for storing water resource data.

Five years ago, the Public Service Board and the Commission reviewed accounting and administrative operations and found that the Commission needed to upgrade its accounting, information systems and use of computer technology.

A strategy proposed by Information Systems Manager, Mr. Bill Clarke to produce an Information Systems Plan as an integral component of the Commission's proposed Corporate Plan was adopted to guide the Commission through the envisaged major changes. Consultants Arthur Andersen & Co., were engaged to assist with the preparation of both the Corporate and Information Systems Plan.

Specific objectives, goals and strategies identified in the Corporate Plan capitalise on the Commission's strengths and address areas that require management action. Of particular significance are those which apply to policy and planning natural resource management, organisation structure, financial policies and information systems. Major strategies and projects were implemented to address these areas.

The Information Systems Plan identified the following systems projects to be completed within the first two years of the plan:

- Data processing equipment evaluation and selection
- Financial Management and Reporting
- Office Systems
- Stores Management
- Financial Modelling
- Hydrographic Data Management
- Laboratory Data Management
- Groundwater and Bore Information System
- Computer-aided Design and Draughting
- Asset Recording and Maintenance.

Mr. Clark said: "These projects were selected because of the requirement to address Commission and Government objectives relating to accountability and financial reporting, and the need to improve overall efficiency and effectiveness".

"As the Commission's functional areas embrace both technical and commercial computing requirements, a total systems solution that would blend these two together was required. Hewlett-Packard with their extensive hardware, software and graphics product range seemed best placed to satisfy these requirements".

"We found that HP's approach provided an integrated solution for the Commission. For example, financial accounting is linked to office automation which is linked to data management systems and graphics. The benefits of this approach with integration across the Commission allows total corporate information needs to be addressed and gives significant cost and labour savings", he said.

Replacement of the Commission's old manual ledger system with a computerised commercial accounting system was top priority. Mr. Bob Welsh, Director of Financial Management and Administration for the Commission, commenting on the introduction of the new Accounting System said, "One of the problems involved in choosing financial accounting software for the Commission is that we have a requirement for Government program budgeting, responsibility accounting and standard commercial financial accounting for 50 separate financial entities or companies".

"Accounting packages from major software companies were reviewed, but the one which stood out above the rest was Hewlett-Packard's HPFA, it provides us with an advanced computer system that is extremely flexible, yet is "off the shelf, and doesn't need to be modified to any degree".

He also said HP's Financial Accounting package had made it possible for the Commission to change its government accounting role into a more commercially oriented function.

Hand in hand with the introduction of new systems in the Commission has been the dramatic modernisation of office procedures using Hewlett-Packard office automation products.

The Office Automation products from HP that are being phased in are HP Desk Manager, the world's largest selling organisational communications software package, HP Word for word processing and HP Draw for creating graphics.

When installation is completed, the Commission's Head Office will be running two HP 3000's Series 48, a large roll feed HP plotter, the latest HP laser printer with full graphics capabilities, and 40 terminals.

By February 1985, the Commission's 23 regional offices throughout Rural Victoria will each have a Hewlett-Packard Touchscreen personal computer workstation and be linked to Head Office via Telecom's communication facilities.

The Government is committed to implementing change and reform within the public sector to achieve efficiency, effectiveness and accountability objectives and to provide the public with increased opportunities to have input to the decision-making process.

"The ease with which the Hewlett-Packard computer system is being installed in the Commission leads the way for other statutory authorities to implement computer technology and derive the same benefits the Commission is receiving," the General Manager added.

Bits 'n Bytes and Rock 'n Roll

When veteran rock and roll band The Grateful Dead hit the road for a tour in October, they'll be taking along several Portables from Hewlett-Packard. Band members Mickey Hart (left) and Phil Lesh (right) are working on programs for the nine-pound portable computer that will help them control the sounds of their instruments. In addition to its musical applications, The Portable allows band members to communicate with colleagues and family while touring. And with the system's built-in word processing software, the musicians can easily jot down lyrics and musical ideas whenever they occur.

Substantial savings on HP equipment

HP occasionally offer used demonstration equipment for sale at a discount. This is a great opportunity to purchase peripherals, terminals, etc., at a substantial discount. All demonstration equipment is offered with a standard HP warranty and installation as appropriate. Discounts will vary according to the age and condition of the equipment. Availability is subject to prior sale. Your local HP sales office can provide further details.

"Talking" HP 150 Touchscreen Personal Computer

Nine blind Hewlett-Packard employees were among the 90 people who attended the U.S. introduction of an HP Touchscreen Personal Computer modified with a 'voice' for easier use by those who are blind or severely visually impaired.

The "talking" HP 150 Touchscreen PC is the newest product of Maryland Computer Services of Forest Hill, Maryland, who previously modified an HP 2621 Terminal and HP 125 Computer for speech output.

The "Talking" HP 150 is considered a state-of-the-art system that offers a choice of options for users according to their needs (such as braille translation or large-print production). Connected with an HP 3000 computer, it provides the first "talking" link to HP DESK and HP SLATE office-utility programs for company employees.

According to Sharon Connor, HP's Corporate Staffing Affirmative Action specialist, MCS has agreed to develop a special pricing structure for purchase of the product by HP for its employees or by HP people for their own use.

Hewlett-Packard Board Member honoured

Hewlett-Packard board member Shozo Yokogawa has received from the Emperor of Japan, the Second Order of the Sacred Treasurer in recognition of his vision and leadership in the field of international commerce. He is president and chief executive officer of Yokogawa-Hokushin Electric Corporation in Tokyo and was the first president of the joint venture company Yokogawa-Hewlett-Packard, which he headed for 11 years.

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Computer Museum

New HP CAE system cuts microprocessor product development time

Now engineers in large design environments can streamline microprocessor-based product development with a new high-speed link between the HP 64000 logic development system and an HP 9000 Series 500 computer. The combined strengths of these two systems maintain the integrity of distinct projects while allowing a high degree of resource sharing and overall system management. Many engineers can share the same data base and combined interactive tools for hardware and software tasks. Therefore, system integration, often the most time-consuming development phase, also is enhanced. This means product development schedules are shortened and better products get to market faster.

Tightly coupled design and analysis tools provide an integrated development environment to speed the microprocessor design process.

Combined systems produce powerful economies

The HP 64000 logic development system is an effective solution to shortening the microprocessor design cycle. It's the first system to combine advanced software development, real-time emulation, and sophisticated hardware/software analysis.

Adding HP 9000 workstations and computer terminals to the development system provides many more input sites and more economy per user station. Beyond that, there is more computing power and the advantages of HP-UX, HP's enhancement of the UNIX™ operating system.

The HP 9000 family of computers range from single-user systems up to multiuser systems incorporating Hewlett-Packard's own state-of-the-art 32-bit microprocessor. The computer links directly to the high-speed HP 64000 system bus so that it shares the same data base with the development system.

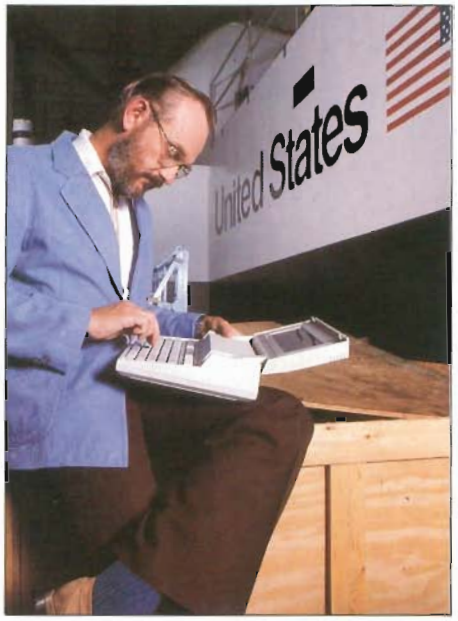
The HP 9000 family of computers also offer extremely powerful networking capabilities that allow easy sharing of data from team to team, yet preserve team independence for project management purposes. They also accommodate a variety of physical layouts, whether the lab is across the hall from the engineer or across the country. An electronic mail system and other communications software encourage and speed the sharing of information between design teams as well as between team members.

A total R&D CAE solution

No matter how powerful the development system, it must be considered in the context of the entire lab environment. The HP 64000 logic development system is a member of the Hewlett-Packard Engineering Productivity Network. EPN is the HP blueprint for a totally integrated engineering environment. It includes a wide variety of networked, HP engineering computer solutions, ranging from small, personal engineering workstations to powerful multiuser systems.

Hewlett-Packard also recognizes that you may have existing investments in computers from other manufacturers. General purpose communication software is included with all HP 64000 systems, enabling it to integrate easily with many other computer systems. HP 64000 system microprocessor development software also is available to run on DEC VAX™ series computers. This means that you protect existing investments and still take advantage of all the power of the HP 64000 system.

UNIX is a trademark of AT&T Bell Laboratories. DEC, VAX are trademarks of Digital Equipment Corporation.



The Portable helps solar physicist Loren Acton keep other projects going while he trains for a space shuttle flight this year.

The HP Portable helps solar scientist prepare for space mission

"If you're involved in making science happen, there's a lot of planning and communicating that goes on," says Dr. Loren Acton, solar physicist and senior scientist at Lockheed's Space Sciences Laboratory in Palo Alto, California.

Acton has studied the sun for more than 20 years, designing experiments that investigate solar activity both from Earth and space.

Currently, Acton is training for a flight aboard Spacelab 2, as well as participating in several other projects. While aboard Spacelab—a sophisticated laboratory that travels inside the Space Shuttle—Acton will use four solar telescopes to observe the sun. He'll be checking for magnetic fields and noting their effects on the solar atmosphere. To help him stay organized here on earth, track budgets and contracts, and—most importantly—communicate with people around the country, Acton uses The Portable.

"I travel quite a bit and the telephone just isn't sufficient for my needs," says Acton. "The HP Portable provides me with the equivalent of one-day mail delivery—I can send a message and get a reply immediately."

With built-in software, such as 1-2-3™ from Lotus™ and HP's MemoMaker word processing, Acton can perform spreadsheet analysis and generate memos anywhere.

Lotus and 1-2-3 are U.S. trademarks of Lotus Development Corp.

Physician uses HP 150 and The Portable to manage medical practice

"The Portable and the HP 150 represent a quantum leap ahead in managing a medical practice more efficiently," says James E. Zuckerman, M.D., an obstetrician-gynecologist on the staff of Emerson Hospital in Concord, Massachusetts.

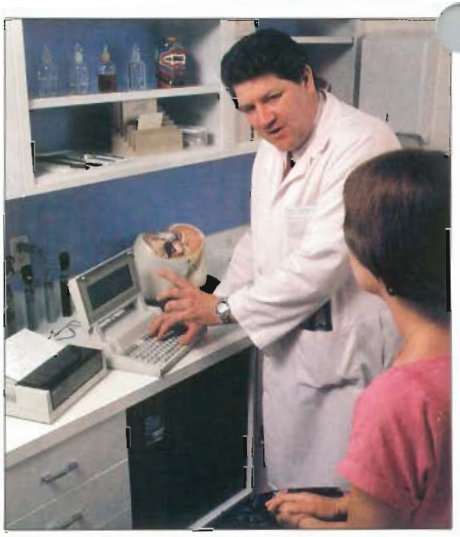
Dr. Zuckerman uses The Portable as an electronic notebook, typing in the physical findings from patient exams on the spot. Using a predefined exam template created with the help of The Portable's MemoMaker software, Dr. Zuckerman can generate a complete patient report during an examination. He then adds his diagnosis and treatment plan. These and other reports are stored in the computer's memory and can be printed out for the patient on the ThinkJet printer right in the examining room. At the end of the day, all of this information can be transferred to the patient's permanent medical record in the HP 150. Because all forms are stored in the computer's memory, duplicate copies in a file cabinet are not necessary.

Making medical information more meaningful

Once the activity from the patient visit is in the computer's memory, still further analysis and integration of the information is possible. With the assistance of Harvard Medical School student Martha Hodgkinson, Dr. Zuckerman has developed two patient data bases, one for pap smears and the second for mammography.

Using CONDOR™ data base management software on the HP 150, Dr. Zuckerman can look at information in a variety of different ways. For example, he can see an alphabetized list of all active or inactive patients, or a list of pap smear histories for any number of patients.

Using a similar procedure, Dr. Zuckerman keeps track of all of his patients who have had mammograms. Correlation of the data provides a risk factor index based on patient history. With this information Dr. Zuckerman can compare physical findings with mammography results, and keep track of the total X-ray dosage to which each patient is exposed. The system also provides a call-back mechanism when a repeat mammography is indicated.



Dr. Zuckerman uses The Portable to generate a complete patient report during an examination.

CONDOR is a U.S. trademark of Condor Computer Corporation.

Computer network will save millions of dollars for McDonnell Douglas Division

Douglas Aircraft Company wanted a versatile computer system to help build the complex wiring mazes that control the lighting, sound, and navigation systems of their DC-10 and MD-80 commercial jet transports. The company chose a computer network linking an HP 3000 and two HP 1000 systems to an IBM mainframe computer.

Since its installation in December of 1983, the computer network has significantly cut down on the time required to complete the manufacturing process and has proven to be well on the way to saving what was projected to be $1.1 million over a five-year period.

"Twenty years ago all the wiring in airplanes was performed by hand," explained Jim Sadler, section chief with the company's Wire Data Systems Group. "Now there are complex computer installations throughout the organization, and particularly in my area," Sadler pointed out, "doing everything from generating wiring diagrams to testing finished wire harnesses."

Sadler's group supports the manufacture of electrical wire harnesses, devices that organize the complex of wires within jetliners. He pointed out that any one plane can contain as many as 300 wire harnesses, each using from 5 to 5,000 pieces of wire.

"Today, we use computer terminals to extract design data from a large data base housed in an IBM mainframe, bring it down to our HP network, then transmit it electronically to the people who actually build the harnesses," Sadler explained.

"Our buying decision was an extremely competitive one," he said. "We looked at all the current equipment on the market, measured it against our needs and found that Hewlett-Packard was clearly the supplier we wanted to go with. Hewlett-Packard came out on top in part because it offered the distributed systems HP 1000-to-1000 and HP 1000-to-3000 networking tools, as well as the HP IMAGE data base management system software."

Douglas Aircraft technician sets up completed wire assembly for analysis and testing.

In Brief

- Hewlett-Packard's Chairman of the Board David Packard will give the keynote address at Interex's first international conference for the entire HP computer user community—HP 3000, HP 1000/9000, and HP personal computer professionals. The theme of the conference is "Information Crossroads of the 80s." All HP computer users are invited to attend the conference September 8-13, 1985, at the Hilton Hotel in Washington, D.C.

- HP's North American Response Centers have initiated an After Hours Dispatch Service and expanded Tele-Support coverage hours for hardware support in the U.S. Customers with system-level hardware contracts will have one toll-free number which provides access to hardware support while the local office is closed. HP 3000 Customers participating in the Tele-Support program may qualify for remote hardware diagnosis available more than 19 hours a day, Monday through Friday; if an on-site visit is necessary, a CE will be dispatched. For more information, contact your local sales office.

- *Making the LAN Connection*, the latest in a series of Hewlett-Packard primers on data communications, takes a close look at local area networks—their characteristics and advantages, where and how they are used, and how to evaluate them. To order copies of this primer, call toll-free 800 538-8787 if you are in the U.S. From California, please call 408 738-4133.

ECZEL Corporation saves $1.5 million in just ten months with HP computer network

ECZEL Corporation, a wholly-owned subsidiary of Crown Zellerbach, uses a network of 23 HP 3000 computer systems to link together 22 distribution centers across the country. ECZEL's offices, which include sales offices and warehouse facilities, sell and distribute computer supplies to Fortune 1000 companies.

ECZEL's Vice President of Sales, Linda Bos, says, "We're growing in excess of 10 percent a month. Ten months ago we made a major investment in HP. The return on that investment is already apparent. Our HP systems can expand with us as we grow. HP 3000 System for Distributors (SFD/3000) software automates data processing for marketing, sales, warehouse functions, and management planning." Using HP SFD/3000, ECZEL has improved customer service by providing quick turnaround and national account pricing.

Every night, sales information from each of ECZEL's distribution centers is transmitted electronically to sales headquarters using HP Touchscreen personal computers. "By networking the systems and using HP's word processing and electronic mail software, we've streamlined communications. HP's reliability has enabled us to improve productivity throughout our company saving $1.5 million this year alone." Bos said.

In less than a year, three ECZEL employees implemented the HP software at all 22 sites. Through advanced planning and good project management, ECZEL's implementation plan produced impressive results.

"HP responds quickly and effectively to our needs." Bos concluded. "Based on this response, we are confident in HP as a supplier and plan to expand our distribution network with additional HP 3000 computer systems and software."

All prices quoted herein are $US list and are subject to change without notice.

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