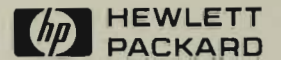
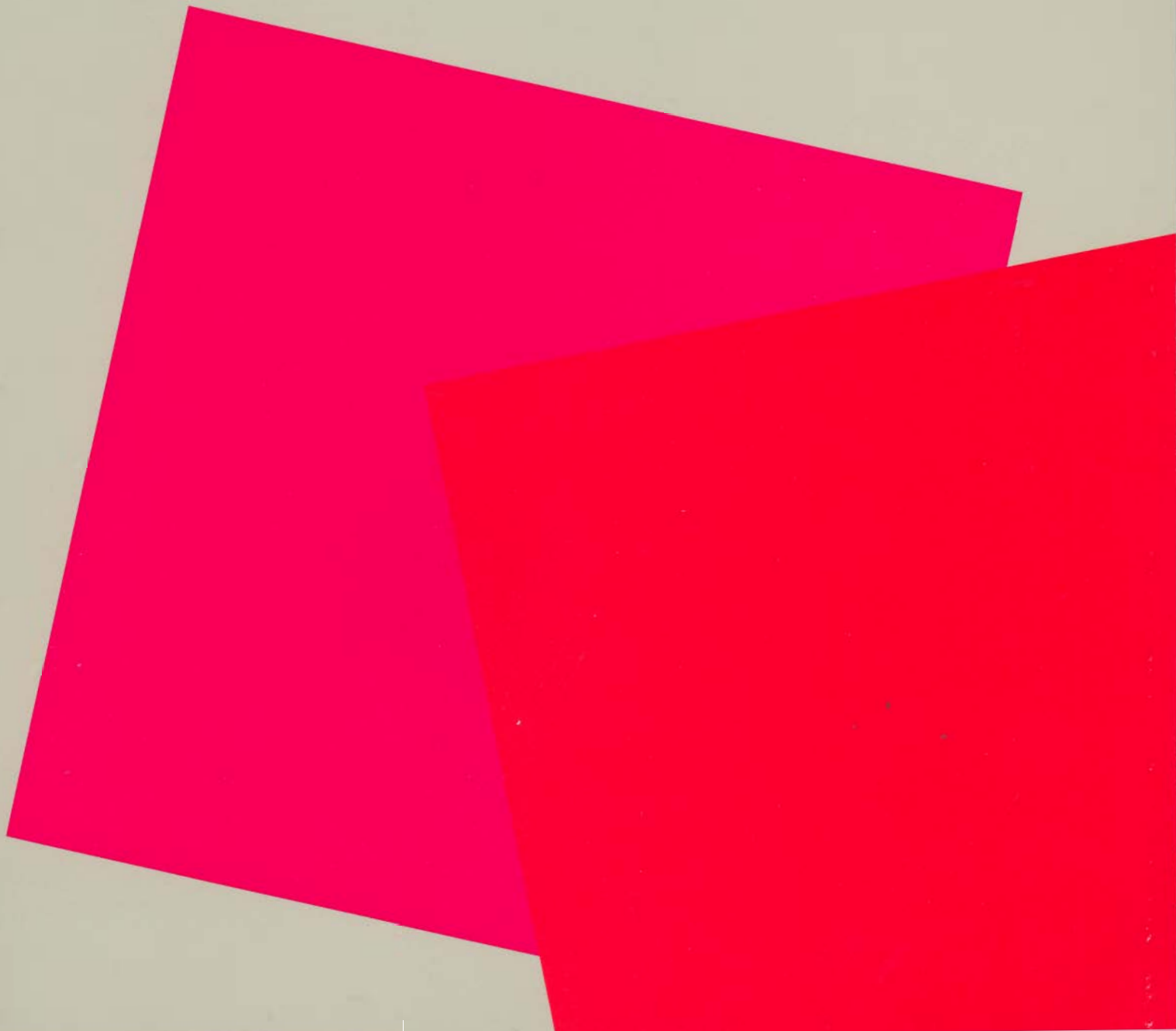


The HP 1000 Family



Advanced Computer Power Comes Together for
Complete Spectrum of Automation Applications



The HP 1000 Family

For automation applications



HP 1000s. **A versatile family** **of computer products** **designed to match your needs**

HP 1000 is a family of related computers, systems, software, and peripherals that's designed as a vital part of the Hewlett-Packard Manufacturers Productivity Network. HP-MPN provides a complete framework for linking computers and controlling the flow of computer-generated information throughout a manufacturing company to achieve productivity gains.

HP 1000 embodies an open-system strategy designed to help you put together the right combination of computer products to match specific real-time needs in manufacturing, process and laboratory automation, and other performance-critical jobs.

Putting the right combination together is simple with the HP 1000 family. Select the level of computing power you want from three series of HP 1000 computers — the A, E, and F-Series. Choose from three levels of packaging — boards, boxes, or systems. Then fine-tune for your particular needs

with an array of hardware and software modules and subsystems that are built to work together.

The HP 1000 strategy means compatibility, too. Compatibility puts all the potential of the HP 1000 family at your disposal — because it's the element that lets you grow. HP 1000 compatibility reaches across the entire family of products:

- HP 1000 computers. The A, E, and F-Series computers use the same basic instruction set. You can change models to fit your needs, with little effect on software, peripherals, or operator training.
- HP 1000 systems. Move up from the smallest memory-based system to the largest disc-based system at any time — all at once or in increments.
- HP 1000 operating systems. Compatibility is the strength of HP's Real-Time Executive (RTE) operating system software. Choose the computer that suits your application. RTE will support your growth into more capability when you want it, because programs written on one RTE will execute on others with minimal modification.
- HP 1000 software. Our software sets us apart from the others, with products for data base management, graphics, and distributed systems networking available to help you tailor a solution to your needs.

Hardware and software **combine for powerful** **application solutions**

HP 1000 computers and highly functional software are designed to match the major operating functions within your manufacturing center.

- Plant automation — HP's wide range of hardware and software supports automation of instruments and machines as well as monitoring and control of real-time processes. HP 1000 systems can help improve productivity and reduce costs.
- Computer networking — HP's DSN hardware and software makes it easy to interconnect HP 1000 systems to other systems across a city or a continent, sharing vital information throughout the network.
- Data base management — Informed management decisions flow easily and confidently from the timely, accurate information maintained in an Image/1000 data base.
- Interactive graphics — Hewlett-Packard offers a complete line of graphics hardware and software products for simplifying presentation of complex data or developing product designs.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

HP 1000 Computer Systems

Compatible processors for real-time performance



The Model 60 and 65 Systems

The Model 65, one of HP's most powerful systems, supports the most extensive array of software available for HP 1000 systems. Coordinated by the powerful RTE-6/VM operating system, which supports Extended Code Space for large programs, the Model 65 offers impressive capabilities for many technical uses.

The Model 65's F-Series computer also delivers fast processing power, one million instructions per second plus an average of 180,000 hardware floating point operations per second. Scientific and vector instruction sets put the Model 65's fast floating point

power to work on trigonometric, logarithmic, and other transcendental calculations and fast processing of data arrays.

Up to 3.2 gigabytes of disc storage, main memory up to 2 megabytes, and user microprogrammability provide the capacity and flexibility needed to meet your specific application requirements.

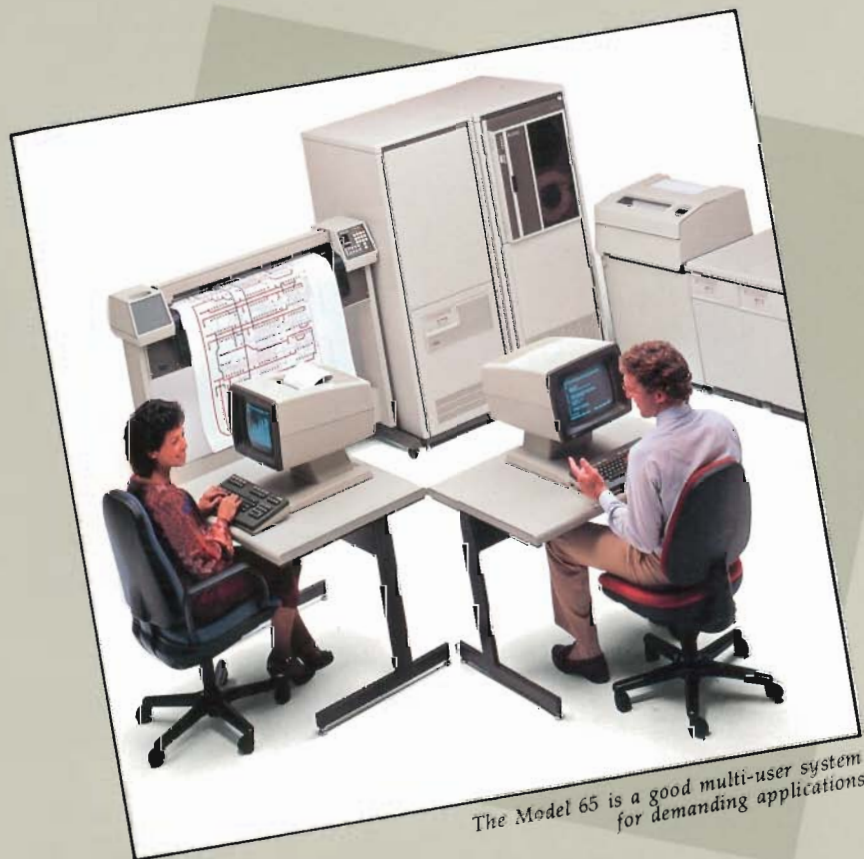
A Model 60 system is available for users who do not need the fast hardware floating point capability and scientific and vector instruction sets of the Model 65.

Diverse power levels equal your toughest challenges

The HP 1000 systems family consists of nine models with various levels of capability. Each model includes an RTE operating system and basic system processor unit hardware. With a hard disc and optional software, each model can be used to develop programs in BASIC, FORTRAN 77, Pascal, and Macro/1000 assembly language. All systems also support data base management, graphics, and distributed systems networking.

Shareable memory resident data arrays and virtual data arrays support large data processing applications. A wide choice of peripherals, I/O cards and software can be added to work together on your applications to maximize the value of your system investment.

Megabyte-sized memory is available in value packs with attractive sets of software products at low package prices that offer exceptional value.



The Model 65 is a good multi-user system for demanding applications

The Model 29 System

The Model 29 is the fastest HP 1000 computer system you can buy. Using the A900 computer with built-in hardware floating point processor and scientific and vector instruction sets, the Model 29 processes over half a million floating point operations per second on top of its three million instructions per second base computational performance. The Model 29 can be microprogrammed by the user in a high-level like language to speed it up even more for special uses.

The standard 768 kilobyte memory, with Error Correcting Code (ECC) capability for maximum system integrity, is expandable to 6 megabytes. The standard memory card can be replaced with a new 3 megabyte ECC memory card affording memory expandability to 24 megabytes. With that much memory, virtually all applications can be resident at the same time to optimize responsiveness.

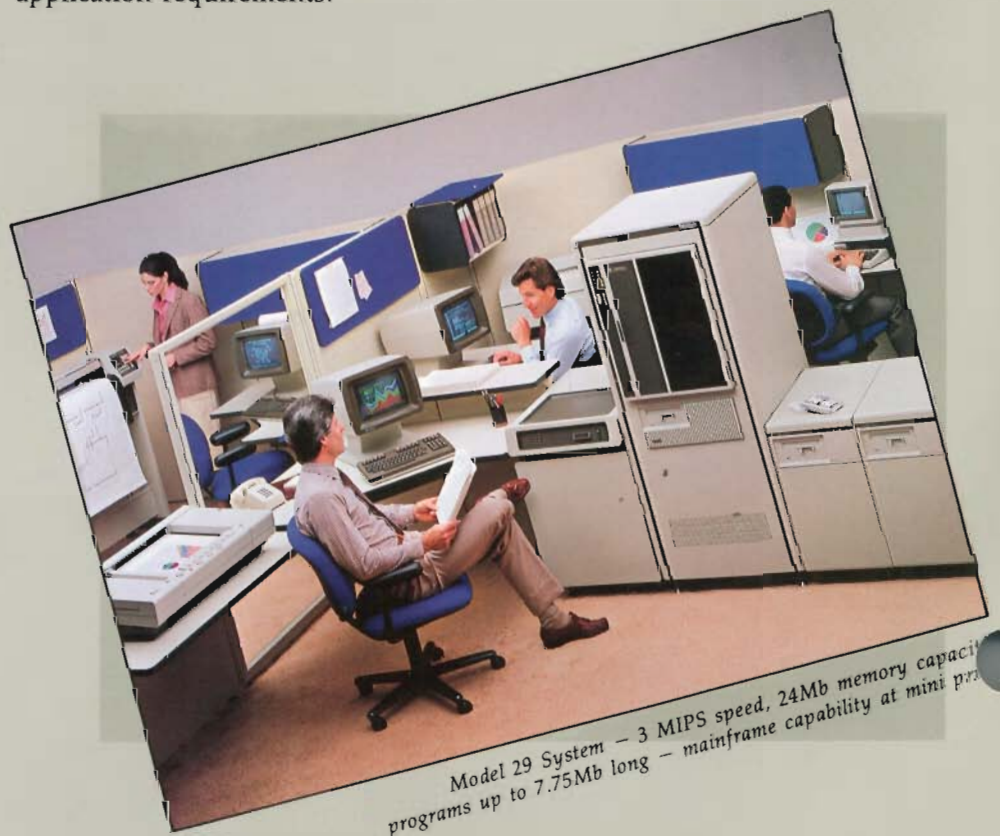
VC+ gives you the ability to develop and execute application programs as large as 7.75 megabytes. System discs up to 132 megabytes include an integral tape cartridge for software loading and system backup. These discs also use a sealed design that tolerates adverse industrial environments. Four 404 megabyte peripheral discs (a total of 1616 megabytes) can be connected to a single card cage slot.

The Model 29's computation speed and capacity qualify it for the most demanding jobs in simulation, interactive graphics, and other computation-intensive applications.

The Model 27 System

The Model 27 System incorporates the A700 CPU and its optional hardware floating point processor to provide one million instructions per second computation speed and 204,000 operations per second floating point speed. Scientific and vector instruction sets further enhance the Model 27's computing power. User microprogrammability in a simple, Pascal-like language facilitates performance enhancement and customization to satisfy special application requirements.

The Model 27 supports up to 4 megabytes of main memory, includes the VC+ package for programs up to 7.75 megabytes, and supports the same discs as the Model 29 System.



Model 29 System - 3 MIPS speed, 24Mb memory capacity
programs up to 7.75Mb long - mainframe capability at mini price

The Model 26 System

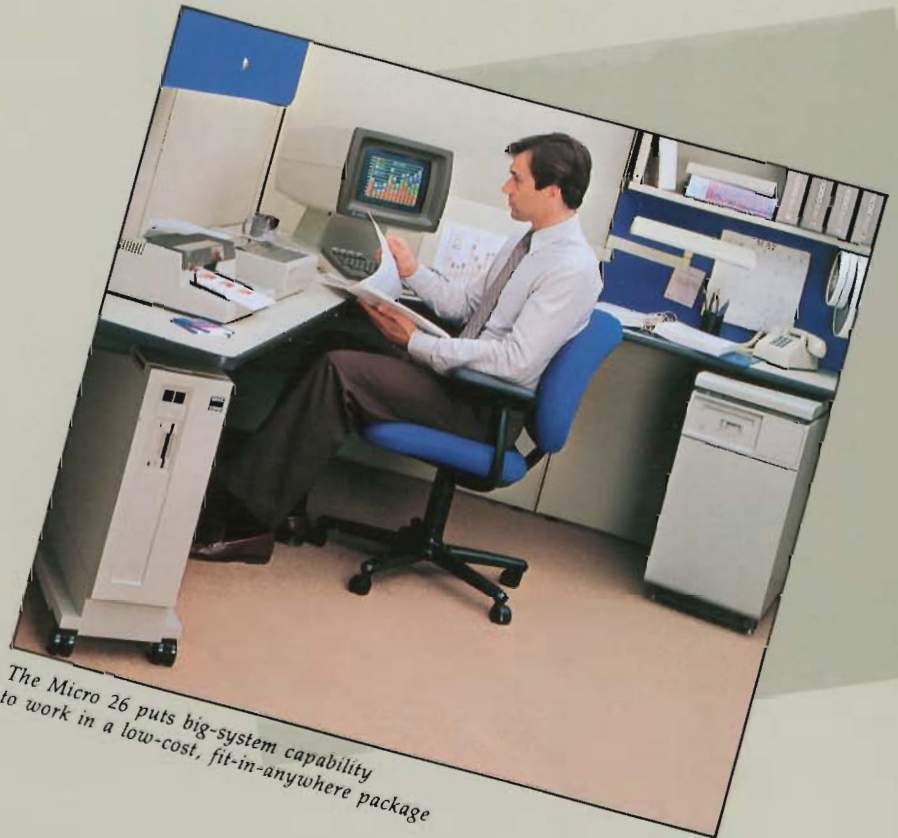
The Model 26 System is based on the surprisingly powerful, low-cost A600+ CPU. One million instructions per second base computational performance plus 64,000 floating point operations per second qualify the Model 26 for a wide variety of automation and manufacturing uses.

The Model 26 supports up to 4 megabytes of main memory and the same discs as the Model 29 System. VC+ for programs up to 7.75 megabytes is optional.

The Micro 29, 27 and 26 Systems

The Micro/1000 family was designed for applications that require the same performance as a Model 29, 27, or 26 in a smaller space and at a lower price. This real-time compact family is comprised of the Micro 29, Micro 27, and Micro 26 Systems. These systems, which have 12 to 14 available card cage slots (vs. 20 slots in the Model 29, 27, and 26), can include integral 14.5 megabyte fixed and 270 kilobyte microfloppy discs or any of the discs available with the Model 29, 27, and 26 Systems. Combine RTE-A with VC+, an optional enhancement package, for large, complex programs up to 7.75 megabytes.

The Micro/1000 package can be rack-mounted or placed in a vertical floor-mounting accessory for desk-side or under-table use. Casters on the floor mount accessory make it easy to move the Micro/1000 system to where it is needed.



The Micro 26 puts big-system capability to work in a low-cost, fit-in-anywhere package

Maintaining the identical hardware and software of the HP 1000 A-Series Computers provides the Micro/1000 family total compatibility with all currently supported HP instruments, terminals, printers, graphic plotters, discs and communication links. This contributes to its high performance, functionality and flexibility.

The Model 6+ Microsystem

The Model 6+ Microsystem is the smallest integrated HP 1000 system available. The Model 6+ is based on the same A600+ CPU as the Model 26 and Micro 26. It can use its own integrated minifloppy discs or 4.6 or 9.2 megabyte hard discs with or without microfloppy discs, or the system discs that are supported in Model 29, 27, and 26 Systems. VC+ support for programs to 7.75 megabytes is optional. Its small size makes the Model 6+ Microsystem suitable for applications that require high performance in a compact, cost-effective integrated package.

HP 1000 Computers

Compatible processors for real-time performance



An impressive array of computer power

HP 1000 computers make up a family of compatible processors designed for high performance in real-time applications. You can choose from a spectrum of computers within an integrated family. The HP 1000 product line includes the A-Series with three levels of performance. The E and F-Series computers combine very good mid-range computation speed with the extra advantage of the most extensive choice of software, interfaces, and peripherals available for HP 1000 computers.

All HP 1000 computers share the same basic set of 80 instructions, plus instructions for bit and byte manipulation, integer and floating point computation, and data communication operations.

The A700, A900, and F-Series computers offer a hardware floating point processor and scientific and vector instruction sets for fast floating point and trigonometric and transcendental calculations.

HP 1000 computers are tough, by design and by test. Ruggedness and reliability are built into HP 1000 computers for operation under a variety of environmental conditions, including extremes of temperature and humidity. Sturdy frames withstand shock and vibration. To ensure reliability, each model must pass rigorous environmental tests.

New breed of automation computers tackles complex real-time applications

Hewlett-Packard's A-Series family of computers provides major new capabilities to take on your most challenging demands. Each family member implements a distributed intelligence I/O design in which each I/O card has its own I/O processor. This processor controls direct access transfers to/from memory with extra intelligence that supports chained multiblock transfers without interrupting the CPU. This leaves the CPU free to concentrate on other tasks with few interruptions and great efficiency.

The A900 computer incorporates a pipeline implementation and a cache memory scheme, providing three times the performance of an A700 computer. The A900 includes built-in floating point hardware with scientific and vector instruction sets, making it especially well-suited for the most computation-intensive tasks in graphics, computer simulations, and process control. 768 kilobytes of ECC memory is standard, assuring system integrity. It also supports the VC+ software enhancement to RTE-A for large programs.

The A700 computer with optional floating point hardware and scientific and vector instruction sets and its basic one million instructions per second performance offers excellent support for computer simulation, graphics, and other computation-intensive uses. The A700 computer is also microprogrammable, so it can be optimized for higher performance or user-customized applications. It is available as a four or five card board computer and box computer. It also supports the VC+ enhancement to RTE-A for execution of large programs.



A600+, A700 and A900 processors are available in this spacious 20-slot box computer



HP 1000 Box Computers

	A600+	A700	A900	E-Series	F-Series
Base instruction set execution speed	1,000,000 instr/sec	1,000,000 instr/sec	3,000,000 instr/sec	1,000,000 instr/sec	1,000,000 instr/sec
Floating point processing speed	64,000 ops/sec	204,000* ops/sec	500,000 ops/sec	40,000 ops/sec	180,000 ops/sec
Memory cycle time	454ns	500ns	181ns eff. average	595ns std 420ns opt	420ns
Distributed intelligence I/O	Yes	Yes	Yes	No	No
Direct memory access rate	4.27Mb/sec	4Mb/sec	3.7Mb/sec	1.8Mb/sec 2.3Mb/sec	2.3Mb/sec
Maximum memory	4Mb	4Mb	24Mb(ECC)	2Mb	2Mb
User micro-programmable	No	Yes	Yes	Yes	Yes

* With optional hardware floating point processor.

The A600+ microcomputer executes one million instructions per second for a wide variety of uses on the factory floor and in the lab. It supports the VC+ enhancement to RTE-A for execution of large programs. It is available as a board computer and as a box computer.

Powerful software unleashes a full spectrum of capabilities

Thousands of HP 1000 E- and F-Series computers are working in tough applications all over the world. Their proven performance means that more HP-supported and third-party software is available for them, as compared to the A-Series. This software can make an indispensable contribution to successful, cost-effective implementation of your applications.

The HP 1000 E-Series computers provide one million instructions per second performance for real-time applications. Microprogrammability lets you enhance performance for specialized applications.

The F-Series adds the extra power of a hardware floating point processor with a scientific instruction set to the excellent performance of the E-Series. A vector instruction set for extra-fast vector/matrix calculations is optional. Further performance increases are available through user microprogrammability, which supports microcoding of frequently-used software or special microroutines needed for customized systems.

HP 1000 Board Computers

Full power and maximum flexibility

A choice of board computers lets you do it your way

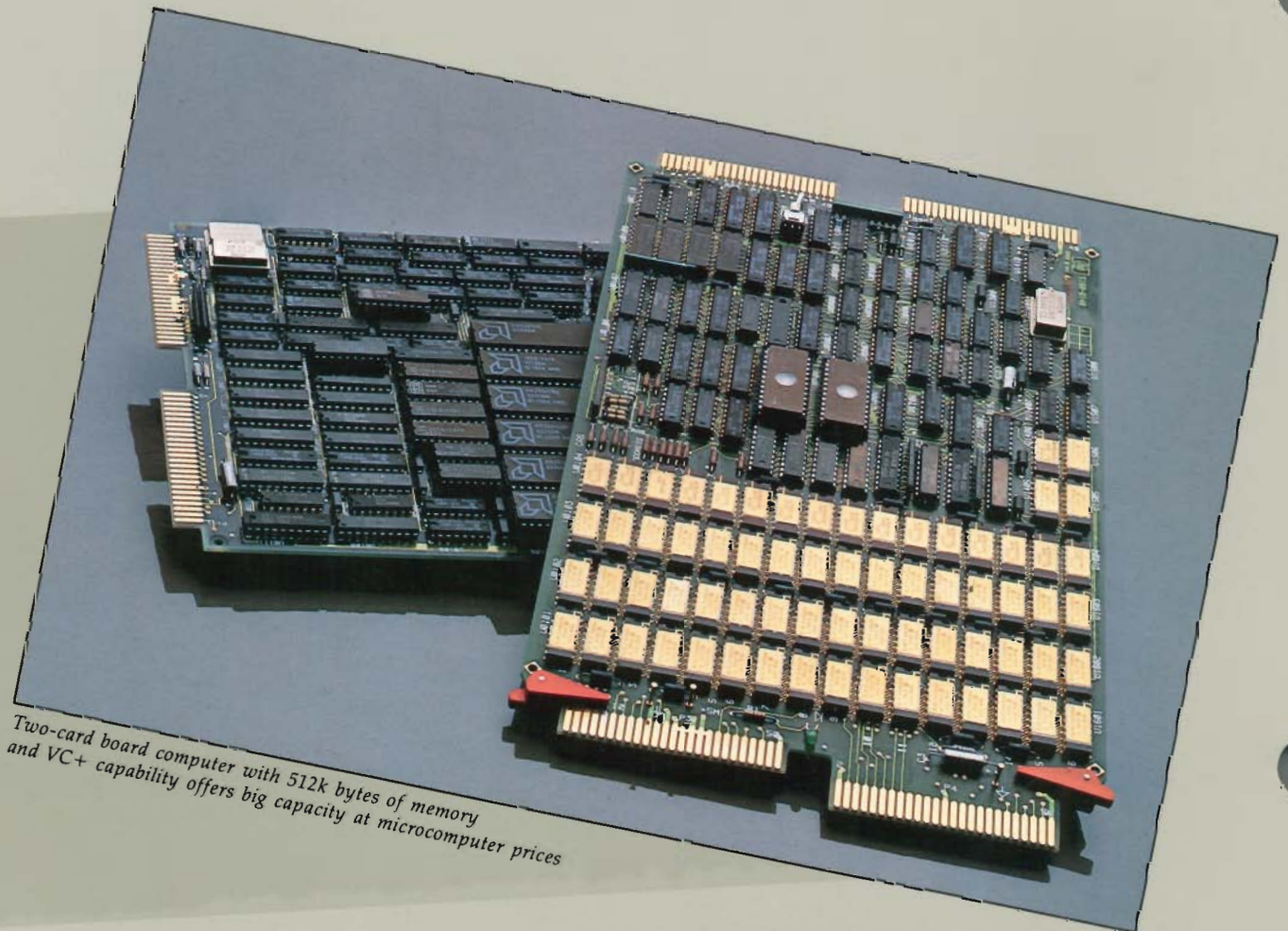
For high-volume applications that require the processing power of a minicomputer at lower unit costs, the component board computer may provide the ideal solution. This package delivers the full power of the computer with the flexibility of component level integration. HP 1000 board computers can be easily integrated within a product or a system, or used with a custom front panel or special operator controls.

The power available in HP 1000 board computers is exemplified by the one million instructions per second performance of the A600+ and A700. The A700 can be equipped with a very fast hardware floating point processor board. Writable control store, and/or PROM control store boards can be added to the A700 for hardware support of user-developed microcode.

The A600+ is offered to OEMs and system designers as a two-board 128 kilobyte microcomputer or as a two-board half-megabyte microcomputer. With half-megabyte base

memory capacity, expandable to 4 megabytes with the addition of four memory array cards, product designers now have more flexibility than ever before.

For OEMs and system designers who want to package their own data processing systems, a five-board A700 board computer includes an optional floating point processor. Up to 1 megabyte of memory can be included in this powerful 5-board set, with further expansion possible to a total of 4 megabytes with additional array cards.



Two-card board computer with 512k bytes of memory and VC+ capability offers big capacity at microcomputer prices

HP 1000 Memory

Advanced technology at affordable prices

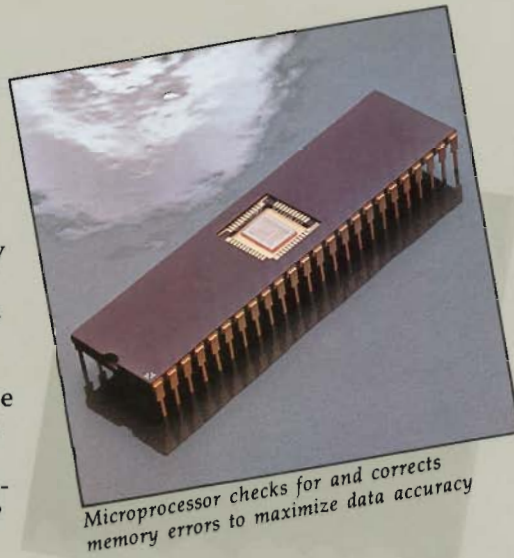
Enhanced performance, capacity and reliability for exceptional advantages

Semiconductor memory technology has progressed rapidly in recent years, with great improvements in speed, packaging, density, and reliability. And — at affordable prices. But to take advantage of these advances, computer hardware and software capabilities must be designed to put the full range of memory attributes to work for you. HP 1000 computers do precisely that.

Hewlett-Packard is a pioneer in memory technology, first with 4k N-channel MOS/RAM memories, and then with 16k RAMs built into memory modules. Today, HP continues to be first, with 64k and now 256k RAM memory, offering a 512 kilobyte board for the E- and F-Series, a 1 megabyte board for the A600+ and A700, a 512 kilobyte Error Correcting Code (ECC) memory board for the A700, and 768 kilobyte and 3 megabyte ECC memory boards for the A900.

Pipelining and cache memory in the A900 bring average effective access down to a mere 181 nanoseconds in the highest performing member of the HP 1000 family.

A600+ and A700 access times are 454 and 500 nanoseconds, respectively. The E- and F-Series provide 420 nanosecond access to memory.



Parity checking memory is standard in HP 1000 memory systems for the A600+, A700, and E- and F-Series. For the needs of very large systems in critical applications, Error Correcting Code (ECC) capability, standard in the A900 and optional in the A700 and E- and F-Series, detects and corrects all single-bit errors and detects all double-bit errors.

HP 1000 memory systems give you maximum performance, capacity, and reliability — at low prices.

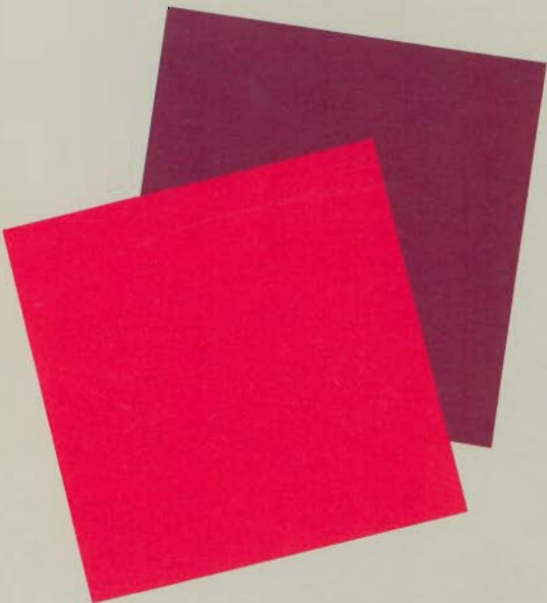
Powerful tools help you take advantage of high technology memory

HP 1000 computers are designed to give you all the benefits of modern memory technology, including a number of hardware and software products to make maximum use of your memory system. The Dynamic Mapping System (DMS), for instance, provides flexible memory management that supports the large memory capacity of the HP 1000 family (2 to 32 megabytes of main memory), depending upon the model. DMS provides mapping registers managed by 38 instructions, which permit such operations as cross-loading of maps with a single instruction. RTE-A, RTE-6/VM, and DMS equip HP 1000 computers to perform tasks that only much larger computers were formerly able to perform.

HP 1000 computers give you the most advanced memory systems available — and a uniquely powerful set of tools to help put that memory to work.

HP 1000 Software

Real-time executive operating systems



HP's add-on software offers users the same confidence. A common set of add-on software for data base management, graphics, and distributed system networking is supported under all active RTE systems. This commonality builds on the solid core of RTE to facilitate interchangeability of programs among HP 1000 systems.

Powerful real-time systems provide new capability levels

Whether you choose Hewlett-Packard's A-Series computers and RTE-A or E/F-Series computers and RTE-6/VM, you get a common set of powerful real-time capabilities.

Real-time responsiveness is supported by time, event, program, and operator scheduling of programs. The system responds to I/O devices fast enough to avoid data loss. Scheduled programs run in order of user-assigned priority, so your most urgent tasks get done first.

The unified family of RTE systems puts computer power to work for you

HP RTE software forms the basis of custom operating environments from memory-based systems to large disc-based systems. These systems support real-time interaction and control in factory automation, data acquisition, and scientific problem solving applications.

Today's RTE systems result from more than ten years experience in thousands of successful real-time HP 1000 computer system applications throughout the world. During this time, RTE has been improved by a continuous stream of valuable enhancements. Today, RTE software and HP 1000 computers deliver an impressive capability for real-time performance and power in many different jobs.

Regardless of system size and application, RTE provides a solid core of compatibility across the entire HP 1000 product line. This compatibility is carefully preserved as the RTE systems and software supported on them are improved and their capabilities extended.



HP 1000 software is available on a wide choice of media



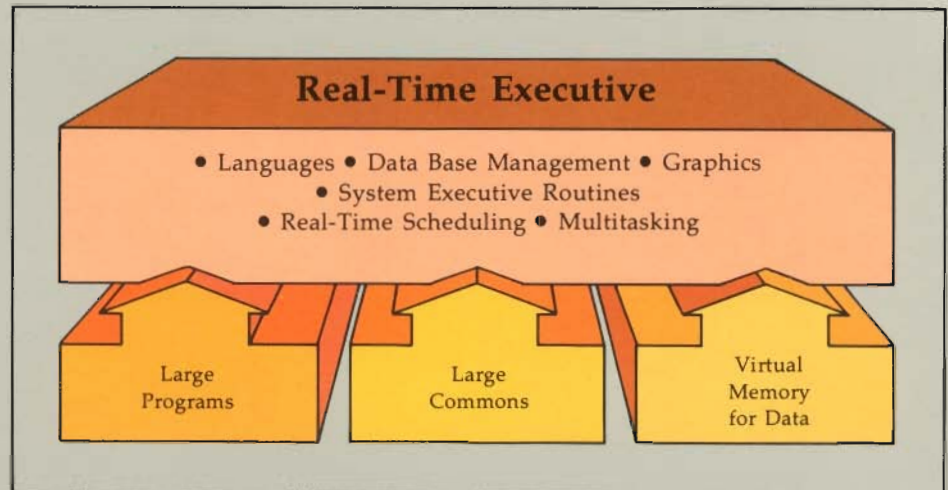
Multituser support converts one disc-based system into several systems, each accessible to a different user. RTE-6/VM with Session Monitor and RTE-A with Virtual Code+ enhancement support multi-user access with interface programs that also give friendly assistance in the form of "welcome" and "help" procedures.

Multiprogramming gives lower-priority programs the use of spare computing time while higher priority programs are waiting for interrupts or completion of I/O. This maximizes use of the system and the return on your system investment.

Versatile I/O supported by standard interfaces and drivers gives you an impressive choice of peripheral device capabilities. If you need to use an unsupported device, RTE's simple I/O structure makes it easy to develop custom interfaces and custom drivers.

A powerful set of common system software supports program development in BASIC, FORTRAN, Pascal, or Assembly language, and symbolic debugging. Other commonly supported software includes the Image/1000-II data base management system, DS/1000-IV distributed systems networking software, and Graphics/1000-II software.

Built-in modular flexibility makes it easy to tailor RTE to your application needs for peripherals, software, networking, and more specialized requirements. On-line generation, and reconfiguration at boot-up, make it easy to respond to changing application needs with minimal disruption of operations that are already up and running.



RTE takes on large, complex challenges

In RTE-A with VC+, large programs up to 7.75 megabytes are divided into code overlay segments that are developed, loaded, and executed transparently and automatically using a demand-segment virtual memory scheme. In most instances, users will be able to simply compile, load, and run large FORTRAN programs on HP 1000 A-Series systems without any special conversion.

The RTE-6/VM System features an Extended Code Space (ECS) capability that makes program segmentation almost transparent to the user. The ECS capability enables users to write programs that occupy all available memory, up to 1.9 megabytes, but without code and data separation as in RTE-A/VC+.

Because additional code can reside on disc, programs can be much larger than main memory. Users can move existing large programs to HP 1000 E- and F-Series computers and can develop and run new ECS programs.

Megabyte-sized capacity for big data processing tasks

Virtual memory for data is supported by both RTE-A and RTE-6/VM. This unique capability for 16-bit minicomputers is a demand-paged virtual scheme that gives users access to data in main memory and on disc as if it were all in main memory — up to 128 megabytes of data, enough to support processing of very large data arrays.

Shareable extended memory for data is also supported by RTE-A and RTE-6/VM. Memory areas up to 2 megabytes each can be shared by multiple programs and are accessible in microseconds because they are resident in main memory.

HP 1000 Application Solutions

Designed to improve productivity and quality

Process control

Monitoring, direct digital control, and supervisory control of continuous manufacturing processes are supported by HP Process Monitoring and Control/1000 (PMC/1000) software in HP 1000 A-Series systems.

The PMC/1000 system works with the HP 2250 Measurement and Control Processor and process sensors. The system measures temperatures, pressures, flow rates, and other process conditions. It computes engineering conversions and control algorithms. The system also displays status, signals alarms if appropriate, and keeps a process log for later analysis.

A fill-in-the-blanks process simplifies specification of process parameters (sensor and actuator point names, engineering unit conversions, etc.). This procedure makes it easy for process engineers without computer programming experience to use PMC/1000 effectively.

At the same time, a flexible architecture lets the more sophisticated user configure complex control structures and programmatically access the entire process data base. PMC/1000 is well-suited to applications in discrete, hybrid, and process manufacturing.

Coordination of programmable controllers

Programmable controllers (PCs) provide essential, local control of the individual stages of manufacturing processes on the factory floor.

The communication needed to assure effective coordination of a plant's PCs, which may number a hundred or more, is supported by Programmable Controller Interface/1000 (PCIF/1000) software in HP 1000 A-Series computers.

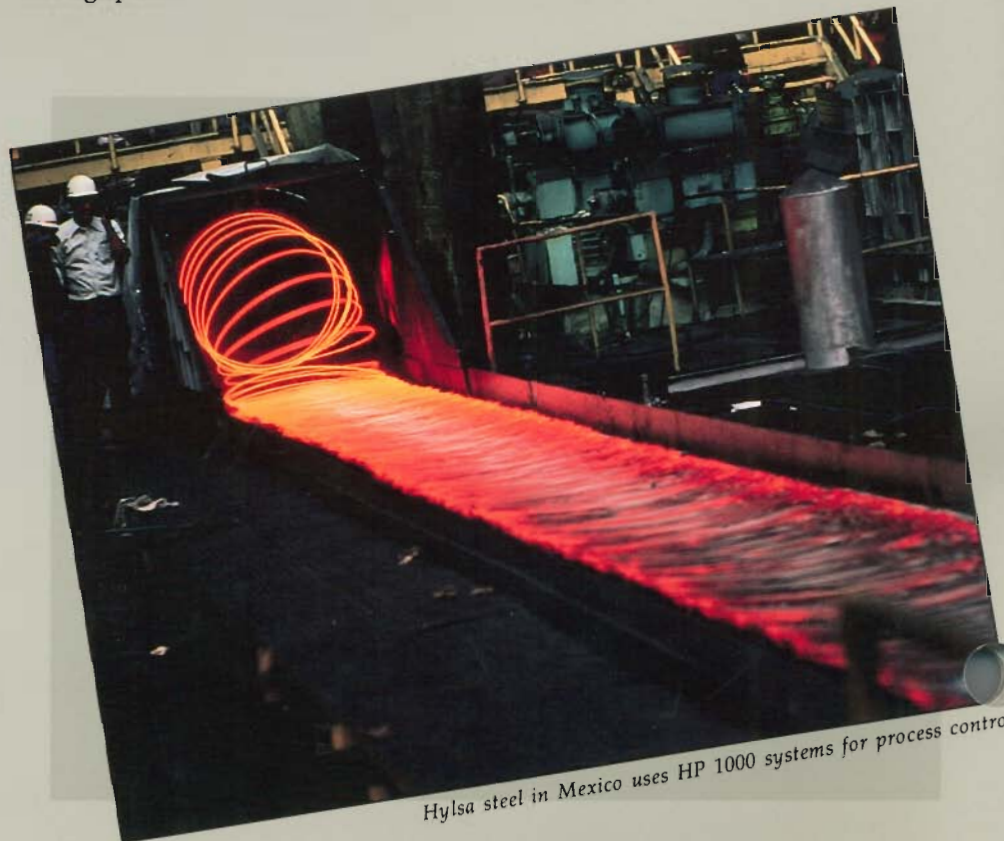
PCIF/1000 supports communication with Allen-Bradley, Siemens, and Telemecanique PCs. This package can communicate with more than 200 PCs on the factory floor.

Using the PC links, the HP 1000 computer controls distributed manufacturing processes. The computer maintains centralized control of PC programs and the flow of material and monitors the health of processes. You gain more efficient operation and increased usage and throughput.

Automatic testing

Computer-automated testing provides a fast, accurate, low-cost test for functionality and performance of electronic, electrical, and electro-mechanical products.

ATS/1000 systems, based on HP 1000 E- and F-Series, support a wide range of electronic instruments for electronic testing. From a computer linked to a few instruments to a large system with linked multiple test stations, an ATS/1000 system can perform simple stimulus/response testing or complete functional checkouts. Whether you're testing microcircuits or aircraft engines, an ATS/1000 system provides the hardware and software for fast, accurate, thorough testing.



Hylsa steel in Mexico uses HP 1000 systems for process control



**And even more solutions
with HP PLUS**

If the appropriate software for your application is not available from HP, you can usually find the right software product through Hewlett-Packard's third-party software suppliers program, HP PLUS.

Collectively, these software products offer solutions for engineering, manufacturing, data processing management, and many other uses based on HP 1000 computer systems. For example, HP PLUS software is available for computer-aided design and drafting, project and resource management, statistical quality control, structural design, automatic test, including an ATLAS compiler, and many other uses.

Quality management

Quality doesn't cost — it pays off. But maximizing quality and minimizing the sizable costs of rework and maintenance under warranty requires careful oversight and management of the manufacturing process. Now quality management is supported on HP 1000 A-Series systems by the HP Quality Decision Management/1000 (QDM/1000) software package.

The QDM/1000 system captures and analyzes data statistically. It also provides graphical output to help your quality assurance people and process engineers isolate product quality deviations and their causes.

The QDM/1000 system also enables systematic logging of test and process data to meet requirements of regulatory agencies or customers.

Menu-driven, fill-in-the-blanks configuration helps your engineers design data collection transactions, specify report and graph formats, archive data, and perform system maintenance. "Hooks" for user-added programs offer additional data input, output, and analysis flexibility.

By helping you identify problems and causal relationships between the process, materials, workmanship, and product defects, QDM/1000 equips you to fix the process. This leads to substantial improvements in yield, quality, and productivity.

HP manufacturing software controls industrial operations and monitors the quality of the output.



DSN/Distributed Systems

Unequalled computer connectivity increases productivity

DSN/DS Point-to-Point (DSN/X.25)

HP offers a wide range of networking services on all HP 1000 computers. This includes downline task loading, program-to-program communication, and network resource sharing over high speed direct connect lines as well as standard modems for dial-up and leased line connections.

An X.25 packet switched network communication package is also available. This provides high reliability and lower cost for geographically dispersed networks. It also supports simple connections to other vendor computers using the same X.25 interface standard.

DSN/DS Multidrop

The networking features of DSN/DS are also available over the DSN/Data Link for a lower cost solution.

DSN/Data Link

The Data Link provides economical communications between HP 1000 systems and HP terminals, desktop computers, and data collection devices. Its high noise immunity makes it particularly well suited for industrial applications.

DSN/Mainframe communication

Batch communication between an IBM mainframe and up to seven users on an HP 1000 system is available through a DSN/MRJE package. Remote job entry via 2780 emulation is available on HP 1000 E/F-Series systems. Other HP computer families also provide interactive communication with mainframe systems.

HP-IB

HP-IB is Hewlett-Packard's implementation of the IEEE-488 standard for communication with a wide range of peripheral and instrumentation devices.

-  DSN/DS Multidrop
-  DSN/Data Link
-  DSN/DS Point-To-Point
-  HP-IB
-  Mainframe Communication



HP 1000 Peripherals

Logical extension of computer power

Versatile mass storage peripherals are fast, tough, and smart

Hewlett-Packard offers a family of disc drives for HP 1000 systems, known as Command Set/80 (CS/80). The CS/80 family uses the same commands, interfacing and accessing, regardless of capacity differences.

Four low-cost CS/80 models are based on Winchester fixed-disc technology, with an integrated tape cartridge drive for low-cost backup for archival purposes and for file backup or data interchange with other systems. Capacities of these discs are 16.5, 28.1, 65.6, and 132.1

megabytes. Larger capacity is available without the integrated tape cartridge with 404 megabyte fixed or removable media discs.

All the CS/80 disc products have extensive internal self-test diagnostics, automatic head alignment, and error logging.

Three different Multi-Access Controller discs with capacities of 19.6, 50, and 120 megabytes are supported on HP 1000 E- and F-Series Systems. The multi-access capability of these discs facilitates the configuration of redundant files and cartridges accessed by multiple computers in high-availability configurations.

The complete compatible family of HP 1000 peripherals

HP 1000 peripherals are designed to do a variety of specific jobs — and fit easily into the family of HP 1000 products. With HP peripherals, manufactured by one company and available from one company, you have the confidence of knowing that each product meets our exacting standards, and each benefits from single-source support.

You can choose from more than 50 different peripherals to create your initial HP 1000 system, or to enhance its capabilities in the future. The versatility and high performance of HP 1000 peripherals make it possible for you to configure a system that will meet all your needs.

Select from CRT displays, graphics, printing and data capture terminals, thermal and impact printers, flexible and hard disc drives, magnetic tape units, more than a dozen graphics peripherals, modems, and many more. Hewlett-Packard gives you the choice — and the value.



A wide choice of peripherals helps you meet your needs for input and output

Quality

The reason many people buy HP computer products



Uncompromising Quality and Reliability

Hewlett-Packard customers around the world know that our quality products offer performance and reliability that's hard to match anywhere in the computer industry. Day in and day out, Hewlett-Packard computers, peripherals, and software packages are at work meeting the needs of our industrial and scientific users.

Although there are many reasons to make HP your supplier of computer products — whether you're an end-user or an OEM — many customers have told us an important part of their buying decision was Hewlett-Packard quality. Because HP knows that quality has to be designed-in from the start and then assured by rigorous quality control and testing procedures. Quality that's built in, by the expertise of HP engineers; quality that's assured through HP's attention to every detail.

What's the point of all this attention to quality? It's to keep our systems and computers up and running, to assure our customers the maximum return on their investment in Hewlett-Packard products. And that's the same reason why HP has put in place one of the most extensive service and support systems of any major computer company.

Single-vendor customer support from Hewlett-Packard

Hewlett-Packard has made a major commitment to customer service and support. Organizationally, we've placed our Computer Support Division on a level with our computer manufacturing divisions, so you get the best of both possible worlds: top management attention to customer support and top management attention to product quality. Top management support is backed by

local support teams that can respond to your specific service and support requirements at every HP 1000 site.

Our local support teams are all HP people — you'll be dealing with one responsible resource, not a third party. One service contract, written to your particular requirements, can cover all your HP 1000 products. One telephone call can produce the assistance you need, whenever and wherever you need it. More than 1000 field offices around the world stand ready to serve you.

Software support and documentation services

Hewlett-Packard supports its software and provides documentation in many ways: with continuing manual updates, and a range of helpful publications such as The Communicator, Software Status Bulletins, and Software Update Notices to help you monitor software product activity. There's also HP's Software Subscription Service, which automatically adds all software changes and enhancements on the media of your choice. Our top-of-the-line Customer Support Service provides all software updates plus phone-in consulting with an HP systems engineer.

There's also the HP 1000 Contributed Software Library (CSL), available through the HP 1000 International User's Group. This CSL contains hundreds of programs to save you time and money, and is used as written or as an idea-starter to shorten your program development time.



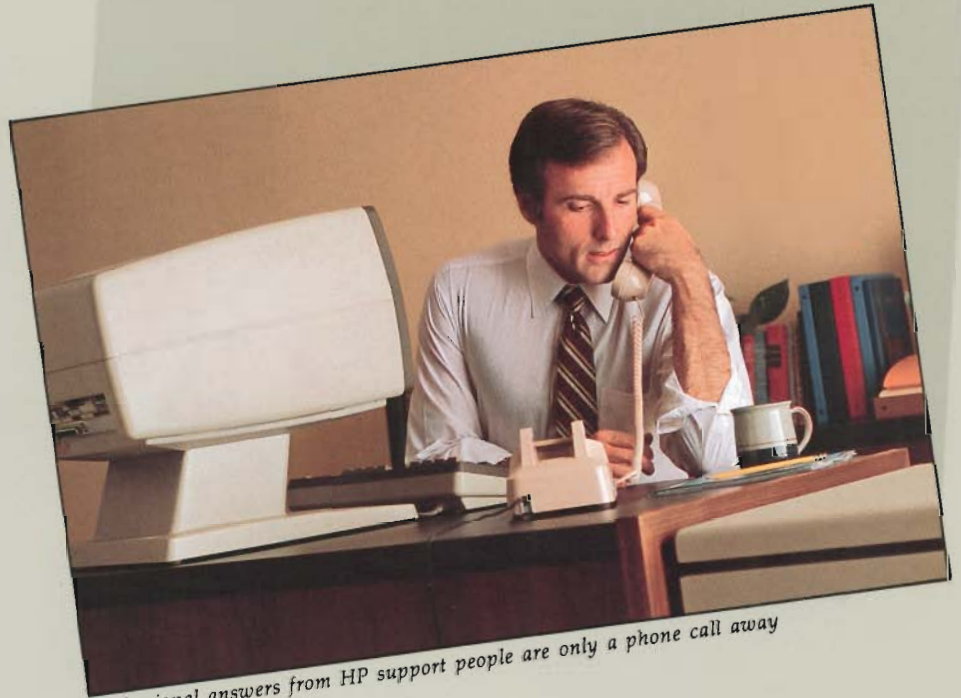
*Designed-in quality at HP is verified
by rigorous testing*

And now there's HP PLUS, a collection of software application programs, available from third-party suppliers, specifically written for operation on HP 1000 computers. The HP PLUS listing of available third party programs could help you find the specific program you need for your application.

An integrated support strategy

Our support strategy is designed to maximize your use of HP products. The key elements of our service strategy are:

- A focus on up-time — keeping your products operating the maximum amount of time possible.
- A complete range of flexible services — recognizing that different customers and different applications have different needs.
- World-wide service — in Europe, North America, and elsewhere, providing the same high standard of HP response.
- Personalized attention — identifying a specific support professional with responsibility for your account.
- Access to well-qualified professionals — HP Customer Engineers (hardware specialists) and HP Systems Engineers (software specialists) with six to nine months training.
- Strong local presence — support by technical specialists in local area offices, backed up by local spare parts inventories.



Professional answers from HP support people are only a phone call away

- Local customer training — standard training courses from our local training centers, in the local language of the particular country.
- In-depth factory training in the internals of the HP 1000 A-Series computers and certain A-Series interfaces for OEMs and system designers.

Products and people targeted to meet your needs

The HP 1000 family of computers, I/O, peripherals and software work to solve many manufacturing and scientific problems, offering a range of product configurations to meet your needs. The HP 1000 family is fully backed by thousands of support and service people who work together to ensure that Hewlett-Packard quality extends into the field.

The HP 1000 family — an integrated group of computer products with high performance and reliability. If you're using HP 1000 products now, or if you're planning to in the future, you've got the right idea — the HP 1000 idea.

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