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UPDATE

COMPUTER SYSTEMS FROM HP

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The new HP Apollo 9000 Series 400 workstations offer excellent price-performance, leadership graphics, strong investment protection, and superior ease of use. Offering a choice of desktop and deskside models, the Series 400 workstations combine the innovations of Apollo with the quality and reliability of HP.

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HP NewWave 3.0 software integrates information and automates tasks

Building on industry-standard MS-DOS® and Microsoft® Windows 3.0, HP NewWave 3.0 software integrates your PC applications and automates your work. HP NewWave 3.0 provides a single, consistent user environment with icons, so it's easier to manage your files and programs.

Link data from multiple applications

With its object management technology, you can link and combine text, numerical, and graphic data from multiple applications. Using HP NewWave 3.0, you can add a spreadsheet to a document by dropping the spreadsheet icon into your open document using a mouse. And the spreadsheet can be updated without leaving the document, saving you time moving in and out of different computer programs.

Task automation aids productivity

With the HP NewWave Agent, HP NewWave automatically records your work across applications, and performs tasks at any time and date, prompting you for information along the way.

HP NewWave 3.0 runs on any industry-compatible MS-DOS PC with an Intel 80286 or 80386 microprocessor, such as HP Vectra ES and RS PCs.

For more information, check A on the HP Reply Card.

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HP NewWave 3.0 integrates data from multiple applications.

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Advanced Image Management System enhances information handling

HP 9000 family



HP AIMS supports a range of high-performance systems from the HP 9000 family.

The HP Advanced Image Management System enhances your information handling by allowing electronic capture, manipulation, and retrieval of hard-copy documents. Information is stored online to provide easy and fast access.

HP AIMS is a combination of hardware, software, and networking components. An HP Vectra 386 PC or HP 9000 UNIX operating system-based data server is connected via an industry-standard LAN to client HP Vectra PCs running applications under MS Windows and MS-DOS.

HP AIMS features a set of application development tools that enable software houses and systems integrators to provide totally customized solutions. The tools include a windows-based user interface designer that is fully integrated with the system's standard 4GL and relational database.

For more information, check **B** on the HP Reply Card.

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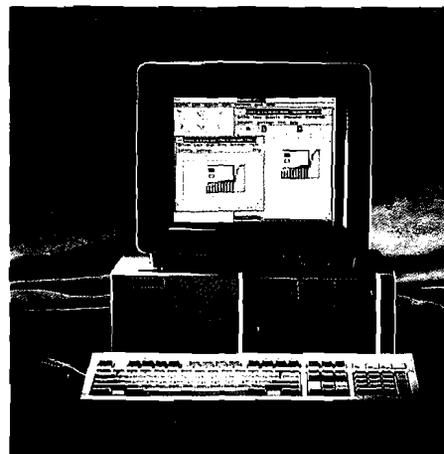
Powerful new PC for office, PC CAD, and multiuser or LAN systems

The HP Vectra 386125 PC, Hewlett-Packard's most powerful desktop PC, features a 25-MHz 80386 microprocessor, a high-performance VGA subsystem, 32 Kbytes of memory cache, and hard disk drives with access times of 17 to 19 ms. It is the PC of choice for high-end office use, PC-CAD applications, and as an entry-level multiuser host or LAN server.

Provides excellent overall system performance

Using new highly integrated technologies, the HP Vectra 386125 PC provides excellent overall system performance. Features include:

- an integrated memory cache system that optimizes memory access
- shadow RAM that accelerates I/O-intensive applications
- an optional 25-MHz numeric coprocessor to speed-up number crunching in PC-CAD programs and complex spreadsheets



The HP Vectra 386/25 PC includes a 25-MHz 80386 microprocessor, high-speed and high-capacity disk drives, and a high-performance video subsystem.

- hard disk drives with embedded-AT controllers offering fast access times, fast program loading, and quick data transfer—critical factors for databases and servers
- a video subsystem that delivers 30 to 50% faster performance than previous HP VGA, to allow quicker screen updates for video-intensive applications (PC-CAD and desktop publishing)

Take advantage of thousands of industry standard applications

With the HP Vectra 386125 PC, you can take advantage of the thousands of applications that have been developed to the IBM PCIAT standard, including those that support the LIM 4.0 expanded memory specification. And there is support for MS-DOS 4.0, OS/2, UNIX system, Novell, and OS/2 LAN Manager. Integrated keyboard and mouse connectors have been standardized to mini-DIN for increased compatibility.

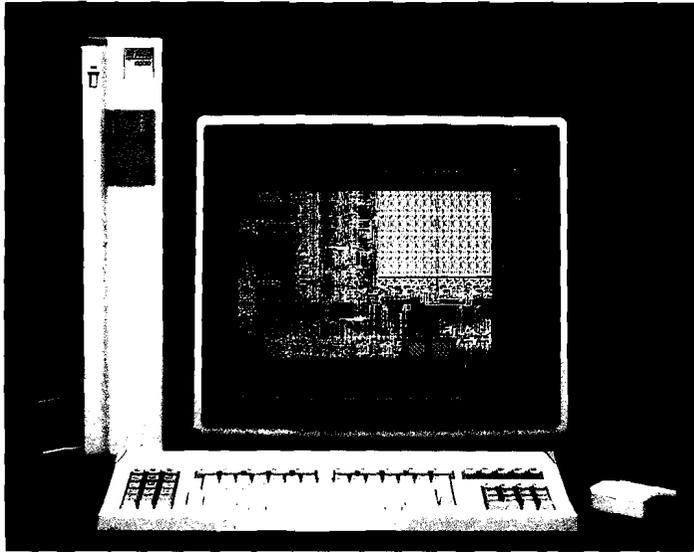
System flexibility and expandability

Base system memory can be expanded from 2 to 32 Mbytes in 2- or 8-Mbyte increments. Five I/O accessory cards can be added using the Industry Standard Architecture (ISA) PCIAT-compatible slots (one 8-bit, four 16-bit). The HP Vectra 386125 PC has one serial and one parallel port, and supports two flexible disk drives and two hard disk drives (42-, 84-, 168-, or 336-Mbyte capacities). A power-on password and optional keylock improve security by limiting access to sensitive information.

With the new one-box shipping container that holds the SPU, keyboard, power cord, and setup kit, setting up the HP Vectra 386125 PC is easier and quicker than ever.

For more information about the HP Vectra 386125 PC, check **C** on the HP Reply Card.

Merged workstations support Domain/OS and HP-UX



Offering a choice of desktop and deskside models and price/performance points, the HP Apollo 9000 Series 400 workstations combine the innovations of Apollo with the quality and reliability of HP.

One year after the HP Apollo merger, Hewlett-Packard introduces a full line of workstations that delivers extremely competitive performance at excellent prices—the HP Apollo 9000 Series 400. The Series 400 runs both the Domain/OS and HP-UX operating systems, which are based on and fully comply with AT&T's UNIX system. It gives HP and Apollo users a common workstation environment.

The Series 400 is based on the Motorola 68040 and 50-MHz 68030 microprocessors. These new workstations offer a choice of desktop and deskside models and price/performance points, and combine the innovations of Apollo with the quality and reliability of HP.

Faster integer and floating point performance

The major contribution of the Series 400 is Motorola's innovative MC68040 technology, which delivers integer and floating-point performance that competes with today's fastest RISC-based architectures—upto 26 MIPS and 4.5 double precision MFLOPS* of computing power.

Compatibility with 3,200 applications

Object-code compatibility gives you over 3,200 applications that run on the Series 400 today. This means you benefit from immediate higher levels of performance without sacrificing the productivity you get from using familiar applications and existing databases.

Outstanding price/performance

The new Series 400 product family delivers outstanding price/performance, starting with an aggressively priced, 12-MIPS, 68030, diskless workstation—the Model 400dl. The Models 425t and 400t are based on the 68040 and 68030 respectively, and deliver up to 20 MIPS and 3.5 MFLOPS. These systems are well-suited for environments needing high levels of performance in low-cost workstations.

For even more performance and expandability in a deskside package, Models 433s and 400s offer up to 26 MIPS and 4.5 MFLOPS.

Leadership graphics boost your productivity

A complete new line of graphics for the Series 400—the VRX graphics family—provides a new level of performance. The VRX graphics products are all tuned for speed, from very fast X Window performance at the low end, to one million 3D-vectors-per-second performance at the high end. The high-resolution displays deliver improved realism for mechanical engineers, scientists, and industrial designers. With fast, accurate visualization of new designs and products, your productivity is increased.

Superior ease of use with HP VUE 2.0

The new user interface—HP Visual User Environment (HP VUE 2.0)—is an OSF/Motif-based user interface that is easy to customize, and runs existing X Window applications. The systems also come with preloaded, preconfigured system software (Instant Ignition), so you can use the Series 400 immediately. You don't have to spend time installing operating systems or configuring UNIX system kernels.

Investment protection as your needs grow

Whether you bought your HP or Apollo workstations years ago or more recently, HP has an upgrade program that protects your investment and meets your growing needs. Upgrades to the Series 400 can be ordered between July 1, 1990, and January 31, 1991. And for the future, the "40 Plus" program guarantees an upgrade path from the Series 400 to 40 MIPS or better on CISC; and, for compute-intensive applications on RISC as well.

For more information, check D on the HP Reply Card.

* MFLOPS—Millions of floating point instructions per second. Performance specifications from Motorola data.



HP Software Update Materials Services on CD-ROM

The HP Software Update Materials Services for HP 3000 and HP 9000 systems include a choice in documentation. Now you can receive updated manuals and other support information on compact disc read-only memory (CD-ROM), paper, or both types of media.

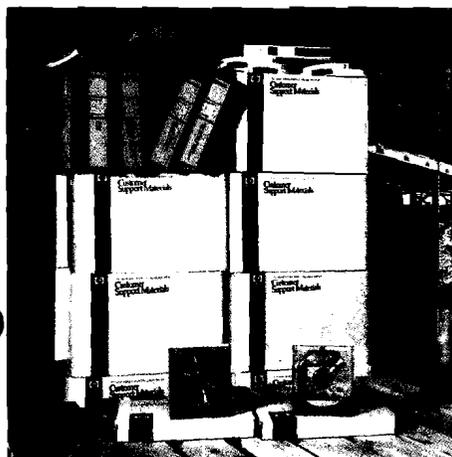
Reduce your materials support costs

CD-ROM documentation helps reduce your materials support cost. Depending upon your system type, CD-ROM documentation saves you up to 25% on your materials service. CD-ROM documentation provides fast access to system information, and eliminates time spent searching for lost manuals and inserting updates into manual binders.

Save on CD-ROM hardware and software

As a promotion, Hewlett-Packard is offering extra savings on the CD-ROM retrieval software and disk drives when purchased with these new services. Also, you receive a 90-day money-back guarantee on CD-ROM documentation and tools. If you are not completely satisfied with your CD-ROM documentation service, software, and drive, return all the CD-ROM disks and drive to HP for a full refund.

For more information, check **E** on the HP Reply card.



Reduce your materials support cost with CD-ROM materials services.



Low-cost HP 700/X terminals bring the power of network computing to every desktop.

X Window system graphics terminals offer an 80% increase in performance

The new series of HP 700/X terminals features an 80% increase in interactive-graphics performance, four- and eight-plane color support, a ROM-based X-server option, and the capability to operate with a standard AT2-style (PC 101) keyboard. The enhanced HP 700/X terminals support a display of 256 colors from a palette of 16.7 million colors, or up to 256 levels of gray-scale. The terminals come standard with 1 Mbyte of video memory (VRAM) and 1 Mbyte of dynamic random-access memory (DRAM). DRAM is expandable to a maximum of 9 Mbytes in a variety of low-priced increments.

Performance improvements

With a nearly two-fold increase in interactive graphics performance, the HP 700/X terminals better address your needs in business, engineering, and manufacturing applications. In addition to significant improvements to the X-server software, performance improvements include:

- a 60-MHz Texas Instruments TMS34010 graphics processor that executes X Window system functions
- a 16-MHz Intel 80186 coprocessor that handles high-speed network communications, keyboard entry, and mouse tracking

Networking enhancements increase up-time

HP 700/X terminals can be remotely configured on the network. Optional X-server software can be ordered in local ROM. If the primary host system on the LAN is inaccessible, the new HP 700/X terminals support startup from an alternate host, giving you greater up-time.

Flexible configurations for easy upgrades

The HP 700/X terminals use a common-processor base unit that supports a 19-inch gray-scale monitor and a full range of color displays in sizes ranging from 14 to 20 inches. You can upgrade from monochrome to color displays simply by changing the monitor. First-generation HP 700/X terminals can be upgraded. The terminals support an AT2-style keyboard and Logitech serial mouse through a PS/2 interface, and an HP keyboard and HP mouse through an HP-HIL port. The HP 700/X terminals support more than 15 different native-language keyboards, a local printer, plotter, and other RS-232-C devices.

For more information, check **F** on the HP Reply Card.

X Window System is a trademark of Massachusetts Institute of Technology.

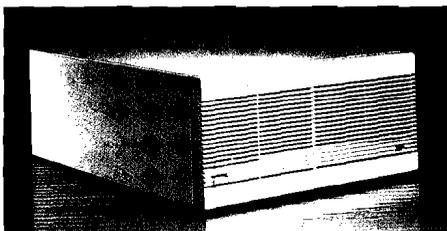
Smaller package for new Datacommunications and Terminal Controller

The DTC16/3000 is the new, smaller member of HP's Datacommunications and Terminal Controller (DTC) family, providing up to 16 asynchronous ports and an entry-level X.25 solution for 900 Series HP 3000 systems. The DTC16/3000 provides the same powerful services as the DTC48/3000: terminal switching to the HP 3000, extended to the HP 9000, and DEC systems; X.25 system-to-system communications; and X.25 remote end-user access. Like the DTC48/3000, the DTC16/3000 is managed by HP OpenView DTC Manager, or by the MPE XL system.

Cost-effective, local and remote solution

Ideally suited for business and manufacturing environments with a small group of physically distributed users, the DTC16/3000 provides a limited number of asynchronous connections, and optionally lower speed X.25 access to a central office.

The DTC family supports EtherTwist, ThinLAN, and ThickLAN connections. You must have MPE XL release 2.0 or later (for 900 Series HP 3000 access), and HP OpenView DTC Manager A.04.10 or later (for access to multiple systems, X.25, or systems other than 900 Series HP 3000 systems).



The new, smaller DTC16/3000 offers an entry-level solution for 900 Series HP 3000 systems.



The new HP 3000 Series 920 further lowers your entry price into HP PA-RISC.

Low-end addition to the 900 Series HP 3000

Just six months after announcing the successful HP 3000 Series 922LX, HP introduces a new low-end addition to the 900 Series HP 3000 commercial systems, the Series 920. This system supports up to 20 users with about 55 to 60% of the performance of a Series 922. Aggressively priced, the Series 920 meets the needs of small- to medium-size businesses, as well as larger-company departments and remote offices.

An entry-level MPE XL system at a low price

Priced about 14% lower than the Series 922LX, the Series 920 provides a new low-cost entry into HP PA-RISC (Precision Architecture-Reduced Instruction Set Computing). A promotion on terminals, offering savings of up to 20% on terminals purchased with this system, further lowers the total cost. Purchasing DTCs and port connections with your system allows for additional savings.

Smooth growth path with onsite upgrades

Ease of upgrades and investment protection are important considerations for growing businesses. HP provides convenient, smooth onsite upgrades from the Series 920 to four additional systems in the 900 Series. If you begin with the Series 920, you can grow into a more powerful Series 922 with a simple processor board upgrade. Another upgrade to the Series 932 offers you even more performance. Each upgrade fully protects your entire investment, including disk, memory, and tape.

Unattended backup of up to 4.7 Gbytes of data

Another advantage of the Series 920 is unattended backup with its integrated DDS tapedrive. Providing a data capacity of 1.3 Gbytes per tape, this technology allows most Series 920 systems to be completely backed up on one cartridge, thus eliminating operator intervention and associated costs. With new data compression capabilities, unattended backup is now possible on even larger disk configurations, up to 4.7 Gbytes.

The entire Series 920 integrated system, including disk and tape drives, fits into a package the size of a two-drawer filing cabinet, and requires no special environmental preparations.

For more information, check G on the HP Reply Card.

A single tool for all your reports

HP ALLBASEIBRW is a business report writer for software developers working on MPE XL systems. The latest release makes it easy to create a single report that can access data stored on all of HP's data management systems, including HP TurboIMAGE, and HP ALLBASE/SQL, KSAM files, and serial files.

Gain productivity

To create a report, modify its layout, or tune its performance, you simply fill in screen forms, choose desired options, and press function keys. The ease of use increases productivity even for the most sophisticated reports. HP ALLBASE/BRW's calculation language lets you define your own functions or use the standard functions provided.

Faster report generation

With ALLBASEIBRW, multiple blocks of data are simultaneously passed into main memory, reducing disk access time. Because it can write data selected from various databases to a single file, iterative reports that access subsets of the initial data are done faster. Faster report generation reduces overall impact on system throughput.

HP ALLBASEIBRW (Release A.01) is available with Version 2.1 of the MPE XL operating system.

For more information, check H on the HP Reply Card.

Primary rate added to the HP 4952A field service protocol analyzer

Four new ISDN interface pods, including ISDN application software, have been added to the HP 4952A WAN protocol analyzer. The HP 18282A/83A/84A accommodate primary rate testing, while the HP 18281A supports basic rate monitoring and simulation. For network providers and R&D engineers who monitor ISDN equipment under development, they are an invaluable tool for isolating problems on ISDN networks. All the pods are small and fit in the pouch of the portable HP 4952A protocol analyzer, giving you a complete ISDN solution that can be carried under one handle.

Features of the ISDN pods include monitoring and simulation of Q.921 and 4.931 for thorough ISDN analysis; several switch and country decodes; layer 1 LEDs to quickly pinpoint configuration and line quality problems; a handset jack for monitoring and simulating voice calls; and data compatibility with the HP 4954I ISDN protocol analyzer.

Rate adaption decodes facilitate testing of data generated by non-ISDN devices that have been adapted to ISDN data rates (HP 18281A and HP 18282A only). Applications such as G.821 BERT or link statistics can be run over the B channel.

For more information, check V on the HP Reply Card.



Through a series of small interface pods, the HP 4952A provides a complete testing solution for basic and primary rate ISDN.

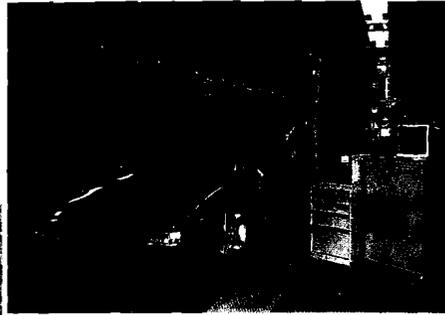
Notables

HP Super VGA support

- HP's Super VGA video card is now supported as an accessory across the entire product line of PCs. Super VGA enhancements include additional colors, higher resolution, improved performance, and a wider selection of video drivers for applications. HP Super VGA replaces the HP VGA (D1180A) card, which will be discontinued as of September 1, 1990.

Toner cartridge recycling program

- In an effort to reduce the volume of plastics entering landfills, HP is offering a toner-cartridge recycling program. The program is currently being run in certain states in the U.S., and is expected to expand nationwide and to Canada in 1991. A similar program will start soon in Germany and Switzerland, and expand to other European countries in the future.



Located along the production line at four of 20 work sites, the HP system tests and verifies the assembly and operation of each electrical part.

HP system essential to success of Ferrari 348

Ferrari manufactures high-quality, high-performance sports cars. To meet competitive challenges from other sports car manufacturers, Ferrari engineers decided that computerized test systems from Hewlett-Packard Company were needed to check the electronic components of every new Ferrari 348 on the assembly line. The HP system was installed within 12 months, far exceeding Ferrari's expectations.

Located along the production line at four of 20 work sites, the test system includes five HP 1000 A400+ computers, an HP 1000 A900 Series computer, an HP 35751 color terminal, and an HP bar code reader.

The system tests and verifies the assembly and operation of each electrical part, records and returns test results to an HP 1000 A900 computer, and tells craftsmen which regulatory or safety features to add. It tests wiring harnesses, dashboard electronics, air conditioners, tail and **headlights**, steering electronics, electrical windows, and mirrors.

"The test system also allows us to tune the electrical system of the 348," says Luciano Noli, with Ferrari's department of new technology. "We set the current for each component, based on the list of standard and optional features contained in the car." It maintains a computerized history of electrical systems of all 348s produced. With this data, designers can tighten specifications of electrical parts installed in the factory, and service technicians can diagnose electrical problems at dealerships.

The HP test system brought positive results for Ferrari even before production of the 348 began. Initial tests of Ferrari electronics prompted the firm to return one electrical part in 12 to its suppliers, because of defects. In another case, HP engineers alerted Ferrari that a motor moved a side-view mirror to the right instead of the left, enabling the supplier to rebuild the unit before production began. Ferrari also used the HP test system to design **less-expensive** more-efficient wiring harnesses.

Antonio Olivieri, manager of new technology at Ferrari, says, "We prepare 10 Ferrari 348s a day. It is not possible for us to have good quality electrical equipment and assembly without HP's electrical test system."

Hewlett-Packard Company

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