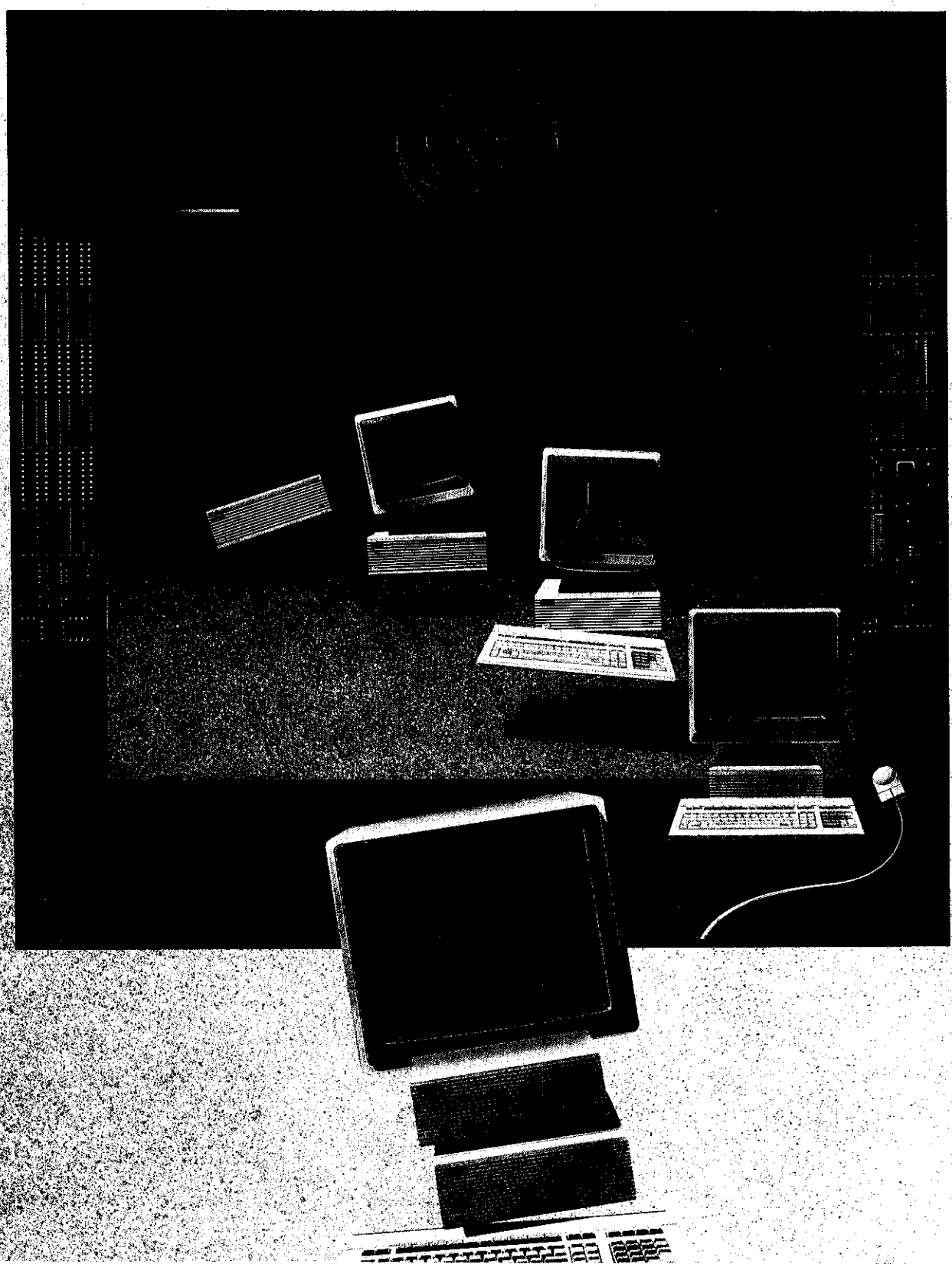
If You Create CAD Software, You Probably Wish You Could Create Your Own Computer...

Now You Can.

HEWLETT PACKARD

HP 9000 Series 300



Series 300 . . . The Computer *You* Create

The plug-in construction of Series 300 gives you a wide range of power and performance.

If you create software for computer-aided design (CAD) applications – whether you write it for others, for your own company, or build entire systems – you've probably wished you had a computer tailored precisely to your needs – and the needs of your end user. A computer that's creative enough to change when you do. A computer that's more than just a single machine. Up until now, you'd have to buy a whole shelf of computers to get it – or build one from the ground up.

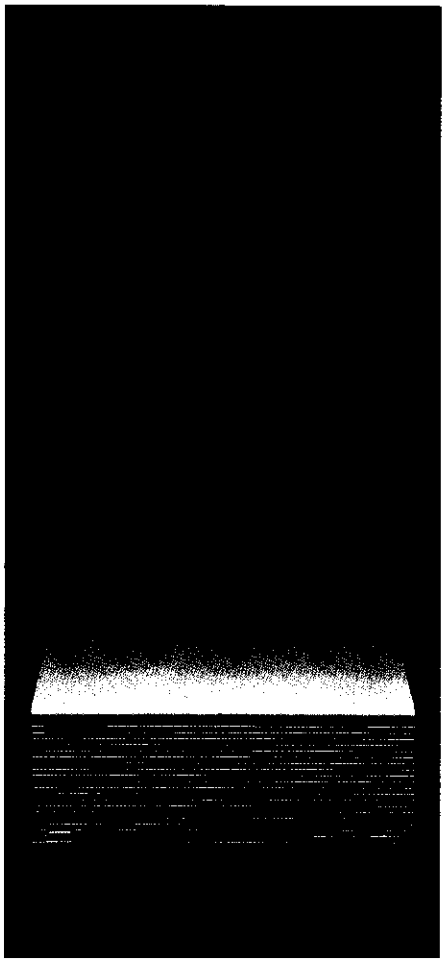
Introducing the HP 9000 Series 300 from Hewlett-Packard. The computer *you* create.

The Series 300 is *the* answer for the OEM or software designer. First, it's modular, so you have choices – choices in computational power, color, screen resolution, peripherals and accessories – the whole system. It's integrated – all its components work together no matter how you arrange them. It's low-cost, built on standard design and advanced VLSI technology. It's powerful, since it employs powerful operating systems like UNIX™, and high-speed 16/32 and 32-bit processors. And it's HP, so you're assured of top quality and reliability – in hardware, software, service and support.

UNIX™ is a trademark of AT&T.

Plug Into Power – As You Need It

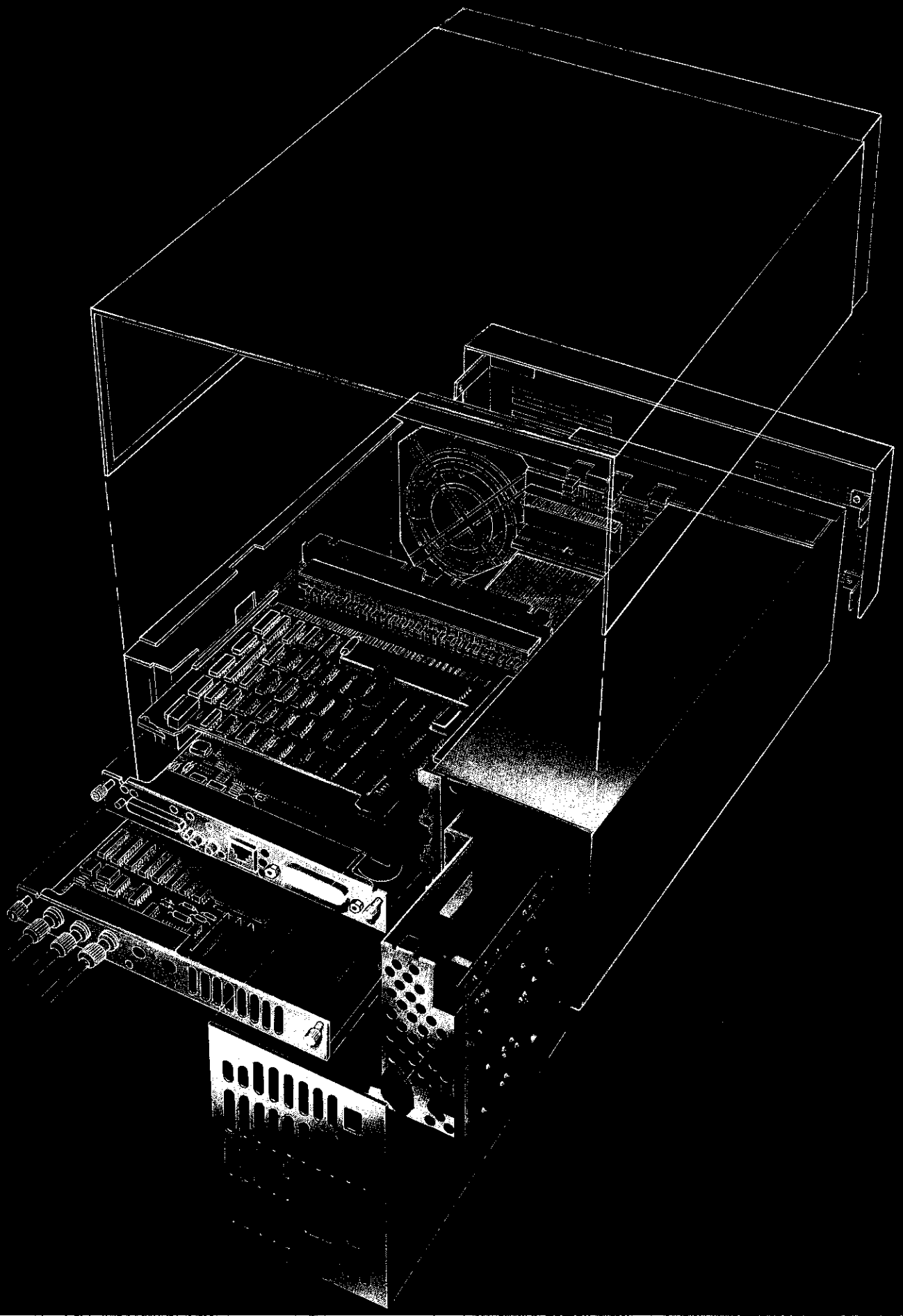
Series 300 runs the MC68010 and MC68020 microprocessors from Motorola – you can choose either 10 MHz and 16/32-bit performance or 16.6 MHz and full 32-bit performance. The MC68000 series has proven itself for years as *the* industry standard in 16/32-bit computing: reliable, inexpensive, universal. (Our Series 200 line of engineering computers was built almost entirely on the MC68000 chip. The MC68010 runs up to 50% faster; the MC68020, up to 300% faster!) These microprocessors represent the leading edge of computer technology today – literally hundreds of thousands of transistors on a fingernail-size chip!



To change from the MC68010 to the MC68020, simply plug in a new card set. If you demand absolutely top performance, you can add a floating-point math co-processor.† This allows you to take on computation-intensive design applications with full confidence that the system can handle it.

In both computation performance and price, Series 300 gives you a wide choice – it's truly *your* system.

† *The MC68020 processor card includes an MC68881 co-processor which is supported on HP Pascal and will be supported on future versions of HP-UX. At this time, an additional floating-point card is required.*



HP Hardware –

Building Blocks For Success

Multiple Choice On Monitors

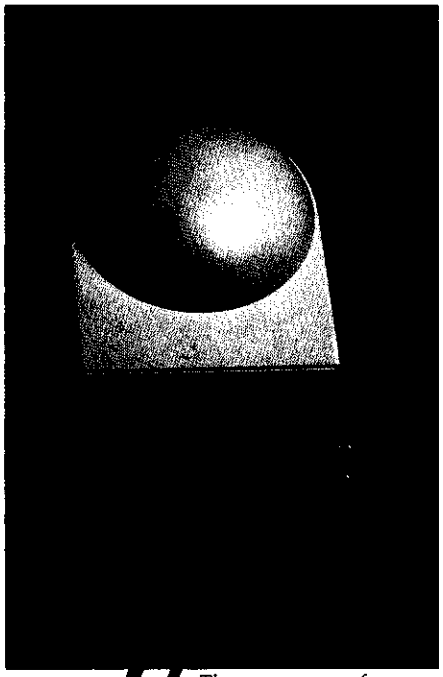
Series 300 also gives you choices in the area most critical to CAD applications – screen color and resolution. It comes with four optional monitors, all designed to provide clear, sharp pictures, all with 60-Hz "no flicker" refresh rates:

- **medium-resolution monochrome,** (12-inch, 512 x 400 pixels)
- **medium-resolution color** (12-inch, 512 x 400 pixels, four planes)
- **high-resolution monochrome,** (17-inch, 1024 x 768 pixels)
- **high-resolution color** (19-inch, 1024 x 768 pixels, four or eight planes)

For even higher performance, Series 300 supports an add-on display controller that gives you up to 256 simultaneous screen colors (out of a total possible 16 million), combined with a plug-in graphics accelerator that boosts graphics speed ten times above normal. The accelerator also gives you 4,000 lines of read/write microprogram memory to help you "fine-tune" graphics and computation performance even further. Tutorial documentation is available on this feature.

Sophisticated graphics can mean many things. Such as instant redraw, eliminating wait. Such as smooth color shading to show thermal stress on a rotor assembly, 3-D rotation of a car frame, or color layering of electrical schematics. All these features are available for your applications – plus whatever fine-tuning you add.

From a simple program listing to the compound-complex graphics of solids modeling, you'll have the color, speed and resolution you need to get it on the screen – fast. And, like the processor, it's a simple matter of plugging in additional hardware, in this case a display, corresponding board, and color-matched graphics boxes. You don't have to build – or buy – an entirely new computer.

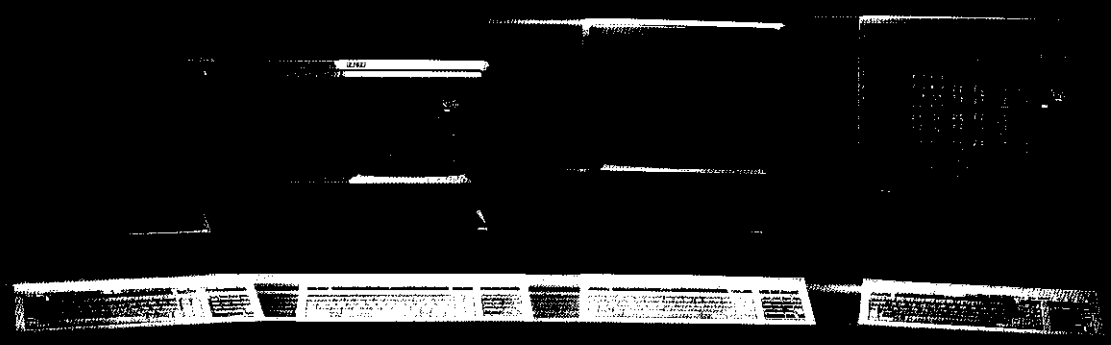


The mouse – one of many ways to get input into the Series 300.

Getting Your Input In

Series 300 has a rich assortment of input devices – mouse, rotary control knob (for easy cursor and screen control), button box and A- or B-size digitizers (graphics tablets). All these HP Human Interface Link (HP-HIL) devices offer total compatibility and ease of use. In addition, the Series 300 supports all major interfaces – HP-IB, RS-232, GPIO, Floating Point Math, Direct Memory Access, Data Communications, etc. To house the interfaces and RAM, Series 300 has four plug-in backplane slots. And you can easily add expanders for additional slots – up to 12 in all – giving you enough to handle all but the most memory- and I/O-intense applications (up to 7.5 Mbytes of RAM, for example). The Series 300 even

A wide choice of monitors gives you a wide choice of graphics performance. And it's fast – simply unplug one and plug in another.




UNIX
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Total Hardware – Built Your Way

Series 300 – a single-user "custom" system which grows to a multi-user network.

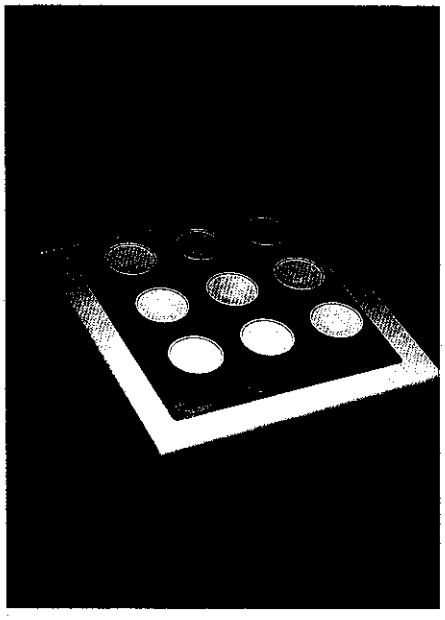
has a removable pocket-sized ID module that allows you to back up copy-protected software and transport it to other systems for use. The HP-IB, HP-HIL and RS-232 interfaces come built-in. The standard HP-HIL keyboard is available in English, Katakana (Japanese) and all major European (including Scandinavian) languages.

Series 300 "bundled" systems feature popular hardware combinations and can be ordered directly from HP. For example, a typical high-performance design automation system would consist of the MC68020 processor (with 16 Kbyte high-speed cache and floating point co-processor built-in), high-resolution color display, 2 Mbytes RAM, battery-backed real-time clock, HP-IB, RS-232, HP-HIL, Direct Memory Access controller, high-speed disc interface, 8-slot expander, and 2.4-meter HP-HIL extension.

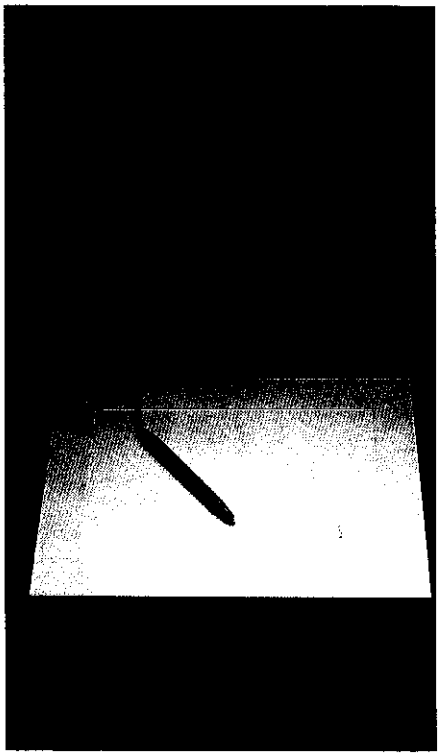
Or you can configure your own.

So, from the most sophisticated development station to the leanest end-user system, Series 300 allows you to build just that which you – or your user – needs, then expand in the future as your needs grow. Your cost remains at minimum; if you sell systems, your profit remains at maximum. You pay only for what you need.

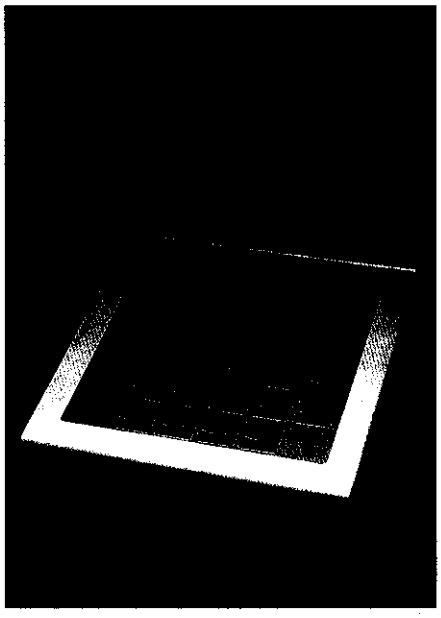
Nine-knob box



Graphics tablet



Button box



The HP-UX Operating System –

The Software Creator's Greatest Ally

Power, flexibility and standardization are keys to Series 300 hardware; so also are they keys to the UNIX operating system. UNIX is a system designed expressly for professional software developers – the industry standard for 32-bit technical workstations. HP's version is called HP-UX. It is based on the Bell System V developed by AT&T, with major enhancements of its own and other industry standard versions. It is *the* system we offer to the software designer as the most advanced tool ever written for creating and modifying software. It is compatible with other major UNIX systems, giving you contact with a virtually unlimited expanse of applications to port onto the Series 300.

HP-UX Custom Features – More Power To UNIX

In additon to standard UNIX features like "pipes", virtual memory, multi-tasking, source code control and programming languages, HP-UX gives you a series of unique "power" features which make the process of writing software much easier and the resulting programs much more dynamic:

Window Management – lets you create and move windows to house in-progress applications, including graphics. Also lets you create custom menus, icons and type fonts.

PAM (Personal Applications Manager) – gives you a see-and-select menu to help organize your applications and "talk" to the computer without knowing its particular language.

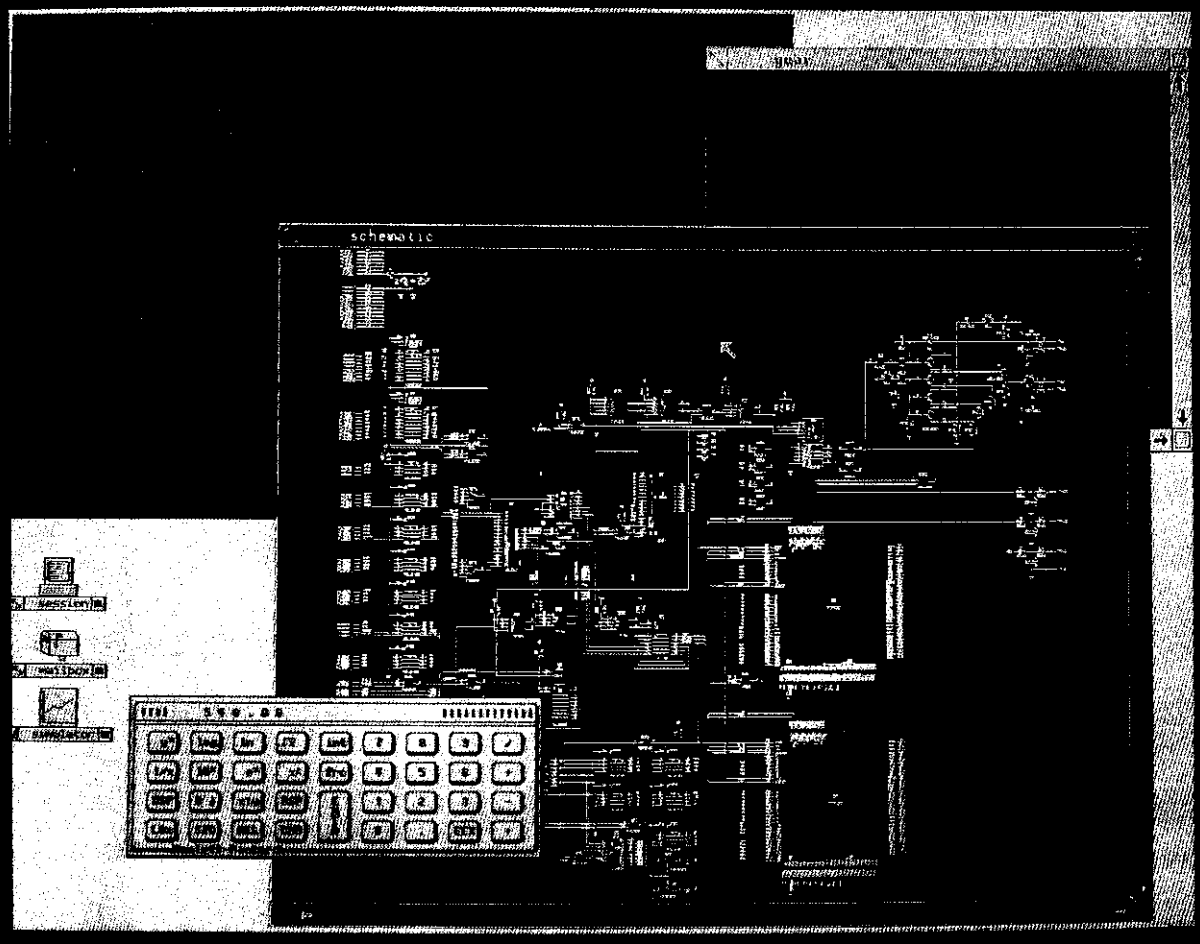
Symbolic Debugger – a "window" on the program and computer, helping you quickly track down programming and run-time errors in any HP-UX resident language.

Starbase Graphics Library – 2- and 3-D graphics for everything from accessing individual pixels to creating 3-D perspectives. Based on ANSI CGI standards.

Device I/O Library – accesses custom I/O devices and standard instruments on HP-IB or GPIO interfaces for data transfer, device control and real-time interrupt capability.

HP-UX also has full screen editors, text formatting, spelling checkers, electronic mail, and data communications. In other words, it lets you do all of the things a stand-alone or personal computer can – your "housekeeping". Like Series 300, HP-UX itself is modular, so you can buy any of its "user" features separately, as long as the underlying elements of the operating system are present. You don't have to buy the entire system to write your application – and even less to build an end user system.

HP-UX Window Management lets you view several applications – including graphics – on the screen at one time.


schematic

HP-UX Speaks Many Languages

HP-UX offers you powerful, industry-standard programming languages for creating software – FORTRAN 77, Pascal and C. FORTRAN 77 is an enhanced version of the popular ANSI X3.9-1978 version with MIL-STD-1753 extensions. Pascal, also ANSI-standard, is a powerful and versatile language, with even more features for data manipulation, graphics and I/O added by HP. The C language offers system programmers a closer and more efficient

interface to the hardware. A low-level MC68000 family assembly language helps you optimize critical program code. Finally, a low-level graphics language helps you control graphics performance, even to filling in individual screen lines!

HP-UX is a highly reliable system with many diverse features. Alone, they are powerful. Together, they are formidable. All languages, libraries and extensions of HP-UX are *linkable at the object level*, so they can be used together, producing 'custom' features that no single language or operating system can match. Imagine what that can mean for your applications!

HP, UNIX And The Future

Hewlett-Packard has made a major commitment to the UNIX operating system. More languages, features and enhancements are planned for the future – tools that will make you, the software creator, much more productive. As more exciting new software applications are developed on UNIX systems, the potential for importing them will explode. As it does, the continuing presence of HP-UX will ensure that Series 300 will be an ideal system to port them to. And an ideal system to run them on.

More Languages Spoken Here

Besides the powerful HP-UX, Series 300 runs HP's own BASIC and Pascal language systems along with a growing base of "stand-alone" software. HP BASIC has the friendliness of an interpreted language yet offers exceptional operating speed, while HP Pascal is powerful, flexible and can help you to fine-tune your programs close to the machine level. These languages form yet another bridge of compatibility between Series 300 and 200 and will be actively supported in the future.

With its flexible hardware, dynamic operating system, abundant peripherals and networking, the Series 300 could easily become more popular than any engineering computer in years. And we should know – we've produced many of them. Like the HP 9845, the world's first true "desktop" computer. The HP 9000 Series 500, the world's first 32-bit single-chip computer (400,000 transistors on a quarter-inch square!). The Integral, a portable UNIX computer with everything built in. The HP name will be a strong contender for the Series 300 – it's in good company.

HP-UX has many features for the software creator. You can purchase only those environments you need to do the job.

Series 300 –

A Complete System With Complete Support

LAN (Local Area Network) gives Series 300 a connection to other popular HP computers.

HP not only gives you the computer and operating system, but everything else you need to build a complete CAD system – peripherals, networking, support and service. HP is one of the few high-technology companies that can claim to be a "one-vendor solution" and mean it. We have the hardware and the organizational support to back up your most ambitious plans.

The Peripheral Issues Solved

Hewlett-Packard manufactures one of the widest ranges of compatible peripherals of any company in the world:

Printers – low- and high-speed dot-matrix models, daisywheel, thermal, plus the latest in technology like ThinkJet and LaserJet.

Plotters – desktop models, 2- to 8-color, plus large 8-pen D-E size stand-ups for drafting and design, including roll-feed models.

Disc Drives – from small flexible discs to desktop Mbyte models to roll-around floor units that can hook together for literal Gbytes of storage.

...plus graphics input devices, cables, CAD worktables, racks, cabinets, etc. – everything you need to build a system (not to mention a virtual army of test and measurement instruments). With the almost universal HP-IB (Hewlett-Packard's IEEE 488-1978 interface bus), you'll have compatible peripherals to build everything from a bustling multi-user development station to the simplest, "no frills" end-user system. Without ever going beyond HP. Without ever sacrificing HP quality.

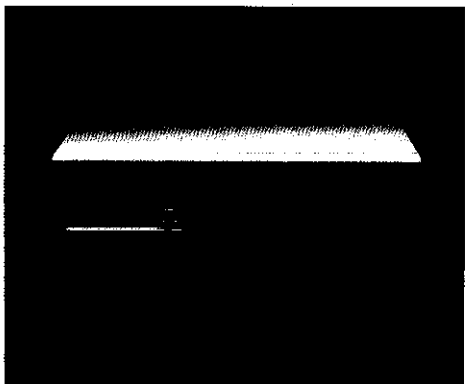
The Series 300 Connection – LAN

CAD applications often call for transfer of data between members of a design team, both in software development and end use. For this, Series 300 can link to a high-speed (10 Mbits/sec) local area network (LAN), based on either IEEE 802.3 or Ethernet™. Its Network File Transfer feature lets you transfer data across the network (including your software code or a user's entire design). Remote File Access lets you transparently access files of other computers on the network. With NFT and RFA you can also write spooler programs that will allow you, in effect, to share printers and plotters among different computers, a feature that could save you (or the large end user) thousands of dollars. Link Level Access lets you write your own network protocol for data communication between computers made by different manufacturers.

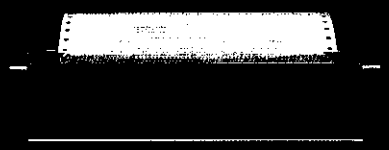
With LAN, the Series 300 can share data with the Series 200 (16/32-bit) and 500 (32-bit) computers in the HP 9000 family, as well as the large HP 1000 and 3000 mainframes. The Series 500 has the power to run complex multi-user applications, while the HP 1000 and 3000 support myriads of business applications like electronic mail, data base management, word processing, memos, etc. Series 500 applications are also accessible to Series 300 through HP-UX. And LAN's cable options will allow as many as 100 computers to hook up on the network. In other words, the connection and sharing possibilities to other HP systems are almost endless.

And LAN confers all these advantages at a low cost-per-user, another built-in economy.

Ethernet™ is a trademark of Xerox Corporation.



A wide variety of compatible peripherals is available to build a complete system.



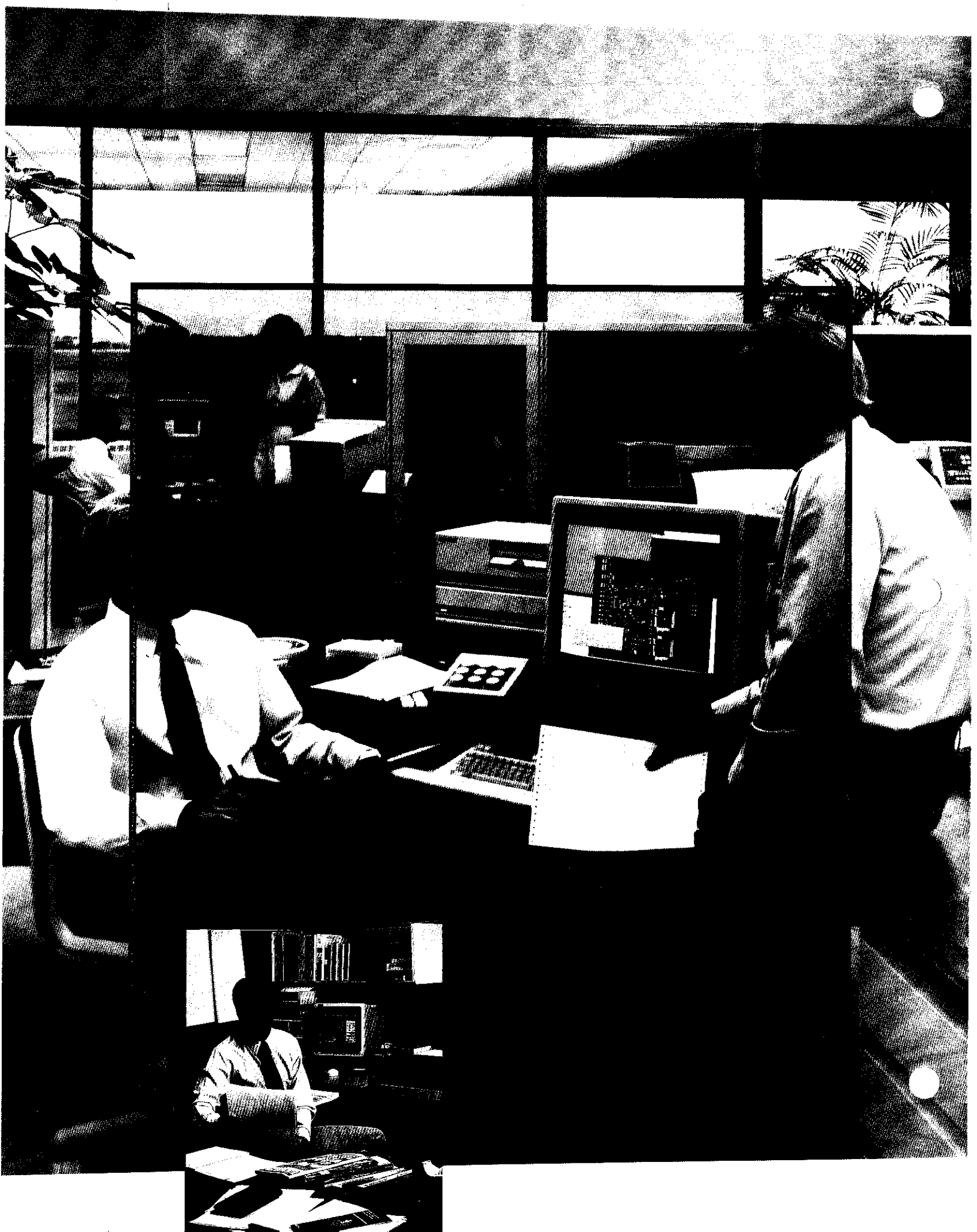
HP 1000 HP 3000

HP 9000
SERIES 500

HP 9000 SERIES 300

HP 9000 SERIES 200

Local Area Network (LAN)



HP – Building Relationships, Not Just Computers

Series 300 – a multi-user system that doesn't outgrow the needs of the single user.

Hewlett-Packard has been supplying instruments and computers to science and industry for over 40 years. We now employ over 84,000 people around the globe and produce a vast array of 7,000 products – instruments, computers and peripherals, medical equipment, circuit test systems and more.

Through the years, HP products have come to be largely identified by one word – *quality*. We use the best components, design and build with integrity and then test and test and retest before releasing the final product. Today, when you buy HP, you buy the finest electronic products on the market, as well as one of the lowest costs of ownership in the industry. This is the biggest "secret" we have in building our loyal customer base – those thousands of scientists and engineers and OEMs to whom HP is a household word. We have built a relationship with them, not just a business.

Another secret is support – we have a global team of trained engineers and technicians who know our systems. And your applications. Before you buy, our reps will help you assess exactly what you need. When you do buy, our applications specialists will be there to install your system, train your people on it, and ensure maximum utility and "up" time. If it does go down, hardware or software, we'll be there with diagnosis, replacement parts, accessories and whatever else you need. To help you stay on the leading edge of technology, we'll supply a host of information services, including software updates, programmers' tips, and free users' magazines. Again, we're building a *relationship* by helping those who buy our systems stay in business.

For our OEMs, we provide a whole range of other services as well – competitive volume discounts (even based on *estimated* quantities), development/demo programs, flexible warranty options. The latter give your customers the same assurance HP's direct customers have – they're covered by the best support services available on the market. For our software vendors, we offer the HP PLUS third-party program, giving them visibility among our catalogs and promotional literature and, most importantly, our sales force. In addition, there are cash bonuses, merchandising assistance and development/demo programs.

These many services are all designed to do one thing – increase your profit while minimizing your cost. And to let your customers enjoy the hardware protection they need to install your application with confidence.

Create Your Future – With HP

With Series 300, HP reinforces its commitment to the world of CAD applications, a world with a great future for hardware manufacturer and software creator alike. With Series 300, you'll enter a world of flexibility, economy and quality unmatched by any computer on the market. That's why we call it the computer *you* create.

For the U.S. sales office nearest you:

Call **1-800-522-FAST** (U.S. only)
In Colorado call collect 223-9717

In Europe contact your local HP sales office, or write to:

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PO Box 529, 1180 AM
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For other locations, please consult your local telephone directory.

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