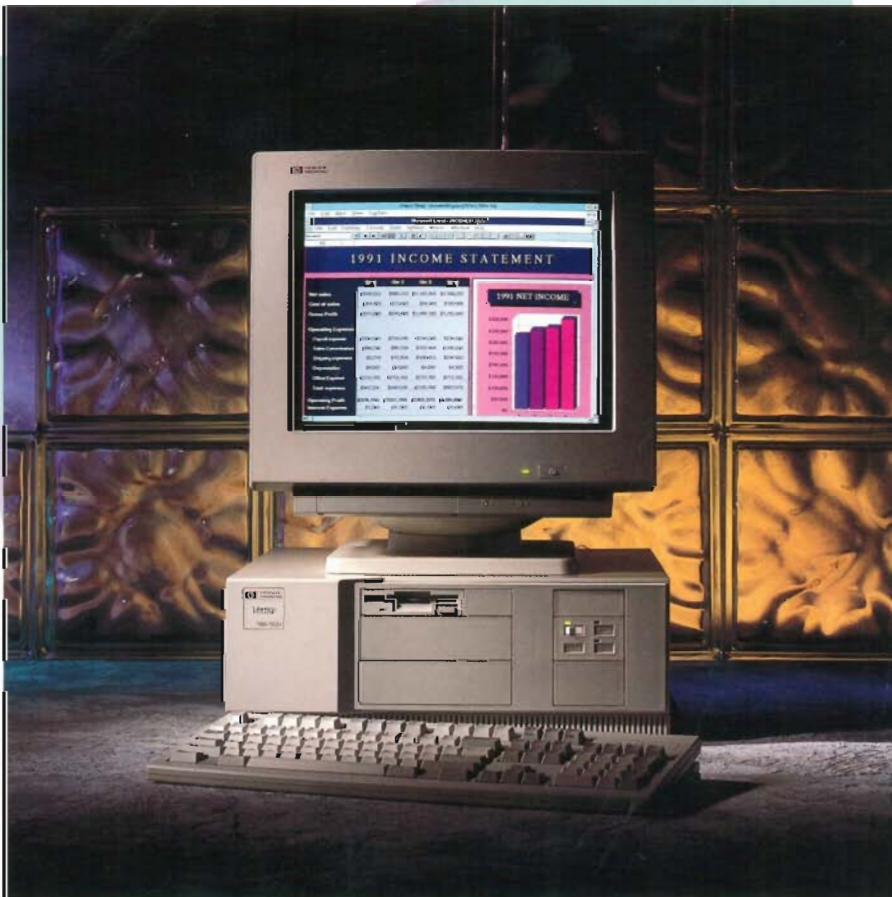


HP Vectra 486U PC Series:

HP Vectra 486/25U PC
HP Vectra 486/33U PC
HP Vectra 486/50U PC
HP Vectra 486/66U PC

Technical Data

**The Ultimate Desktop PCs
for Windows and CAD**



PCs that deliver:

- Superior performance for graphics-intensive environments
- Investment protection through an industry-leading upgrade system
- A trouble-free computing environment

New Dimensions in 486 Computing

Introducing the most powerful desktop systems in the HP Vectra PC family: the new HP Vectra 486/25U, 486/33U, 486/50U, and 486/66U* PCs. These PCs are engineered to thrive in graphics-intensive environments like Microsoft® Windows and PC-CAD. And they have the networking capability to perform well as LAN or multiuser servers. Their 25- to 66*-MHz Intel486 microprocessors—and other built-in performance features including the world's fastest integrated PC video, EISA architecture, and 128-Kbyte external cache—give your demanding applications a rock-solid foundation.

Should you need to build on that foundation, the HP Vectra 486U PC Series offers an industry-leading upgrade system that allows you to move up to higher processing speeds by simply adding one of eight Intel486 processors.

What's more, these PCs are designed to give you trouble-free computing, from their security system, ergonomic design, and upgradability, to their ease of setup and use. They're also network-capable whenever you're ready and come with HP's reputation for reliability.

On Target for Demanding Environments

For Windows applications, you'll appreciate the speed and graphics capabilities of the HP Vectra 486U PC Series. Their high-resolution video allows you to view more spreadsheet cells or a full word-processed page at one time—increasing the amount of information displayed by 250 percent over VGA. And their high-performance local bus video with graphics accelerators makes short work of scrolling and image manipulation.

If you're a CAD user, you'll find the built-in, high-resolution 1024x768 modes, plus the local bus video with graphics accelerators, can increase your video performance up to 10 times over ordinary VGA designs. You'll also be able to take advantage of their expansion capabilities, adding memory, hard drives, or networking cards as your needs grow.

Certified with all major network operating systems, the HP Vectra 486U PCs can also be used effectively as LAN or multiuser servers. They support extended industry-standard architectures, and can accommodate many types of SCSI-2 devices to suit your workgroup computing needs.

In a Class by Themselves

There are plenty of features that make the HP Vectra 486U PC Series stand out from the competition. A complete Intel486 PC line, they're among the first to offer the 486 DX2 processor. With the Intel486 architecture and technology, these PCs can take advantage of new 32-bit software developments. And their high-performance, high-resolution, ergonomic Ultra VGA+ is now the world's fastest integrated PC video solution.

With HP's new Universal Processor Upgrade Socket, you can upgrade these PCs by adding any 25- or 33-MHz Intel486 SX, Intel486 DX, Intel486 DX2, or OverDrive™ CPU. No other class of PCs gives you so many upgrade options.



For Value, These PCs Have No Equal

With lightning-fast integrated local bus video, an industry-leading upgrade system, and rock-solid performance features, the HP Vectra 486U PC Series is the best choice for your high-powered computing tasks. Add in HP's renowned quality and reliability, and you won't find better performance or greater value for your investment.

*Available second half of 1992.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Standard Features (cont.)

<p>Display drivers</p> <p>VRAM</p> <p>Cursor</p>	<ul style="list-style-type: none"> • Enhanced-mode drivers for Windows, AutoCAD, AutoShade, 3DStudio, MicroStation, CADVance®, DataCAD, CADKEY®, VersaCAD®, Lotus® 1-2-3®, WordPerfect, and others • 512-Kbyte, dual-ported • Expandable to 1024 Kbytes • Hardware cursor
<p>Upgrades</p>	
<p>Microprocessors</p> <p>System board</p> <p>Flash ROMs</p>	<ul style="list-style-type: none"> • HP Universal Processor Upgrade Socket accepts Intel487 SX, 486 DX, 486 DX2, and OverDrive microprocessors rated at 25 or 33 MHz • 128-Kbyte external cache standard; matches system speed to 25-, 33-, 50-, or 66-MHz upgrades • Two full-size sockets for easy installation of upgrades • No special tools required to extract primary processor • Upgradable to future designs, just as other HP Vectra PCs are system board-upgradable to the HP Vectra 486U PC Series • Permit easy installation and upgrade of built-in diagnostics and system code (BIOS) via floppy disk
<p>Serviceability</p>	
<p>Easy-to-access/service design</p>	<ul style="list-style-type: none"> • Snap on/off cover; no screws • Snap-together package for easy access to memory modules, add-on cards, data storage devices, system board, other components • No system battery; no need to replace or dispose of spent batteries • Built-in diagnostics and system code (BIOS) stored in Flash ROM for fast and easy updates from a floppy disk; no need to remove cover or change ROMs • Hard disk initialization utility accessible through HP System Administration Manager
<p>Security</p>	
<p>Keyboard lock screen blanking button</p> <p>Chassis lock</p> <p>Configuration protection</p> <p>Passwords</p> <p>Startup boot settings</p> <p>Enable/disable operations</p>	<ul style="list-style-type: none"> • Pushbutton keyboard lock, mouse lock, and screen blanking with LED indicator; user password unlocks • Prevents unauthorized access to internal components • Internal switches lock configuration settings • ISA configuration protection • Available for startup, keyboard, mouse, and screen blanking • Start system from flexible disk, hard disks, or network server • Enable or disable serial ports, parallel ports, flexible drives, hard drives, and write operations to the flexible drive
<p>Ergonomic Design</p>	
<p>Control panel</p> <p>Video</p>	<ul style="list-style-type: none"> • Front-accessible, provides easy access to power-on switch, keyboard lock, screen blanking, and reset buttons • LED indicators for power, system error, hard disk activity, and locked keyboard/mouse/display • Panel and product logo can be rotated 90° for desktop (horizontal) or deskside (vertical) orientation (floor stand recommended for deskside use) • Noninterlaced, high-resolution video with high refresh rates for flicker-free display to minimize eyestrain

Standard Features (cont.)

Fan	<ul style="list-style-type: none"> Low-noise, variable-speed fan automatically adjusts cooling based on internal operating temperature
Language	<ul style="list-style-type: none"> User-selectable (English, French, Spanish, German, Italian)
Keyboard	
Layout	<ul style="list-style-type: none"> Industry-standard, 101-key Adjustable tilt
Ergonomic keys	<ul style="list-style-type: none"> Adjustable audio feedback Color-coded legends
Software	
HP System Hardware Test	<ul style="list-style-type: none"> Built-in diagnostics and troubleshooting utility in ROM automatically detects failing subsystems at powerup and lists actions user can take
HPView	<ul style="list-style-type: none"> Advanced diagnostics utility comprehensively displays/prints internal settings and configurations
HP System Administration Manager	<ul style="list-style-type: none"> Provides centralized access to configuration, security, hard disk initialization, and trouble-shooting utilities
Industry-standard EISA configuration utility	<ul style="list-style-type: none"> Fast, automatic configuration of EISA boards and HP-supplied accessories Includes configuration files for key I/O boards
Autoconfiguration	<ul style="list-style-type: none"> Of processor upgrades: just insert upgrade CPU and set internal switches; no need to run configuration software
Autodetection	<ul style="list-style-type: none"> Of memory upgrades: just add SIMMs; no need to set internal switches

Optional Accessories

Memory	
	<p>A = Add a pair of 2-Mbyte modules (2 x D2381A) B = Add a pair of 8-Mbyte modules (2 x D2152A) O = Replace 4-Mbyte base memory</p>
Data Storage	
Configurations	<ul style="list-style-type: none"> Four internal data storage devices Two hard disk drives (or up to three flexible disk drives including tape backup and CD-ROMs)
Flexible disks	<ul style="list-style-type: none"> 3.5-inch, 1.44 Mbytes (D2035A) 5.25-inch, 1.2 Mbytes (D2036A)
Hard disks	<ul style="list-style-type: none"> 3.5-inch with embedded controllers 85 Mbytes, 17 ms average seek time (D2329A) 120 Mbytes, <16 ms average seek time (D1696A) 170 Mbytes, 17 ms average seek time (D2330A) 240 Mbytes, <16 ms average seek time (D1697A)
SCSI-2 hard disk	<ul style="list-style-type: none"> 430 Mbytes, 14 ms average seek time (D1699A)
Tape drives	<ul style="list-style-type: none"> 120 Mbytes (D2045A) 525-Mbyte SCSI tape drive (D2034A)

Benefits and Features of the HP Vectra 486U PC Series



How You Benefit	Product Features
<i>Your graphics-intensive applications run better with the world's fastest integrated PC video</i>	<ul style="list-style-type: none"> • 1024x768 Ultra VGA, 800x600 Super VGA, and 640x480 VGA • 32-bit local bus for maximum performance • Integrated graphics accelerators • Windows, AutoCAD™, and other video drivers • Noninterlaced, high refresh rates
<i>With an industry-leading upgrade system covering four versions of Intel486 processors, these PCs provide the maximum number of upgrade options to satisfy your future computing needs</i>	<ul style="list-style-type: none"> • HP Universal Processor Upgrade Socket accepts Intel487 SX, 486 DX, 486 DX2, and OverDrive CPUs • 25- or 33-MHz dual-speed motherboard doubles upgrade options • Chip- and system board-upgradable to keep pace with future designs • Two-processor socket design • Flash ROMs for easy system code upgrade
<i>Advanced trouble-free computing features mean these PCs fit into any work environment and are easy on users</i>	<ul style="list-style-type: none"> • A host of complementary ergonomic design features in the system, monitor, keyboard, and mouse for reduced eyestrain, low emissions, and quiet operation • Advanced, easy-to-use security system • Screen blanking at the touch of a button • Easily accessible front control panel • Extensive compatibility testing in a variety of user environments • Reliability backed by 1-year, on-site warranty
<i>Even setup, servicing, and system administration are trouble-free through an advanced system design based on your needs</i>	<ul style="list-style-type: none"> • Built-in diagnostics with recommendations for problem resolution • HPView advanced diagnostics • Snap-together design means no tools for most service operations • Easy-to-use HP System Administration Manager software • Single system board design; fewer troublesome connectors • Autoconfiguration of processor upgrades and autodetection of memory upgrades simplify installation
<i>Rock-solid performance meets the demands of your data- and graphics-intensive applications, including new 32-bit applications</i>	<ul style="list-style-type: none"> • Intel486 CPU family with DX2 speed-doubling technology, coprocessor, and internal cache • 128-KB external, write-through cache memory with four levels of write buffers • EISA architecture and EISA configuration utility
<i>An industry-standard design for LAN and multiuser server environments</i>	<ul style="list-style-type: none"> • SCSI-2 host bus adapter support • Optional external mass storage • Certified and/or tested with Novell® NetWare®, Banyan VINES, SCO™ UNIX®, and Microsoft LAN Manager

Configurations and Models								
	Model	Flexible Disk	Hard Disk	Hard Disk Controller	Memory	Math Coprocessor	Video	Product Number
HP Vectra 486/25U PC	1	3.5", 1.44 Mbytes	—	—	4 Mbytes	Optional	Ultra VGA+	D2266A
	120	3.5", 1.44 Mbytes	120 Mbytes	IDE	4 Mbytes	Optional	Ultra VGA+	D2268A
	240	3.5", 1.44 Mbytes	240 Mbytes	IDE	4 Mbytes	Optional	Ultra VGA+	D2269A
HP Vectra 486/33U PC	1	3.5", 1.44 Mbytes	—	—	4 Mbytes	Integrated	Ultra VGA+	D2272A
	120	3.5", 1.44 Mbytes	120 Mbytes	IDE	4 Mbytes	Integrated	Ultra VGA+	D2274A
	240	3.5", 1.44 Mbytes	240 Mbytes	IDE	4 Mbytes	Integrated	Ultra VGA+	D2275A
HP Vectra 486/50U PC	1	3.5", 1.44 Mbytes	—	—	4 Mbytes	Integrated	Ultra VGA+	D2278A
	240	3.5", 1.44 Mbytes	240 Mbytes	IDE	4 Mbytes	Integrated	Ultra VGA+	D2280A
	430	3.5", 1.44 Mbytes	430 Mbytes	SCSI	4 Mbytes	Integrated	Ultra VGA+	D2281A
HP Vectra 486/66U PC*	1	3.5", 1.44 Mbytes	—	—	4 Mbytes	Integrated	Ultra VGA+	D2284A
	240	3.5", 1.44 Mbytes	240 Mbytes	IDE	4 Mbytes	Integrated	Ultra VGA+	D2286A
	430	3.5", 1.44 Mbytes	430 Mbytes	SCSI	4 Mbytes	Integrated	Ultra VGA+	D2287A

*Available second half of 1992.

Standard Features

System Design	
System board	<ul style="list-style-type: none"> • Single-board design with seven HP-designed ASICs for increased integration, performance, and reliability
Bus design	<ul style="list-style-type: none"> • 25- or 33-MHz, dual speed for complete processor upgrade flexibility
EISA architecture	<ul style="list-style-type: none"> • Multilevel architecture matches subsystem performance with data transfer "highways" for optimum system performance • Provides maximum I/O performance without sacrificing the installed base of industry-standard boards
System Processing Unit	
CPU	<ul style="list-style-type: none"> • HP Vectra 486/25U PC: 25-MHz, 32-bit Intel486 SX with integrated 8-Kbyte cache • HP Vectra 486/33U PC: 33-MHz, 32-bit Intel486 DX with integrated 8-Kbyte cache, and coprocessor • HP Vectra 486/50U PC: 50-MHz, 32-bit Intel486 DX2 with speed doubler, integrated 8-Kbyte cache, and coprocessor • HP Vectra 486/66U PC: 66-MHz, 32-bit Intel486 DX2 with speed doubler, integrated 8-Kbyte cache, and coprocessor*
Accessory slots	<ul style="list-style-type: none"> • Five EISA slots • All accept 8-, 16-, or 32-bit add-on cards • All can be used as bus masters
Mass storage shelves	<ul style="list-style-type: none"> • One 3.5-inch, front-accessible • Two 5.25 inch, front-accessible • One 3.5-inch, internal
Hard disk interface	<ul style="list-style-type: none"> • Integrated IDE (embedded AT)
Video controller	<ul style="list-style-type: none"> • Integrated Ultra VGA+ • 32-bit local bus • Graphics accelerators • See "Video" for modes
Built-in I/O	<ul style="list-style-type: none"> • One 25-pin parallel port • Two 9-pin serial RS-232C ports • Mini-DIN keyboard and mouse connectors
BIOS	<ul style="list-style-type: none"> • Built-in Flash ROMs for easy system code and built-in diagnostic updates
Internal Memory	
Cache	<ul style="list-style-type: none"> • 128 Kbytes of external, write-through cache • Four levels of write buffers
Interleaved memory	<ul style="list-style-type: none"> • 4 Mbytes, high-speed, page-interleaved • Expandable to 64 Mbytes on system board using industry-standard SIMMs (no proprietary memory or expansion board required)
Controller	<ul style="list-style-type: none"> • Second-generation, 32-bit • Zero wait state, 486 burst-mode support
Video Subsystem	
Local-bus HP Ultra VGA+	<ul style="list-style-type: none"> • Operates at same speed (25- or 33-MHz) and on same 32-bit local bus as microprocessor and memory • Graphics accelerators enhance performance of graphics-intensive applications
Resolution	<ul style="list-style-type: none"> • 1024x768 at 16 or 256 colors • 800x600 at 16 or 256 colors • 640x480 at 16 or 256 colors
Ergonomics	<ul style="list-style-type: none"> • Noninterlaced • High vertical refresh rates of 70 and 72 Hz

Optional Accessories (cont.)

<p>Host bus adapters</p> <p>External storage system</p>	<ul style="list-style-type: none"> • EISA SCSI-2 single-ended (D1681A) • ISA SCSI single-ended (D1682A) • HP Storage System (C2269A), connects through external cable to SCSI-2 host bus adapter on Model 430, or accessory host bus adapters (D1681A or D1682A)
<p>Processor Upgrades</p>	
<p>Microprocessors</p>	<ul style="list-style-type: none"> • 33-MHz Intel486 DX (D2169A) • 50-MHz Intel486 DX2 (OverDrive 25-MHz) (D2171A) • 66-MHz Intel486 DX2' (OverDrive 33-MHz) (D2172A)
<p>Video</p>	
<p>VRAM upgrade</p> <p>High-resolution color display</p> <p>Ultra VGA 17-inch display</p> <p>Super VGA displays</p> <p>Monochrome VGA display</p>	<ul style="list-style-type: none"> • 512-Kbyte HP VRAM Upgrade Kit (D2326A) • HP High-Resolution Color Display, 20-inch (D1187A*): multisync capability provides resolutions ranging from 640x480 (VGA, 31.5 KHz) to 1280x1024 (64KHz) in noninterlaced mode; use cable D1191A for video controllers with VGA connector • HP Ultra VGA 17-inch Display (D1193A*), 17-inch color multisync with integrated tilt/swivel base; high refresh rate for VGA, Super VGA, and 1024x768 resolutions; low emissions (meets MPR II); matches all modes supported by HP Ultra VGA⁺ • HP Super VGA Display, 14-inch color (D1194A*) with integrated tilt/swivel base; supports standard VGA and Super VGA (800x600 at 60Hz) • HP Ergonomic Super VGA Display, 14-inch color (D1195A*) with integrated tilt/swivel base; high refresh rates for standard VGA and ergonomic Super VGA (800x600 at 72 Hz); low emissions (meets MPR II) • HP Monochrome VGA Display, 14-inch page-white (D1192A*)
<p>System Software</p>	
<p>Microsoft MS-DOS® 5.0</p> <p>HP NewWave Release 4.0</p>	<ul style="list-style-type: none"> • Includes 3.5- and 5.25-inch disks (D1152A**) • 10-user license (D1153A) • Includes 3.5- and 5.25-inch disks (D1704C)
<p>LAN Accessories</p>	
<p>UTP Ethernet interface cards</p> <p>Coax Ethernet interface card</p>	<ul style="list-style-type: none"> • HP EtherTwist Network Adapter Cards: <ul style="list-style-type: none"> – HP EISA 32-bit adapter card (27248A) – HP ISA 16-bit adapter card (27247A) – HP ISA 8-bit adapter card (27245A) • HP ThinLAN Network Adapter Card (27250A)
<p>PC Multiuser</p>	
<p>Terminal multiplexors</p> <p>Terminal</p>	<ul style="list-style-type: none"> • HP Terminal Multiplexor Kit (D2040A), includes ISA interface card • HP Terminal Concentrator Kit (D2041A) • HP 700/44 PC Terminal: amber (C1007A), green (C1007G), or soft-white (C1007W) phosphor

* Available second half of 1992.

** Power/country option must be specified; for example, D1192A for 110 V U.S. and D1192B Option ABB for most European countries.

*** Language option must be specified; for example, Option ABA for U.S. English.

Documentation & Specifications

Technical Documentation

- HP Vectra 486U PC Series Service and Technical Reference Manual (D2168-90001)
- HP Vectra 486 PC System BIOS Technical Reference Manual (D2167-90001)
- HP Vectra 486U PC Series Service Self-Paced Training Kit, dealer version (D2266A+49A-0)

Physical Characteristics

System Dimensions (not including keyboard) 6.6 in high x 17.3 in wide x 16.1 in deep (17 cm x 44 cm x 41 cm)

System Footprint

1.9 sq ft (0.18m²)

System Weight (not including keyboard and monitor) 24.8 lbs (11.3 kg)

Keyboard Dimensions

18.3 in wide x 7.0 in deep x 1.3 in flat (2.0 in standing) (46.4 cm x 17.8 cm x 3.3 cm [5.1 cm])

Environmental Conditions

- Operating temperature: 41° to 104°F (5° to 40°C)
- Nonoperating temperature: -40° to 158°F (-40° to 70°C)
- Operating humidity: 15% to 80% over specified operating temperature range
- Operating altitude: 15,000 ft (4,570 m)
- Nonoperating altitude: 50,000 ft (15,250 m)

Note: Operating temperature and humidity range may vary with data storage device.

Input Voltage

- Auto-ranging worldwide power supply
- 90 to 132 V AC at 47 to 63 Hz or 198 to 264 V AC at 47 to 63 Hz

Power Consumption

- 376 W maximum with 110 V supply
- 354 W maximum with 220 V supply
- 405 W peak with 110 V supply
- 382 W peak with 220 V supply

Power Availability

- 245 W peak for 20 sec duration, 227 W continuous
- 4 connectors for mass storage devices
- Power to backplane I/O connector slots on system board: 13.0 A at 5 V, 2.0 A at 12 V, .3 A at -5 V, .3 A at -12 V (maximum total for current slots)

Acoustic Noise

- Sound level (LWA): 44dB(A) up to 86°F (30°C)

Regulatory Compliance

Electromagnetic Compliance

- FCC Class B (USA)
- EN 55022 Class B, Manufacturer's Declaration of Conformity (EC countries)
- VCCI Class 2 (Japan)
- CISPR 22 Class B (International)
- M of C Class B (Korea)

Electromagnetic Interference

- EN 55101-2 Compliance (EC countries)
- EN 55101-3 Compliance (EC countries)

Safety Approvals

- UL-Listed (USA)
- CSA-Certified (Canada)
- TÜV-Certified (Germany)
- NEMKO-Licensed (Norway)
- IEC 950/EN 60950 Compliance (International)

Datacomm Compliance

- Germany PTT License (pending)
- Finland PTT License (pending)
- Sweden PTT License (pending)

Ergonomics

- ZH1/618 Compliance (Germany)

The Best Choice for Your Computing Needs

The HP Vectra 486U PC is part of HP's broad range of high-performance Intel386- and Intel486-based PCs. With superior video performance, investment protection, and ease of use, the HP Vectra 486U PC Series offers the best value in personal computers for graphics-intensive environments.

And with our extensive network of authorized dealers—backed by more than 410 HP sales and service facilities around the world—you're assured of assistance wherever, or whenever, you need it.

For more information or a demonstration, just contact your nearest HP authorized dealer.



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