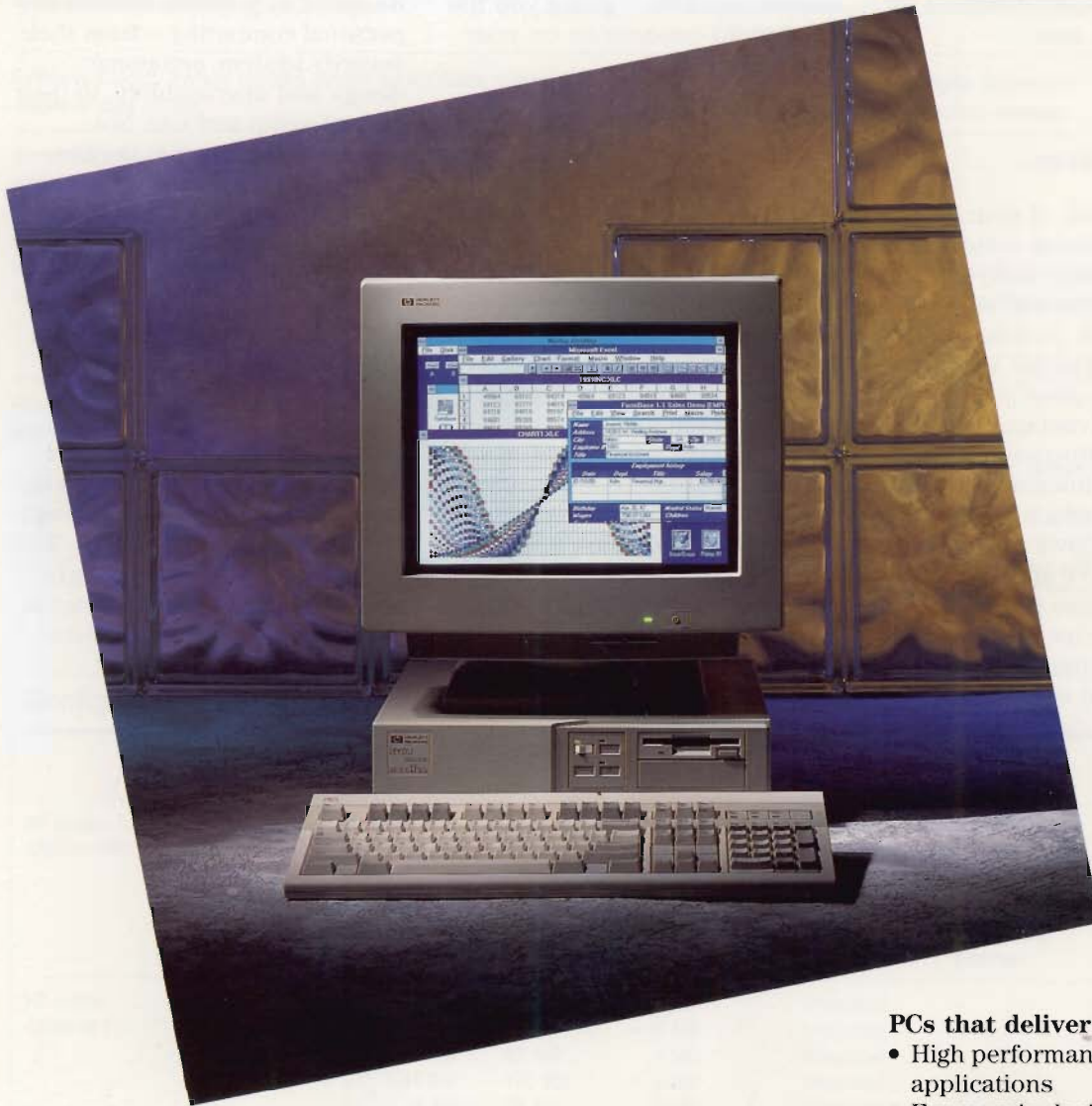

HP Vectra 486N PC Series

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

Technical Data

Network-Ready Upgradable PCs
for Advanced Office Users



PCs that deliver:

- High performance for advanced office applications
- Ergonomic design for comfortable computing
- Multivendor connectivity
- Comprehensive, easy-to-use security features
- Easy processor upgrades to protect investment
- A trouble-free personal computing environment

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Powerful 486 PCs for Connected Offices

For intensive use of office applications running on your LAN, you need more power than most client PCs can offer. Especially if you're using graphical user interfaces such as Microsoft® Windows and HP NewWave. But high-performance upgradable PCs with complete networking capabilities have been hard to find. Until the HP Vectra 486N PC Series – network-ready 486 PCs specifically designed for advanced office users.

Client PCs for Power Users

If you spend most of your day involved in business-critical tasks such as accounting, analysis, modelling, or presentations, your PC should match your level of sophistication. The HP Vectra 486N PC Series gives you the performance advantages of the Intel486 microprocessor family, plus super-fast integrated Ultra VGA+ video – which makes it perfect for Windows and other graphics-intensive applications. Of course, because you use your PC more than most, you'll appreciate the comfort afforded by the advanced ergonomic design.

And the HP Vectra 486N PC Series makes it easy to take care of business, with simplified setup, built-in easy-to-use connectivity features, exceptional reliability, and easy servicing. There's also a comprehensive security system that protects your individual privacy and safeguards the network as well. In fact, everywhere you look, the HP Vectra 486N PC Series has something extra – giving you the freedom to concentrate on your **real** work.

Because PCs Are Managed, Too

If you're a system administrator or other MIS professional, you'll find that the HP Vectra 486N PC Series is uniquely designed to meet your needs as well. Look inside these PCs for ways they make your job easier: simplified setup in ROM; administrator security controls; snap-together design for easy servicing; plus much more. Then look to HP for a free one-year, on-site warranty, plus service and support you can always count on. After all, we're one of the few companies that's been providing quality products and services to MIS for over 50 years.

It's all part of the same goal: to increase the benefits your organisation gets from its computing resources while reducing the burden of managing them.

Trouble Free Personal Computing

What's more, these PCs are designed to give you trouble-free personal computing – from their security system, ergonomic design and upgradability, to their ease of setup and use. Not forgetting the fact that they're network-ready whenever you are and come with HP's legendary reputation for reliability.

Extraordinary Demands, Extraordinary PCs

Trying to balance the needs of advanced office users with the demands of a network? Don't try to fit ordinary PCs into extraordinary environments. Read on for complete details on why the HP Vectra 486N PC Series is the best choice for a connected environment.

*The new HP PCs:
It's the little things that make them a lot better.*

Benefits and Features of the HP Vectra 486N PC Series

How You Benefit

Product Features

A variety of processors are available for your performance needs	<ul style="list-style-type: none"> • 25-MHz Intel486 SX processor • 33-MHz Intel486 DX processor • 50-MHz Intel486 DX2 processor • 66-MHz Intel486 DX2 processor
High-quality video helps speed up your applications under graphical user interfaces, including Microsoft Windows	<ul style="list-style-type: none"> • Built-in Ultra VGA + video with 1024 x 768 resolution in 256 colours • 72-Hz ergonomic refresh rate
Full compatibility with your existing LAN plus plug-and-play LAN models make connection simple	<ul style="list-style-type: none"> • Built-in Ethernet or Token Ring interface • Boot-ROM for Novell, Microsoft LAN Manager networks, and IBM LAN Server
Extensive security system provides system administrator control plus individual data privacy	<ul style="list-style-type: none"> • User and network administrator passwords • Timed keyboard lock and screen-blanking
Simplified setup and trouble-shooting procedures make these PCs easy to use	<ul style="list-style-type: none"> • PC tutorial included • Error utility in ROM • Reset button on PC
Industry-leading reliability minimises downtime on your business-critical networks	<ul style="list-style-type: none"> • Easy access and easy replacement of internal components • Autodetection of standard accessories and setup program in ROM • BIOS in flash E²PROM • Free 1-year, on-site warranty
Ergonomic features help make your work environment more comfortable and help you become more productive	<ul style="list-style-type: none"> • Small footprint and low profile • Low-noise fan • Built-in support for 72-Hz ergonomic refresh rates
Upgradability gives you room to grow	<ul style="list-style-type: none"> • Microprocessor upgrades from 25 MHz up to 66 MHz
System software included to provide complete solution	<ul style="list-style-type: none"> • MS-DOS[®] 5.0 and Windows 3.1 included with hard disk models

Configurations and Models

	Model	Flexible Disk	Hard Disk	Memory	Math Coprocessor	LAN Interface	Product Number
HP Vectra 486/25N PC	0	-	-	4 MB	Optional	-	D2610A*
	1	3.5", 1.44 MB	-	4 MB	Optional	-	D2611A*
	80	3.5", 1.44 MB	85 MB	4 MB	Optional	-	D2612A*
	170	3.5", 1.44 MB	170 MB	4 MB	Optional	-	D2613A*
	80T	3.5", 1.44 MB	85 MB	4 MB	Optional	Token Ring	D2614A*
	80E	3.5", 1.44 MB	85 MB	4 MB	Optional	Ethernet	D2615A*
HP Vectra 486/33N PC	0	-	-	4 MB	Integrated	-	D2620A*
	1	3.5", 1.44 MB	-	4 MB	Integrated	-	D2621A*
	80	3.5", 1.44 MB	85 MB	4 MB	Integrated	-	D2622A*
	170	3.5", 1.44 MB	170 MB	4 MB	Integrated	-	D2623A*
	80T	3.5", 1.44 MB	85 MB	4 MB	Integrated	Token Ring	D2624A*
	80E	3.5", 1.44 MB	85 MB	4 MB	Integrated	Ethernet	D2625A*
HP Vectra 486/50N PC	1	3.5", 1.44 MB	-	4 MB	Integrated	-	D2631A*
	170	3.5", 1.44 MB	170 MB	4 MB	Integrated	-	D2633A*
HP Vectra 486/66N PC	1	3.5", 1.44 MB	-	4 MB	Integrated	-	D2681A*
	170	3.5", 1.44 MB	170 MB	4 MB	Integrated	-	D2683A*

* Language option must be specified; for example, Option ABB for British English.

Standard Features

PC Functionality

- | | |
|--------------------------------|--|
| CPU | <ul style="list-style-type: none">• HP Vectra 486/25N: 25-MHz, 32-bit Intel486SX with 8-Kbyte cache• HP Vectra 486/33N: 33-MHz, 32-bit Intel486DX with integrated 8-Kbyte cache and coprocessor• HP Vectra 486/50N: 50-MHz, 32-bit Intel486DX2 with speed doubler, integrated 8-Kbyte cache and coprocessor• HP Vectra 486/66N: 66-MHz, 32-bit Intel486DX2 with speed doubler, integrated 8-Kbyte cache and coprocessor |
| Accessory slots | <ul style="list-style-type: none">• Two available 16-bit ISA slots on models with built-in LAN interface• Three 16-bit ISA slots on all other models |
| Mass storage shelves | <ul style="list-style-type: none">• One for 3.5-inch flexible disk drive• One for 3.5-inch hard disk drive• Both front-accessible |
| Hard disk drive support | <ul style="list-style-type: none">• Ranging from 85 Mbytes to 240 Mbytes• With < 17 ms average access time |
| Built-on I/O | <ul style="list-style-type: none">• One 25-pin parallel port• Two 9-pin serial ports• Mini-DIN keyboard port• Mini-DIN mouse port• 16-pin VGA connector• Flexible disk controller• IDE drive connector |
| Configuration | <ul style="list-style-type: none">• In CMOS RAM with battery backup• Second copy of system configuration and password in EPROM, protected against corruption or modification |
| Clock/calendar | <ul style="list-style-type: none">• In CMOS RAM with battery backup |

Internal Memory

- | | |
|------------|--|
| RAM | <ul style="list-style-type: none">• 4 Mbytes expandable to 48 Mbytes on system board |
| ROM | <ul style="list-style-type: none">• 256 Kbytes for system, video BIOS, and setup• Shadowed with RAM |

Standard Features (continued)



Video Subsystem

Local bus
HP Ultra VGA +

- Graphics accelerator improves performance of graphics-intensive applications

Resolution

- 1024 x 768 at 16 or 256 colours
- 800 x 600 at 16 or 256 colours
- 640 x 480 at 16 or 256 colours
- Non-interlaced with high vertical refresh rates of 70 and 72 Hz

Display drivers

- Enhanced-mode drivers for business applications including Windows and AutoCAD

VRAM

- 512-Kbyte, dual-ported, expandable to 1 Mbyte

Cursor

- Hardware cursor

Note: For 256 colours with 1024 x 768 and 800 x 600 resolutions, one .5-Mbyte VRAM upgrade Kit (D2326A) is required

Network Features

Compatibility

- Novell-certified; Microsoft LAN Manager, Banyan VINES, DEC Pathworks, SCO UNIX[®] certifications pending
- Fully tested with a variety of other operating systems, network operating systems, and applications software
- Fully tested with leading Token Ring, Ethernet, and Arcnet LAN adapter cards

LAN interface

- Built-in Ethernet with 16-Kbyte ("E" models only) I/O buffer for increased network data throughput
- Built-in Token Ring interface ("T" models only)

Configurations

- Supports configurations without hard and/or flexible disk drives (diskless)

Boot-ROM

- User-friendly, software-selectable, remote boot protocols built in for Novell NetWare and Microsoft LAN Manager running on both Ethernet and Token Ring networks, and IBM LAN Server on Token Ring only

Standard Features (continued)

Security

Multi-level system

- User password to access PC, lock keyboard/mouse, protect user-preference settings
- System administrator password to access PC, protect configuration settings
- Chassis key lock conveniently located on left side
- Pushbutton keyboard/mouse lock with screen blanking option; can be activated automatically by built-in timer

Configuration

- Settings to enable/disable parallel port, serial ports A and B, flexible and/or hard disk drives, write operations
- Settings to boot PC from flexible disk, hard disk, or network server
- Settings and passwords stored in E²PROM to protect against corruption or unauthorised modification
- "Secure mode" switch to prevent configuration change, even with password
- System BIOS, video BIOS, and setup integrated on one ROM chip

Ergonomic Design

Footprint

- Small, low-profile desktop design

Fan

- Low-noise, variable-speed, adjusts cooling power to ambient temperature

Video

- Supports VGA (640 x 480) and Super VGA (800 x 600) graphics modes at 72-Hz refresh rate and high-resolution (1024 x 768) mode at 70-Hz to minimise eyestrain

Control panel

- Front-accessible, provides easy access to power switch, keyboard lock, and reset button
- LED indicators for power, system error, hard disk activity, and locked keyboard/mouse/display

Reset button

- Time delay protects against accidental operation

Serviceability

Access

- Snap on/off cover; no screws
- All internal components easily accessed/replaced
- BIOS stored in flash E²PROM for fast and easy update from a floppy disk without need to remove cover or change ROMS

Battery

- Industry-standard battery powers CMOS clock and calendar

Standard Features (continued)

Software

- | | |
|--------------------------------|---|
| Setup program | <ul style="list-style-type: none">• In ROM, choice of 10 languages• On-line help |
| Autodetection | <ul style="list-style-type: none">• Setup program automatically detects major internal PC components |
| Power-on self-test | <ul style="list-style-type: none">• Lists components and indicates errors when PC is switched on |
| Troubleshooting utility | <ul style="list-style-type: none">• Details system startup errors and suggested solutions |
| Boot-ROM | <ul style="list-style-type: none">• Automatically identifies presence of Ethernet or Token Ring card |
| System software | <ul style="list-style-type: none">• MS-DOS 5.0 and Windows 3.1 included with all hard disk models except Models 80T (D2614A and D2624A) |

Keyboard

- | | |
|---------------------------|---|
| Layout | <ul style="list-style-type: none">• Industry-standard enhanced keyboard with 101-key layout |
| Ergonomic features | <ul style="list-style-type: none">• Sculptured and colour-coded keys, LED indicators on side keys, adjustable tilt angles |

Optional Accessories

Memory

Upgrade path

- Standard memory can be increased to 36 or 48 Mbytes using any combination of the following memory upgrade modules:
 - D2381A (2-Mbyte upgrade)
 - D2156A (4-Mbyte upgrade)
 - D2152A (8-Mbyte upgrade)
 - D2676A (16-Mbyte upgrade)

To use the full 48 Mbytes of memory, the 4 Mbytes of base memory must be replaced and the three memory slots filled with the 16-Mbyte upgrade

Data Storage

Configurations

- One flexible and/or one hard disk drive

Supported flexible drives

- One 3.5-inch, 1.44 Mbytes (D2035A)
- System BIOS supports a 2.88-Mbyte flexible drive and a number of third-party drives have been tested

Supported IDE (embedded AT) drives

- 85 Mbytes, 17 ms average seek time (D2329A)
- 170 Mbytes, 16 ms average seek time (D2330A)
- 240 Mbytes, 16 ms average seek time (D1697A)

Supported SCSI-2 hard disk drive

- 430 Mbytes, 14 ms average seek time (D2644A)
 - Requires ISA SCSI controller (D1682A)
-

Video

Monochrome VGA display

- HP Monochrome VGA Display, 14-inch page-white (D1192B*)

Super VGA displays

- HP Super VGA Display, 14-inch colour (D1194A*) with integrated tilt-swivel base; supports standard VGA and Super VGA (800 x 600 at 60 Hz)
- HP Ergonomic Super VGA Display, 14-inch colour (D1195A*) with integrated tilt/swivel base, high refresh rates for ergonomic Super VGA (800 x 600 at 72 Hz), and low emissions (meets MPR II)

Ultra VGA 17" display

- HP Ultra VGA Display, 17-inch multisync colour (D1193A*) with integrated tilt/swivel base; high refresh rate for VGA, Super VGA, and 1024 x 768 resolutions; and low emissions (meets MPR II); matches all modes supported by HP Ultra VGA Board

High-resolution colour display

- HP High-Resolution Colour Display, 20-inch (D1187A*); multisync capability provides resolutions ranging from VGA to 1280 x 1024 in non-interlaced mode; matches all modes supported by HP Ultra VGA Board; use cable D1191A for video controllers with VGA connector

Optional Accessories (continued)

System Software

- HP NewWave Release 4.0** • Includes 5.25- and 3.5-inch disks (D1704C)
-

LAN Accessories

**UTP Ethernet
interface cards**

- HP EtherTwist PC Link (27245A**)
- HP EtherTwist PC Link, 6-pack (27267A**)
- HP EtherTwist PC Link 16 (27247B Opt. ABA) with 16-bit bus interface
- HP EtherTwist PC Link 16, 6-pack (27269B**)

**Coax Ethernet
interface card**

- HP ThinLAN Card (27252A**)

**Token Ring
interface card**

- HP Token Ring ISA 16/4 Adaptor (D2378A)

Optional Accessories (continued)

Upgrades

Microprocessors

- Intel486 DX 33-MHz microprocessor (D2169A)
- Intel486 DX2 50-MHz microprocessor (D2171A)
- Intel486 DX2 66-MHz microprocessor (D2172A)

Kit

- All upgrades include a new PC logo, extractor tool, and extended 1-year return to HP warranty

Board

- Upgrades for HP Vectra 386/16N, 386/20N and 386/25N PCs:
 - Board upgrade to HP Vectra 486/33N PC (D2629A)
 - Board upgrade to HP Vectra 486/50N PC (D2609A)
 - Board upgrade to HP Vectra 486/66N PC (D2689A)

Note: Check with your local HP sales office for board upgrade availability.

**Power/country option must be specified; for example, D1192B Opt. ABB for most European countries.*

***Language option must be specified; for example, Option ABB for British English.*

The Best Choice for Your Trouble Free Personal Computing Needs

The HP Vectra 486N PC Series is part of HP's broad range of high-performance Intel386- and Intel-486-based PCs. With superior performance, reliability, and expansion capabilities, the HP Vectra 486N family offers the best choice of 486-based PCs for a trouble-free personal computing environment.

And with our extensive network of authorised 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 authorised dealer.

Documentation & Specifications

Technical Documentation

- HP Vectra 486N PC Series Reference Manual (5960-5879)
- HP Vectra PC System BIOS Technical Reference Manual (D2167-90001)
- HP Vectra PC Service Handbook (5960-0596)

Physical Characteristics

System Dimensions (not including keyboard)
15.0 in wide x 15.6 in deep x 4.0 in high
(38.1 cm x 39.7 cm x 10.2 cm)

System Footprint
(not including keyboard)
1.6 sq ft (.15 m²)

System Weight
(not including keyboard and monitor)
20 lbs (9 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:
40° to 104°F (5° to 40°C)
- Non-operating temperature:
-40° to 158°F (-40° to 70°C)
- Humidity:
15% to 95% RH (non-condensing)
- Operating altitude:
15,000 ft (4,570 m)
- Non-operating altitude:
50,000 ft (15,250 m)

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

Input Voltage

- Auto-ranging power supply
- 90 to 132 V lower range over 47 to 63 Hz
- 198 to 264 V upper range over 47 to 63 Hz

Power Consumption

- 50 W (typical) and 85 W (absolute maximum) with 110/220 V supply

Heat

- 170 BTUs/hr typical (43 kCal),
716 BTUs/hr absolute maximum
(180 kCal)

Power Availability

- 75 W maximum
- For each accessory card:
1.4 A at 5 V
.13 A at 12 V
.1 A at -12 V
.03 A at -5 V

Acoustic Noise

- Sound power level (LWA): 40 db(A)

Regulatory Compliance

Electromagnetic Compatibility (EMC)

- FCC Class B (USA) when not equipped with network interface; "E" and "T" models equipped with FCC Class A-rated network interface card are certified to FCC Class A when connected to a network
- EN 55022 Class B, (EC countries)
- IEC 801.2/EN 55101-2 (International)
- IEC 801.3/EN 55101-3 (International)
- IEC 801.4/EN 50082-1 (International)
- CISPR 22 Class B (International)
- RRL (Korea)
- VCCI Class 2 (Japan)
- SABS (South Africa)

Safety Approvals

- UL-Listed (USA)
- IEC 950/EN 60950 (International)
- CSA-Certified (Canada)
- TÜV-Certified (Germany)
- FEI (Finland) exempted
- NEMKO (Norway)
- BS6301 (UK)
- SASO (South Africa)
- NOM (Mexico)

Datacomm Compliance

- Germany, and Sweden

Ergonomics

- Complies with German standard ZH1/618
- Economically recyclable plastic, metal, and shipping container

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