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# HP Vectra 386/25 PC

## Technical Data



The Hewlett-Packard Vectra 386/25 PC is the most powerful desktop model of the HP Vectra PC family. It combines the power of a 386 microprocessor running at 25 MHz and a 32-Kbyte memory cache with the latest available chip-set and embedded-controller disk technologies.

Packaged in a compact, yet expandable, desktop package, this industry-standard architecture (ISA) machine offers the

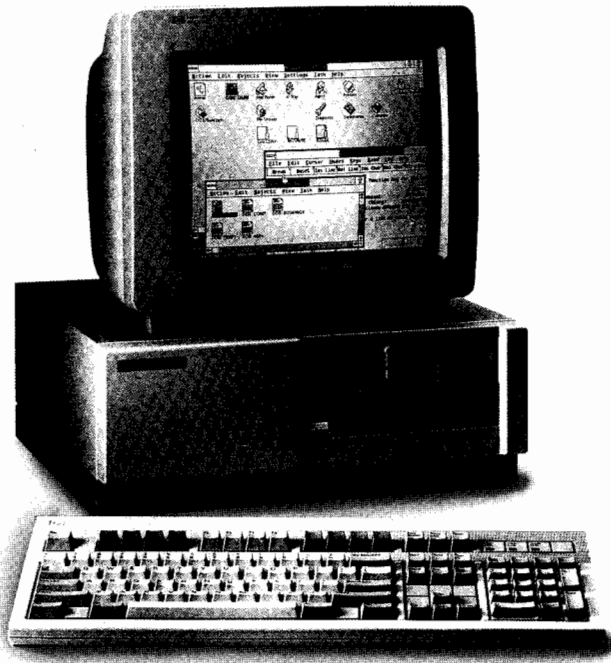
level of performance required to make short work of your high-end office applications including complex spreadsheets, large databases, and presentation graphics. It is the ideal system for running your mid-range technical applications including PC CAD and real time instrument control, as well as functioning as an entry-level PC-multiuser or LAN server.

The HP Vectra 386/25 PC is a member of HP's complete product line of high-quality, industry-standard PCs.

### Features

#### System Processing Unit

- 386 32-bit microprocessor; clock rate switchable from 25 MHz to 8 MHz
- Seven Industry-Standard Architecture (ISA) accessory slots (PC/AT-compatible):
  - One 8-bit slot
  - Six 16-bit slots
- Switch-selectable I/O bus speed: 8 MHz (asynchronous) or 8.33 MHz default (synchronous)
- Three half-height mass storage shelves; two with front access
- Multifunction controller card occupies one 16-bit slot and includes:
  - Hard disk connector/driver
  - Flexible disk controller
  - One serial port (110 bauds to 19.2 Kbauds as COM1 to 4)
  - One parallel port (as LPT1 or 2)
- One socket for the 387 coprocessor or the Weitek WTL-3167 single-chip floating point accelerator, both running at full CPU clock rate
- Real-time clock/calendar with battery-backed CMOS RAM
- PS/2-type Mini-DIN connectors for keyboard and mouse
- Power-on password and optional keylock improve system security.



**HP Vectra 386/25 PC Configurations**

All HP Vectra 386/25 PC configurations have a 25-MHz 386 microprocessor with 2 Mbytes of main memory, 32 Kbytes of cache memory, one serial, one

parallel port, one mouse port, and either a 5¼-inch (1.2 Mbytes) or a 3½-inch (1.44 Mbytes) flexible disk drive. They also include a user's manual, software utilities/drivers, and an IBM PC/AT-type keyboard.

Model	Flexible Disk	Hard Disk	Video Adapter	Product number
1	5¼ inch, 1.2 Mbytes	None	None	D2360A
	3½ inch, 1.44 Mbytes	None	None	D2371A
80	5¼ inch, 1.2 Mbytes	84 Mbytes	Super VGA	D2363A
	3½ inch, 1.44 Mbytes	84 Mbytes	Super VGA	D2361A
170	5¼ inch, 1.2 Mbytes	168 Mbytes	Super VGA	D2364A
	3½ inch, 1.44 Mbytes	168 Mbytes	Super VGA	D2362A

**Memory Expansion**

- 2-Mbyte, 80 ns memory upgrade kit (HP D2381A); includes one 2-Mbyte module (SIMMs)
- 8-Mbyte, 80 ns memory upgrade kit (HP D2152A); includes one 8-Mbyte module (SIMMs)

Any combination of these, up to a maximum of four, is supported for a maximum of 32 Mbytes on the processor board.

**Keyboard**

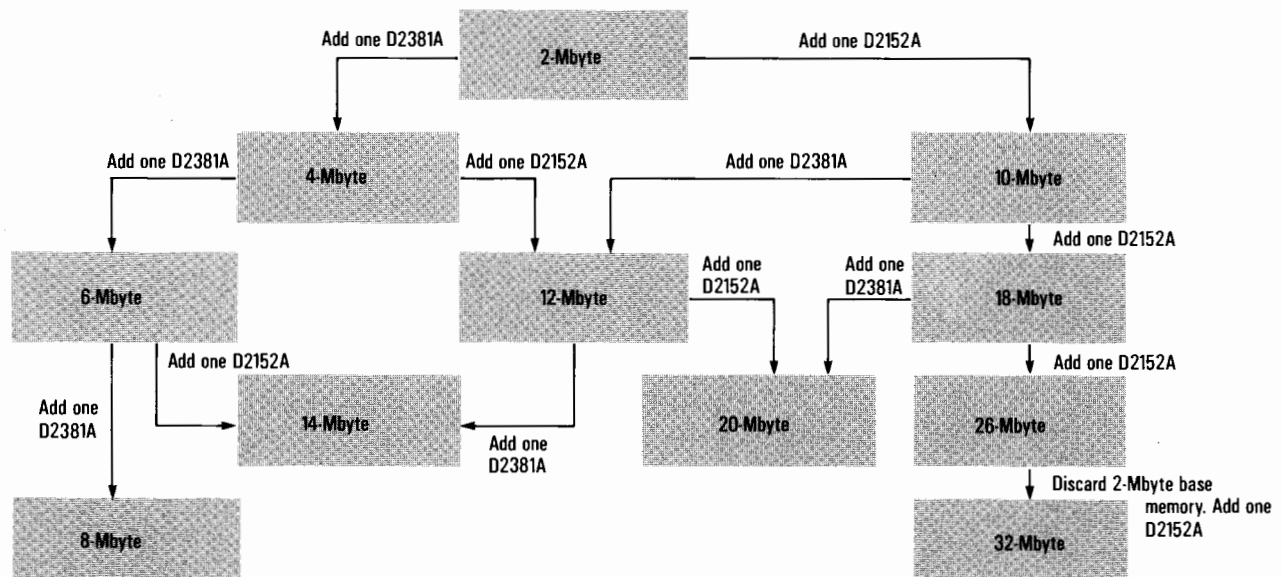
- Detachable, typewriter-style, 101-key IBM PC/AT-enhanced keyboard format with adjustable tilt
- Ergonomic keys with adjustable audio feedback and color-coded legends
- IBM PS/2-type Mini-DIN connector
- Separate numeric and cursor keypads

**Internal Memory**

- 32-bit main memory based on high density 80 ns Single-In-Line Memory Modules (SIMM) with parity
- 2-Mbyte base memory on all models expandable to 32 Mbytes; can be used as either "extended" or "expanded" memory
- Fast A20 gate and "fast reset"
- Expanded Memory Manager software provides LIM\* 4.0 support for expanded memory applications
- 32-Kbyte cache memory architecture based on Chips and Technology 311, 2-way set-associative cache memory controller
- Shadow RAM to accelerate BIOS-coded operations
- 64 Kbytes of ROM (Read-Only Memory) for BIOS, with two sockets for an additional 64 Kbytes of ROM

\*Lotus®/Intel/Microsoft®

**Memory Upgrade Path**



### Internal Data Storage

Up to two flexible disk-type devices (including tape backup) can be installed internally. Supported devices are:

- 3½-inch 1.44-Mbyte flexible disk drive (HP D1667A)
- 5¼-inch 1.2-Mbyte flexible disk drive (HP 45812A)
- 5¼-inch 360-Kbyte flexible disk drive (HP 45811A)
- 40-Mbyte internal tape backup mechanism (HP D1671A)
- 120-Mbyte internal tape backup mechanism (HP D2045A)

A maximum of two hard disks with embedded controller can be installed internally. Supported disks are 3½-inch type with the following characteristics:

- 19 ms average seek time and 700 Kbytes/sec transfer rate:
  - 42 Mbytes: HP D1665A
  - 84 Mbytes: HP D1666A
- 17 ms average seek time and 800 Kbytes/sec transfer rate:
  - 120 Mbytes: HP D1679A
  - 168 Mbytes: HP D1680A
  - 336 Mbytes: HP D1688A (two 168-Mbyte disk mechanisms in one half-height disk tray)

### Video

- HP Super VGA controller (HP D2382A) supports the 640 × 480 IBM standard VGA resolution, the MDA, CGA, EGA, Hercules graphic video standards as well as the “Super VGA” mode (800 × 600) and the 1024 × 768 high-resolution mode (interlaced). With 256 Kbytes of video memory (standard), the following resolutions are supported:
  - 320 × 200 with 256 colors
  - 640 × 350 with 256 colors
  - 640 × 400 with 256 colors
  - 640 × 480 with 16 colors
  - 720 × 540 with 16 colors
  - 800 × 600 with 16 colors
  - 1024 × 768 with 4 colors (interlaced)
  - 132 column text mode
- 256 Kbytes of video memory can be added (HP D2383A upgrade kit). In this case, two more resolutions are supported:
  - 640 × 480 with 256 colors (non-interlaced)
  - 1024 × 768 with 16 colors (interlaced)
- Extended mode drivers for the HP Super VGA controller: AutoCAD®, AutoShade 9 & 10, Lotus 1-2-3® 2.x, WordStar® 3.3, WordPerfect 5.0, Windows/286 2.x, Windows/386 2.x, Generic CAD, VersaCAD 5.3 & 5.4, P-CAD, Ventura Publisher 1.1 & 2.0, GEM/3
- 14-inch HP Video Graphics Color Display (HP D1182A for 110 V and HP D1182B for 220 V) HP Super VGA controller required.
- 14-inch HP Monochrome Video Graphics Display
  - HP D1181A—Amber
  - HP D1181G—Green
  - HP D1181W—White
 HP Super VGA controller required

- Recommended high-resolution interlaced displays (not supported):

- NEC Multisync 3D (14-inch)
- NEC Multisync 4D (16-inch)
- Seiko CM-1430 (14-inch)

### High-Resolution Video

- The HP High-Resolution Intelligent Graphics Controller model 10 (HP A1086A). Five times faster than HP VGA, and supports resolutions up to 1024 × 768 with 16 or 256 colors in non-interlaced mode. Permits VGA “pass-through.”
- The HP High-Resolution Intelligent Graphics Controller model 20 (HP A1083A). Fifteen times faster than HP VGA, and supports resolutions up to 1280 × 1024 with 16 or 256 colors in non-interlaced mode. Permits VGA “pass-through.”
- 0.5 Mbyte VRAM upgrade Kit (HP A1084A) for HP IGC 10 and 20 (Standard VRAM: 0.5 Mbyte on IGC 10 and 1.0 Mbyte on IGC 20)
- 0.5 Mbyte DRAM upgrade kit (HP A1085A) for HP IGC 10 and 20. On IGC 10, extension module (HP A1087A) is required for DRAM above 0.5 Mbyte.
- 20-inch (HP D1187A) and 16-inch (HP D1188A) high-resolution color displays. Multisync capability provides resolutions ranging from 640 × 480 (VGA; 31.5 KHz) to 1280 × 1024 (64 KHz) in non-interlaced mode. Used with HP A1083A and A1086A high-resolution Intelligent Graphics Controllers or with the HP Super VGA controller (HP D1191A, Cable required in this case)

### PC Multiuser

- SCO™ UNIX® System V/386 (D2046A/ABA for U.S. 5¼-inch disks; D2046B/ABA for U.S. 3½-inch disks)
- SCO VP/ix™ Integrated DOS Environment (D2052A/ABA). Includes software on 5¼-inch disks and documentation.
- Terminal Multiplexor Kit (D2040A) includes ISA interface card, one 8-port terminal concentrator, one host cable, and one terminal cable.
- Terminal Concentrator Kit (D2041A) includes one 8-port terminal concentrator, one host cable, and one terminal cable.

### Terminals for Multiuser Applications

- HP 700/41 Entry Level ASCII Terminal (HP C1003A\*); amber phosphor
- HP 700/41 Entry Level ASCII Terminal (HP C1003G\*); green phosphor
- HP 700/44 PC-Terminal with AT3 keyboard (HP C1007A\*); sends either ASCII codes or PC key scan-codes to host; amber phosphor

- HP 700/44 PC-Terminal with AT3 Keyboard (HP C1007G\*); same as C1007A above, except green phosphor
- HP 700/44 PC-Terminal with AT3 Keyboard (HP C1007W\*); same as C1007A above, except soft-white phosphor

### System Software

Microsoft MS-DOS® 4.01. Includes DOS Shell, Personal Applications Manager (PAM), and HP Vectra Disk Cache. D1151A Opt. ABA for U.S. English 5¼-inch disks; D1151B Opt. ABA for U.S. English 3½-inch disks. Localized options also available.

MS-DOS 3.3. Includes Personal Applications Manager (PAM), Volume Expansion utilities, and disk caching utility. 45951D for U.S. English 5¼-inch disks; 45951E for U.S. English 3½-inch disks.

Microsoft Operating System/2 (OS/2) 1.1. D1302B Opt. ABA for U.S. English 5¼-inch disks; D1302C Opt. ABA for U.S. English 3½-inch disks. Needs at least 2.5 Mbytes RAM; 4 Mbytes recommended.

SCO UNIX System V/386 release 3.2 multiuser run time operating system. (D2046A Opt. ABA for U.S. English 5¼-inch disks; D2046B Opt. ABA for U.S. English 3½-inch disks.) Includes SCO manuals and HP Vectra Installation Guide.

SCO VP/ix Integrated DOS Environment (D2052A Opt. ABA). Requires SCO UNIX.

Utility Disk (standard software included with all models) includes Setup program, HP Expanded Memory Manager Program to provide Lotus-Intel-Microsoft (LIM) EMS 4.0 functionality, and speed-switching utility.

### Technical Documentation

- HP Vectra 386/25 PC Hardware Technical Reference Manual (HP D2360-90002)
- HP Vectra BIOS Technical Reference Manual (HP 5959-7745)
- HP Vectra 386/25 PC Service Manual (D2360-90001)
- HP Vectra Accessory Service Manual (5959-7738)

### Performance Enhancements

- 387 numeric coprocessor (D2070A)
- Weitek WTL-3167 floating point accelerator available from the Weitek sales organization
- Both coprocessors operate at full microprocessor speed: 25-MHz
- Disk caching utility (standard): improves system performance by up to 30%, especially for disk-intensive applications.

### Other Interfaces and Accessories

- Serial/Parallel Interface: HP 24540B
- Dual Serial Interface: HP 24541B
- 8-Port Multiplexer: HP D2040A
- HP-IB Interface: HP 82335A
- 1200 bps Modem: HP 24550A
- 2400 bps Modem: HP 24551A or B

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

- HP-IRMA 3278/79 Emulator: HP 50920A
- HP-Thin LAN Interface: HP 27210B
- Security Lock: HP 45986A

#### **Input Devices**

- HP Mouse with PS/2 interface (HP C1413A)
- HP SketchPro serial (RS-232C) digitizing tablet (HP 7060A)
- HP 700/44 terminal: offers PC-Terminal for UNIX/XENIX-based multiuser systems (HP C1007A/G/W)
- HP 700/41 entry-level ASCII 7-bit terminal (HP C1003A or G)

#### **Physical Characteristics**

##### *System Dimensions*

(without keyboard) 16.7-inch wide × 15.7-inch deep × 6.3-inch high (42.5 cm × 40 cm × 16 cm)

##### *System Footprint*

1.8 sq. ft. (0.17m<sup>2</sup>), without keyboard

##### *System Weight*

(not including keyboard and monitor) 33 lbs. (15 kg)

##### *Keyboard Dimensions*

18.4-inch wide × 7.8-inch deep × 1.4-inch (2.2 inch) flat (standing) position (46.8 cm × 19.8 cm × 3.4 cm [5.5 cm])

#### **Environmental Conditions**

- Operating temperature: 32° to 104°F (0° to 40°C)
  - Non-operating temperature: -40° to 158°F (-40° to 70°C)
  - Humidity: 15% to 80% (non-condensing)
  - Operating altitude: 15,000 ft. (4.6 km)
  - Non-operating altitude: 50,000 ft. (15.2 km)
- Note: Operating temperature and humidity range may vary with data storage media.

#### **Input Voltage**

- Auto-ranging world-wide power supply
- 85 to 129 V lower range over 47 to 66 Hz
- 187 to 264 V upper range over 47 to 66 Hz

#### **Power Consumption**

- 306 W (337 W) maximum with 110V (220V) supply

#### **Heat**

- 710 BTUs/hour maximum

#### **Power Availability**

- 174 W available peak for 10 sec duration, 134 W continuous
- Accessory cards: 7.2 A at 5 V; 0.39 A at 12 V; 0.25A at -5V; 0.25A at -12 V

#### **Regulatory Compliance**

##### **Radio Frequency Interference**

- FCC Class B
- FTZ 1046/84 standard with VDE Radio Protection Mark
- SABS approval
- VCCI approval class 2
- EN 55022 Class B

##### **Safety Approvals**

- UL 1950
- BS 6301
- CSA 22.2 No 220
- TUEV-certified
- NEMKO
- IEC 380/435 and EN 60950 compliance
- FEI/SETI

##### **Datacomm**

- Germany, UK, Sweden, Finland and Belgium (Datacomm secondary attachment) Network

##### **Ergonomics**

- Complies with German standard ZH1/618



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