

# Familiarization Guide

**HP Vectra XU 6/xxx PC  
and  
HP Vectra VT 6/xxx PC**

This guide is for experienced HP Response Center personnel, CEs, and reseller technicians. That is, personnel who have already completed the HP Vectra PC family training course, or equivalent, and have at least six months of experience servicing the HP Vectra PCs.

It is a self-paced training guide designed to train you to install, configure, and repair the PC. You can follow it without having any equipment available.

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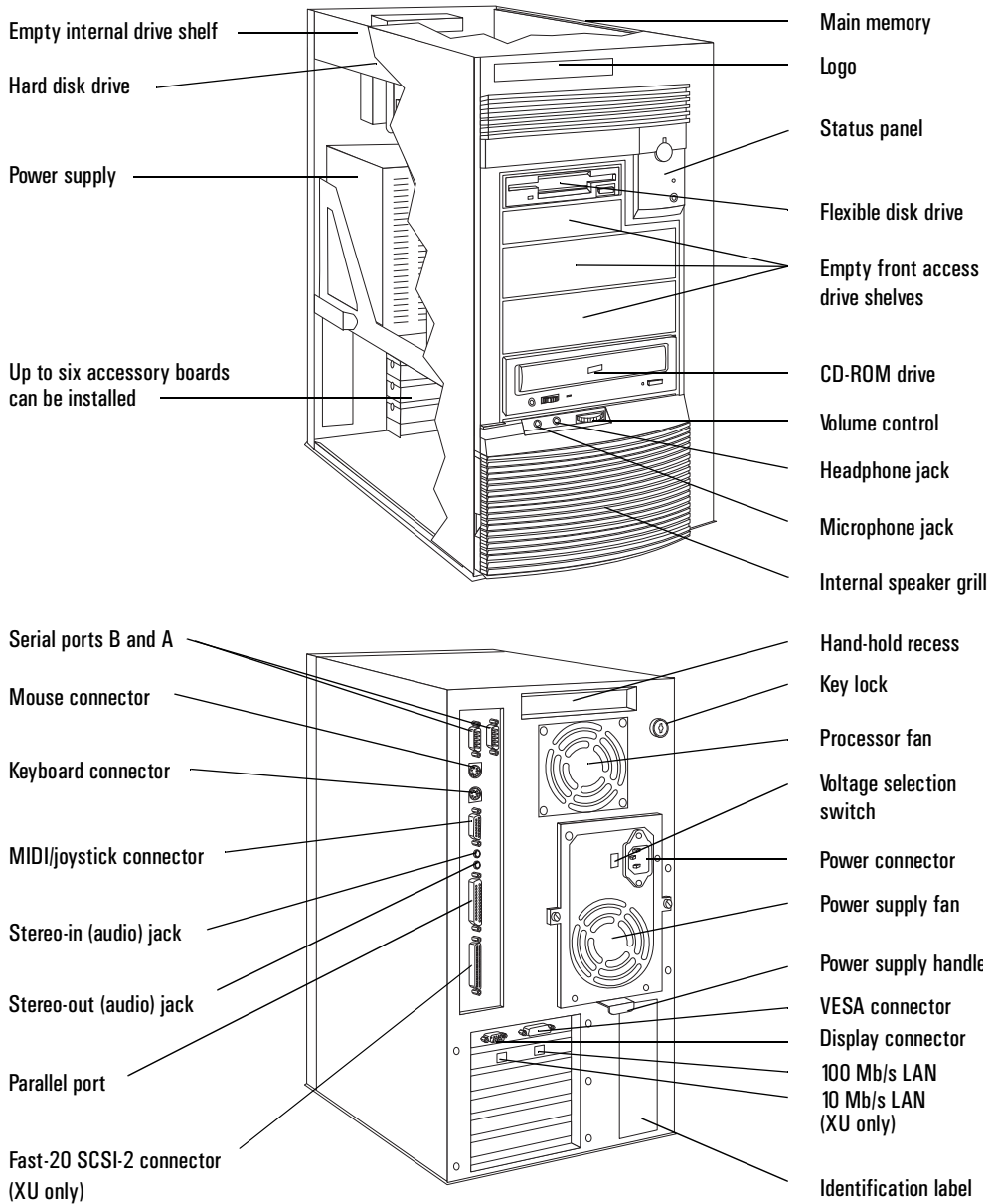
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## Product Overview and Features

The *HP Vectra XU 6/150 PC* and *HP Vectra VT 6/150 PC* are the first members of the HP Vectra PC family to use the Intel Pentium Pro (P6) microprocessor. This chapter gives an overview of the *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC*. It describes their differences and similarities, and compares them with an earlier member of the HP Vectra PC family, the *HP Vectra XU 5/133C PC*.

## Product Overview

The following two diagrams show the front and rear views of the *HP Vectra XU 6/xxx PC* (the *HP Vectra VT 6/150 PC* is similar, but has no SCSI or LAN connectors).



## New Features

	HP Vectra XU 6/xxx PC	HP Vectra VT 6/xxx PC
Processors	Intel Pentium Pro (P6) microprocessor	
	Dual Intel Pentium Pro capability	—
Main memory	128-bit data path between the processor and main memory	
	Error correcting code (ECC)	—
Peripheral handling integrated on the system board	Fast-20 SCSI-2 on PCI bus	—
	Fast EIDE PCI master (up to PIO mode 4, and DMA mode 2)	
	SoundBlaster 16 audio on ISA bus	
Peripheral handling on boards in the PCI accessory slots	Matrox MGA Millennium PCI video controller board	
	HP 10/100 VG Selectable PC LAN Adapter	—
Mass storage drives	1 GB or 2 GB hard disk drive	1 GB hard disk drive
	1.44 MB flexible disk drive	
	Quadruple speed CD-ROM	
Package	Minitower	
	7 accessory shelves (5 with front access: three 5.25" X 1.6" shelves, two 3.5" X 1" shelves)	
	6 accessory board slots (three PCI, two ISA, one combination PCI/ISA)	

## Models Available at Product Launch

Platform	Product Number	System RAM	HDD	FDD	CD-ROM	LAN	Operating System (Supplied)
XU 6/150	D3528A	16 MB ECC	none	1.44 MB (D2035A)	Quadruple speed SCSI (D2992B)	HP 10/100 VG Selectable PC LAN Adapter (J2585A)	none
	D3529N		1 GB SCSI (D2920A)				Microsoft Windows NT 3.51 WS
	D3530N		2 GB SCSI (D2926A)				
VT 6/150	D3520A	16 MB non-ECC	none	1.44 MB (D2035A)	Quadruple speed IDE (D2896-63301)	none	none
	D3521N		1 GB IDE (D2919A)				Microsoft Windows NT 3.51 WS
	D3521S						IBM OS/2 Warp Connect

# 1 Product Overview and Features

## Product Overview

### Vectra Products Comparison

The two new products can be compared with the *HP Vectra XU 5/xxC PC*:

Component	HP Vectra XU 5/xxC PC	HP Vectra XU 6/xxx PC	HP Vectra VT 6/xxx PC
Microprocessor	5/90: Pentium 90 MHz 5/120: Pentium 120 MHz 5/133: Pentium 133 MHz	6/150: Pentium Pro (P6) 150 MHz	
Second processor option	Zero insertion force (ZIF) companion socket on the system board		None
Math co-processor	On the microprocessor chip		
Level-1 (L1) cache memory	8 KB I-cache (for instruction-code) plus 8 KB D-cache (for data), both on the microprocessor chip		
Level-2 (L2) cache memory	256 KB or 512 KB (on the system board)	256 KB (on the microprocessor chip)	
Local bus	64-bit, 60 MHz or 66 MHz (see the "Configuration Switches" table in the next chapter)		
Main memory	32-bit (70 ns) DRAM	72-bit (60 ns) ECC DRAM	64-bit (60 ns) non-ECC DRAM
Standard	16 MB		
Maximum	256 MB		
Upgrades	8 MB (2 x 4 MB modules) 16 MB (2 x 8 MB modules) 32 MB (2 x 16 MB modules) 64 MB (2 x 32 MB modules)	16 MB (2 x 8 MB D3556A modules) 32 MB (2 x 16 MB D3555A modules) 64 MB (2 x 32 MB D3554A modules) (all of which are ECC)	16 MB (2 x 8 MB non-ECC D3553A modules)
Sockets	Eight DIMM sockets (organized as four pairs)		
Error protection	Parity code error detection	Error correcting code (ECC)	None
PCI bus	32-bit, running at half the speed of the Local bus		
Video controller	64-bit Ultra VGA on a PCI accessory board (Matrox MGA Impression Plus)	64-bit Ultra VGA on a PCI accessory board (Matrox MGA Millennium)	
Video memory	2 MB		
Video upgrade socket	One socket on the video board (use a 2 MB D3095B module)	One socket on the video controller board (use a 2 MB D3557A module, or order a 6 MB MGA-MIL/MOD6 module from Matrox)	
SCSI controller	Fast SCSI-2 PCI master (integrated AMD PCscsi)	Fast-20 SCSI-2 (integrated Adaptec AIC-7880 Controller on the PCI bus)	None



Component	HP Vectra XU 5/xxC PC	HP Vectra XU 6/xxx PC	HP Vectra VT 6/xxx PC
IDE controller	Enhanced IDE Master, integrated on the system board (on the PCI bus)		
Mass storage shelves	One front access 3.5-inch shelf One front access 5.25-inch shelf One front access 5.25-inch/3.5-inch One internal 3.5-inch shelf	Two internal 3.5-inch shelves Two front access 3.5-inch shelves Three front access 5.25-inch shelves	
Hard disk drives	540 MB or 1 GB or 2 GB SCSI, or 540 MB IDE, or none	1 GB SCSI (D2920A), or 2 GB SCSI (D2926A), or none	1 GB IDE (D2919A), or none
Flexible disk drives	1.44 MB (D2035A)		
CD-ROM drives	Quadruple speed SCSI on some models	Quadruple speed SCSI (D2992B)	Quadruple speed IDE (D2896-63301)
LAN interface	AMD PCnet on system board	HP 10/100 VG Selectable PC LAN Adapter (J2585A) PCI board	None
ISA bus	16-bit, running at one fourth the speed of the PCI bus		
Integrated communications ports	1 serial port (RS232C 16550 UART), 1 parallel port (bidirectional multi-mode), keyboard, mouse	2 serial ports (RS232C 16550 UART), 1 parallel port (bidirectional multi-mode), keyboard, mouse	
Audio capability	Not supplied	SoundBlaster 16 integrated on system board (on ISA bus)	
Audio connectors	Not supplied	Headphone jack, microphone jack, MIDI/joystick connector, stereo-in jack and stereo-out jack on front and rear panels; wavetable connector on system board	
Accessory board slots	One 32-bit PCI, three 16-bit ISA, and one combination PCI or ISA	Three 32-bit PCI, two 16-bit ISA, and one combination PCI or ISA	
Flash ROM	POST, <i>Setup</i> , BIOS, security		
Security	Keyboard lock, mechanical cover lock, disk and port disabling, power-on button and reset button disabling	Mechanical cover lock, disk and port disabling	
Passwords	Two-level (user and system administrator) passwords		
Software	MS-DOS, Windows, HP Dashboard, software drivers, HPROMInit pre-installed	Microsoft Windows NT 3.51 WS supplied, or none	Microsoft Windows NT 3.51 WS bundled, or IBM OS/2 Warp supplied, or none
Power supply	Full range 90–264 VAC, 120 W	Manually switched 115/230 VAC, 280 W input, 200 W output	
Package	Full height desktop	Minitower	

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## Product Features

### Local Bus Devices

- Intel Pentium Pro (P6) microprocessor
- optional second Pentium Pro processor (*HP Vectra XU 6/xxx PC* only)
- main memory controller and its memory modules
- error correcting code (ECC).

### Microprocessor

The Pentium Pro is a super-pipelined, dynamic branch-prediction, asynchronous super-scalar Intel microprocessor. Within the single integrated circuit package Intel provide a Level-Two (L2) cache memory chip and the microprocessor. The former contains 256 KB of synchronous cache memory; the latter includes two Level-One (L1) cache memories (an 8 KB instruction-code cache memory, and an 8 KB data cache memory).

Software written for previous HP Vectra PCs will run on the Pentium Pro. However, only 32-bit programs execute faster. The Pentium Pro is not pin compatible with the Pentium.

### Dual Processor

The *HP Vectra XU 6/xxx PC* has a socket for installing a second Pentium Pro processor. However, to do so is only an advantage when running an operating system that supports multiprocessing (“MPS-ready”), such as SCO Unix, NextStep, Solaris, OS/2 SMP and Windows NT. Of these, the Windows NT operating system makes best use of the Pentium Pro’s 32-bit architecture (though other operating systems will also show some benefit if 32-bit application programs are run).

	SCO Unix	Next Step	Sunsoft Solaris	OS/2	Windows NT 3.5 (or greater)	Windows 95	Windows 3.x	DOS
Multi-threaded	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPS-ready	Yes	Yes	No	No	Yes	No	No	No
32-bit operating system	Yes	Yes	Yes	Yes	Yes	Partial <sup>1</sup>	No	No
32-bit applications available	Yes	Yes	Yes	Yes	Yes	Yes	Partial <sup>2</sup>	No

1. 32-bit operation at the outermost levels, but only 16-bit working internally

2. With the 32S library

**DRAM Main Memory Modules**

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are supplied with 16 MB of main memory. Upgrade DIMMs can be installed, a pair at a time, to increase this to a maximum of 256 MB.

There are eight memory sockets, grouped into four banks (labeled A to D on the system board). Each bank comprises two sockets. The banks can be filled in any order, but always with pairs of DIMMs of the same capacity and same type (ECC or non-ECC).

- 16 MB ECC (a pair of 8 MB ECC modules)
- 16 MB non-ECC (a pair of 8 MB non-ECC modules)
- 32 MB ECC (a pair of 16 MB ECC modules)
- 64 MB ECC (a pair of 32 MB ECC modules).

**Error Correcting Code (ECC)**

Although each memory module stores 64 bits of data (8 bytes) at a time, each ECC memory module is accessed by a 72-bit bus. The extra bits are used for the error correcting code (ECC). This allows single-bit data errors not only to be detected, but also to be corrected.

**PCI Bus Devices**

- video controller
- Fast-20 SCSI-2 interface
- IDE controllers
- supported drives
- LAN controller
- other accessory boards.

**Video Controller Board**

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are supplied with a Matrox MGA Millennium video controller on a board that fits in a PCI accessory slot. The board is fitted with 2 MB of DRAM video memory, as standard. This is upgradeable to 4 MB by installing a 2 MB video memory module. Upgrading to 8 MB is also possible, using a 6 MB module (available from Matrox).

Drivers are not integrated into any of the operating systems. HP provided drivers must be installed.

The table on the next page summarizes the video resolutions which are supported.

## 1 Product Overview and Features

### Product Features

Resolution	256 Colors 8 Bits Per Pixel	64 K Colors (Hi-Color) 16 Bits Per Pixel	16.7 M Colors (True- Color) 24 Bits Per Pixel	16.7 M Colors (True- Color) 32 Bits Per Pixel	Maximum Refresh Rates <sup>1</sup>
640 × 480	2 MB				120 Hz
800 × 600	2 MB				120 Hz
1024 × 768	2 MB	4 MB			120 Hz
1152 × 882	2 MB	4 MB			120 Hz
1280 × 1024	2 MB	4 MB		8 MB	90 Hz
1600 × 1200	2 MB	4 MB	8 MB		72 Hz

<sup>1</sup>. Your display might not support the maximum refresh rates that are shown here. Refer to the User's Guide supplied with the display for details of the refresh rates which it supports.

**Fast-20 SCSI-2 Interface** On the *HP Vectra XU 6/xxx PC*, data transfer rates of up to 20 MB per second are available, using the 8-bit SCSI bus. Up to seven SCSI devices can be connected on a variety of internal and external connectors. SCSI configured automatically (SCAM) support is provided for SCSI Plug and Play. HP drivers are provided for the following operating systems:

- OS/2 2.11 (required)
- Windows NT (required)
- Windows 3.11 (recommended)
- Windows 95 (recommended)
- OS/2 Warp Connect (recommended).

### IDE Controller

The integrated IDE controller supports Enhanced IDE and Standard IDE. It offers data transfer rates of up to 16.7 MB per second. The controller supports up to four IDE devices: two IDE devices can be connected to the primary channel cable, and two to the secondary channel cable. It is possible to connect both fast devices and slow devices on the same channel without affecting the performance of the fast device.

### Supported Drives

The following hard disk drives are supported (the first two are only applicable to the *HP Vectra XU 6/xxx PC*):

- 3.5-inch, 1 GB Fast-20 SCSI-2 hard disk drive (D2920A)
- 3.5-inch, 2 GB Fast-20 SCSI-2 hard disk drive (D2926A)
- 3.5-inch, 1 GB IDE hard disk drive (D2919A).

The D2992B quadruple-speed (4×) SCSI CD-ROM drive is provided on the *HP Vectra XU 6/xxx PC*. The D2896-63301 quadruple-speed (4×) IDE CD-ROM drive is provided on the *HP Vectra VT 6/xxx PC*.

There are two dedicated internal shelves for 3.5-inch (slim) hard disks. More hard disks can be installed in the five front accessible shelves (two slim top shelves, 1-inch high, for 3.5-inch devices, and three half-height bottom shelves, 1.6-inch high, for 5.25-inch devices). For front access drives, 5.25-inch disk drive mounting rails (D2880A) and 3.5-inch disk drive mounting rails (D3566A) can be ordered.

### LAN Controller Board

On the *HP Vectra XU 6/xxx PC*, the HP 10/100 VG Selectable PC LAN Adapter (J2585A) board is installed in a PCI accessory slot. It supports both the IEEE 802.12 standard (100 VG-AnyLAN, giving a data transfer rate of 100 Mbits per second over voice grade cable), and the IEEE 802.3 standard (10-BaseT, giving a data transfer rate of 10 Mbits per second).

The *XU/VT Drivers and Documentation* CD-ROM includes the diagnostic DOS utility called *HPVGSet*. The *Network Administrator's Guide*, and the *HP 10/100VG Selectable PC LAN Adapters installation guide* (5963-2665) are also available, in the formats shown in the table on page 11.

### Other Accessory Boards

There are four slots on the PCI bus for accessory boards. One of these is already occupied by the video controller board, and a second (on the *HP Vectra XU 6/xxx PC*) by the LAN interface board. The fourth slot is a combination PCI/ISA bus slot.

### ISA Bus Devices

- Ultra I/O controller
- audio controller
- flash ROM
- other accessory boards.

### Ultra I/O Controller

The Ultra I/O chip supports the following:

- two serial communications ports (RS-232-C, 16550 UART buffered)
- one parallel communications port (bidirectional, multi-mode)
- flexible drive controller (FDC)
- real time clock (RTC)
- keyboard and mouse controller.

#### Audio Controller

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* have a Creative Labs SoundBlaster 16 audio interface integrated on the system board. This has the following specification:

- 80 dB SNR
- 8-bit and 16-bit stereo sampling from 5 kHz to 44.1 kHz
- Yamaha FM OPL3 synthesizer (20 polyphonic voices)
- connector for AWE-32 capable accessory board
- three inputs (1 microphone, 1 stereo-in, 1 CD-ROM)
- three outputs (1 internal speaker, 2 stereo-out capable of supporting low-impedance headphones)
- connector for MIDI / joystick interface (MPU-401 UART compatible).

The Windows 95, OS/2 Warp Connect and Windows NT 3.51 WS operating systems each have integrated drivers. The Windows 3.x and OS/2 2.11 operating systems require the installation of HP provided drivers.

#### Flash ROM

The 256 KB flashable EEPROM chip holds the System ROM firmware. This software is described in Chapter 3.

#### Other Accessory Boards

There are three slots on the ISA bus for other accessory boards. The third slot is a combination PCI/ISA bus slot.

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## Documentation

The table below summarizes the availability of the documentation that is appropriate to the *HP Vectra XU/VT 6/xxx PC*. Three dots, ‘...’, are used to indicate ‘XU’ or ‘VT’, as appropriate.

Only selected publications are available in paper-based form. Most are available as printable files from the HP regional support servers, or from the *Support Assistant* CD-ROM.

Title	Regional Support Servers		Support Assistant CD-ROM		Paper-based	
	XU	VT	XU	VT	XU	VT
Line of HP Vectra 6/xxx PC:	XU	VT	XU	VT	XU	VT
HP Vectra ... 6/xxx User's Guide	yes	yes	yes	yes	D3538A	D3539A
Optimizing Performance Guide	yes	no	yes	no		no
HP Vectra XU/VT 6/xxx Technical Reference Manual	yes		yes		no	
HP Vectra PC Service Handbook (9th Edition)	yes	yes	yes	yes	5963-8033	
HP Vectra Accessory Service Handbook (5th Edition)	yes		yes		5963-8034	
Network Administrators Guide	WinHelp, HTML and text formats	not applicable	yes	not applicable	no	not applicable
HP 10/100 VG Selectable PC LAN Adapters	yes	not applicable	yes	not applicable	5963-2665	not applicable
Matrox MGA Millennium	no		no <sup>1</sup>		no	

<sup>1</sup>. Available on the XU/VT Drivers and Documentation CD-ROM

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## Checkpoint: Product Overview and Features

Now that you have read this chapter, check your understanding. Draw a circle around the letter that corresponds to each correct answer below.

- 1 How can the capacity of the L2 cache memory be increased on the *HP Vectra VT 6/xxx PC*?
    - a By installing an extra DIMM in the L2 cache memory socket
    - b By installing a *pair* of DIMMs in the L2 cache memory sockets
    - c By installing a pair of DIMMs in main memory sockets
    - d By installing a second Pentium Pro processor
    - e By replacing the current Pentium Pro processor with an upgrade
    - f There is no L2 cache memory on the *HP Vectra VT 6/xxx PC*.
  
  - 2 What type of Ethernet interface is fitted as standard on the *HP Vectra XU 6/xxx PC*?
    - a None fitted as standard
    - b HP 10/100 VG Selectable PC LAN Adapter board on all models
    - c HP 10/100 VG Selectable PC LAN Adapter board on all models except the first (D3528A)
    - d Integrated HP 10/100 VG Selectable PC LAN Adapter on all models
    - e Integrated HP 10/100 VG Selectable PC LAN Adapter on all models except the first (D3528A).
  
  - 3 Which of the following combinations of *extra* accessories would you not be able to install on an *HP Vectra VT 6/xxx PC*?
    - a Two PCI accessory boards and two ISA accessory boards
    - b Two PCI accessory boards and three ISA accessory boards
    - c Three PCI accessory boards and two ISA accessory boards
    - d Three PCI accessory boards and three ISA accessory board
    - e All of the above are possible.
  
  - 4 Which of the following combinations of *extra* drives would you not be able to install on an *HP Vectra XU 6/xxx PC*?
    - a One 3.5-inch HDDs, two 3.5-inch FDDs, and two 5.25-inch FDDs
    - b Two 3.5-inch HDDs, one 3.5-inch FDD, and two 5.25-inch FDDs
    - c Two 3.5-inch HDDs, two 3.5-inch FDDs, and one 5.25-inch FDD
    - d One 3.5-inch HDD, two 3.5-inch FDDs, one 5.25-inch FDD, and one CD-ROM drive
    - e All of the above are possible.
-



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## PC Hardware Structure

After reading this chapter you will be familiar with the PC's package and hardware assembly. You will know where its principle parts are (for fault finding, or upgrade and configuration, for example), and you will know where and how to install accessories.

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## Packaging

This chapter covers the following servicing and installation topics:

- replacing the system board
- installing and replacing accessories:
  - installing and replacing a processor
  - installing and replacing main memory modules
  - installing video memory and other video modules
  - installing and replacing disk drives
  - installing and replacing accessory boards
- replacing the power supply.

### Minitower Package

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are the second and third members of the HP Vectra family to use a minitower package (the *HP Vectra VL 5/xx MT series 4 PC* was the first). The locations of the main internal parts and external connectors of the *HP Vectra XU/VT 6/xxx PC* version of the minitower are shown in the diagrams on pages 2 and 4 of Chapter 1. All of the internal connectors appear on the system board, as can be seen on page 18, since there is no backplane in these PCs.

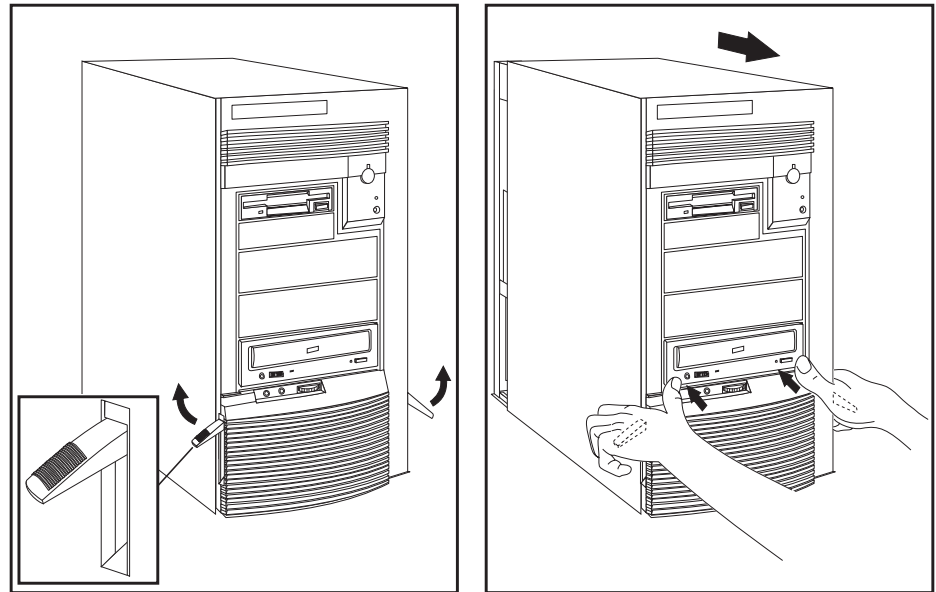
### Status Panel

The status panel of the *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* have the following features:

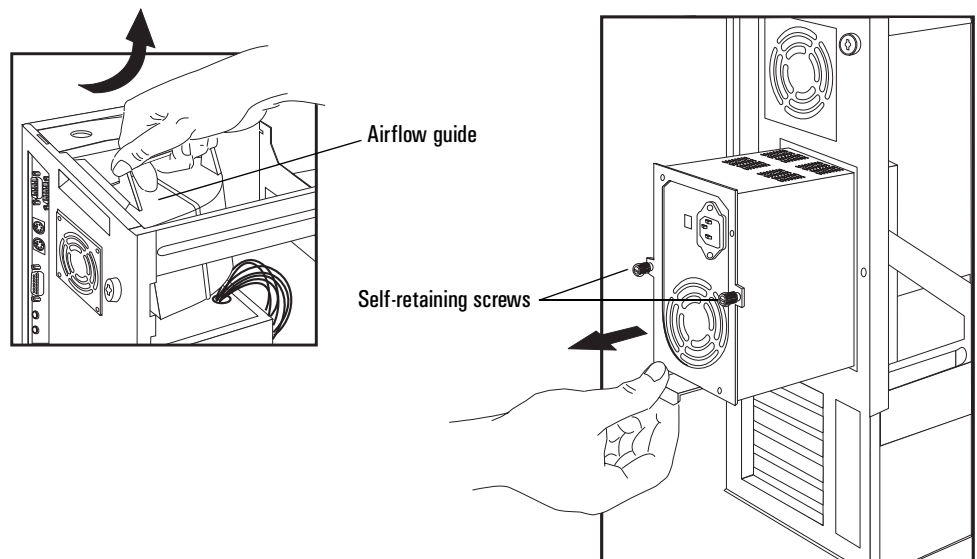
- a power on/off button with integrated on/error status light
- a reset button
- a hard disk activity light.

### Removing the Cover

- 1 For safety, remove all power leads, connections to networks, displays, and other peripheral equipment.
- 2 If necessary, unlock the cover at the back, using the key.
- 3 Lift the two securing latches at the front of the computer.
- 4 Hold the securing latches as shown in the next diagram. If necessary, push with your thumbs against the CD-ROM bezel.
- 5 Slide the cover forward until it is clear of the computer.



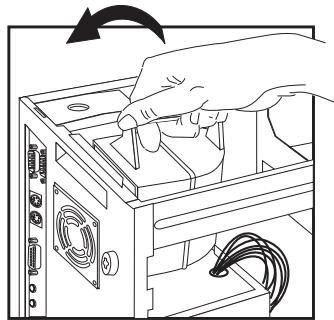
- 6 Remove the airflow guide.
- 7 Slide the power supply outwards (all cables remain connected) to give better access to the system board, and cabling.



#### Replacing the Cover

To put the cover back, reverse the steps which were followed when removing the cover. However, there are a number of points where care is needed:

- 1 Check that cables will not be snagged when the power supply and the cover slide back into place.
- 2 Replace the airflow guide above the processor socket, pivoting it on the lower edge of the cooling fan housing.



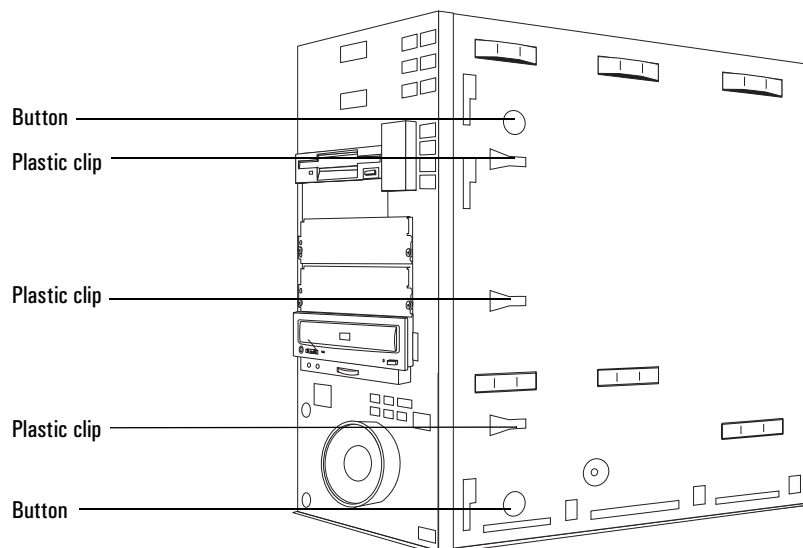
- 3 Check that the cover is unlocked and that the latches are outwards.
- 4 When you place the cover in front of the computer, ensure that the two lips at the bottom of the case slide on to the two rails at the base of the computer.
- 5 When you slide the cover back into position, make sure that it does not jam against the plastic clips on the right bezel.
- 6 Ensure that the CD-ROM drive aligns correctly with the holes in the front panel. For the final couple of centimeters of travel, place the palm of your hand over this panel to prevent it from being pushed out by the CD-ROM.
- 7 Push the two latches at the front of the cover down, until they click into position. Lock the cover at the back with the key, if required.

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## Replacing the System Board

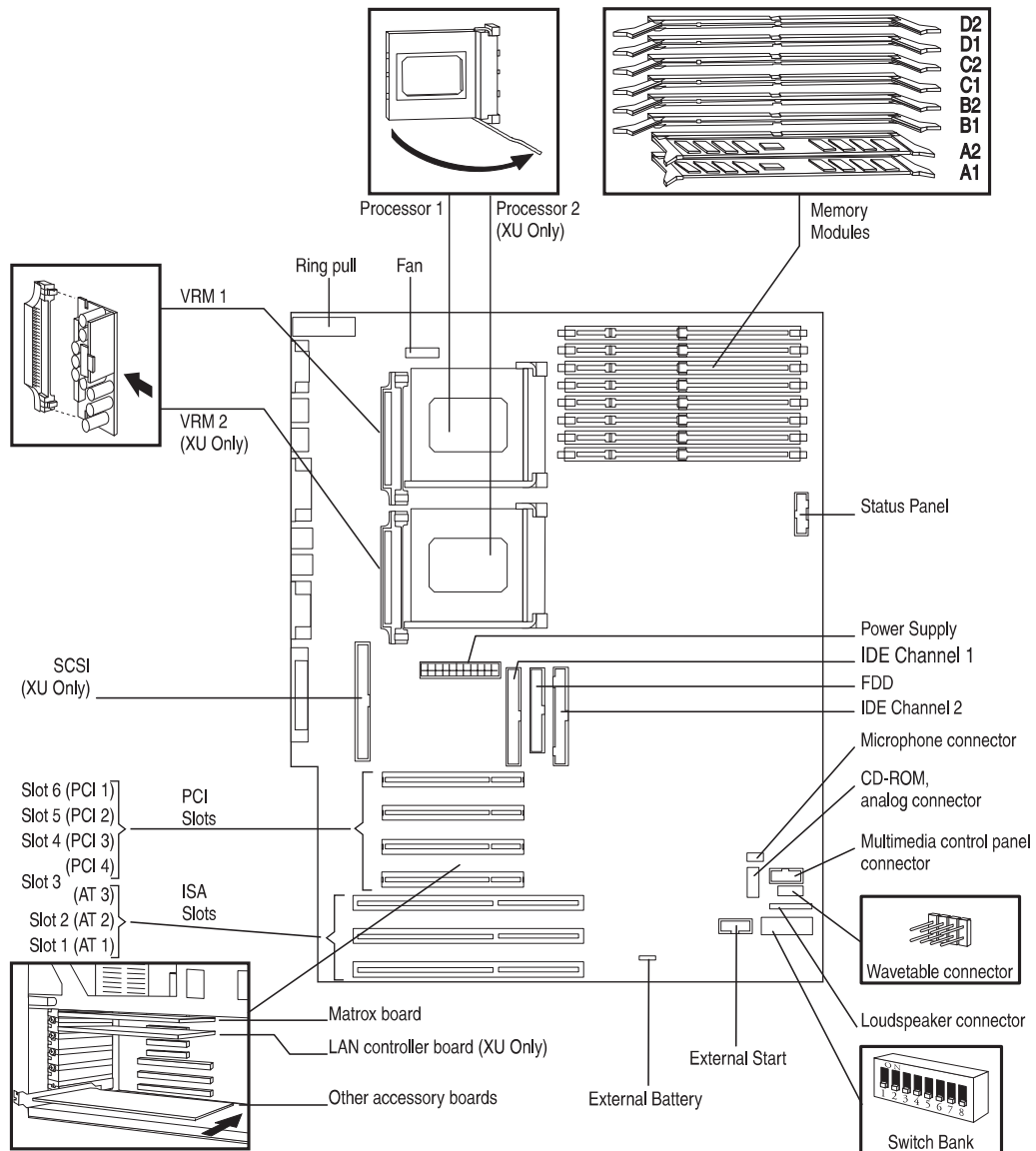
The system board is shown on the next page. Take out the system board as follows:

- 1 Remove the PCI and ISA accessories from their slots. (There is no backplane: all internal slots and connectors are on the system board).
- 2 Disconnect all connectors (status panel, microphone, CD-ROM analog, multimedia control panel, wavetable, loudspeaker, external start, fan, SCSI, power supply, HDD, FDD, CD-ROM).
- 3 Push in the two buttons on the right bezel of the PC (see the diagram below).
- 4 Ease the system board towards the front of the PC.
- 5 There is a metal flap on the system board that must clear the I/O connector housing.
- 6 Ease the system board up and out through the top of the chassis, using the plastic ring-pull that is fastened to the top of the system board.
- 7 Make sure none of the plastic clips (shown in the diagram below) re-engage.
- 8 Make sure none of the ISA slots catch in the mass media shelves.



## 2 PC Hardware Structure

### Replacing the System Board



### Installing the New System Board

To install the new system board, reverse the steps for removing the board. Make sure that the plastic clips and plastic buttons that hold the system board in place engage properly in their appropriate holes in the right bezel.

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## Installing or Replacing Accessories

### Installing or Replacing a Processor

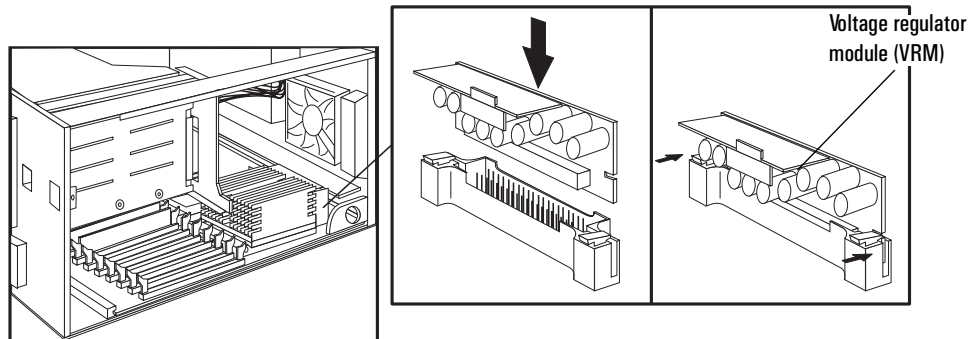
The Pentium Pro microprocessor in the *HP Vectra XU 6/xxx PC*, and in the *HP Vectra VT 6/xxx PC*, is held in a zero insertion force (ZIF) socket.

The *HP Vectra XU 6/xxx PC* is also supplied with a second, empty socket, in which an optional second processor can be installed (D3559A). Each processor is accompanied by its own voltage regulator module (VRM). The operating system must be configured to use the second processor. Note that some operating systems do not support two processors.

If the original processor is replaced by a faster processor, the configuration switches must be changed, as specified in the table on page 21. If two processors are installed, both must be set to operate at the same bus frequency and processor frequency.

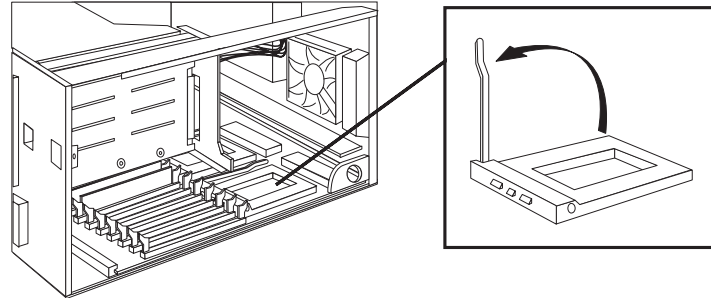
To install a new processor:

- 1 Lay the computer on its side.
- 2 Install the voltage regulator module (VRM).

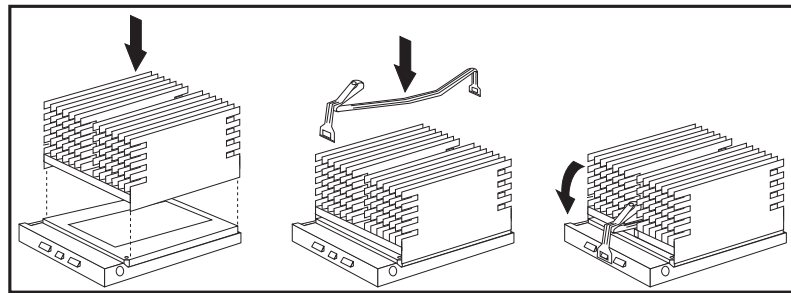


## 2 PC Hardware Structure

### Installing or Replacing Accessories



- 3 Unlock the socket by raising the locking lever. Position the processor over the socket, aligning the processor and socket corner markers correctly.
- 4 Check that the processor is seated correctly in the socket, then lower the locking lever to lock the processor into place.
- 5 Place the heat-sink on the processor and attach the retaining clips to the processor socket.



- 6 Check that the configuration switches in the switch bank are set correctly. They can be found at the base of the system board, as shown in the diagram on page 18. The operating frequency of the processor bus must correspond with that of the processors.

Switch:	Function:	OFF (default)	ON
1 - CONFIG	Retain or clear the configuration which is stored in EEPROM	Retain	Clear
2 - PSWRD	Enable or clear (and disable) the User and System Administrator Passwords which are stored in EEPROM	Enable	Clear
3 - SECURE	Disable or enable security mode - security mode prevents changes to the PC's configuration with the <i>Setup</i> program	Disable	Enable



Switches 4 and 5 set the frequency of the Local bus. Switches 6, 7, and 8 set the clock multiplier for the processor. The relationship of the switch settings to Local bus and processor frequencies is as follows:

Switch 4	Switch 5	Local Bus Frequency	Switch 6	Switch 7	Switch 8	Processor : Local Bus Frequency Ratio	Processor Frequency
On	Off	60 MHz	On	Off	Off	2.5 : 1	150 MHz
Off	Off	66 MHz	On	Off	Off	2.5 : 1	166 MHz
On	Off	60 MHz	Off	On	Off	3 : 1	180 MHz
Off	Off	66 MHz	Off	On	Off	3 : 1	200 MHz

### Installing or Replacing Main Memory Modules

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are supplied with 16 MB of main memory as standard. There are 8 double inter-line memory module (DIMM) sockets on the system board (see the diagram on page 18). These sockets are grouped into four banks, labeled A to D, with two sockets in each bank. The diagram on page 18 also shows the retaining clips on either side of each DIMM.

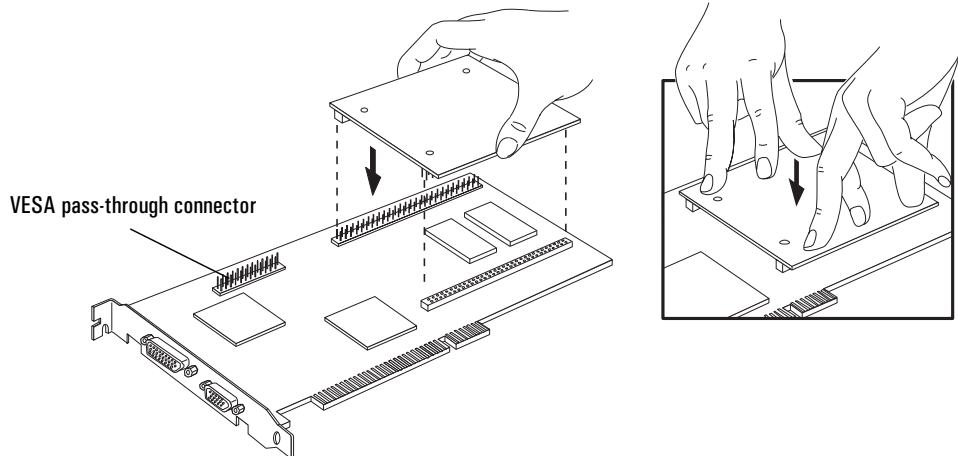
The banks can be filled in any order, up to a maximum capacity of 256 MB, but always in pairs of DIMMs of the same capacity and same type (ECC or non-ECC). Only the *HP Vectra XU 6/xxx PC* supports ECC (error correcting code) memory, but even this will be disabled if any non-ECC memory is installed. Conversely, the *HP Vectra VT 6/xxx PC* will accept 16 MB and 32 MB ECC modules, but will treat them as non-ECC memory.

While removing DIMMs that have already been installed, they are liable to fall into the computer as they pop out of the sockets. Care must be taken to prevent this happening.

### Installing Video Memory and Other Video Modules

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are supplied with a Matrox MGA Millennium video board in the top accessory slot (slot 6, PCI1). It is supplied with 2 MB of video memory (WRAM), but can be upgraded to 4 MB with a D3557A upgrade module, or to 8 MB with an MGA-MIL/MOD6 upgrade module (ordered from Matrox). This socket can also be used for the installation of the Matrox MGA Media XL upgrade module (also

ordered from Matrox) to support MPEG. In the former case, the upgrade is performed by slowly and evenly pressing the upgrade module into the upgrade socket (component-side down). The switch settings do not have to be changed.

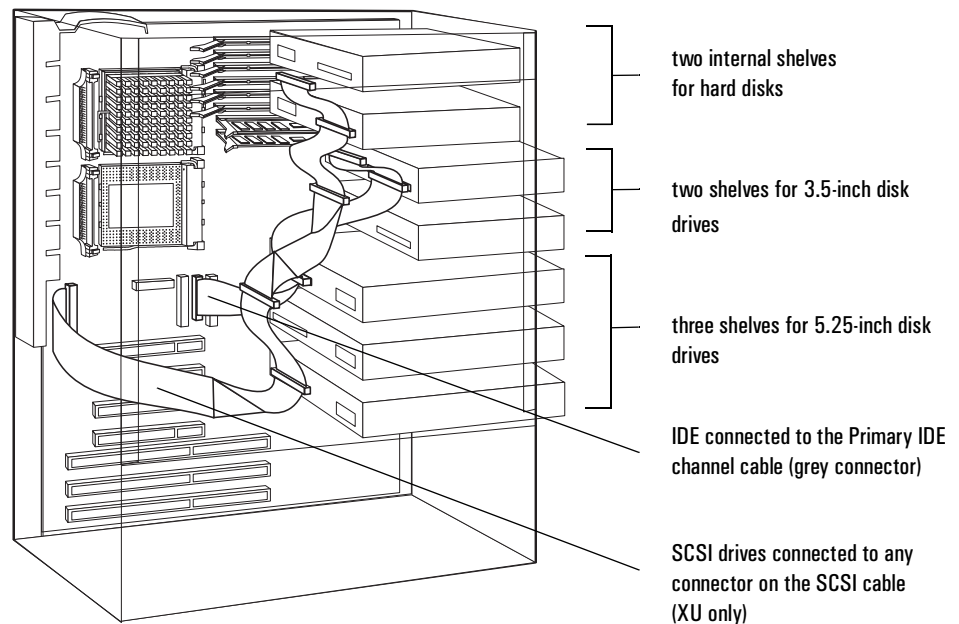


If you install a VESA-standard video accessory board that uses the MGA video adapter, connect the accessory board's cable to the VESA pass-through connector on the MGA adapter board.

### Installing or Replacing Disk Drives

The computer has two internal shelves (for hard disk drives) and five front-access drive shelves (for front-access disk drives and hard disk drives).

All models of the *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are supplied with one 3.5-inch flexible disk drive, in the top 3.5-inch shelf, and a CD-ROM drive, in the bottom 5.25-inch shelf. If a hard disk is supplied, it is installed in the bottom internal shelf.



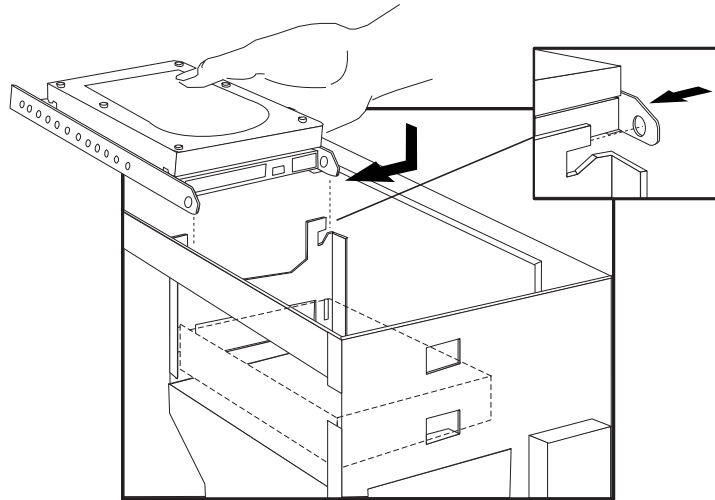
All models have an integrated IDE controller. All models of *HP Vectra XU 6/xxx PC* have an integrated SCSI controller.

- The Enhanced IDE controller supports up to four IDE devices:
  - ☐ two IDE devices (HDD recommended) can be connected to the Primary Channel cable (the grey connector on the system board).
  - ☐ two IDE devices (CD-ROM recommended) can be connected to the Secondary Channel cable (the red connector on the system board).
- The SCSI controller on the *HP Vectra XU 6/xxx PC* supports up to seven SCSI devices (up to five SCSI devices can be connected to the internal SCSI cable).

### Installing a Hard Disk Drive in an Internal Shelf

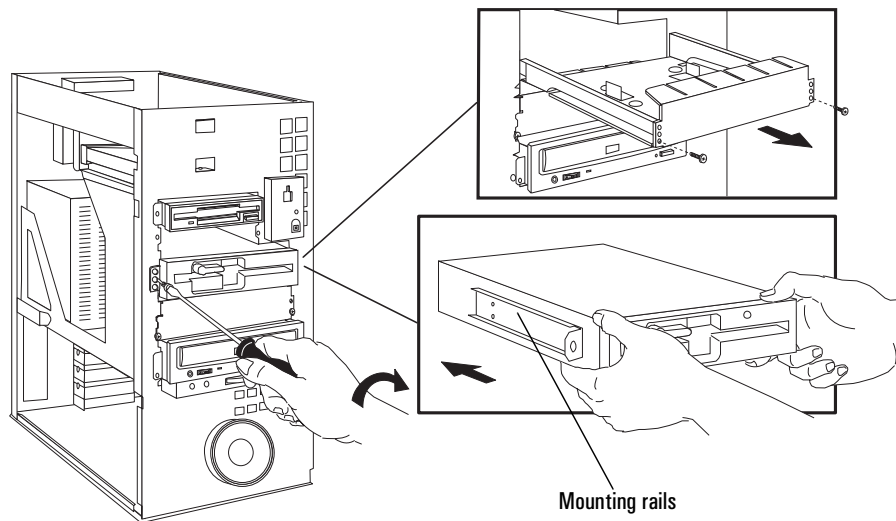
Each hard disk drive ordered from HP is supplied with a mounting tray. To mount a drive from another supplier, you may need to order a mounting tray from HP (D2037A, 3.5-inch hard disk mounting tray).

- 1 Align the drive (upside down) with the hinges on the shelf, then insert it into the hinges.
- 2 Rotate the drive over, into position, using the hinges as the pivot.
- 3 Secure the drive using the screw provided.



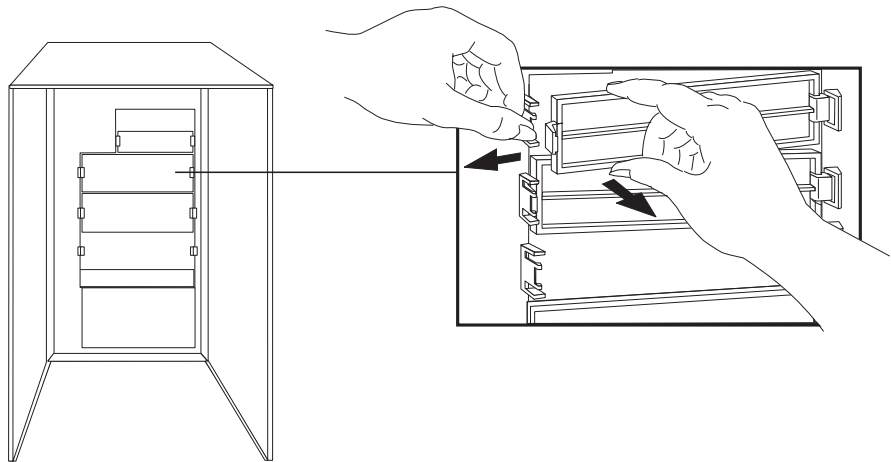
### Installing a Front-Access Drive in a Front-Access Shelf

Front-access drives ordered from HP are supplied with mounting rails. To mount a drive from another supplier, you may need to order drive mounting rails from HP (D2880A for 5.25-inch disk drive rails, or product number D3566A for 3.5-inch disk drive rails).



- 1 Remove the drive tray if installing a 5.25-inch drive.
- 2 Slide the drive into position.
- 3 Secure the drive in position.

- 4 Remove the plastic panel from the cover by pulling the panel from the left and unhinging its right-hand side.



### Installing a Hard Disk Drive in a Front-Access Shelf

Unscrew and remove an unused drive tray. Mount the drive on the tray, sliding the drive into place, and securing it with four screws on the underside.

### For All Types of Drive

You should also consult the manual supplied with the drive for any extra installation instructions.

Before installing an IDE device, refer to the drive's installation guide to see if you must set jumpers or if there is a special installation procedure to follow.

Before installing a SCSI device, remember to set the appropriate IDs. The operation of the SCSI Plug and Play system, SCAM, is described in the *HP Vectra XU/VT 6/xxx PC Technical Reference Manual*.

If you have removed an IDE drive, or if you have replaced a bootable IDE hard disk drive, an error message will appear during the power-on self-test. Follow the instructions provided on the *View Systems Errors* screen, and run the *Setup* program. If you have removed an IDE drive, the *Setup* program will offer you **None** or **SCSI** for the missing drive; press **F3** to confirm the change.

Check that all changes have been correctly detected in the appropriate sections of the *Setup* program.

#### Installing or Replacing Accessory Boards

The location of the *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* accessory board slots is shown in the diagram on page 18. ISA boards should be installed in the lowest available slot, and PCI boards in the highest available slot, to ease cable routing.

If you are installing a Creative Labs wavetable accessory board that operates with the integrated SoundBlaster audio interface, connect the board's interface cable to the wavetable interface connector on the system board (the location of which is shown in the diagram on page 18).

If you loosened any screws on adjacent slots, during the installation of the new accessory, remember to tighten them again. If you have installed an ISA accessory board, you must run the *Setup* program and reserve the IRQ for the accessory board. PCI devices are then configured automatically. You should always leave at least one IRQ available for use by the integrated PCI devices.

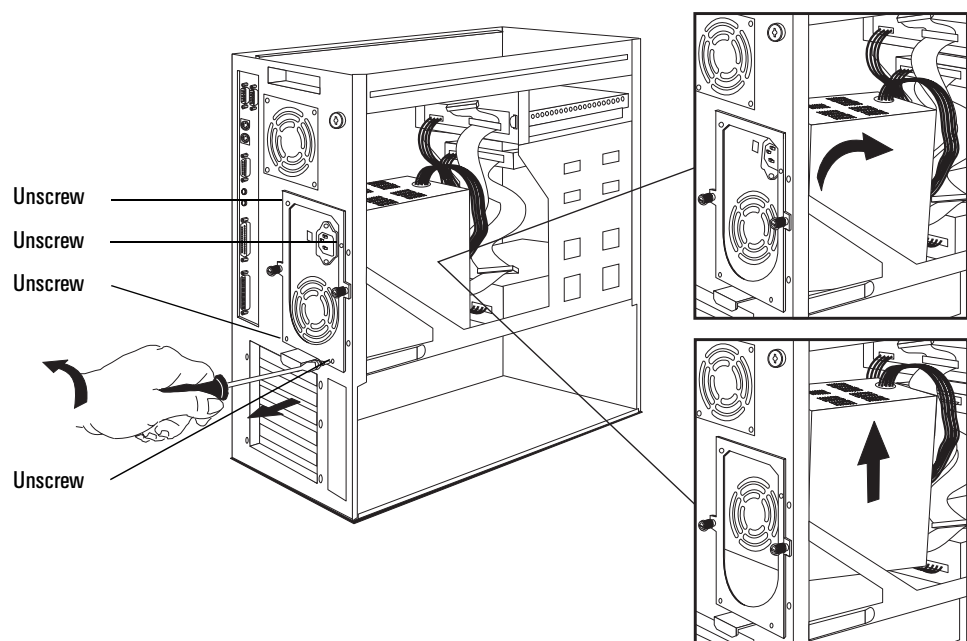
The *Setup* program can be used to select the level of support provided by the system BIOS for Plug and Play-compatible accessory boards. The procedures for doing this, and for configuring accessory boards under Windows 95, Windows 3.11 and other operating systems, are given in the *User's Guide* that is supplied with the computer.

---

## Replacing the Power Supply

If it is necessary to remove a faulty power supply, and to replace it by a new one, the following steps can be taken:

- 1 Disconnect the power connectors from all boards and accessories.
- 2 Undo the four screws that hold the power supply rear bezel on to the power supply box.
- 3 Pivot the power supply box away from its rear bezel.
- 4 Take the power supply box out from the inside of the computer chassis.



To install the new power supply, reverse the steps which were followed when removing the old power supply.

---

## Checkpoint: PC Hardware Structure

Now that you have read this chapter, check your understanding. Draw a circle around the letter that corresponds to each correct answer below.

- 1 What are the available capacities for a single ECC DIMM module for extending main memory?
  - a only 8 MB is available
  - b 2 MB, 4 MB and 8 MB
  - c 8 MB, 16 MB and 32 MB
  - d 16 MB, 32 MB and 64 MB.
  
- 2 What is the capacity of the HP upgrade module for extending video memory?
  - a 2 MB
  - b 4 MB
  - c 6 MB
  - d 8 MB.
  
- 3 Where do you install extra video memory?
  - a Next to the main memory modules
  - b Next to the dual processor socket
  - c Next to the IDE connectors
  - d On a board in an accessory slot.
  
- 4 You are installing an HDD and a CD-ROM on a D3520A *HP Vectra VT 6/xxx PC* (with no HDD). Which data cable connections do you use?
  - a HDD to a red connector, CD-ROM to a red connector
  - b HDD to a red connector, CD-ROM to a grey connector
  - c HDD to a grey connector, CD-ROM to a red connector
  - d HDD to a grey connector, CD-ROM to a grey connector
  - e HDD to a SCSI connector, CD-ROM to a red connector
  - f HDD to a SCSI connector, CD-ROM to a grey connector.
  
- 5 Which of the following can be changed on the system board switches?
  - a Security mode on/off, error detection on/off, flash enable/disable
  - b Error detection on/off, flash enable/disable, config retain/clear
  - c Flash enable/disable, config retain/clear, password enable/clear
  - d Config retain/clear, password enable/clear, security mode on/off
  - e Password enable/clear, security mode on/off, error detection on/off.



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## Troubleshooting and Repair

After reading this chapter you will know which sub-assemblies can be replaced, and understand the new features of the POST and *Setup*.

---

## Product Identification

The rear of the computer has an identification label which is located as indicated in the diagram on page 4 in Chapter 1. It carries the following information:

- the product name, for example *HP Vectra XU 6/xxx PC*
- the product number, for example D3528A
- the serial number
- the manufacturing system number, for example D3528-60101

When identifying the product (for example, to a Support Center), you only need the product number and the serial number. (The serial number is also written in the System ROM, and can be read in the *Setup* program).

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## Warranty

The PC is covered by a one year on-site, plus two years return-to-HP, warranty.

For further details on support services and support conditions, refer to the *User's Guide*.

---

## Software and Firmware

The System ROM consists of a 256 KB flash programmable EEPROM. Updates can be obtained from the HP Bulletin Board System (BBS) and can be loaded (flashed) using the *HP6Init* program (**HP6Init.EXE**). This program should be run from a bootable floppy disk.

The System ROM contains the following:

- power-on self-test (POST)
- *Setup* program
- BIOS
- security support.

Also mentioned here, though not implemented on the System ROM, are the video BIOS, operating system drivers, and diagnostic utilities.

### POST

When the PC is started, the initial “Vectra” screen, as shown below, is displayed. Under normal circumstances, the power-on self-test (POST, also referred to as the *HP System Hardware Test*) does not show its results on the screen. POST will even run successfully in the absence of a keyboard, and test the rest of the system.



Only errors, if found, are reported to the screen. POST reports its diagnosis inside a *View System Errors* screen. The *error message utility* not only displays the error code, but the error diagnosis *and* the suggestions for corrective action. Details of these can also be found in the *Technical Reference Manual* for the *HP Vectra XU/VT 6/xxx PCs*.

#### **Setup Program**

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* are configured using a *Setup* program that is similar to that of the *HP Vectra XU 5/xxC PC*. You can interrupt the POST to run the *Setup* program by pressing **F2** once the **F2=Setup** message appears on the initial “Vectra” screen.

The new sections and fields include the following (a complete list of fields, their meanings, and the options available, can be found in the *HP Vectra XU/VT 6/xxx Technical Reference Manual*):

- A “Configuration Summary” screen.
- Within the “user preferences” section:
  - An “operating system” field (for setting **Windows 95**, **Windows NT**, **IBM OS/2** or **Others**)
  - A “space-bar power on” field
  - A “memory test” field (which can be set to **disabled** for fast boot).
- Two “IDE” sections, one for the primary channel, and one for the secondary channel. Within each section, fields are provided to set (1) the use of two drives, (2) whether the transfer speed is optimized or standard, and (3) whether the translation method is automatic, standard CHS or extended CHS.
- A “start-up center” section, containing fields that allow the selection of boot device (FDD, HDD, LAN). Starting from a SCSI device is possible in mixed IDE/SCSI configurations, on the *HP Vectra XU 6/xxx PC*.
- An “audio” section, with fields that allow for the setting of addresses, IRQs, DMA channels.

#### **BIOS**

The system BIOS for the *HP Vectra XU 6/xxx PC* is identified by the version number GG.06.xx, and for the *HP Vectra VT 6/xxx PC* by the version number GV.06.xx. The Fast-20 SCSI-2 BIOS is also integrated with the system BIOS.

The capability to flash program the video BIOS is included as a new feature of the Matrox MGA Millennium board. It can be updated as follows:

- 1 Set SW-1, on the Matrox board, to ON (BIOS unprotected).
- 2 Run the video BIOS flash program, **progbios.exe**, and associated **\*.bin** file, which are provided by HP.
- 3 Set SW-1, on the Matrox board, to OFF (BIOS protected).

Video boards without ROM (such as old CGA and monochrome) are not supported by the BIOS. Memory holes above 1 MB are not supported. DDC display detection is not a BIOS feature, but is handled by the video drivers.

### Security Support

The *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* have the following security features to protect against unauthorized access to the computer and its data:

- user password prompt.
- system administrator password to protect the configuration settings (other than the user preferences).
- communications port protection (ports can be disabled in *Setup*) to prevent unauthorized use of printers, modems or other devices.
- disk drive protection (disks can be disabled, write protected, or “boot” protected in *Setup*) to prevent either copying data or running programs from disk, or loading an alternative operating system.
- internal security mode switch to protect the configuration, preventing changes being made by the *Setup* program.
- internal switch to protect the system ROM from being upgraded.
- lock on the PC’s cover, to prevent access to the inside of the PC.
- PC serial number and PC identification protected by passwords.

### Drivers

Drivers for the Windows NT, OS/2 and Windows 95 operating systems are provided on the *XU/VT Drivers and Documentation* CD-ROM that is supplied with the computer. Drivers for the DOS and Windows 3.11 operating systems can be obtained from the HP BBS.

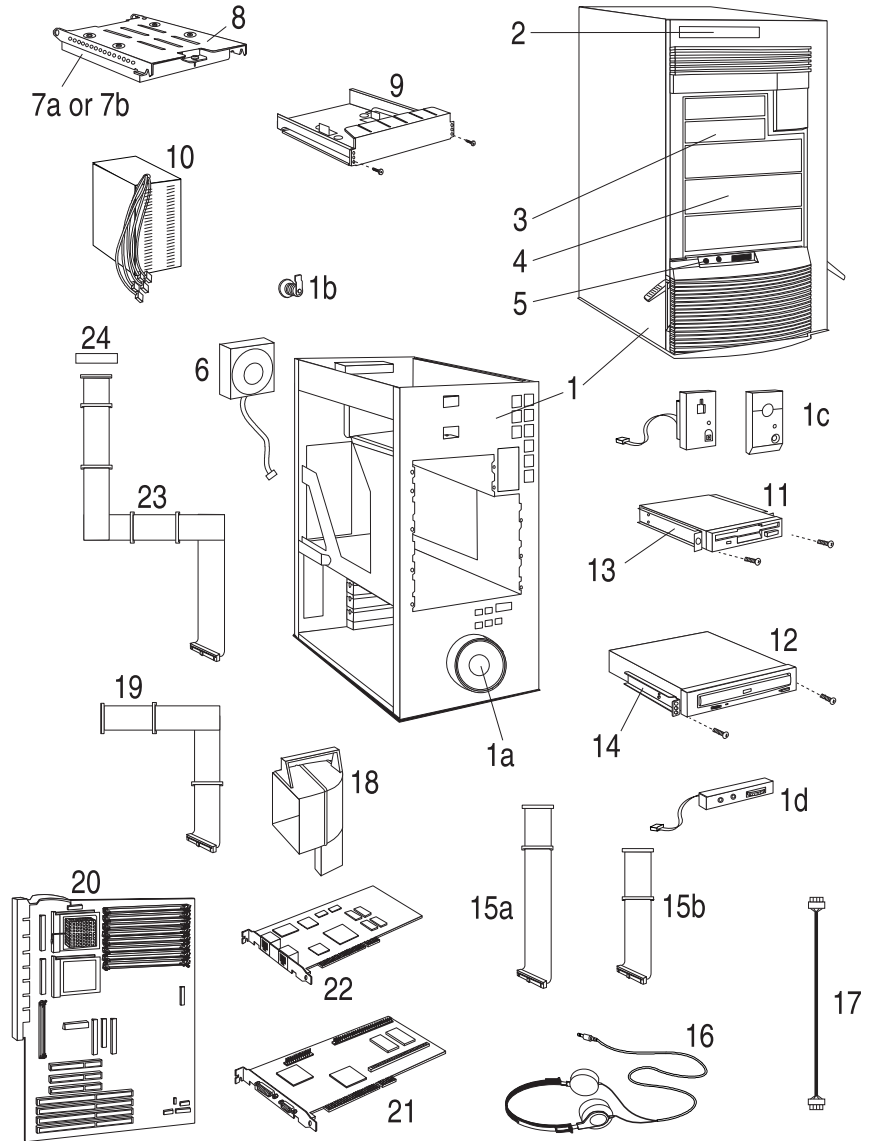
### HP Vectra Diagnostic Utilities

The HP Vectra diagnostic utility is not yet available.

The LAN utility, *HPVGSet*, is provided on the *XU/VT Drivers and Documentation* CD-ROM.

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## Field Replaceable Parts



<b>Parts List for HP Vectra XU 6/xxx PC and HP Vectra VT 6/xxx PC</b>			
<b>Item</b>	<b>Description</b>	<b>Repl. Part Number</b>	<b>Exchange Part Number</b>
1	Box assembly): a Speaker assembly b Cover lock assembly c Status panel kit d Multimedia control panel	5063-9010 5063-4559 5062-5590 5063-9008 5063-9003	—
2	HP Vectra XU 6/150 logo HP Vectra VT 6/150 logo	5042-1447 5042-1446	— —
3	Filler panel 3.5-inch	5042-1405	—
4	Filler panel 5.25-inch	5042-1178	—
5	Multimedia bezel	5042-1421	—
6	Fan	5063-9004	—
7	1 GB SCSI-2 hard disk drive (XU only) 2 GB SCSI-2 hard disk drive (XU only) 1 GB IDE hard disk drive (VT)	D2920-63001 D2926-63001 D2919-63001	D2920-69001 D2926-69001 D2919-69001
8	HDD bracket 3.5-inch	5001-6864	—
9	HDD tray	5002-1935	—
10	Power supply assembly	5063-8799	—
11	Flexible disk drive	D2035-63121	—
12	Quadruple speed SCSI CD-ROM drive (XU only) Quadruple speed IDE CD-ROM drive (VT)	D2992-63032 D2896-63201	— —
13	Rail kit (3.5-inch)	D3566A	—
14	Rail kit (5.25-inch)	D2880A	—
15	Bag of IDE cables: a Ultra Fast IDE cable (grey, recommended for HDD) b Ultra Fast IDE cable (red, recommended for CD-ROM)	5063-9016 5182-3544 5182-3543	—
16	Headphones	5063-8800	—
17	CD-ROM SCSI audio cable (XU only) CD-ROM IDE audio cable (VT)	5182-5412 5182-1857	— —
18	Airflow guide	5063-9005	—
19	Flexible disk cable	5182-3567	—
20	System board (XU) System board (VT)	D3528-63001 D3520-63001	D3528-69001 D3520-69001
21	Matrox MGA Millennium board	5063-8798	—
22	HP 10/100 VG LAN board (XU only)	J2585-61001	—
23	SCSI cable (XU only)	5182-3540	—
24	SCSI terminator (XU only)	0960-0888	—

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## Checkpoint: Troubleshooting and Repair

Now that you have read this chapter, check your understanding. Draw a circle around the letter that corresponds to each correct answer below.

- 1 Which Customer and Field Diagnostic tools are available with the PC?
  - a HP Vectra diagnostic utility, HPVGSet and POST
  - b HPVGSet and POST
  - c HP Vectra diagnostic utility and POST
  - d HP Vectra diagnostic utility and HPVGSet.
  
- 2 How do you correct a corruption within Plug and Play non-volatile RAM?
  - a Run *Setup*.
  - b Run *HP6Init*.
  - c Run the ISA Configuration Utility.
  - d Run the diagnostic utility.
  - e Reset the PC, and press **F3** once *Setup* has been run.
  - f Change the system board switch settings.
  - g It is detected and corrected automatically.
  
- 3 What do you need to do after you have extended main memory to 32 MB?
  - a Run *Setup*.
  - b Run *HP6Init*.
  - c Run the ISA Configuration Utility.
  - d Run the diagnostic utility.
  - e Power the PC off, then on again.
  - f Change the system board switch settings.
  - g The *Setup* program performs the upgrade automatically.
  
- 4 How should an ISA Plug and Play bootable accessory board be configured with Windows 95?
  - a Run *Setup*.
  - b Run *HP6Init*.
  - c Run the ISA Configuration Utility.
  - d Run the diagnostic utility.
  - e Power the PC off, then on again.
  - f Change the system board switch settings.
  - g It is upgraded automatically.



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## Checkpoint Answers

This appendix contains the answers for the questions which are located at the ends of each chapter in this *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* Familiarization Guide.

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## Checkpoint Answers

### Chapter 1: Product Overview and Features

1 How can the capacity of the L2 cache memory be increased on the *HP Vectra VT 6/xxx PC*?

- e By replacing the current Pentium Pro processor with an upgrade.

The L2 cache memory is fabricated in the same package as the Pentium Pro processor by Intel, so its size is fixed by them. Although, at the time of going to press, upgrades of the processor (with more L2 cache memory) are not listed in the catalogues, they are likely to appear.

2 What type of Ethernet interface is fitted as standard to a *HP Vectra XU 6/xxx PC*?

- b HP 10/100 VG Selectable PC LAN Adapter board on all models.

3 Which of the following combinations of *extra* accessories would you not be able to install on an *HP Vectra VT 6/xxx PC*?

- d Three PCI accessory boards and three ISA accessory board.

The three ISA boards would go into slots AT1, AT2 and AT3. Two of the PCI boards would then go into PCI2 and PCI3, but the third board would neither go into PCI1 (because it is occupied by the Matrox MGA Millennium video board), nor into PCI4 (since AT3 is occupied by an ISA board). On an *HP Vectra XU 6/xxx PC*, answers (b), (c) and (d) would all be impossible, since PCI2 is occupied by the HP 10/100 VG Selectable PC LAN Adapter board.

4 Which of the following combinations of *extra* drives would you not be able to install on an *HP Vectra XU 6/xxx PC*?

- b Two 3.5-inch HDDs, one 3.5-inch FDD, and two 5.25-inch FDDs.

The first HDD would go on the top internal shelf, the second would go on a HDD adapter tray on a 5.25-inch front-access shelf. Thus, there are three devices to be installed on 5.25-inch front-access shelves, but only two such shelves available (there are three on the PC, but one is already occupied by the CD-ROM drive).

Chapter 2: PC Hardware  
Structure

1 What are the available capacities for a single ECC DIMM module for extending main memory?

c 8 MB, 16 MB and 32 MB.

The answer for non-ECC memory would have been (a) 8 MB only.

2 What is the capacity of the HP upgrade module for extending video memory?

a 2 MB.

The 6 MB upgrade module is only available from Matrox.

3 Where do you install extra video memory?

d On a board in an accessory slot.

The Matrox MGA Millennium video controller board is fitted as standard on all models, and occupies the top PCI accessory slot.

4 You are installing an HDD and a CD-ROM on a D3520A *HP Vectra VT 6/xxx PC* (with no HDD). Which data cable connections do you use?

c HDD to a grey connector, CD-ROM to a red connector.

In fact, answers (a), (b) and (d) would work, too; but the recommended configuration is (c). Answers (e) and (f) are impossible, since the *HP Vectra VT 6/xxx PC* does not have a SCSI connector.

5 Which of the following can be changed on the system board switches?

d Config retain/clear, password on/clear, security on/off.

The first is to retain/clear the configuration information which is stored in the EEPROM; the second is to enable/clear the user and administrator passwords; and the third is prevent/permit changes to the PC's configuration with the *Setup* program. Error detection (or parity detection) on/off, and flash enable/disable (to enable or prevent system ROM updates using the HPRoMInit utility) are switch settings that can be found on the *HP Vectra XM 5/xx series 3 PC*.

**Chapter 3:  
Troubleshooting and  
Repair**

- 1 Which Customer and Field Diagnostic tools are available with the PC?  
b HPVGSet and POST.

The HP Vectra diagnostic utility is not yet available, but HPVGSet is available on CD-ROM, and POST is installed in the system ROM.

- 2 How do you correct a corruption within Plug and Play non-volatile RAM?  
e Reset the PC, and press **(F3)** once *Setup* has been run.

The same response as would have been the case on the *HP Vectra XU 5/xxC PC*.

- 3 What do you need to do after you have extended main memory to 32 MB?  
g The *Setup* program performs the upgrade automatically.

The *Setup* program is triggered by the POST, and runs automatically, so (g) is a more appropriate answer than (a).

- 4 How should an ISA Plug and Play bootable accessory board be configured with Windows 95?  
a Run *Setup*.

Then set “PnP Board Activation” to “Full” or “Boot Only”.

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## Final Test

This appendix contains the Final Quiz for this *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* Familiarization Guide.

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## Final Test

Now that you have read this familiarization guide, complete the following questionnaire to check your understanding. Draw a circle around the letter that corresponds to the correct answer.

- 1 What is the maximum capacity of memory on the system board of the *HP Vectra XU 6/xxx PC*?
    - a 8 MB
    - b 16 MB
    - c 32 MB
    - d 256 MB
    - e 512 MB
    - f 2 GB.
  
  - 2 What is the maximum capacity of video memory on the *HP Vectra VT 6/xxx PC*?
    - a 1 MB
    - b 2 MB
    - c 4 MB
    - d 6 MB
    - e 8 MB.
  
  - 3 An Ethernet interface is integrated on the PCI bus, as standard, on which of the following?
    - a All models of *HP Vectra XU 6/xxx PC*, and none of *HP Vectra VT 6/xxx PC*
    - b All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and none of *HP Vectra VT 6/xxx PC*
    - c All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC*
    - d All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A)
    - e All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A).
  
  - 4 What type of hard disk drive is fitted as standard on later models (D3521N and D3521S) of the *HP Vectra VT 6/xxx PC*?
    - a None fitted as standard
-

- b IDE 1 GB drive
  - c IDE 2 GB drive
  - d Fast-20 SCSI-2 1 GB drive
  - e Fast-20 SCSI-2 2 GB drive.
- 5 An integrated Fast-20 SCSI-2 driver is fitted as standard on which of the following?
- a All models of *HP Vectra XU 6/xxx PC*, and none of *HP Vectra VT 6/xxx PC*
  - b All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and none of *HP Vectra VT 6/xxx PC*
  - c All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC*
  - d All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A)
  - e All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A).
- 6 A hard disk driver is fitted as standard on which of the following?
- a All models of *HP Vectra XU 6/xxx PC*, and none of *HP Vectra VT 6/xxx PC*
  - b All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and none of *HP Vectra VT 6/xxx PC*
  - c All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC*
  - d All models of *HP Vectra XU 6/xxx PC*, and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A)
  - e All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A).
- 7 How many accessory board slots are there, altogether, on the *HP Vectra XU 6/xxx PC*?
- a Two
  - b Three
  - c Four
  - d Five
  - e Six
  - f Seven.
- 8 How many front-access shelves, in total, are there for mass storage devices?
-

**B Final Test**

Final Test

es on the *HP Vectra VT 6/xxx PC*?

- a Two
- b Three
- c Four
- d Five
- e Six
- f Seven.

9 How is the system ROM upgraded?

- a Run *Setup*.
- b Run *HP6Init*.
- c Run the ISA Configuration Utility.
- d Run the diagnostic utility.
- e Power the PC off, then on again.
- f Change the system board switch settings.
- g It is upgraded automatically.

Student Name: .....

Company Name: .....

Company Address: .....

.....

.....



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## Answers to the Final Test

This appendix contains the answers to the Final Test for this *HP Vectra XU 6/xxx PC* and *HP Vectra VT 6/xxx PC* Familiarization Guide.

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## Answers to Final Test

- 1 What is the maximum capacity of memory on the system board of the *HP Vectra XU 6/xxx PC*?
  - d 256 MB.
- 2 What is the maximum capacity of video memory on the *HP Vectra VT 6/xxx PC*?
  - e 8 MB.
- 3 An Ethernet interface is integrated on the PCI bus, as standard, on which of the following?
  - b All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and none of *HP Vectra VT 6/xxx PC*.
- 4 What type of hard disk drive is fitted as standard on later models (D3521N and D3521S) of the *HP Vectra VT 6/xxx PC*?
  - b IDE 1 GB drive.
- 5 An integrated Fast-20 SCSI-2 driver is fitted as standard on which of the following?
  - a All models of *HP Vectra XU 6/xxx PC*, and none of *HP Vectra VT 6/xxx PC*.
- 6 A hard disk driver is fitted as standard on which of the following?
  - e All models of *HP Vectra XU 6/xxx PC* (except for the first, D3528A), and all models of *HP Vectra VT 6/xxx PC* (except for the first, D3520A)
- 7 How many accessory board slots are there, altogether, on the *HP Vectra XU 6/xxx PC*?
  - e Six.
- 8 How many front-access shelves, in total, are there for mass storage devices on the *HP Vectra VT 6/xxx PC*?
  - d Five.
- 9 How is the system ROM upgraded?
  - b Run *HP6Init*.

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HP Vectra XU 6/xxx PC  
and HP Vectra VT 6/xxx PC  
Course Evaluation Form

When done, tear out and mail to:  
*TPEC, Hewlett-Packard France*  
*Boulevard Steve Biko*  
*38090 VILLEFONTAINE*  
*France*

Student Name: ..... Date: .....

Company Name: .....

Company Address: .....  
 .....

	YES	NO
Did you feel the course objectives were met?		
Did you find the course easy to understand?		
Do you feel you need additional training?		
Did you meet all the course prerequisites?		

Rate the following: 1 = poor to 5 = excellent

	1	2	3	4	5
Quality of tests					
Quality of information provided					
Quantity of information provided					
Support documents provided					
Overall rating of this course					

Level of this course:    not enough .....    just right .....    too technical .....

Additional comments:





**N' IMPRIMEZ PAS CETTE PAGE !!!**

HP Part No. D3538-90901  
Printed in France - 11/95

