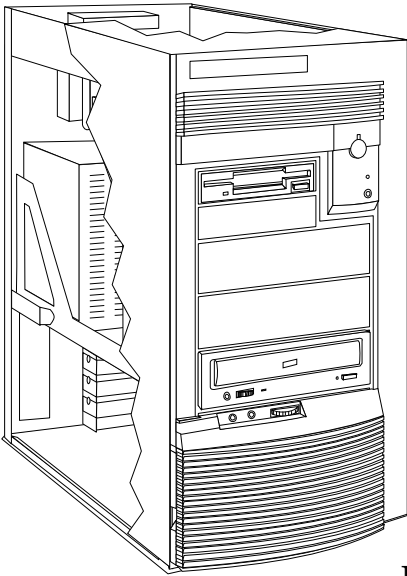

Familiarization Guide



HP Vectra XW PC Workstation Family

HP Vectra XW

This guide is for experienced technicians who have already completed the HP Vectra computer family training course. In particular, it assumes that the reader is already familiar with the *HP Vectra XU 6/xxx PC*, upon which the *HP Vectra XW PC Workstations* are based.

This document serves as a self-paced training guide, designed to train you for repair of the computer, and only contains repair-specific information. For information on the installation of accessories, see the *User's Guide* and the online documents that are supplied with the computer.

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New Features and Overview

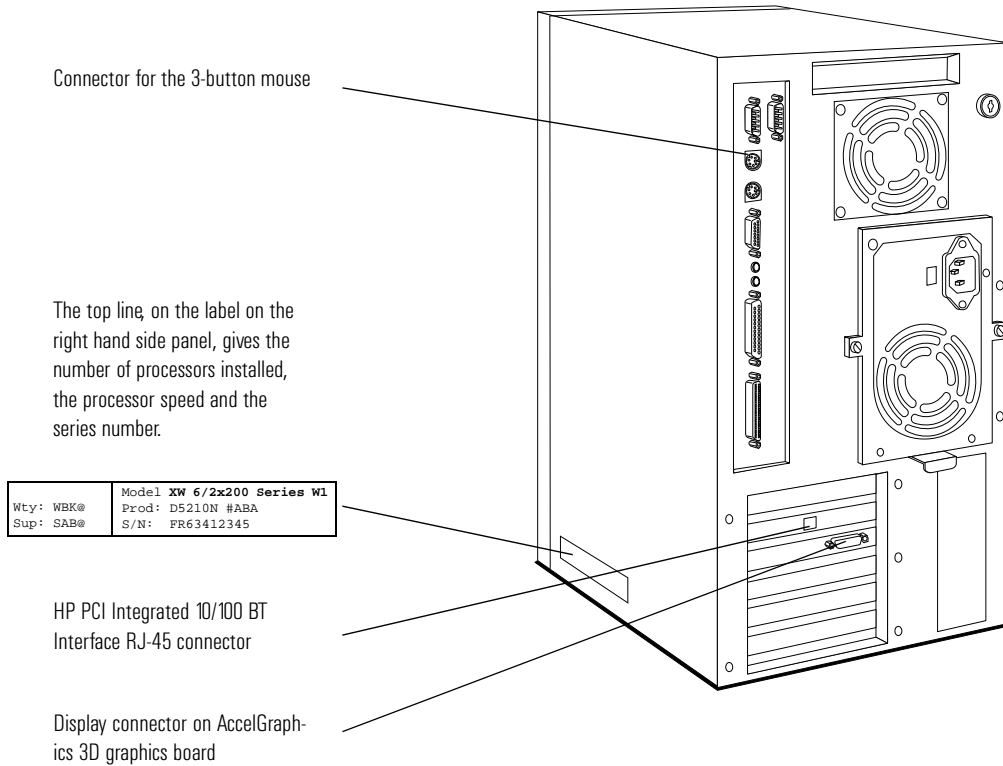
The *HP Vectra XW PC Workstations* are based upon the *HP Vectra XU 6/xxx PC*. The main new features are:

3D Graphics Controller Board	all models	HP Integrated OpenGL Interface Board installed in a PCI accessory slot. This can be an AccelGraphics AccelPro or AccelEclipse, depending on model (see the table below).
16 X CD-ROM Drive	some models	See the table below.
Windows NT 4.0 WS Operating System	preloaded on some models	See the table below.

Family Overview

	CPL	Graphics Controller Board installed in a PCI Accessory Slot	Version of the Windows NT Operating System	CD-ROM Drive
HP Vectra XW	10/96	AccelPro	3.51 WS on CD-ROM	8 X IDE
HP Vectra XW Series U1	5/97	AccelPro	4.0 WS preloaded	16 X IDE
HP Vectra XW Series W1	5/97	AccelEclipse	4.0 WS preloaded	16 X IDE

External Features



System Board Connectors and Switches

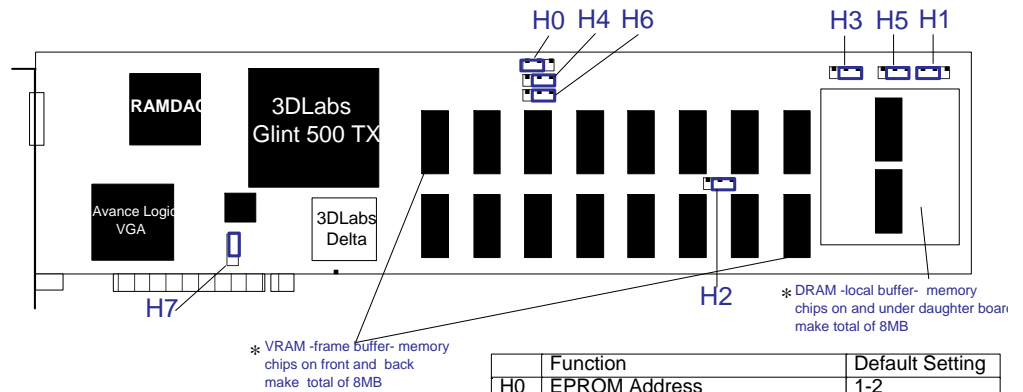
The same system board is used on each member of the *HP Vectra XW PC Workstation* family as was used on the *HP Vectra XU 6/xxx PC*.

HP Integrated OpenGL Interface Board

OpenGL is a graphics language for describing three-dimensional objects. The HP Integrated OpenGL Interface board has a processor that executes OpenGL 3D graphics instructions autonomously of the main processor.

AccelPRO

installed on the HP Vectra XW 6/xxx and HP Vectra XW 6/xxx Series U1



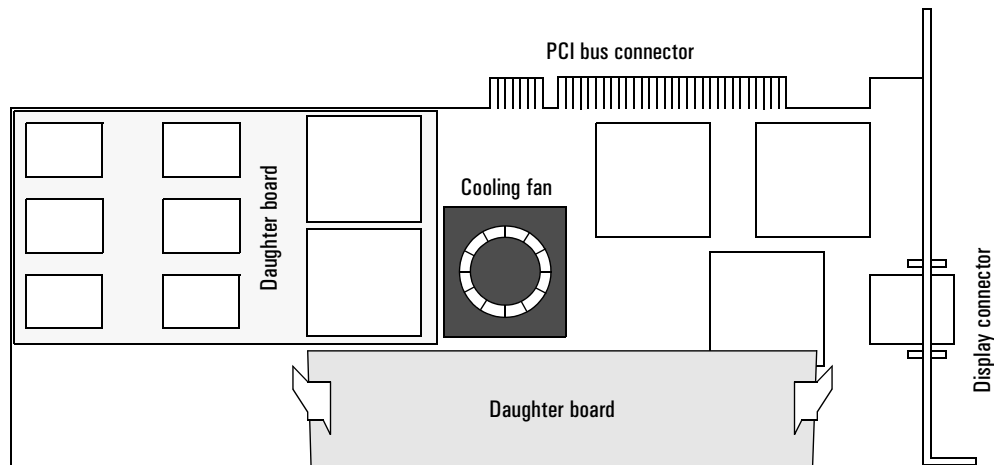
All jumper settings are factory-set to the default setting, and must NOT be changed.

	Function	Default Setting
H0	EPROM Address	1-2
H1	Local Buffer Visible Region	1-2
H2	Frame Buffer Visible Region	2-3 (8 MB)
H3	Local Buffer Width	2-3 (8 MB)
H4	Local Buffer Width	2-3 (8 MB)
H5	Local Buffer visible Region	2-3
H6	Local Buffer visible Region	2-3
H7	on-board VGA enable/disable	1-2 (enable)

* Neither the frame buffer nor the local buffer can be upgraded

AccelEclipse

installed on the HP Vectra XW 6/xxx Series W1



- The graphics controllers cannot be upgraded or reconfigured by the user, or by HP personnel.
- Changes to the configuration are not supported. Make sure that the jumpers and daughter board are configured as set by the manufacturer.

OpenGL Drivers

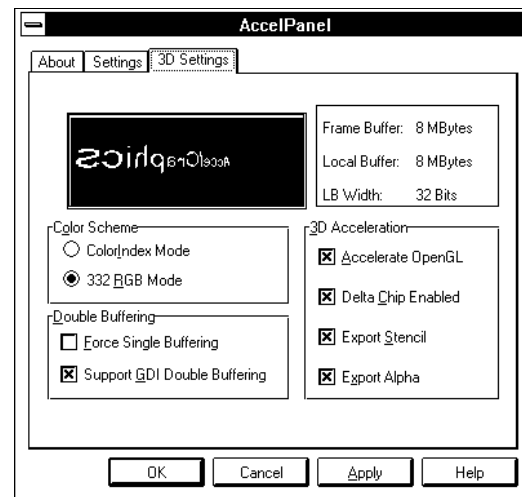
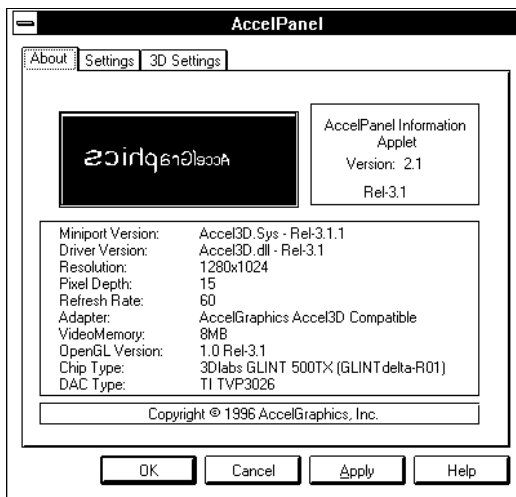
Every operating system and applications program needs specific drivers. Without these, the HP Integrated OpenGL Interface Board operates only in standard VGA mode, and hardware 3D acceleration will not be usable.

Platform	Operating System and Drivers
HP Vectra XW 6/xxx	The OpenGL interface drivers for Windows NT 3.51 must be installed, from the <i>HP Vectra XW/XU Drivers and Documentation</i> CD-ROM, when the operating system is installed.
HP Vectra XW 6/xxx Series U1	The Windows NT 4.0 WS operating system is preloaded, and the OpenGL drivers are preloaded with it.
HP Vectra XW 6/xxx Series W1	

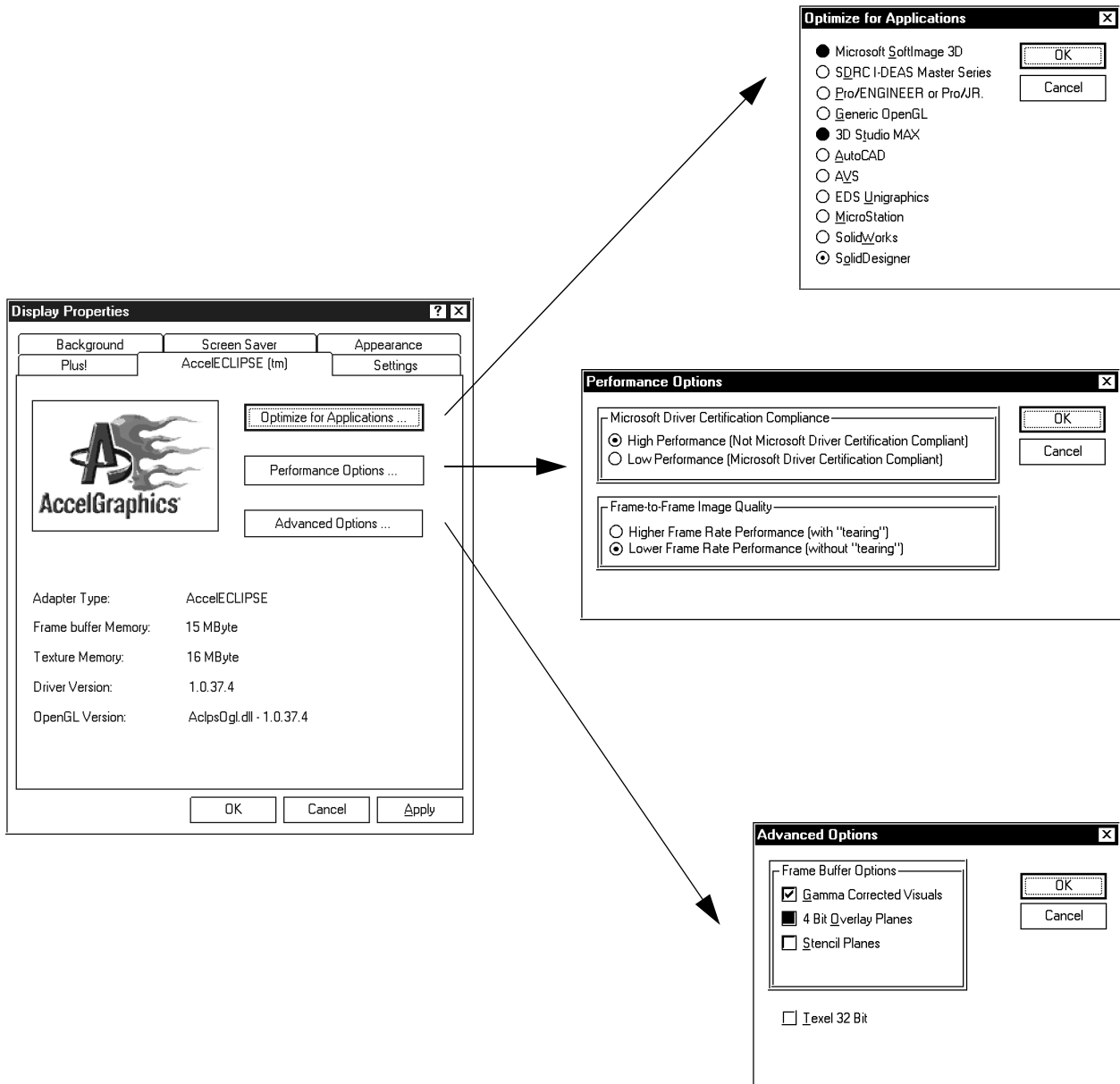
Online Help and Online Diagnostics

Online help for installing and configuring the drivers is found by running `\opengl\doc\hpopengl.hp` on the *HP Vectra XW/XU Drivers and Documentation* CD-ROM, or from the hard disk on models in which the operating system is preloaded.

There is no specific diagnostic tool. However, for the *HP Vectra XW 6/xxx* and *HP Vectra XW 6/xxx Series U1*, the configuration can be checked on the AccelPanel. This is recommended as the first step in any troubleshooting. This panel is normally placed in the AccelGraphics Group, though the user may have chosen to install it somewhere else.

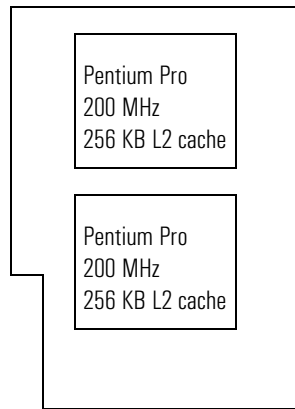


For the *HP Vectra XW Series W1*, the configuration can be checked on the NT display properties menu.

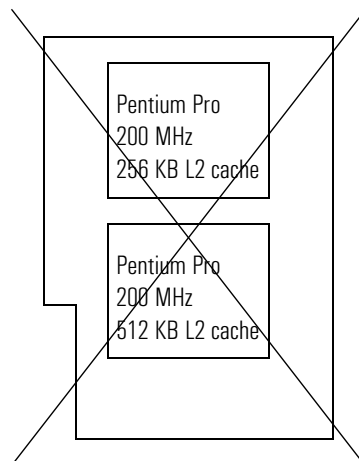
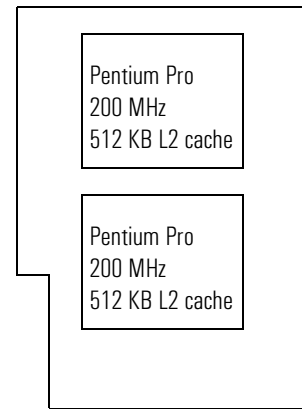


Installing Dual Processors

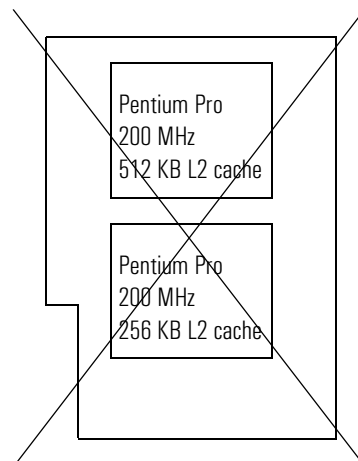
- When installing a second processor, in models that are supplied with a single processor, make sure that it is of the same type as the first.
- The processors are bound to be of the same speed since HP only offers 200 MHz Pentium Pro processors for use in these models.
- HP does not support models in which the user has installed non-HP processor kits.



These configurations are correct. A second processor has been fitted, of the same speed and cache memory capacity as the first.

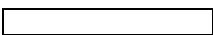
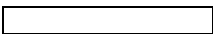
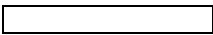

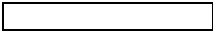
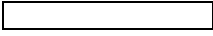


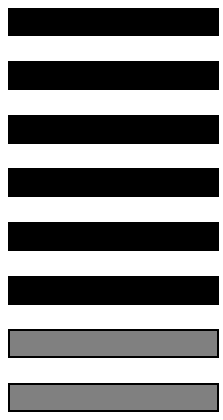
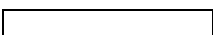
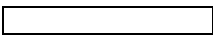
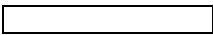





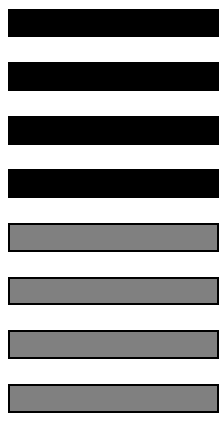


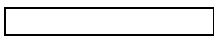
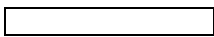
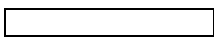
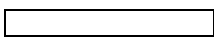
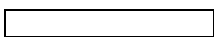
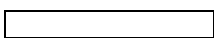


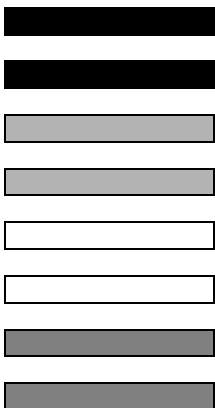
These configurations are wrong. A second processor has been fitted, with a different cache memory capacity than the first. These configurations will work, but the performance gain is not optimal.



Installing Main Memory Modules

- The four memory banks (A, B, C, D) may be filled in any order (with the exception that Bank A must always be filled).
- Memory can be upgraded in increments of 32 MB, 64 MB or 128 MB (by installing pairs of 16 MB, 32 MB or 64 MB modules).
- Always install a pair of identical modules.
- HP does not support models in which the user has installed non-HP memory modules.

Initial Configuration	Example Upgrade Paths	
D2  D1  C2  C1  B2  B1  A2  A1 	<p>Models that are supplied with 64 MB of main memory have a pair of 32 MB, 60 ns, fast page mode (FPM), 72-bit, error correcting code (ECC) memory modules.</p> <p>This can be extended to 448 MB by installing a further three pairs of 64 MB memory modules.</p> <p>This can be further extended to 512 MB by removing the original pair of modules, and replacing the with a pair of 64 MB modules.</p>	
D2  D1  C2  C1  B2  B1  A2  A1 	<p>Models that are supplied with 128 MB of main memory have two pairs of 32 MB, 60 ns, fast page mode (FPM), 72-bit, error correcting code (ECC) memory modules.</p> <p>This can be extended to 384 MB by installing a further two pairs of 64 MB memory modules.</p> <p>This can be further extended to 512 MB by removing the original pairs of modules, and replacing the with two pairs of 64 MB modules.</p>	

Initial Configuration	Example Upgrade Paths	
D2  D1  C2  C1  B2  B1  A2  A1 	<p>Banks may be filled in any order.</p> <p>Any banks which are occupied must always be filled with a pair of modules of identical capacity, type and speed.</p> <p>Different banks can be occupied by different capacities of modules, such as a pair of 64 MB modules, a pair of 16 MB modules, an empty bank, and a bank of 32 MB modules.</p>	

Complete the Questionnaire to Check Your Understanding

Draw a circle around each letter that corresponds with a correct answer.
(There may be more than one correct answer to each question).

- 1 The following single-processor computer, supplied with a 2 GB hard disk, has had components added by the user, and now no longer works. Which of the following could be the source of its failure to operate properly?
 - a It has been fitted with a second Pentium Pro processor that was not ordered from HP.
 - b There is a pair of 16 MB non-ECC memory modules in B1 and B2.
 - c There is a 32 MB ECC memory module in memory socket D1, but socket D2 is empty.
 - d Memory sockets C1 and C2 are empty.
 - e There is a pair of non-HP memory modules in bank A.
 - f An 850 MB IDE hard disk drive has been fitted in the lowest front-access shelf, and has been connected to the spare grey IDE socket.
 - g A coax-socket network-board has been installed as a PCI accessory.
- 2 What does the user need to do before running an OpenGL graphics application?
 - a Nothing, the appropriate drivers are integrated in the Windows NT WS operating system.
 - b The specific drivers must be installed, manually, from the *HP Drivers CD-ROM*.
 - c Either (a) or (b), depending on which operating system is being run.
- 3 How do you extend the memory capacity to 512 MB of a model that is supplied with 64 MB of main memory?
 - a It cannot be extended to 512 MB. Only to 256 MB (=4 banks × 64 MB).
 - b It cannot be extended to 512 MB. Only to 448 MB (=3 banks × 128 MB plus the original bank of 64 MB).
 - c The original bank of 64 MB can be removed, leaving room for 512 MB (= 4 banks × 128 MB).

- 4 The D5200N is an *HP Vectra XW 6/xxx Series W1 PC Workstation* with a single 200 MHz Pentium Pro processor containing 256 KB of level-2 cache memory. What opportunities are available for upgrading the processing capability of this computer?
- a Installing a second 200 MHz, 256 KB, Pentium Pro processor.
 - b Installing a second 200 MHz Pentium Pro processor, but with 512 KB of level-2 cache memory.
 - c Installing a second 256 KB, Pentium Pro processor, but working at 266 MHz.
 - d Replacing the present processor by a faster one.
 - e Replacing the present processor by one with 512 KB of level-2 cache memory.
 - f Removing the present processor to install two identical faster ones.
 - g Removing the present processor to install two identical ones with 512 KB of level-2 cache memory.
- 5 The client complains that his graphics controller is faulty, but cannot remember whether it is an AccelPro or AccelEclipse board. How do you know which board to take along to the site?
- a You ask the client the date of purchase of the computer, and check this against the CPL dates for the various members of the family.
 - b You ask the client describe the layout of the display connectors on the back of the computer.
 - c You ask the client to open the computer, and to describe the appearance of the graphics controller board.
 - d You ask the client to restart the computer, and to press **[Esc]** whilst the Vectra logo is being displayed, so as to read off the name of the graphics controller from the Summary Screen.
 - e You ask the client to read off the name of the graphics controller from the **Display/Setting/AdvancedProperties** menu.
 - f You ask the client to read you back the model name from the label on the side of the computer.
 - g You ask the client to read you back the model number from the label on the back of the computer.

Answers and Explanations

- 1 What could be the source of the computer's failure to operate properly?
- a It has been fitted with a second Pentium Pro processor that was not ordered from HP. Non-HP parts are **not** supported.
 - c There is a 32 MB ECC memory module in memory socket D1, but socket D2 is empty. Memory banks can be filled in any order, but always with pairs of identical modules.
 - e There is a pair of memory modules in bank A that was not ordered from HP. Non-HP parts are **not** supported.

With the system configured according to response (b), the computer will work, but ECC will be disabled.

- 2 What does the user need to do before running an OpenGL graphics application?
- c Either (a) or (b), depending on which operating system is being run.
- Response (a) is correct for the Windows NT 4.0 WS operating system. Response (b) is the only correct one if the Windows NT 3.51 WS operating system has been supplied. Online help is available by running `\opengl\doc\hpopengl.hp`.

- 3 How do you extend the memory capacity to 512 MB of a model that is supplied with 64 MB of main memory?
- c The original bank of 64 MB can be removed, leaving room for 512 MB (= 4 banks \times 128 MB).

The original 64 MB memory is of type "interleave 16", and the 128 MB kits are of type "interleave 64". These two types are completely compatible, and can be mixed, or used in replacement of each other.

- 4 What opportunities are available for upgrading the processing capability of this computer?
- a Installing a second 200 MHz, 256 KB, Pentium Pro processor.
- Installing a second processor that is identical to the first is the only type of upgrade that is supported by HP.

5 How do you know which board to take along to the site?

f You ask the client to read you back the model name from the label on the side of the computer.

g You ask the client to read you back the model number from the label on the back of the computer.

Response (f) is the preferable one, and indeed this label was designed for precisely this purpose. It is not always convenient for the client to access the label on the back of the computer.

Although it is possible for the client to have swapped covers between computers in similar packages (*HP Vectra XW/XU/VT 6/xxx, Series U1/W1/none*), this is not supported by HP. The label on the side should be a reliable source of information describing the computer.

Response (c) is possible in a last resort, but is prone to error, and involves undesirable effort on the client's part.



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