
HP Vectra 486 Family
Support Guide

Vectra
486



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Preface

This document is a support guide for the Hewlett-Packard Vectra 486 family of personal computers. It concentrates on the new HP Vectra 486/25T and Vectra 486/33T systems and the new features that are supported on these systems.

This document is intended for use by Hewlett-Packard Dealers who support the HP Vectra 486 family of personal computers. For more information on the HP Vectra 486 family please refer to the documentation referenced in Appendix A.

For technical support on the HP Vectra 486 family of personal computers in the United Kingdom, please contact your Hewlett-Packard supplier.

For regular technical information on the HP Vectra 486 family, please refer to the 'Bits and PC's' Newsletter published by Hewlett-Packard. If you would like to receive copies of this Newsletter, please contact Sheila Cottage on 0734-784774.



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This section provides an introduction to the revised HP Vectra 486 family of personal computers. There are now two Vectra 486 systems, the HP Vectra 486/25T and the HP Vectra 486/33T. This section will highlight the new features of the systems and the models that are available for each system.

Market Positioning

The HP Vectra 486/25T and Vectra 486/33T are the flagships of the HP Vectra family of personal computers, harnessing the power of the Intel 486 microprocessor running at 25MHz and 33MHz respectively. These systems are being targeted at the same market segments as the original Vectra 486 as their power and expandability make them ideal platforms for the Micro Multi-User, LAN and CAD markets.

HP Vectra 486/25T

The HP Vectra 486 PC will be replaced on 1st April 1991 by the enhanced HP Vectra 486/25T PC. The new HP Vectra 486/25T offers the following improved features :-

- ☛ 4MB Memory, expandable to 64MB with pairs of 2MB and 8MB memory SIMMs.
- ☛ 3.5 inch 1.44MB flexible disk drives on hard disk bundles
- ☛ New model with 168MB Embedded-AT controller hard disk drive
- ☛ 440MB and 670MB SCSI-2 hard disk drive models
- ☛ One year on-site limited warranty

HP Vectra 486/25T Models

The new HP Vectra 486/25T will be available from 1st April 1991 in the following models :-

HP Vectra 486/25T PC Models			
Model	Part Number	Flexible Disk Drive	Hard Disk Drive
1	D2219C	3.5 inch 1.44MB	None
1	D2220C	5.25 inch 1.2MB	None
170	D2221C	3.5 inch 1.44MB	168MB Embedded-AT
440	D2222C	3.5 inch 1.44MB	440MB SCSI-2
670	D2223C	3.5 inch 1.44MB	670MB SCSI-2

Aswell as these standard models, users of the HP Vectra 486/25T will also be able to use the following optional disk drives in this system :-

- ☛ 84MB Embedded-AT hard disk
- ☛ 120MB Embedded-AT hard disk
- ☛ 330MB ESDI hard disk
- ☛ 670MB ESDI hard disk
- ☛ 1.0GB SCSI-2 hard disk

The new HP Vectra 486/25T PC's therefore mean that the current HP Vectra 486 models (with an 'A' suffix) will be discontinued.

HP Vectra 486/33T

The HP Vectra 486/33T PC is a new edition to the HP Vectra 486 family, harnessing the power of the 80486 microprocessor at 33MHz. The HP Vectra 486/33T PC offers users the following features :-

- ☛ 4MB Memory, expandable to 64MB with pairs of 2MB and 8MB memory SIMMs.
- ☛ 128KB external cache memory
- ☛ Socket for an optional Weitek 4167 coprocessor
- ☛ New EISA SCSI-2 host bus adapter
- ☛ New SCSI-2 disk drives in 440MB, 670MB and 1.0GB capacities
- ☛ 2GB maximum internal hard disk storage - over 28GB possible using external SCSI expansion units

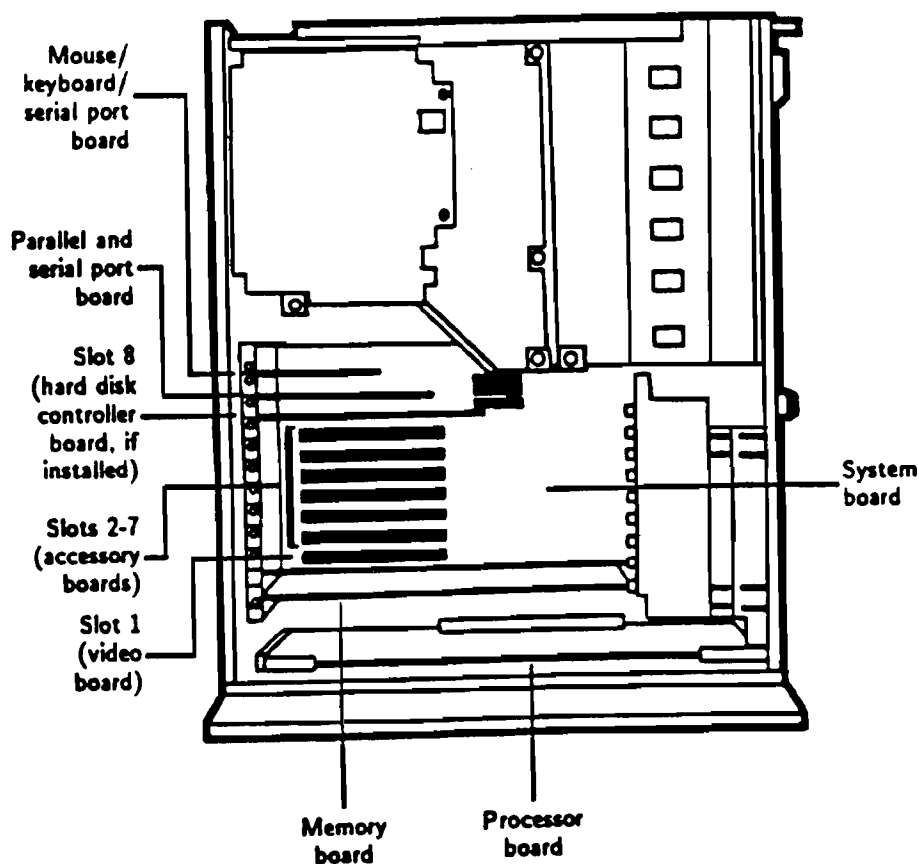
HP Vectra 486/33T Models

The Vectra 486/33T is available in the following models :-

HP Vectra 486/33T PC Models			
Model	Part Number	Flexible Disk Drive	Hard Disk Drive
1	D2236C	3.5 inch 1.44MB	None
1	D2237C	5.25 inch 1.2MB	None
170	D2238C	3.5 inch 1.44MB	168MB Embedded-AT
440	D2239C	3.5 inch 1.44MB	440MB SCSI-2
1000	D2240C	3.5 inch 1.44MB	1000MB SCSI-2

Inside The Vectra 486 Family

The interior of the Vectra 486/25T and Vectra 486/33T are similar to the original Vectra 486. The location of the major internal assemblies may be seen below.



Each of the major components will be discussed in the following sections.

As the Vectra 486 family are Extended Industry Standard Architecture (EISA) systems, slots 1 to 8 are 32 bit EISA slots and will support the use of 8, 16 or 32 bit accessory cards.

Users of cards that support bus mastering should note that slots 5 and 3 do NOT support bus master cards and so this type of card should not be installed into these slots. The Easy Config configuration utility will warn users if they try to install such cards into these slots.

This section describes the features of the processing functions of the HP Vectra 486/25T and Vectra 486/33T and their support of floating point co-processors.

The Intel i486 Processor

The HP Vectra 486/25T and Vectra 486/33T utilise the Intel 80486 microprocessor running at 25MHz and 33MHz respectively. The 80486 provides all of the features of the 80386 microprocessor while offering two to three times the performance of a comparable 80386.

The 80486 also provides an inbuilt floating point coprocessor, cache memory and page memory management.

The following features are provided by the 80486 when used with a Vectra 486/25T or Vectra 486/33T :-

- ☛ Cache memory on chip : 8Kbytes, 4-way set associative with write-through
- ☛ Supports 8,16 and 32 bit data types.
- ☛ Direct Memory Access (DMA) capabilities.
- ☛ Floating point coprocessor on chip, compatible with the 80387 coprocessor.
- ☛ Interrupt support capabilities.
- ☛ Supports up to 64K of I/O locations.
- ☛ May address 4GB of physical memory and 64TB of virtual memory.
- ☛ Multi-tasking support.
- ☛ Operating address modes : Real, Protected and Virtual 8086.
- ☛ Page memory management on chip.
- ☛ 32 bit data and address registers.
- ☛ Built-in self test.
- ☛ Separate address and data paths.

The 80486 offers a Reduced Instruction Set Computer (RISC) style processor that means that it may run commands faster than on an 80386 processor. It also offers support for high performance data transfers called 'Burst Mode' providing that other parts of the system (such as the memory subsystem) also support this feature.

Co-Processor Support

The use of a numeric co-processor can significantly improve the performance of those applications that have been designed to use the functions of a coprocessor. The type of applications that benefit most from the increase in computing power that a coprocessor can provide include :-

- ☛ Computer aided design (CAD)
- ☛ Computer aided engineering (CAE)
- ☛ Computer aided manufacturing (CAM)
- ☛ Other applications for science and engineering
- ☛ Spreadsheets

It is important to note that users should confirm if a particular piece of software has been designed for use with a coprocessor. Users should therefore consult the software manufacturer concerned to confirm that a particular application will benefit from the use of a coprocessor.

In-built Floating Point Coprocessor

The Vectra 486/25T and Vectra 486/33T have a Floating Point Unit (FPU) as standard as the 80486 contains an in built FPU that is compatible with the 80387 FPU that was designed for use with the 80386 processor. The performance of the FPU is significantly enhanced as the FPU is within the processor itself.

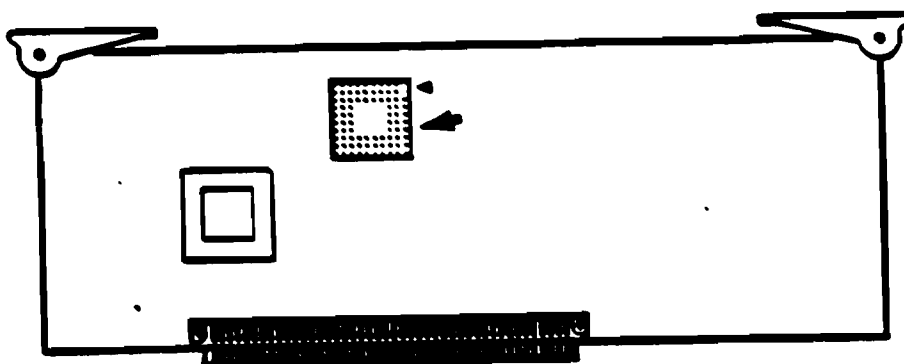
If users wish to obtain more information about software applications that are compatible with the 80387 and 80486 FPU's, they should contact Intel for more information.

Weitek 4167 Accelerator

The Vectra 486/33T also supports the use of the Weitek 4167 coprocessor to enhance the performance of applications that perform floating point applications.

Please note that the Weitek 4167 coprocessor is NOT available from Hewlett-Packard and there is therefore no HP part number for this accessory. Users wishing to purchase a Weitek 4167 coprocessor should therefore consult their Weitek supplier.

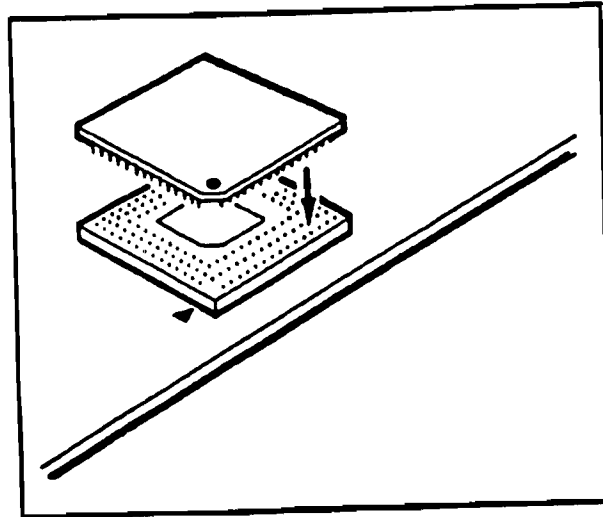
The Weitek 4167 coprocessor is installed onto the processor board of the Vectra 486/33T in the following socket :-



Before removing the Weitek 4167 coprocessor from its package or handle it in any way, ensure that appropriate preventative anti-static precautions are being taken.

A corner of the Weitek coprocessor will be marked with a dot. Align this dot with the pointer by the Weitek socket on the processor board, as shown in the diagram overleaf. Place the co-processor gently into the socket, seating the coprocessor's pins into the socket pinholes and apply an even pressure to

the surface of the chip.



Once the coprocessor has been physically installed and the processor board has been replaced into the system, users should run the Easy Config utility to configure the coprocessor into the system.

Run the Easy Config utility and select the '**Configure Computer**' and then the '**Configure Computer - Advanced Method**' from the Easy Config menus. Highlight the processor board and press 'Enter' or double-click with the mouse on the processor board to obtain a detailed view of the board's configuration. Check that the coprocessor is listed as '**Installed**' and then exit from the utility, saving the current configuration to CMOS for future use.

Note that the Weitek 4167 coprocessor does NOT require a unique CFG or OVL file - it is contained within the configuration files for the Vectra 486/33T System Board.

If the coprocessor is not listed as '**Installed**', exit Easy Config without saving the configuration and remove the processor board to confirm that the coprocessor is properly seated in its socket.

If users plan to use expanded memory with the Weitek 4167, they must configure the expanded memory manager to specify that they have a Weitek coprocessor. More information on this may be seen in section 8.

Users who wish to use the Weitek 4167 should ensure that the software applications that they intend to use actually support this device. Applications that support the 80387 coprocessor will NOT automatically support the use of the Weitek unit as the two devices have different architectures. Users should therefore ensure that the application that is to be used supports the use of the Weitek unit and that the application will benefit from its use.

The new models of the HP Vectra 486 family have meant that there are new revisions of BIOS for these systems.

The HP Vectra 486/25T is introduced with a BIOS level of G.03.05 (there was a very limited G.03.04 release of the BIOS). Users wishing to order this BIOS revision should order HP part number D2226-83003. This kit also includes version A.02.01 of the Easy Config utility that is required for use with BIOS revision G.03.05.

The HP Vectra 486/33T is introduced with a BIOS level of K.03.00. Users should use version A.02.00 or A.02.01 of the Easy Config utility with this BIOS revision. Users should also note that whereas the original Vectra 486 had two BIOS chips, the Vectra 486/33T has a single BIOS chip.

An overview of the BIOS revisions for the Vectra 486 family and which versions of Easy Config should be used with these BIOS revisions may be seen in the following table.

HP Vectra 486 Family BIOS History					
Vectra System	Easy Config Versions				
	BIOS Revision	A.00.00	A.00.01	A.01.00	A.02.00
Vectra 486					
G.03.01	✓	✓	✓	✓	✓
G.03.02	✓	✓	✓	✓	✓
G.03.03			✓	✓	✓
Vectra 486/25T					
G.03.05				✓	✓
Vectra 486/33T					
K.03.00				✓	✓

☛ Easy Config version A.02.00 was distributed on a very limited basis and is functionally the same as A.02.01. The only difference between the two versions is that version A.02.01 includes SCSI CFG files.

☛ Easy Config version A.02.01 is the only version of Easy Config version as of March 1991 that includes SCSI CFG files.

☛ ROM BIOS G.03.02 or later is required for the support of SCSI devices.

☛ There was only a limited G.03.04 release of the Vectra 486 ROM BIOS.

More information on the Easy Config utility may be found in section 8.

The memory subsystem of the Vectra 486/25T and Vectra 486/33T is similar to that of the original Vectra 486 but the supported memory configurations have been changed to help to ensure that the systems offer smooth memory upgrades to users. The Vectra 486/33T also has an external 128K memory cache to supplement the cache that is within the 486 chip.

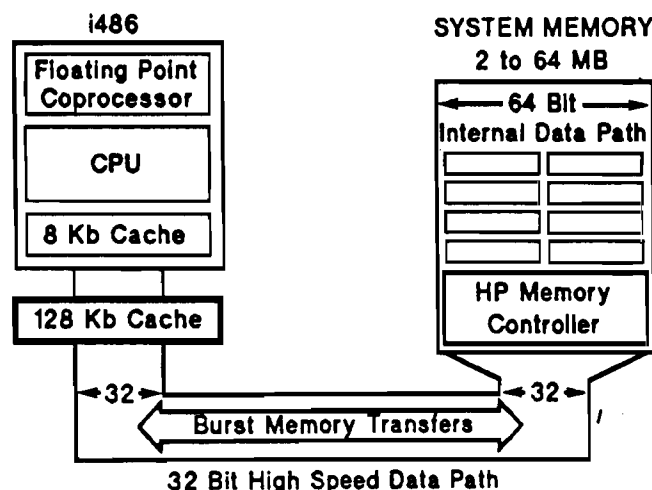
Memory Architecture

The main memory for the HP Vectra 486/25T and Vectra 486/33T support the burst mode feature of the 80486 processor and this enables data transfers between the processor and main memory of 33Mbytes per second.

The Vectra 486/25T and Vectra 486/33T use a paged main memory architecture which is controlled by a custom designed and built memory controller. The HP Memory Controller chip is compatible with the Intel 82350 EISA chip set and supports the Intel 80486 at 25MHz and 33MHz. It also supports :-

- ☛ 32 bit CPU access
- ☛ 80486 burst reads
- ☛ Shadow RAM for BIOS and other system ROM
- ☛ EISA/ISA DMA and bursting EISA bus masters
- ☛ Control for memory parity generation/check
- ☛ Up to 8 banks of DRAM, from 4 to 64MB of total memory

There is a dedicated memory bus that links the processor with the memory controller chip. This bus is 32 bits wide and allows high speed data transfer between main memory and the processor. This is illustrated below (Note that the external 128K memory cache is only present on the HP Vectra 486/33T).



Cache Memory

The Vectra 486 family support memory caching in order to increase the performance of its memory subsystem. As well as the cache memory that is incorporated onto the 80486 chip, the Vectra 486/33T also has an external cache to supplement the internal cache of the 80486 chip.

80486 Processor Cache

The Intel 80486 chip incorporates an on-chip cache that can store data most recently used from any cacheable memory to the 80486's on-chip cache of 8KB of static RAM. This cache of code and data therefore allows for faster access of data by the 80486.

Users may disable the internal cache on the 80486 by either using the Easy Config configuration software or the 'EXMODE' utility that allows the cache to be enabled or disabled at any time when running under MS-DOS.

External Cache

The external cache system in the Vectra 486/33T provides an additional 128K cache to supplement the internal cache of the 80486 processor.

The internal cache in the processor has a typical cache read hit of approximately 90% and the additional external cache provides an additional hit rate of approximately 80% of the remaining 10% that is missed by the 80486's internal cache.

When the processor attempts to read an item of data, it first searches the internal cache on the 80486 chip and if the data that is required is not found there, it will then search for it in the external 128K cache. If the data is not in the external cache either, the system will search for the data in main memory that is made up of Dynamic RAM. As the cache memory is implemented with high speed Static RAM, there are no wait states involved and data access is faster than if the processor had to access main memory.

A Direct Memory Access (DMA) device, such as a floppy disk controller, may write data to memory, thus making the data in memory and the data in the cache different. A snooper circuit detects these writes to memory and if the address locations stored in the cache and the addresses altered by the DMA device are the same, the data in the cache is invalidated. The processor is then forced to bypass the cache and go to main memory the next time that this memory address is accessed.

Main Memory

The main memory of the system consists of Dynamic RAM (DRAM) chips mounted on memory modules. The Vectra 486/25T and Vectra 486/33T are shipped with 4MB of main memory and this consists of two D2381A 2MB memory modules.

Base Memory

The 640KB of base memory may be configured to either 640KB or 512KB by using the Easy Config configuration software. This may be necessary for some applications and accessory boards to operate properly but users should refer to the manual that came with the application or accessory board to determine how much base memory they require.

Memory Upgrades

The Vectra 486/25T and Vectra 486/33T are shipped with 4MB of main memory as standard. This comprises of two D2381A double-density 2MB memory SIMMS and the systems may be upgraded to a total of 64MB (although this would require the removal of the original 4MB of memory).

When adding memory to the Vectra 486/25T and Vectra 486/33T, users are advised to use the D2381A 2MB and D2152A 8MB memory upgrades to enable users to upgrade in a smooth and efficient manner.

Two memory modules must be added at a time as they are 36 bit memory modules and the internal memory data path is 64 bits wide. If a combination of 8MB and 2MB memory SIMMS are added, users should always insert the larger memory (ie the 8MB SIMMS) *before* the smaller memory SIMMS.

All memory modules are currently made up of 80 nanosecond memory.

Users of the original Vectra 486 may still use the single density memory D2156A 4MB and D2150A 1MB memory SIMMS to upgrade the system memory up to a total of 32MB.

If users using single density memory modules wish to upgrade the system memory beyond 32MB, they will have to replace ALL of their single density memory SIMMS with double density memory SIMMS.

⚠ Note that the D2156A 4MB memory upgrade replaces the original D2151A 4MB memory upgrade and that the D2151A 4MB memory modules are NOT supported on the Vectra 486/33T.

Although the D2156A 4MB and D2150A 1MB single density memory modules are supported on the Vectra 486/25T and Vectra 486/33T, users are NOT recommended to upgrade their memory with these modules as this will involve the removal of the 4MB of double density memory that was originally shipped with the system.

The supported double density memory configurations for the HP Vectra 486/25T and Vectra 486/33T are shown overleaf.

The memory configurations using single density memory modules are also provided but these are NOT recommended for use by users of the Vectra 486/25T and Vectra 486/33T, as they involve the removal of the memory that comes with the system and limit users to a total possible system memory of 32MB.

HP Vectra 486/25T and Vectra 486/33T Double Density Memory Configurations

These configurations use D2152A 8MB SIMMS and D2381A 2MB SIMMS

Standard Configuration

4MB System

2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

20MB System

8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

40MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

8MB System

2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

24MB System

8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

48MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM

12MB System

2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

28MB System

8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

52MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM

16MB System

2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM
2 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

32MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

64MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM

16MB System

8 MB SIMM
8 MB SIMM

Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8

36MB System

8 MB SIMM
8 MB SIMM
8 MB SIMM
8 MB SIMM
2 MB SIMM
2 MB SIMM

HP Vectra 486/25T and Vectra 486/33T Single Density Memory Configurations

These configurations use D2156A 4MB SIMMS and D2150A 1MB SIMMS

These combinations require the removal of the original 4MB that was shipped with the system

2MB System				10MB System				20MB System	
1 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1
1 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2
	Slot 3	1 MB SIMM	Slot 3	1 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3
	Slot 4	1 MB SIMM	Slot 4	1 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4
	Slot 5		Slot 5		Slot 5	1 MB SIMM	Slot 5	1 MB SIMM	Slot 5
	Slot 6		Slot 6		Slot 6	1 MB SIMM	Slot 6	1 MB SIMM	Slot 6
	Slot 7		Slot 7		Slot 7	1 MB SIMM	Slot 7	1 MB SIMM	Slot 7
	Slot 8		Slot 8		Slot 8	1 MB SIMM	Slot 8	1 MB SIMM	Slot 8
4MB System				12MB System				24MB System	
1 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1
1 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2
1 MB SIMM	Slot 3	1 MB SIMM	Slot 3	1 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3
1 MB SIMM	Slot 4	1 MB SIMM	Slot 4	1 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4
	Slot 5	1 MB SIMM	Slot 5	1 MB SIMM	Slot 5	4 MB SIMM	Slot 5	4 MB SIMM	Slot 5
	Slot 6	1 MB SIMM	Slot 6	1 MB SIMM	Slot 6	4 MB SIMM	Slot 6	4 MB SIMM	Slot 6
	Slot 7		Slot 7		Slot 7		Slot 7		Slot 7
	Slot 8		Slot 8		Slot 8		Slot 8		Slot 8
6MB System				14MB System				26MB System	
1 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1
1 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2
1 MB SIMM	Slot 3	1 MB SIMM	Slot 3	1 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3
1 MB SIMM	Slot 4	1 MB SIMM	Slot 4	1 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4
1 MB SIMM	Slot 5	1 MB SIMM	Slot 5	1 MB SIMM	Slot 5	4 MB SIMM	Slot 5	4 MB SIMM	Slot 5
1 MB SIMM	Slot 6	1 MB SIMM	Slot 6	1 MB SIMM	Slot 6	4 MB SIMM	Slot 6	4 MB SIMM	Slot 6
1 MB SIMM	Slot 7	1 MB SIMM	Slot 7	1 MB SIMM	Slot 7	1 MB SIMM	Slot 7	1 MB SIMM	Slot 7
1 MB SIMM	Slot 8	1 MB SIMM	Slot 8	1 MB SIMM	Slot 8	1 MB SIMM	Slot 8	1 MB SIMM	Slot 8
8MB System				16MB System				32MB System	
1 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1
1 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2
1 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3	4 MB SIMM	Slot 3
1 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4	4 MB SIMM	Slot 4
1 MB SIMM	Slot 5		Slot 5		Slot 5	4 MB SIMM	Slot 5	4 MB SIMM	Slot 5
1 MB SIMM	Slot 6		Slot 6		Slot 6	4 MB SIMM	Slot 6	4 MB SIMM	Slot 6
1 MB SIMM	Slot 7		Slot 7		Slot 7	4 MB SIMM	Slot 7	4 MB SIMM	Slot 7
1 MB SIMM	Slot 8		Slot 8		Slot 8	4 MB SIMM	Slot 8	4 MB SIMM	Slot 8
8MB System				18MB System					
4 MB SIMM	Slot 1	4 MB SIMM	Slot 1	4 MB SIMM	Slot 1		Slot 1		Slot 1
4 MB SIMM	Slot 2	4 MB SIMM	Slot 2	4 MB SIMM	Slot 2		Slot 2		Slot 2
	Slot 3		Slot 3	4 MB SIMM	Slot 3		Slot 3		Slot 3
	Slot 4		Slot 4	4 MB SIMM	Slot 4		Slot 4		Slot 4
	Slot 5		Slot 5	1 MB SIMM	Slot 5		Slot 5		Slot 5
	Slot 6		Slot 6	1 MB SIMM	Slot 6		Slot 6		Slot 6
	Slot 7		Slot 7		Slot 7		Slot 7		Slot 7
	Slot 8		Slot 8		Slot 8		Slot 8		Slot 8

Memory Map

The following table illustrates the memory map of the Vectra 486/25T and Vectra 486/33T.

HP Vectra 486/25T and Vectra 486/33T Memory Map		
Hex Address Range	Description Of Memory Area	Cacheable or Noncacheable Area
0000 0000-0009 FFFF	Base RAM - is either the first 512 KBytes or 640 KBytes of main memory depending on how RAM is configured via Easy Config. Base RAM is reserved for industry standard memory and used for MS-DOS applications.	Cacheable
000A 0000 - 000B FFFF	Reserves 128KB of main memory for Video RAM.	Noncacheable
000C 0000 - 000D FFFF	Reserves 128KB of ROM or RAM on I/O expansion boards. Includes Video BIOS.	Cacheable
000E 0000 - 000E FFFF	Reserves 64KB of main memory for Option ROM.	Cacheable
000F 0000 - 000F FFFF	Reserves 64KB of main memory for BIOS ROM.	Cacheable
0010 0000 - 03FF FFFF	63 MBytes of extended memory space for 32-bit dynamic RAM which uses the SIMM sockets.	Cacheable
0400 0000 - 3FFF FFFF	1 GByte - 64 MBytes of address space.	Cacheable
4000 0000 - BFFF FFFF	Expansion memory or memory-mapped I/O.	Noncacheable
C000 0000 - C1FF FFFF	Weitek coprocessor (if installed). (Vectra 486/33T ONLY).	Non-cacheable
C200 0000 - FFFD FFFF	Expansion memory or memory mapped	Non-cacheable
FFFE 0000 - FFFE FFFF	64KBytes of Option ROM. Upon power-up these bytes are automatically mapped here from 0E0000 Hex to 0EFFFF Hex	Non-cacheable
FFFF 0000 - FFFF FFFF	64KB of BIOS ROM. Upon power-up these bytes are automatically mapped here from 0F0000 Hex to 0FFFFFF Hex.	Non-Cacheable

Users installing accessory boards into areas of memory that are cacheable should ensure that the accessory boards support caching. If users have problems using an accessory board that uses a part of memory that is cached by default, they should prevent that area of memory from being cached by modifying the CFG file for the relevant board to ensure that the board does NOT use memory caching.

In these instances, a line 'CACHE=NO' should be inserted into the appropriate part of the CFG file. More information on the modification and syntax of CFG files may be found in the 'Dealer Configuration File Creation Guide' that is shipped with every Vectra 486 system.

Shadow RAM

The Vectra 486/25T and Vectra 486/33T support the use of Shadow RAM which allows ROM code to be copied into 32-bit system RAM at the same physical address for high speed execution. Shadow RAM may be enabled by either using the Easy Config configuration software or by directly programming I/O port FCA0 or FCA1. The areas of memory that may be shadowed are described in the following table.

HP Vectra 486/25T and Vectra 486/33T Shadow RAM Areas			
Hex Address Range	Memory Block	Type Of Memory	Shadowing Supported ?
0A0000-0AFFFF	640KB - 704KB	Video RAM	X
0B0000-0BFFFF	704KB - 768KB	Video RAM	X
0C0000-0CFFFF	768KB - 832KB	Video ROM	✓
0D0000-0DFFFF	832KB - 896KB	optional	X
0E0000-0EFFFF	896KB - 960KB	Option ROM	✓
0F0000-0FFFFFFF	960KB - 1024KB	BIOS ROM	✓

Memory Relocation

The Vectra 486 family of personal computers are able to relocate parts of the reserved memory area to the top of installed memory to provide more memory in the reserved memory area to be used by an expanded memory manager.

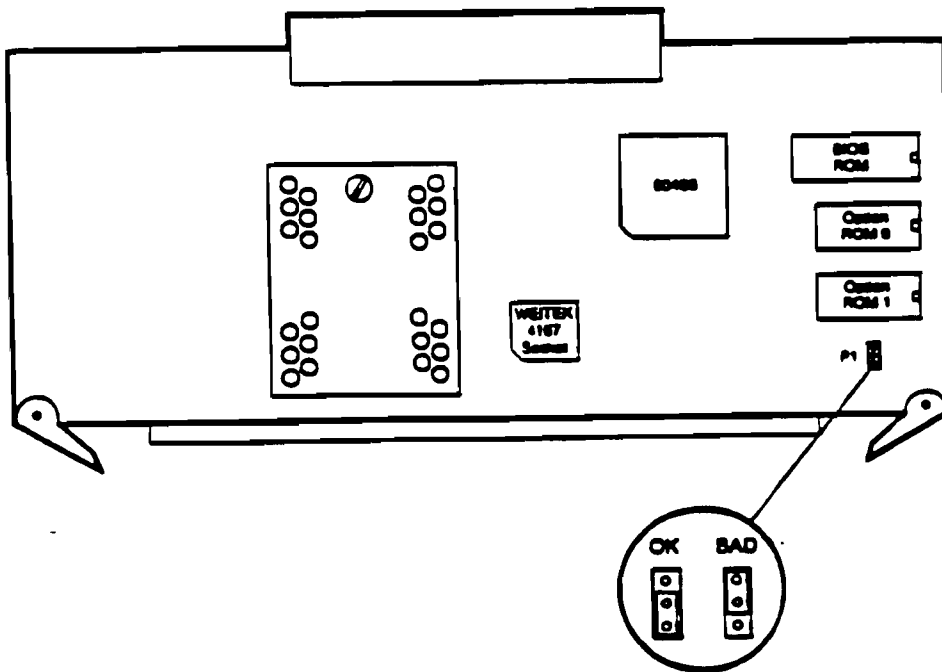
If users wish to use this feature, they may configure memory to be relocated from the Easy Config configuration utility.

Clearing HP Vectra 486 CMOS

If users of Vectra 486/33T systems have the need to clear the non-volatile CMOS memory that is used to store the system's configuration, the HP Vectra 486/33T has a unique means of clearing this memory.

Users should only clear and re-initialise the non-volatile CMOS memory if they feel that the memory has become corrupt and is corrupting the system configuration.

The HP Vectra 486/33T has a jumper labelled 'P1' that is on the processor board that provides a convenient way of clearing the CMOS. The position of this jumper may be seen in the following diagram.



If users wish to clear the CMOS memory, users should perform the following steps :-

- ☛ Power off the system
- ☛ Move the P1 jumper from 'OK' to 'BAD'
- ☛ Power on the system
- ☛ Wait for the operating system prompt
- ☛ Power off the system
- ☛ Move the P1 jumper from 'BAD' to 'OK'
- ☛ Power on the system

This will then clear the system's configuration information from CMOS so that users may re-configure the system using the Easy Config configuration utility.

This section describes the mass storage options that are available from Hewlett-Packard for the HP Vectra 486 family.

Hard Disk Subsystems

The HP Vectra 486 family of personal computers support the following types of hard disk subsystem.

- ☛ Embedded-AT Hard Disks
- ☛ ESDI Hard Disks
- ☛ SCSI-2 Hard Disks

The HP disks that are supported on the HP Vectra 486 family may be seen in the following table.

HP Vectra 486 Family Hard Disk Support			
Hard Disk Subsystem	Vectra 486 System		
	Vectra 486	Vectra 486/25T	Vectra 486/33T
Hard Disk Model			
Embedded-AT			
D1664A 42MB			
D1666A 84MB	✓	✓	✓
D1679A 120MB	✓	✓	✓
D1680A 168MB	✓	✓	✓
D1688A 336MB			
ESDI			
D1660A 330MB	✓	✓	✓
D1661A 670MB	✓	✓	✓
SCSI			
D1685A 440MB	✓	✓	✓
D1686A 670MB	✓	✓	✓
D1687A 1.0GB	✓	✓	✓

Embedded-AT vs ESDI vs SCSI-2 Hard Disks

The use of either Embedded-AT, ESDI or SCSI-2 hard disks will depend upon the environment in which the system will be used.

When used in a **single-tasking** environment such as MS-DOS, users are recommended to use the Embedded-AT or SCSI-2 hard disk solutions.

When used in a **multi-tasking** environment as a Multi-user system running UNIX or a LAN server running Novell, users are recommended to use the SCSI-2 solutions as they provide superior performance in multi-tasking environments.

The different hard disk solutions from Hewlett-Packard will now be discussed in more detail.

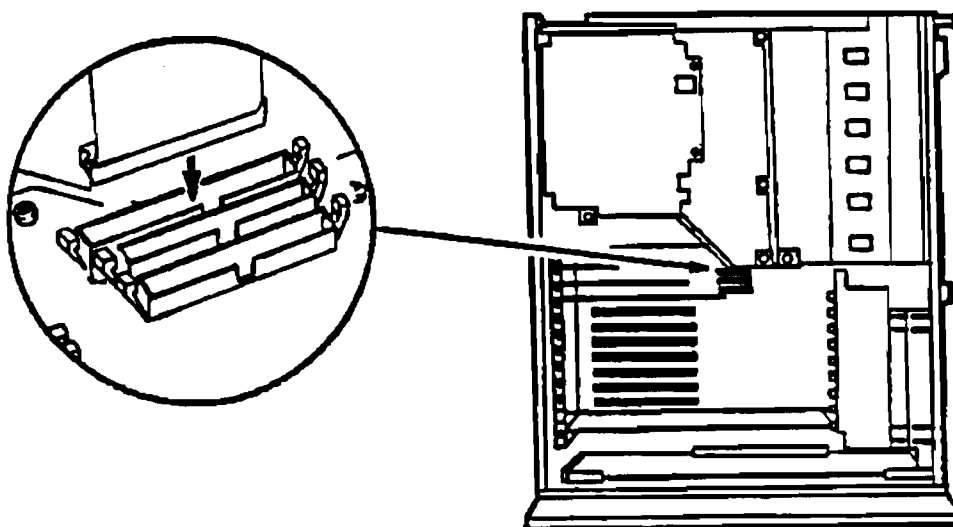
Embedded-AT Hard Disks

The Vectra 486 family support the use of the following Embedded-AT style hard disks :

- ☛ D1666A 84MB Embedded AT Hard Disk (Type 38)
- ☛ D1679A 120MB Embedded AT Hard Disk (Type 10)
- ☛ D1680A 168MB Embedded AT Hard Disk (Type 13)

A maximum of two Embedded-AT hard disks may be configured within the system via a single cable that has connections for two hard disk drives. This cable has an HP part number of D1665-60005.

The Embedded-AT hard disks do NOT require a hard disk controller card when used in any Vectra 486 system. The controller mechanism is contained within the disk drive itself and all Vectra 486 systems have a system interface connector on the system board to enable these Embedded-AT hard disks to be connected directly into the system. The position of this connector on the system board is shown below.



The two connectors under the Embedded-AT hard disk connector are to enable the connection of flexible disk devices directly into the system board.

The specifications for the Embedded-AT hard disks that are supported on the Vectra 486 family may be seen in the following table.

<u>Product</u>	<u>Drive Type</u>	<u>Access Time</u>	<u>Interleave Factor</u>
D1666A	Type 38	19 msec	1:1
D1679A	Type 10	< 16 msec	1:1
D1680A	Type 13	< 16 msec	1:1

Users should note that the D1688A 336MB Embedded AT hard disk drive is NOT supported on any Vectra 486 system. Users seeking this level of hard disk capacity should consider the use of an ESDI or SCSI-2 style hard disk that offer a superior level of hard disk performance.

ESDI Hard Disks

From the 1st April 1991, the Vectra 486/25T and Vectra 486/33T will no longer be available as models equipped with ESDI hard disk subsystems. This is because the ESDI disk based Vectra 486 models have been replaced with models that have either Embedded-AT hard disks or the new HP SCSI-2 hard disks that are discussed later in this section.

Users are therefore recommended to use either the Embedded-AT or SCSI-2 disks when configuring new Vectra 486/25T or Vectra 486/33T systems.

The Vectra 486 family does however support the use of the following ESDI style hard disks :-

- ☛ D1660A 330MB ESDI Hard Disk (Type 27)
- ☛ D1661A 670MB ESDI Hard Disk (Type 28,29,30)



These disks require the use of the D1664A High Performance ESDI controller.

This ESDI high performance disk controller has been modified for use with the Vectra 486/25T and Vectra 486/33T systems and revisions of this card that were used with the original Vectra 486 are NOT supported on the Vectra 486/33T. Users wishing to order the new revision of the D1664A controller card should order part number 1150-1884. This new revision of the card may be used in all Vectra 486 systems.

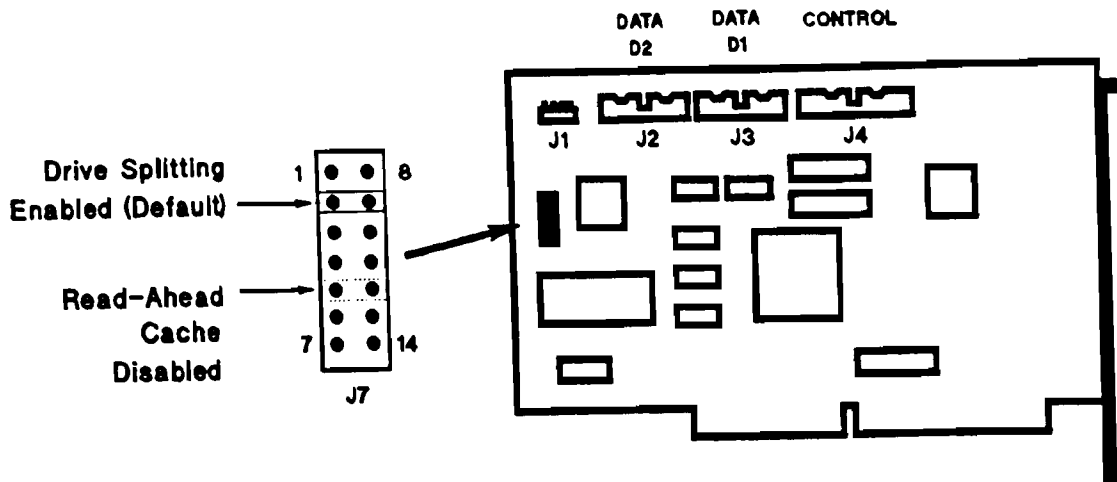
This controller board has a drive splitting feature for drives above 528MB. This allows operating systems that use the computer's ROM BIOS, such as MS-DOS and OS/2, to access the entire drive by splitting it into two logical drives (one of 528MB and one of 142MB).

With drive splitting enabled, users may NOT add a second hard disk drive.

With drive splitting disabled, users may only access up to 528MB of any single hard disk.

As the UNIX operating system does not use the computer's ROM BIOS, it does not have this limitation and therefore does not require the drive splitting feature.

Drive splitting is enabled or disabled via a jumper on the D1664A ESDI disk controller and the position of this jumper may be seen in the diagram overleaf.



If users wish to disable the on-board cache of the D1664A controller card, the location of the jumper to enable or disable the card's cache feature is also shown on the diagram above.

The D1664A is a single function card. It does NOT have any functionality for flexible disk devices or the provision of any serial or parallel ports as these functions are implemented elsewhere on Vectra 486 systems.

The specifications for the ESDI High Performance disk controller and the ESDI disks supported on the Vectra 486 family may be seen in the following table.

Product	Drive Type	Access Time	Interleave Factor
D1660A	Type 27	16 msec	1:1
D1661A	Type 28,29,30	16 msec	1:1

These drives may be used with the D1664A High Performance ESDI controller and this offers data transfer rates of up to 20Mbits per second.

For users wishing to replace the hard disk mounting brackets on a Vectra 486 system, the part number for these brackets is D1445-60001.

SCSI-2 Hard Disks

As from 1st April 1991, Hewlett-Packard offer a range of hard disks that adhere to the Small Computer System Interface-2 (SCSI-2) specification. These disks provide system builders and users with the following advantages :-

Performance. The SCSI bus can perform operations without any CPU intervention so that the CPU can perform other tasks while I/O transactions are occurring. As the SCSI bus can also handle I/O requests simultaneously, SCSI can provide significantly improved system performance in multitasking environments.

Expandability. A single SCSI interface card or 'Host Bus Adaptor' (HBA) can support multiple SCSI devices and multiple HBA's can exist on a single system bus. Embedded-AT and ESDI hard

disk subsystems can only support up to 2 physical hard disk drives.

Connectivity. With the appropriate software drivers, any SCSI device may be connected to the HBA and different classes of device may be connected at the same time. This permits the simultaneous connection of tape drives, optical disk drives, CD-ROMs and other devices without adding additional special cards.

Note that the current internal HP CD-ROM products are NOT supported as they are not SCSI devices.

All of the HP SCSI disk drives adhere to the SCSI-2 specification which is an enhanced version of the original SCSI-1 specification. HP's EISA SCSI-2 subsystems support the following enhancements to the original SCSI specification :-

- ☛ Improved compatibility of industry standard SCSI disk drives
- ☛ Standard definition for other types of peripherals including CD-ROMs, DAT drives, optical drives, etc
- ☛ Tagged command queueing enables the storing of instructions and schedules tasks for maximum efficiency

HP introduce three SCSI-2 hard disk drives and these are all supported on the Vectra 486 family and Vectra RS25C. Features of these disks include :-

- ☛ 150,000 hour Mean Time Between Failures
- ☛ Tagged command queueing
- ☛ 256Kbytes disk controller cache

The specifications of the disks may be seen in the following table.

Product	Drive Size	Access Time	Shelf Size
D1685A	440MB	16 msec	Half-height
D1686A	670MB	12 msec	Full-height
D1687A	1.0GB	15 msec	Full-height

In order to support these SCSI-2 disks, the following HP SCSI-2 Host Bus Adaptors (HBA's) have been introduced.

- ☛ D1681A EISA SCSI-2 Host Bus Adaptor
- ☛ D1682A ISA SCSI-2 Host Bus Adaptor

Note that the D1682A ISA HBA is a 16-bit card and is designed for use in the Vectra RS25C. It is supported in the Vectra 486 family but its use in these systems is not recommended as the 32-bit D1681A EISA HBA offers superior performance in these systems as it is a 32-bit bus master card.

The D1681A EISA SCSI-2 HBA will support devices that use the Fast SCSI specification (which effectively doubles the SCSI bus transfer rate) when these products become available on the market.

A comparison of the HP ISA and EISA HBA's may be seen in the table overleaf.

ISA & EISA HBA Features Comparison

	<u>ISA HBA</u>	<u>EISA HBA</u>
Host Side		
Bus Master DMA	10MB/second	33MB/second
Software Drivers	Adaptec 1540	Adaptec 1540 or 1740
Address Space	24 bits	1540 24 bits 1740 32 bits
Auto-configuration	No	Yes
SCSI Side		
Queued Commands	Untagged	Tagged
Zero Latency Read	Yes	Yes
Asynchronous	Yes	Yes
Synchronous	5.0MB/second	10.0MB/second
Dis/Re-connect	Yes	Yes
Auto Req Sense	Yes	Yes
Differential Option	No	Yes
External Connector	Hi-Density	Hi-Density

Note that the Vectra 486 family must have a ROM BIOS of G.03.02 or greater to support the use of SCSI devices. Users wishing to upgrade to an appropriate BIOS revision to support the use of SCSI devices should order the ROM BIOS upgrade (HP part number D2226-83003) which also includes version A.02.01 of the Easy Config utility that contains the CFG and OVL files for the HP HBA's.

The CFG files required to configure the HBA's are !ADP0000.CFG for the D1681A EISA HBA and !HWP0CA0.CFG for the D1682A ISA HBA. These files are in the file 'CFGMSD.COM' on the HP Dealer Bulletin Board Service. For more information on using the HP Dealer Bulletin Board Service, please contact your source of HP support.

The SCSI specification states that up to seven SCSI devices may be connected to a single HBA. The D1681A EISA HBA is supplied with a cable that allows up to five internal SCSI devices to be connected, allowing for an additional two external SCSI devices to be connected.

The SCSI specification has two modes of operation - 'Standard' mode and 'High Performance' mode. Standard mode uses current SCSI-1 drivers and the D1682 ISA HBA operates in Standard mode. High Performance mode supports some SCSI-2 features and the D1681A EISA HBA supports both Standard and High Performance modes.

Users should NOT install the D1681A EISA HBA in accessory slot 3 or 5 as these slots on all Vectra 486 systems do NOT support Bus Master Cards. This means that a maximum of six EISA Bus Master cards may be installed into a Vectra 486 system.

Operating System Support

In order to use SCSI devices, drivers are required for the operating system in use. The HP SCSI-2 hard disks are supported with the following operating systems as of 1st April 1991 :-

- ☛ MS-DOS 4.01
- ☛ Novell NetWare 386 3.1
- ☛ Novell Advanced NetWare 286 2.15
- ☛ SCO UNIX 3.2.2¹

¹ Note that the SCO UNIX drivers support only Standard mode at present.

Drivers for other environments such as OS/2 1.21 and Banyan Vines 4.0 will be available in the future as the drivers become available and are tested.

Although the use of SCSI devices is better suited to multitasking environments, the following SCSI features are supported under MS-DOS :-

- ☛ Up to 2 physical disks are supported per HBA
- ☛ SCSI disks can co-exist with Embedded-AT or ESDI disks
- ☛ HBA BIOS supports DOS without the need of a driver
- ☛ The ISA HBA requires a driver for LIM support whereas the EISA HBA BIOS supports LIM directly
- ☛ Hardware dependent applications are not supported
- ☛ LIM drivers must be compatible with the Virtual DMA Services specification (VDS)
(like HPMM.SYS)
- ☛ HPMM.SYS is the ONLY supported HP Memory Manager for use with the HP ISA and EISA HBA under MS-DOS

For more information on the DOS support of the HP SCSI -2 hard disk, please refer to the '*MS-DOS SCSI Driver Installation Manual*'.

When used in a Novell environment, the following SCSI features are supported :-

- ☛ Up to 4 SCSI HBA's are supported
- ☛ Up to 7 disks per HBA are supported
- ☛ Disk mirroring and duplexing are supported
- ☛ Network disk capacity is limited only by the amount of system memory

Please refer to the '*NetWare 286 and 386 Drivers Installation Guide*' for more information on the use and support of HP's SCSI hard disks within a Novell environment.

When used in a UNIX environment, the following SCSI features are supported :-

- ☛ Up to 2 SCSI HBA's
- ☛ Up to 4 SCSI hard disks and 2 tape drives
- ☛ When booting from ST-506 or ESDI drives, 1 SCSI HBA is supported
- ☛ When booting from a SCSI drive, ST-506 and ESDI drives are NOT supported

Note that the SCSI Standard mode of operation is currently supported by standard SCO UNIX 3.2.2. The SCSI High Performance mode is not supported as of 1st April 1991, but will be supported with the release of an Enhanced Feature Supplement disk in Summer 1991.

For more information on the support of SCSI devices within an SCO UNIX environment, please refer to the SCO UNIX documentation concerning the use of SCSI devices.

Configuring The HP SCSI-2 Hard Disks

When installing a SCSI based mass storage subsystem, some care should be taken to ensure that the configuration satisfies the requirements of the SCSI specification. When installing an internal SCSI subsystem (that is, one with no external disk drives) the following guidelines should be observed :-

- ☛ Set the HBA to SCSI address 7 and ensure that there is a terminated SCSI device connected to one end of the cable.
- ☛ Set the primary disk drive (the one that loads the operating system) to SCSI address 0 and ensure that it is a terminated devices conected to the other end of the SCSI cable.
- ☛ Other SCSI devices may have addresses 1 through 6 but remove their terminators and connect the drives to any of the remaining connectors on the SCSI cable.

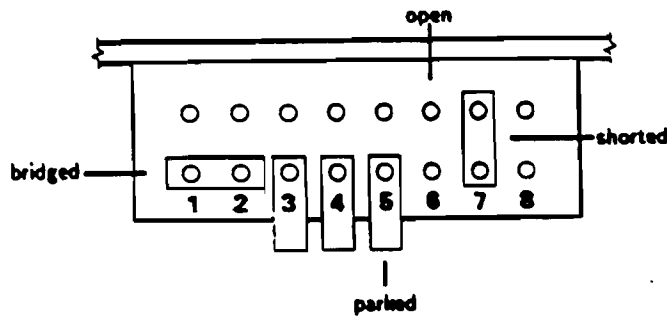
Before configuring a SCSI hard disk drive, users must decide how they are going to connect the devices onto the SCSI cable. As well as setting the SCSI address for the device, each device must be properly terminated depending upon its location on the cable.

At the rear of the HP SCSI-2 hard disk drives, is a set of jumpers that determine the SCSI address of the disk drive. When configuring these jumpers, the jumpers can be set in the following positions :-

- ☛ Shorted or 'selected' where a jumper vertically encloses both pins of a jumper setting
- ☛ Open or 'not selected' where no jumper covers both pins of a jumper setting
- ☛ Parked or 'Open/Not selected' where a jumper is placed over only one pin of a jumper setting (this means that the option is not selected but that the jumpers are readily available for future use)
- ☛ Bridged where a jumper is placed horizontally over two pins.

These positions are illustrated in the diagram overleaf.

If users require additional or replacement jumpers for the HP SCSI-2 drives, they may order HP part number 1258-0209 for the 670MB and 1.0GB disk drives and HP part number 1258-0262 for the 440MB disk drive.



Users are recommended **NOT** to remove any jumpers except those jumpers that are specifically used for setting the SCSI address of a hard disk. The other jumpers are all factory configured and do **NOT** require any modification. The jumpers that set the SCSI address are shown in diagrams later in this section.

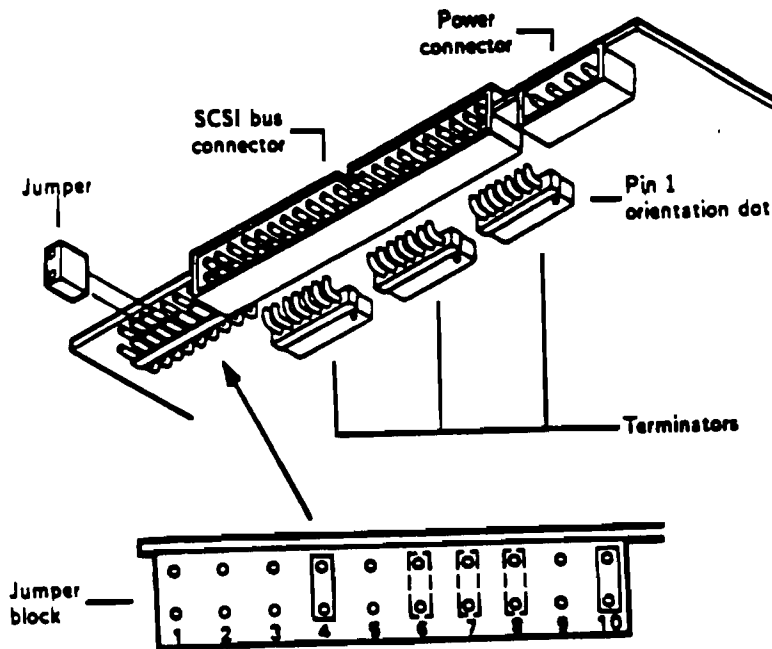
Configuring the D1685A 440MB Hard Disk Drive

If users wish to configure the D1685A 440MB hard disk as a **Primary** hard disk drive, they should perform the following steps :-

- ☛ Ensure that the three terminators are installed correctly (the diagram overleaf gives the position and orientation of the terminators on the D1685A hard disk drive). If any of the terminators have been removed, they **MUST** be replaced as this disk drive must be a terminated device.
- ☛ Ensure that the SCSI address is set to 0. If necessary, set the shorting jumpers on positions 6,7 and 8 to the open (parked) position as shown in the diagram below. (Use needle-nose pliers to move the jumpers if necessary).
- ☛ Follow the instructions in the computer's setup manual for installing the hard disk drive.
- ☛ Connect the disk drive to the *last* connector on the SCSI cable.

If users wish to configure the D1685A 440MB hard disk as a **Secondary** hard disk drive, they should perform the following steps :-

- ☛ Set the second SCSI disk drive to SCSI address 1. You can then give subsequent disk drives addresses between 2 and 4.
- ☛ Reset the jumpers for jumper positions 6,7 and 8 for the selected SCSI address as shown in the diagram below.
- ☛ Remove all three terminators by gently pulling them from their sockets.
- ☛ Save the terminators so that they can be reinstalled should the need arise.
- ☛ Follow the instructions for installing the disk drive.
- ☛ Connect the disk drive to *any* available connector on the SCSI cable.



Address Settings for the 440 MB Hard Disk Drive

SCSI Address	Jumper		
	6	7	8
Address 0	open	open	open
Address 1	open	open	shorted
Address 2	open	shorted	open
Address 3	open	shorted	shorted
Address 4	shorted	open	open
Address 5	shorted	open	shorted
Address 6	shorted	shorted	open
Address 7	shorted	shorted	shorted

Configuring the D1686A 670MB & D1687A 1GB Hard Disk Drives

If users wish to configure the D1686A 670MB or D1687A 1GB hard disk drives as a Primary hard disk drive, they should perform the following steps :-

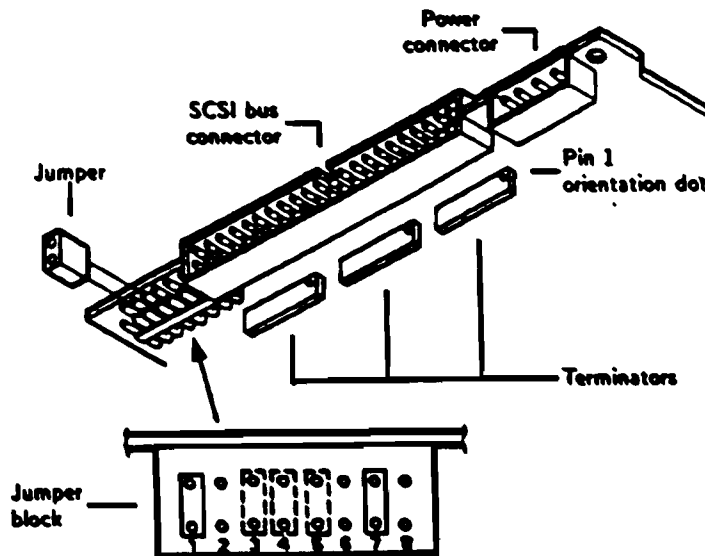
- ☞ Ensure that the three terminators are installed correctly (the diagram below gives the position and orientation of the terminators on the D1686A and D1687A hard disk drives). If any of the terminators have been removed, they **MUST** be replaced as this disk drive must be a terminated device.
- ☞ Ensure that the SCSI address is set to 0. If necessary, set the shorting jumpers on positions 3,4 and 5 to the open (parked) position as shown in the diagram below. (Use needle-nose pliers to move the jumpers if necessary).
- ☞ Follow the instructions in the computer's setup manual for installing the hard disk drive.

- ☞ Connect the disk drive to the *last* connector on the SCSI cable.

If users wish to configure the D1686A 670MB or D1687A 1GB hard disk drives as a Secondary hard disk drive, they should perform the following steps :-

- ☞ Set the second SCSI disk drive to SCSI address 1. You can then give subsequent disk drives addresses between 2 and 4.
- ☞ Reset the jumpers for jumper positions 3,4 and 5 for the selected SCSI address as shown in the diagram below.
- ☞ Remove all three terminators by gently pulling them from their sockets.
- ☞ Save the terminators so that they can be reinstalled should the need arise.
- ☞ Follow the instructions for installing the disk drive.
- ☞ Connect the disk drive to *any* available connector on the SCSI cable.

The location of the terminators and jumper settings and the address settings for the D1686A 670MB and D1687A 1GB hard disk drives may be seen in the following diagram.



Address Settings for the 670 MB and 1000 MB Hard Disk Drives

SCSI Address	Jumper		
	3	4	5
Address 0	open	open	open
Address 1	open	open	shorted
Address 2	open	shorted	open
Address 3	open	shorted	shorted
Address 4	shorted	open	open
Address 5	shorted	open	shorted
Address 6	shorted	shorted	open
Address 7	shorted	shorted	shorted

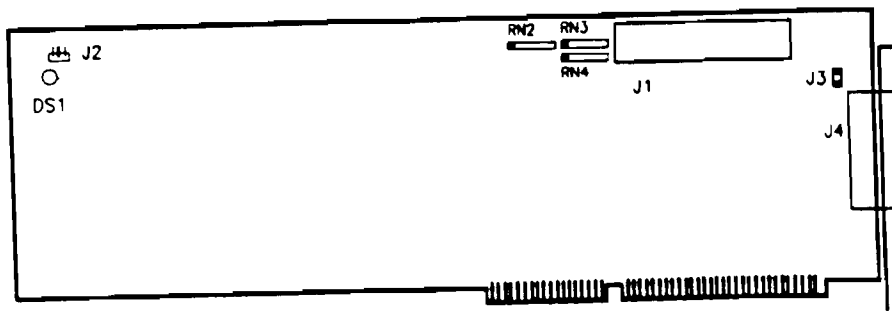
The D1681A EISA Host Bus Adaptor

The D1681A EISA HBA can operate in either Standard mode or an Enhanced mode. Standard mode provides compatibility with the large, existing base of ISA drivers and applications whereas Enhanced mode offers better performance.

When users run the Easy Config configuration utility, it automatically detects the D1681A EISA HBA and loads the configuration settings for Standard mode.

If users therefore wish to use the D1681A EISA HBA in Enhanced mode, users must configure the HBA to run in Enhanced mode and save this new configuration.

As the D1681 EISA HBA is a genuine EISA card, it is configured by using the Easy Config configuration utility. There are some jumpers on the card itself however, and these are shown in the diagram below.



- ☛ RN2, RN3 and RN4 are polarised terminators.
- ☛ J2 is the activity light indicator.
- ☛ J3 is the terminator power jumper (this may be removed if terminator power must be disabled).
- ☛ J1 is the internal driver interface, J4 is the external driver interface.

The system resources that the board uses (such as the DMA Channel, SCSI address and memory address) are all configured within the Easy Config configuration utility. The default resource settings for the D1681A EISA HBA may be seen in the table overleaf.

Default Configurations For D1681A EISA Host Bus Adaptor

Computer Resource	Standard Mode	Enhanced Mode	
		If Auto Config.	If Manual Config.
DMA Channel	5	N/A	N/A
IRQ Channel	11	11	11
I/O Port Address	330Hex	N/A	N/A
BIOS Address	0C8000Hex	0C8000Hex	0C8000Hex
EISA Bus On Time	4 microseconds	4 microseconds	4 microseconds
SCSI Options			
SCSI Address	7	7	7
SCSI Device	N/A	Installed-Report Error	Not Installed
SCSI Bus Reset	at Power On	at Power On	at Power On
Synchronous Negotiation	Enabled	Enabled	Disabled
Bus Parity	Enabled	Enabled	Disabled
Disconnection	Enabled	Enabled	Disabled
Send Start Command	N/A	Disabled	Disabled
Logical Units	N/A	One	One
Max. Synch Xfer Rate	N/A	5 MB	5 MB
Bus Terminators	Installed	Installed	Installed
Terminator Power	Supplied	Supplied	Supplied

Hints For Configuring The HP EISA and ISA Host Bus Adaptors

Here are some configuration tips when configuring the D1681A EISA HBA and the D1682A ISA HBA into a Vectra 486 system.

- ☛ The SCSI HBA must be set to device address 7. This is the highest priority address and the only HBA address supported by Hewlett-Packard.

- ☛ *At least one SCSI device, but not more than five, must supply terminator power. The SCSI HBA must supply terminator power. Users can disable terminator power on most HP SCSI devices but may not be able to terminate power from third party SCSI devices. Please consult the documentation for a particular device when deciding which devices which will be providing power.*
- ☛ SCSI and non-SCSI drives (ie either ESDI or Embedded-AT) can coexist in a system.
- ☛ If users plan on installing two SCSI HBAs :
 - ☛ the secondary HBA must be a completely separate bus
 - ☛ the secondary ISA HBA must have its BIOS disabled
 - ☛ the secondary EISA HBA must have its BIOS set to a higher address than that of the primary HBA
 - ☛ each HBA must use separate system resources
- ☛ *Terminate only the devices at the end of the SCSI bus. If users have internal and external devices, remove the terminators from the SCSI HBA and only terminate the devices at the end of the bus.*
- ☛ SCSI device terminators are polarised - users should ensure that they check the orientation before installing terminators.
- ☛ If users wish to boot the operating system off a SCSI drive and an ISA HBA is being used, the ISA HBA must have the BIOS Enabled. If users have two SCSI HBAs and they wish to boot off a SCSI hard disk, they may only boot off of a disk set to address 0 and attached to the *primary* HBA.
- ☛ Check each SCSI device before attaching it to the bus and *do NOT mix single-ended and differential SCSI devices on the same bus.* (The D1681A EISA and D1682 ISA HBAs are both single-ended adaptors).
- ☛ The combined length of all SCSI cables (internal and external) must be less than 6 metres.
- ☛ Confirm all resources and address settings within the Easy Config configuraton utility before saving the system configuration.

Note that the D1682A ISA HBA has a factory test function which causes the on-board firmware to continuously execute the power-on diagnostics. Enabling this feature by placing a jumper on position 2 of the J5 jumper of this board will place the board in diagnostic mode and the board will not function properly.

For more information on the installation and configuration of the D1681A EISA HBA and the D1682A ISA HBA, please refer to the Installation Guide that is supplied with these HBAs.

HP Network Mass Storage System

The HP Network Mass Storage System is an external mass storage system designed for use in a Novell NetWare 286 version 2.12 or above or Novell NetWare 3.0 or above environment.

This system allows the following mass storage devices to be connected to an HP Vectra 486 system :-

- ☛ C2220A 332MB Hard Disk
- ☛ C2221A 664MB Hard Disk
- ☛ C2222A 1GB Hard Disk
- ☛ C2224A 1.3 GB DAT Drive

Note that the HP Network Mass Storage System uses the SCSI-1 specification SCSI connector which is different to the SCSI-2 connectors used by the D1681A and D1682A HBA's. A conversion cable is supplied with the HP Network Mass Storage System to enable this external SCSI based solution to be configured with the HP HBA's.

Flexible Disk Subsystems

The Vectra 486 family support the use of the following flexible disk drives :-

- ☛ D1667A 1.44MB 3.5 inch Flexible Disk Drive
- ☛ 45812A 1.2MB 5.25 inch Flexible Disk Drive
- ☛ 45811A 360KB 5.25 inch Flexible Disk Drive (now obsolete)

Note that the D1667A 1.44MB 3.5 inch Flexible Disk Drive is now the standard Flexible Disk Drive that is supplied with all Vectra 486 family Hard Disk models.

Flexible disk drives connect directly into the system board of all Vectra 486 systems using the two connectors below the Embedded-AT system interface connector on the system board. These connectors may be seen in the diagram showing the position of the Embedded-AT hard disk connector.

All Vectra 486 systems support up to four flexible devices. The cable that is required to add a third and fourth flexible disk device has an HP part number of D2153A.

Should users wish to replace the mounting brackets for an HP flexible disk device, these brackets have an HP part number of D1445-60001.

Internal Tape Units

The Vectra 486 family support the use of the D2045A 120MB Internal Tape Drive and this may be connected to one of the flexible disk device connectors (a tape device is seen by the system as a flexible disk device). This tape drive has an average data transfer rate of 500 Kbit/second.

Users should ensure that they only use the 92192U 120MB tape cartridges with the D2045A tape unit.



The HP Vectra 486/25T and Vectra 486/33T models have no standard video subsystem. This enables users to choose the video subsystem that is most applicable to their needs.

The following HP video adaptors are supported on the HP Vectra 486/25T and Vectra 486/33T :-

- ☛ D2382A HP Super VGA adaptor
- ☛ A1086A HP Intelligent Graphics Controller 10
- ☛ A1083A HP Intelligent Graphics Controller 20

These HP video adaptors support the following HP video displays :-

- ☛ D1181W HP 14 inch VGA Monochrome Display
- ☛ D1182B HP 14 inch VGA Colour Display
- ☛ D1187A HP 20 inch High Resolution Monitor
- ☛ D1188A HP 16 inch High Resolution Monitor

Note that the obsolete D1181A and D1181G 14 inch monochrome VGA displays are also supported on the HP Vectra 486/25T and Vectra 486/33T.

The following video accessories are also supported on the Vectra 486/25T and Vectra 486/33T :-

- ☛ D2383A Super VGA 256 KB Memory Upgrade
- ☛ D1184A VGA Video Extension Cable (2m)
- ☛ 82959S Tilt/Swivel Base for 14" Colour Display
- ☛ D1189A Tilt/Swivel Base for 20" Colour Display
- ☛ D1190A Tilt/Swivel Base for 16" Colour Display
- ☛ A1084A 0.5 MB VRAM Upgrade Kit for HP IGC
- ☛ A1085A 0.5 MB DRAM Upgrade Kit for HP IGC

Note that the A1084A and A1085A IGC memory upgrades should be ordered in pairs for the A1083A IGC 20 card.

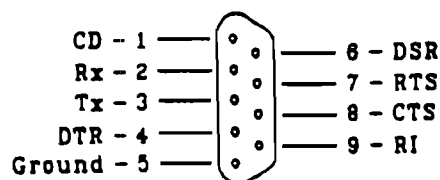


The HP Vectra 486 family are shipped with two 9 pin serial ports and a single 25 pin parallel port.

Serial Ports

The two 9 pin serial ports on the Vectra 486/33T are configured via the Easy Config configuration utility. Users wishing to set a serial port to COM1, COM2, etc should therefore specify this within the Easy Config utility.

The specification of the 9 pin serial ports may be seen below.

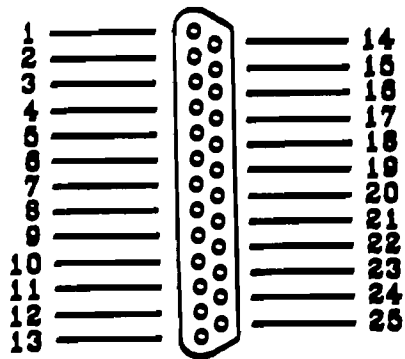


Pin	I/O	Signal	Description
1	I	CF (CD)	When active, it indicates the device has detected the data carrier.
2	I	BB (RX)	Rx data
3	O	BA (TX)	Tx data
4	O	CD (DTR)	When active, it informs the device that the card is available to communicate.
5		AB (Gnd)	GND, ground
6	I	CC (DSR)	When active, it indicates the device is ready to establish the communications link in order to transfer data.
7	O	CA (RTS)	When active, it informs the device that the card is ready to transmit data.
8	I	CB (CTS)	When active, it indicates the device is available to receive data.
9	I	CE (RI)	When active, it indicates the device has a telephone ringing signal.

The Vectra 486 family also support the HP 24540B Serial/Parallel interface card and the HP 24541B Dual Serial RS-232C/RS-422 interface card.

Parallel Ports

A single 25 pin parallel port is also provided and this port is also configured within the Easy Config configuration utility. The specification of the parallel port may be seen overleaf.



Parallel Connector Pinouts

Pin Number	Signal Description
1	Strobe*
2	Data bit 0**
3	Data bit 1**
4	Data bit 2**
5	Data bit 3**
6	Data bit 4**
7	Data bit 5**
8	Data bit 6**
9	Data bit 7**
10	Acknowledge*
11	Busy
12	Paper end
13	Select
14	Auto line feed*
15	Error*
16	Initialize printer*
17	Select in*
18-25	Signal ground

* The signal is active low.

** All data bits are sent to a printer in an 8-bit parallel format.

This section describes the software utilities that are supplied with the Vectra 486/25T and 486/33T that may be used to configure the system.

Easy Config

The HP Vectra 486/25T and 486/33T are supplied with Hewlett-Packard's version of the EISA configuration utility, 'Easy Config'. This is a utility that greatly eases the configuration of EISA systems as it not only helps to configure the processor, mass storage, memory and video options of the system, but also provides assistance with the installation of additional interface cards and options. More information on the use of the Easy Config utility may be found in the '*Setting Up Your HP Vectra 486/25T and 486/33T*' manual that comes with the system.

At the launch of the Vectra 486/25T and 486/33T, version A.02.01 of the Easy Config utility was supplied with the system.

If you require another copy of this utility, it is available on the HP Dealer Bulletin Board Service in the 'Vectra 486i' section (section 'U') in the files **EZCFG2A.EXE** and **EZCFG2B.LZH**. If you would like more information on using the HP Dealer Bulletin Board Service, please contact your source of support for HP equipment.

Note that Easy Config requires the use of DOS 4.01 or later and 640KB of base memory. Although it is not required, HP recommend that users install and use a mouse when using Easy Config.

If users install the Easy Config utility onto a hard disk, it should NOT be installed into the root (C:\) directory as the 'config.sys' file in this directory will be replaced with the version of this file that is on Easy Config disk 1.

Where to find CFG files

The Easy Config utility uses configuration (CFG) and overlay (OVL) files to provide it with information about the boards and accessories that are being used with the system. Users should be able to find the relevant file for a particular board from one of the following sources :-

- ☛ CFG files for most supported HP boards are supplied on Easy Config Disk 1
- ☛ CFG files for third party EISA boards will usually be supplied on a disk with the board
- ☛ Easy Config Disk 2 has a library of CFG files for popular ISA boards that are not supplied by HP. These files are in the 'A:\ISACFG' directory on Easy Config Disk 2.

If the CFG file for a particular board or option is NOT on any of these sources, HP dealers have the following alternatives :-

- ☛ Contact the manufacturer of the board or option, who may be able to supply the required CFG file
- ☛ Contact your source of HP support who may be able to supply the CFG file
- ☛ A library of CFG and OVL files that are known to HP are stored on the HP Dealer Bulletin Board Service in the '486i' section (section 'U'). A list of the CFG and OVL files that are contained on the HP Dealer Bulletin Board Service may be found in Appendix B. *If you would like more information on using the HP Dealer Bulletin Board*

Service, please contact your source of support for HP equipment.

- ☛ Create your own CFG file by using the 'Dealer Configuration File Creation Guide' that was included with the system.

Note that ISA boards may be added to the system without a CFG file. If the Easy Config utility does not have any record of such a board however, users will have to note the slot and computer resources that it uses (such as the interrupt, memory addresses, etc) and ensure that any other boards or options that are configured do NOT use these resources.

If users are using an ISA board without a CFG file and the board should NOT be cached, users may experience some problems as the majority of memory addresses on Vectra 486 systems are cached by default. Users should therefore run the Easy Config utility to disable the caching on the memory addresses used by a board that should not be cached.

EXMODE

EXMODE is a Hewlett-Packard utility that allows users to change the processor speed of the system, the volume of the keyboard click and to temporarily disable the memory cache on the system.

An incorrect use of EXMODE may greatly decrease the performance of the system and users should ensure that it is only used to reduce system performance when such a reduction is required.

EXMODE may only be used with the MS-DOS operating system.

Installing EXMODE

EXMODE is on Easy Config Disk 2 and to install the utility, users simply copy it from the floppy disk into an appropriate directory on the hard disk.

Using EXMODE

Although **EXMODE** has a number of different uses, it will be most commonly used to modify or interrogate the speed of the system or to enable/disable the system's use of memory cache.

To Modify The Speed Of The System :

EXMODE SPE will display the current processor speed of the system.

EXMODE SPE 12 will set the speed to 12MHz (this value may be between 1 and either 25 for a Vectra 486/25T or 33 for a Vectra 486/33T).

EXMODE SPE HIGH will set the system speed to either 25MHz or 33MHz depending on the Vectra 486 system in question.

EXMODE SPE LOW will set the system speed to 8MHz.

EXMODE SPE AUTO will set the system speed to the highest speed (either 25MHz or 33MHz) but the speed will be reset to 8MHz when any floppy disk access is performed.

If users therefore have an application that requires the system to run at a slower speed, they may create a batch file to set the speed to a suitable value, run the application and then reset the speed to the maximum speed of the system. This then ensures that the performance of the system is only reduced for the particular application that is speed sensitive.

To Turn Off Memory Cache :

EXMODE MEM will display the current state of the memory cache.

EXMODE MEM OFF will disable the memory cache.

EXMODE MEM ON will enable the memory cache.

Note that users may also control the speed of the system and the state of the cache memory with the Easy Config utility. If these are configured via Easy Config however, the default performance of the system is affected whereas the EXMODE utility allows users to ensure that the default system performance is optimised and only when a speed sensitive application is used is the system performance affected.

If users require that system performance be reduced when the system boots (to enable an old version of a device driver to load for example), these factors could be set to slow the system when it boots and once the driver had loaded, EXMODE could be used to return the system to optimum performance.

PrintCFG

PrintCFG is a Hewlett-Packard utility that allows users to view information about EISA configuration (CFG) files and the boards that they represent. Users may either display this information on their display or print the information on the printer.

The PrintCFG utility may only be used with the MS-DOS operating system.



Installing PrintCFG

PrintCFG is on Easy Config Disk 2 and to install the utility, users simply copy it from the floppy disk into an appropriate directory on the hard disk.

Using PrintCFG

PrintCFG prints information about CFG files. Users may either print information about a single CFG file or a group of CFG files as the MS-DOS '*' and '?' wildcard characters may be used to specify a group of files.

To print information about a single CFG file :

```
PRINTCFG A:\ISACFG\HWP0030.CFG
```

To print information about a group of CFG files :

```
PRINTCFG A:\ISACFG\HWP*.CFG
```

To print information about a single CFG file to a printer :

```
PRINTCFG A:\ISACFG\HWP0030.CFG > PRN
```

HP Memory Manager (HPMM)

HPMM is a Hewlett-Packard memory Manager that supersedes the HPEMM486.SYS memory manager for the Vectra 486. HPMM offers the following features :-

- ☞ Support for Lotus Intel Microsoft (LIM) specification version 4.0
- ☞ Support for extended memory specification (XMS) version 2.0
- ☞ Support for the Weitek 4167 floating point accelerator
- ☞ Support for Microsoft Windows 3.0 in 386 Enhanced Mode ¹
- ☞ Support for Virtual Control Program Interface specification (VCPI) version 1.0, which supports applications such as AutoCAD, ME10/DOS, Paradox386, FoxBase+386 and Lotus 123 version 3.0
- ☞ Support for Virtual DMA Services Specification (VDS) that supports bus master boards and DMA device drivers in virtual mode.

¹ Note that users may NOT use the HPMM utility with a Windows/386 version earlier than version 3.0.

Systems must have more than 1MB of RAM in order to use these features.

The following discussion of the HPMM utility highlights the major differences between HPMM and the former Vectra 486 memory manager, HPEMM486.SYS. For a more detailed explanation of the HPMM utility, please refer to the 'Setting Up Your HP Vectra 486/25T and 486/33T PC' manual.

Version A.01.00 of the HPMM utility was the first version of the utility to be shipped with the Vectra 486/25T and 486/33T.

Installing HPMM

HPMM is on Easy Config Disk 2 and to install the utility, users simply copy it from the floppy disk into an appropriate directory on the hard disk.

If the 'config.sys' file contains the line '**DEVICE=HIMEM.SYS**', users should delete this line and replace it with the line :-

DEVICE=HPMM.SYS

Ensure that the HPMM device driver is the first device driver in the 'config.sys' file to ensure that it defines the required memory configuration before any other drivers are loaded.

If users wish to use Windows 3.0 in 386 Enhanced Mode, do NOT delete the 'DEVICE=HIMEM.SYS' line. In this instance, users should insert the line 'DEVICE=HPMM.SYS' after the 'DEVICE=HIMEM.SYS' line.

Using HPMM

Users familiar with the HPEMM386.SYS or HPEMM486.SYS memory managers will be familiar with the majority of the parameters of the new HPMM memory manager. A complete discussion of the parameters of the HPMM memory manager may be found in the 'Setting Up Your HP Vectra 486/25T and 486/33T' manual that comes with the system. A brief discussion of the new or revised parameters is provided here to highlight some new features of the HPMM memory manager.

DEVICE=C:\HPMM.SYS *state*

The '*state*' parameter indicates the state of expanded memory as soon as the 'config.sys' file is loaded.

If the state is **AUTO**, expanded memory is available only when it is requested by an application. This is the recommended value for this parameter and is the default value.

If the state is **ON**, expanded memory is available as soon as MS-DOS has executed the 'config.sys' file. If a LIM spec application does not function properly with the AUTO state, users are recommended to use the ON state instead.

If the state is **OFF**, expanded memory will be turned off. Users should use this state if they have error messages that state that an application is not compatible with expanded memory.

DEVICE=C:\HPMM.SYS *W=ON*

This parameter specifies whether support for the Weitek 4167 coprocessor is **ON** or **OFF** (the default is **OFF**).

If the Weitek coprocessor is enabled, the state of HPMM will be set to **ON**.

Do NOT change the state of HPMM to OFF or AUTO because the Weitek coprocessor will not function properly.

If users have enabled the Weitek coprocessor and are no longer using it with applications that require a memory manager to access the floating point coprocessor, users are recommended to turn the Weitek support **OFF**.

Users will NOT be able to use Windows 3.0 in 386 Enhanced Mode if Weitek support is enabled. Users wishing to use Windows 3.0 in this mode should ensure that Weitek support is disabled prior to running Windows 3.0.

DEVICE=C:\HPMM.SYS *EXT=*

The *EXT* parameter specifies the amount of memory in KB that users wish to retain as extended memory.

The use of this parameter is unchanged from former versions of the memory manager, but users wishing to use Windows 3.0 in 386 Enhanced Mode should ensure that they specify at least 1MB of extended memory in order to use Windows 3 in this mode.

DEVICE=C:\HPMM.SYS *NOHMA*

The *NOHMA* parameter disallows the use of the High Memory Area (ie the 63KB above the 1MB boundary).

DEVICE=C:\HPMM.SYS *HMAMIN=nn*

The *HMAMIN* parameter allows users to specify that the High Memory Area should request at least '*nn*' kilobytes of memory. The value of '*nn*' may be between 0 and 64 and the default is 0.

DEVICE=C:\HPMM.SYS *RELOCATE=xxxx-yyy*

This parameter enables the use of the 'RELOCATE' utility that is discussed in more detail later in this section. The parameters '*xxxx*' and '*yyy*' specify the hexadecimal address range in the reserved memory area between 640KB and 1MB that are to be used by the RELOCATE utility.

If an address range is NOT specified, RELOCATE will use any used portion of reserved memory. Users are therefore recommended to specify an address range so that they have control over the area of reserved memory that the RELOCATE utility uses.

If this parameter is not specified, users will not be able to use the RELOCATE utility.

RELOCATE

The RELOCATE utility allows users to relocate device drivers and terminate-and-stay-resident (TSR) programs from base memory to reserved memory, allowing more base memory to be used by application programs.

Users wishing to use the RELOCATE utility must install the HPMM utility and use the RELOCATE parameter.

Installing RELOCATE

The RELOCATE utility is on Easy Config Disk 2 and to install the utility, users simply copy it from the floppy disk into an appropriate directory on the hard disk.

Using RELOCATE

RELOCATE will always relocate a device driver or TSR into the largest available block of memory which may not always be the first available block of free memory. To optimise the performance of the system, it is therefore recommended that users :-

Either :

Relocate the largest device drivers or TSR's first

Or :

Use the 'BLOCK' parameter to relocate device drivers and TSR's into specific blocks of memory.

Users should note that the RELOCATE utility does NOT work with Windows 3.0.

The RELOCATE utility may not work with certain device drivers or TSR's. If having configured RELOCATE the system does not respond or problems are experienced with a device driver or TSR, it is recommended that users do NOT relocate that particular device driver or TSR.

To relocate a device driver to reserved memory :

Add the following line to the CONFIG.SYS file :

DEVICE=RELOCATE.EXE *driver [parameter(s)]*

where *driver* is the name of the device driver followed by any *parameters*.

To relocate a TSR to reserved memory :

Add the following line to the AUTOEXEC.BAT file :

RELOCATE *tsr [parameters]*

where *tsr* is the name of the tsr followed by any *parameters*.

For more information on the use of the RELOCATE utility and its parameters, please refer to the 'Setting Up Your HP Vectra 486/25T and 486/33T PC' manual.

The following drivers and TSR's have been successfully relocated during testing :-

☛ HP-HIL MOUSE.SYS & MOUSE.COM

☛ MS Systems MOUSE.COM

☛ ANSI.SYS

☛ RAMDRIVE.SYS

☛ SMARTDRV.SYS

☛ DRIVER.SYS

☛ HPDCACHE.EXE

☛ DOSEEDIT

☛ SideKick

☛ SuperKey

☛ Visitype

☛ ASC

☛ GRAPHICS



This section discusses some of the Hewlett-Packard accessories that are supported on the HP Vectra 486/25T and Vectra 486/33T.

Input Devices

The following input devices are supported on the HP Vectra 486/25T and Vectra 486/33T :-

IBM ATII compatible, mini-DIN Keyboards:

☛ C1405A #ABA	US
☛ C1405A #ABC	French Canadian
☛ C1405A #ABD	German
☛ C1405A #ABE	Spanish
☛ C1405A #ABF	French
☛ C1405A #ABN	Norwegian
☛ C1405A #ABP	Swiss
☛ C1405A #ABS	Swedish
☛ C1405A #ABU	UK
☛ C1405A #ABY	Danish
☛ C1405A #ABZ	Italian

Pointing Devices :

☛ C1413A	HP Mouse with Mini-DIN Interface
☛ 7060A	SketchPro Serial Tablet

Desktop Scanner:

☛ 9195A	HP ScanJet Plus Desktop Scanner
☛ 88295A	HP ScanJet Plus Interface Kit

HP LAN Products

The following HP LAN products are supported on the Vectra 486/25T and Vectra 486/33T :-

☛ D1802A	StarLAN 10 PC Link (OfficeShare Client)
☛ D1808A	StarLAN 10 PC Link II

- ☛ 27245A 8 Bit EtherTwist PC Link (ISA)
- ☛ 27247A 16 Bit EtherTwist PC Link (ISA)
- ☛ 27248A EtherTwist EISA 32-Bit PC Adaptor
- ☛ 27250A ThinLAN PC Link (ISA)
- ☛ D1809A HP LAN Manager for OS/2 and MSDOS (5 users)
- ☛ D1810A HP LAN Manager for OS/2 and MSDOS (Unlimited users)
- ☛ D1809B HP LAN Manager 1.1 (5 users)
- ☛ D1810B HP LAN Manager 1.1 (Unlimited users)

Note that there are no OS/2 drivers for the HP SCSI-2 hard disk drives as of 1st April 1991. These drivers are under development and will be released when they have completed testing.

HP MicroMulti-User Products

The following HP Micro Multi-User products are supported on the HP Vectra 486/25T and Vectra 486/33T :-

- ☛ D2046C HP SCO UNIX System V/386 3.2.2 (5.25 inch disks)
- ☛ D2046D HP SCO UNIX System V/386 3.2.2 (3.5 inch disks)
- ☛ D2040A Terminal Multiplexor
- ☛ D2041A Terminal/Printer Cable for use with Multiplexor
- ☛ D2943M External Modem Cable for use with Multiplexor
- ☛ D2044V HP Vectra Cable for use with Multiplexor
- ☛ C1004A/G/W 700/22 DEC VT 220 Compatible Terminal
- ☛ C1017A/G/W 700/32 DEC VT 320 Compatible Terminal
- ☛ C1006A/G/W 700/43 Fully Featured ASCII Terminal
- ☛ C1007A/G/W 700/44 Terminal for PC Users on Multiuser PC
- ☛ C1080A/G/W 700/60 Multipersonality Terminal

Note that the C1004A/G/W HP 700/22 terminals are now obsolete.

The operating systems supported by the HP Vectra 486 family are shown in the following table.

HP Vectra 486 Family Operating System Support					
Vectra System	Operating Systems				
	HP Vectra DOS 4.01	HP OS/2 1.1	HP OS/2 1.21	HP SCO UNIX V/386 3.2.0	HP SCO UNIX V/386 3.2.2
Vectra 486	✓	✓	✓	✓	✓
Vectra 486/25T	✓	✓	✓	✓	✓
Vectra 486/33T	✓	✓	✓		✓

Note that OS/2 supports a maximum of 16MB of physical memory. Users of any HP Vectra 486 system who wish to use OS/2 should therefore ensure that the system does NOT have more than 16MB of memory installed.

OS/2 does NOT support the use of the SCSI solutions for the HP Vectra 486 family at the time of launch as there are no OS/2 drivers for these disks at present. These drivers are under development and HP Dealers will be notified when they are available for use.

Note that HP SCO UNIX V/386 3.2.0 supports a maximum of 16MB of physical memory whereas version 3.2.2 supports 64MB of physical memory.

The operating systems supported by the HP Vectra 486/25T and Vectra 486/33T may be ordered with the following part numbers :-

- ☛ D1151A HP Vectra DOS 4.01 (5.25" diskettes)
- ☛ D1151B HP Vectra DOS 4.01 (3.5" diskettes)
- ☛ D1302D Microsoft OS/2 Version 1.21 (5.25"/3.5 " disks)
- ☛ D2046C HP SCO UNIX/386 System V 3.2.2 (5.25" disks)
- ☛ D2046D HP SCO UNIX/386 System V 3.2.2 (3.5" disks)
- ☛ D2052A VP/ix 1.2 Integrated DOS Environment



The Vectra 486/25T and Vectra 486/33T adhere to the following environmental specifications.

Temperature Specifications

Operating temperature : +5 to +40 degrees C (+41 to +104 degrees F)

Non-Operating temperature : -40 to +70 degrees C (-40 to +158 degrees F)

Humidity Specifications

Operating Humidity : 15% to 80% relative humidity over operating temp. range

Altitude Specifications

Operating altitude : 0 to 4,600 metres (0 to 15,000 feet)

Non-Operating altitude : 0 to 15,250 metres (0 to 50,000 feet)

If an ESDI Hard Disk Controller is installed, the altitude specifications change to the following :

Operating altitude : 0 to 3,050 metres (0 to 10,000 feet)

Operating temperature : +5 to +40 degrees C (+41 to +104 degrees F)

Electrical Specifications

Nominal Rated Voltage : 380/220V-50Hz

Minimum Operating Voltage : 198 Vac

Maximum Operating Voltage : 264 Vac

Line voltage power fail threshold level : 198 Vac

Frequency Range : 47 - 63Hz

Power consumption : 408 watts maximum with 110-volt line voltage

392 watts maximum with 220-volt line voltage

588 watts peak with 110-volt line voltage

539 watts peak with 220-volt line voltage

Heat Specifications

Heat Dissipation - Maximum Configuration (at a 15 minute average) : 360 Watts

Heat Dissipation - 'Typical' Configuration (at a 15 minute average) : 264 Watts

Note : BTU's/Hour = 3.41 x Watts, kcal/Hour = .860 x Watts

Heat Output : 1392 BTU's per Hour maximum peak

Physical Specifications

Height: 60cm (24.0 inches)

Width: 21cm (8.3 inches)

Depth: 50cm (20.0 inches)

Weight: 27kg (50 pounds)

Annual Failure Rate

The HP Vectra 486/33T has an Annual Failure Rate of 11.7%.

Mean Time To Repair

The HP Vectra 486/33T has a Mean Time To Repair of 1.5 hours.



If users require more information on the HP Vectra 486/25T and Vectra 486/33T, users are recommended to refer to the following publications.

Setting Up And Using Your HP Vectra 486/25T And Vectra 486/33T PC

HP P/N 5960-0750

This publication contains information about the setting up, installation and configuration of the HP Vectra 486/25T and Vectra 486/33T personal computers. It also covers performance optimisation, troubleshooting and the system utilities that are provided with the system.

A copy of this publication is provided with every HP Vectra 486 system.

HP Vectra 486/25T and Vectra 486/33T Personal Computer Service Manual

HP P/N 5960-0746

This manual is intended for use by qualified service personnel to install, configure, service and repair the HP Vectra 486/25T and 486/33T personal computers.

HP Vectra 486/33T Hardware Technical Reference Manual

HP P/N 5960-0748

This technical reference manual is for original equipment manufacturers, independent hardware vendors and independent software vendor to assist them in their product design efforts, and system managers and support personnel who require information on the HP Vectra 486/33T.

HP Vectra 486 and 486/33T BIOS Technical Reference Manual

HP P/N 5960-0749

This manual contains a detailed description of the ROM Basic Input/Output System (BIOS) of the HP Vectra EISA series of personal computers. Entry points, including the industry standard ROM BIOS entry points and function calls, are documented in this manual.

This manual deals extensively with programming and programming concepts. It presumes that the reader is familiar with the Microsoft Macro Assembler (MASM) and the Intel 80386 and 80486 processor architectures.

Dealer Configuration File Creation Guide

HP P/N D2230-90001

This guide contains general instructions for creating and modifying configuration files for use with the Easy Config EISA configuration utility. Examples of creating a configuration file and the EISA Configuration Language Specification are also included.

A copy of this publication is supplied with every HP Vectra 486 system.

EISA Specification

A copy of the complete EISA specification that contains reference information on the EISA bus, DMA, interrupt, memory and the design of EISA expansion boards and configuration files may be obtained from :-

BCPR Services Inc
A Delaware Corporation
1400 L Street, N.W.
Washington, D.C. 20005-3502
Phone : (202) 371-5921

The following documents are also recommended for users using the HP SCSI mass storage solutions with the HP Vectra 486 family.

SCSI Hard Disk Drive Installation Guide

HP P/N 5960-0440

This document provides information on the specifications and installation of the D1685A 440MB, D1686A 670MB and D1687A 1.0GB SCSI-2 hard disk drives.

HP EISA SCSI Host Bus Adaptor Installation Guide

HP P/N 5960-0441

This document provides information on the installation and configuration of the D1681A HP EISA SCSI-2 Host Bus Adaptor that may be used in HP Vectra 486 systems.

HP ISA SCSI Host Bus Adaptor Installation Guide

HP P/N D1682-90002

This document provides information on the installation and configuration of the D1682A HP ISA SCSI-2 Host Bus Adaptor that may be used in HP Vectra 486 and Vectra RS25C systems.

MS-DOS SCSI Driver Installation Guide

HP P/N 5960-0492

This document provides information on the installation of the MS-DOS drivers for the HP SCSI-2 hard disk solutions and how these solutions are supported when used in an MS-DOS environment.

NetWare 286 and 386 SCSI Drivers Installation Guide

HP P/N 5960-0491

This document provides information on the installation of the MS-DOS drivers for the HP SCSI-2 hard disk solutions and how these solutions are supported when used in a Novell Netware environment.

The following is a list of the EISA Configuration (.CFG) files that Hewlett-Packard has access to as of 1st April 1991.

These files are listed in terms of subsystem function (memory, video, mass storage, etc) and may be found on the HP Dealer Bulletin Board service in the 'Vectra 486' section (section 'U') in the filenames specified at the start of each list.

If you wish to have access to a particular CFG file, simply locate the group of CFG files that it is in and download that file to a local system. The file that is downloaded is a self extracting file and by typing the filename, you will have access to all of the CFG files that are included in the group file.

If you wish to have access to the HP Dealer Bulletin Board Service, please contact your source of HP support.

Configuration files that are marked in bold type are extra files that are NOT included with the current version A.02.01 Easy Config EISA configuration utility.

Communication Board CFG Files

These files are all contained in the file CFGCOM.COM.

!ISABA00.CFG	Alloy IMP2 Multiuser Port Controller
!ISABA01.CFG	Alloy IMP8 Multiuser Port Controller
!ISAB000.CFG	Anvil Designs Stallion Intelligent I/O Controller
!ISAAE02.CFG	Arnet MODULAR SMARTPORT Card
!ISAAE03.CFG	Arnet SMARTPORT 16 Card
!ISAAE01.CFG	Arnet SMARTPORT Card
!ISA8200.CFG	AST 3270/COAX II Rev. X4
!ISA8201.CFG	AST 5251/11 Enhanced Plus
!ISA8100.CFG	Attachmate 3270 COAX Adapter (Long Board)
!ISA8101.CFG	Attachmate Advanced 3270 COAX Adapter (Short Board)
!ISA8103.CFG	Attachmate SDLC Adapter
!ISA8102.CFG	Attachmate SDLC/Autolink Adapter
!ISAB500.CFG	Banyan Intelligent Communications Adapter
!ISAC100.CFG	Bell Technologies' ACE Multiport Serial Card
!ISAC304.CFG	BlueLynx 3270 Enhanced Coax
!ISAC302.CFG	BlueLynx 3270 Remote
!ISAC301.CFG	BlueLynx 5250
!ISAC300.CFG	BlueLynx 5251-12
!ISADD00.CFG	Chase AT4/AT8/AT16
!ISAAF01.CFG	Computone IntelliPort ATCC Cluster Controller
!ISAAF00.CFG	Computone INTELLIPORT Multiport Serial Card
!ISAD200.CFG	Control SMART HOSTESS Multiport Serial Card
!ISAC000.CFG	Corollary 8x4 Mux (Jumpers)
!ISAC001.CFG	Corollary 8x4 Mux (Rotary Switches)
!ISA8507.CFG	DCA 10-NET Adapter
!ISA8501.CFG	DCA IRMA 3278 Emulation

!ISA8502.CFG DCA IRMA 3279 Graphics Adapter
 !ISA8508.CFG DCA IRMA2 3279 Graphics Adapter
 !ISA8500.CFG DCA IRMA2 Adapter
 !ISA8503.CFG DCA IRMA3 Convertible
 !ISA8506.CFG DCA SDLC Adapter
 !ISA8505.CFG DCA Smart Alec 5250
 !ISAB904.CFG DigiBoard Com/8s
 !ISAB905.CFG DigiBoard DigiCHANNEL PC/8
 !ISAB903.CFG DigiBoard DigiCHANNEL PC/8e
 !ISAB901.CFG DigiBoard DigiCHANNEL PC/8i
 !ISAB900.CFG DigiBoard DigiCHANNEL PC/Xe
 !ISAB101.CFG Emerald 3XPlus 5250 Remote
 !ISAB100.CFG Emerald 3XTwin 5250 Twinax
 !ISAD300.CFG Emulex MPC-II Comm Controller
 !ISAD100.CFG Equinox Megaport Board
 !ISAB200.CFG EVEREX Evercom 24 2400 baud modem
 !ISAD501.CFG GammaLink GammaFax CP
 !ISAD500.CFG GammaLink GammaFax NA
 !ISAAB00.CFG Hayes Smartmodem 1200B
 !ISAAB01.CFG Hayes Smartmodem 2400B
 !HWP1400.CFG HP Dual Serial Interface Board (24541B)
 !HWP1420.CFG HP Internal 1200 Baud Modem (24550A)
 !HWP1410.CFG HP Internal 2400 Baud Modem (24551A)
 !HWP1460.CFG HP ScanJet Plus Interface (88290A)
 !HWP1C00.CFG HP Serial/Parallel Interface Board (24540B)
 !HWP1440.CFG HP Terminal Multiplexor Board (D2040A)
 !HWP1C10.CFG HP Vectra 486 Serial Port and Parallel Port
 !ISA8303.CFG IBM Advanced 3278/79 Adapter
 !ISA8300.CFG IBM Enhanced 5250 Emulator
 !ISA8301.CFG IBM Enhanced 5250 Emulator Rev B
 !ISA8302.CFG IBM SDLC (3270 or 5250 Remote)
 !ISA8400.CFG IDEAssociates IDEAcmm 5250/Remote
 !ISA8402.CFG IDEAssociates IDEAcmm 5251 Twinax Plus Rev C
 !ISA8401.CFG IDEAssociates IDEAcmm 5251 Twinax Plus Rev D
 !ISA8403.CFG IDEAssociates IDEAcmm 5251 Twinax Rev A,B,C
 !ISAC201.CFG Micro-Integration PC-MICOAX
 !ISAC200.CFG Micro-Integration PC-STWINAX
 !ISA8700.CFG Novell Coax Adapter 3270 Connection
 !ISA8701.CFG Novell COAX GRAPHICS Rev. A
 !ISA8702.CFG Novell TWINAX 5250
 !ISACC00.CFG Packard Bell PB 3270 Coax
 !ISAB300.CFG Practical Modem 2400
 !ISABE01.CFG Qua Tech ES-100 8 Channel Asynchronous
 !ISABE02.CFG Qua Tech QS-100M 4 Channel Asynchronous
 !ISABE08.CFG Qua Tech SmartLynx Multiport Adapter
 !ISADB00.CFG Rabbit Software RB14 X.25 Adapter
 !ISADB01.CFG Rabbit Software RB24 Multi-Protocol Comm
 !SRC0000.CFG SunRiver HA-40/20 Fiber Optic Host Adapter
 !ISAC303.CFG Techland BlueLynx Enhanced 5251-11

!ISAD600.CFG The Complete FAX/9600
!ISAAD00.CFG TOPS FlashCard
!ISAC600.CFG Vector International SCC Async/BSC/SDLC

Mass Storage Device CFG Files

These files are all contained in the file CFGMSD.COM.

!ISAB800.CFG Archive SC499R Tape Controller
!ISAB801.CFG Archive VP402 Tape Adapter
!ISAD000.CFG Bi-Tech SCSI 2110 HD/TAPE Controller
!ISAD001.CFG Bi-Tech SCSI 2200 Controller
!ISAC400.CFG Core CNT-ATP ESDI Internal FD Ctrl
!ISACD00.CFG Digital Storage Systems ARC6000
!ISA9F07.CFG Genoa Systems QIC-02 Tape Controller
!ADP0000.CFG HP EISA SCSI Host Adapter (D1681A)
!HWP0C20.CFG HP ESDI Four-Function Controller (D1677A)
!HWP0C40.CFG HP ESDI High-Performance Controller (D1664A)
!HWP0CA0.CFG HP ISA SCSI Host Adapter (D1682A)
!HWP0C10.CFG HP Multi-Function Disk/Datacomm Controller
!HWP0C60.CFG HP Vectra 486 Embedded Hard Disk Controller
!ISACB00.CFG Konan TNT-1050 Caching Disk Controller
!TEC8001.CFG Tecmar QIC PC36 TAPE CONTROLLER
!TEC8000.CFG Tecmar QIC60 HOST ADAPTER
!TEC8002.CFG Tecmar QT HOST ADAPTER
!TEC8003.CFG Tecmar QT PC36 TAPE CONTROLLER
!USC0120.CFG UltraStor - U12F
!USC0220.CFG UltraStor - U22C
!ISAD400.CFG Western Digital WD1004A-WX1 Controller
!ISAD401.CFG Western Digital WD1006V-MM2 Winchester/Floppy Controller
!ISAD402.CFG Western Digital WD1006V-SR2 Winchester/Floppy Controller
!ISAD403.CFG Western Digital WD1007A-WAH Winchester Controller
!ISAD404.CFG Western Digital WD1007V-SE1 Winchester Controller

Memory Board CFG Files

These files are all contained in the file CFGMEM.COM.

!ISAD800.CFG AMI SMART PACK 2 W/ PAL 5.1
!ISAD801.CFG AMI SMART PACK 2 W/ PAL 6.1
!ISAD802.CFG AMI SMART PACK 2 W/ PAL 6.2
!ISA8203.CFG AST Rampage 286
!ISA8204.CFG AST RAMvantage
!ISA8202.CFG AST SixPakPlus Version A
!ISABC00.CFG Boca Research BOCARAM/AT Plus
!ISA9202.CFG Intel Above Board 286 (no Piggyback)
!ISA9203.CFG Intel Above Board 286 With 2MB Piggyback
!ISA9208.CFG Intel Above Board Plus

!ISA9206.CFG	Intel Above Board Plus 8 (including 6Mb Piggyback)
!ISA9204.CFG	Intel Above Board PS/286 (no Piggyback)
!ISA9205.CFG	Intel Above Board PS/286 With 2MB Piggyback
!ISA9200.CFG	Intel Above Board/AT (no Piggyback)
!ISA9201.CFG	Intel Above Board/AT With 2MB Piggyback
!ISAA102.CFG	Orchid Enhanced Board OM
!ISAA103.CFG	Orchid Enhanced Board w/IO
!ISA9103.CFG	QUADEMS+ W/IO
!ISA9102.CFG	Quadram QUADMEG-AT
!ISA8805.CFG	Tecmar Maestro AT

Network Board CFG Files

These files are all contained in the file CFGNET.COM.

!ISA8C03.CFG	3COM 3C503 EtherLink II
!ISA8C00.CFG	3COM 3C505-2012 EtherLink Plus 16bit Mode
!ISA8C06.CFG	3COM 3C505-2012 EtherLink Plus 8bit Mode
!ISA8C04.CFG	3COM 3C603 Tokenlink 16bit
!ISA8C08.CFG	3COM 3C603 Tokenlink 8bit Mode
!ISA8C07.CFG	3COM 3C605-2065 Tokenlink Plus 16bit Mode
!ISA8C05.CFG	3COM 3C605-2065 Tokenlink Plus 8bit
!ISA8C02.CFG	3COM EtherLink 3C500B ASM 34-0780
!ISA8C01.CFG	3COM EtherLink 3C501 ASM 1221
!ISA8F00.CFG	AT&T STARLAN Network Adapter
!ISAA600.CFG	BICC ISOLAN Ethernet
!ISAA800.CFG	Codenoll Codenet3051
!ISA8507.CFG	DCA 10-NET Adapter
!ISA8B00.CFG	DEC DEPCA EtherLink Adapter, Rev D1
!ISA8B01.CFG	DEC DEPCA EtherLink Adapter, Rev E or F
!ISAA400.CFG	Excelan EXOS 205E
!ISAA401.CFG	Excelan EXOS 205T 16-Bit
!ISA9401.CFG	Gateway G/Ethernet 8-bit PC
!ISA9400.CFG	Gateway G/Ethernet AT
!ISA9405.CFG	Gateway G/Net LNIM
!ISA9404.CFG	Gateway G/Net VS
!ISA9402.CFG	Gateway G/Token Ring 8-bit
!ISA9403.CFG	Gateway G/Token Ring AT
!ISA0000.CFG	Generic ISA Adapter Definition
!HWP1820.CFG	HP EtherTwist PC Adapter Card (27245A)
!HWP1830.CFG	HP EtherTwist PC Adapter Card 16 (27247A)
!HWP1801.CFG	HP StarLAN 10 PC Link II (27240A)
!HWP1810.CFG	HP ThinLAN Interface Card (27210B)
!HWP1811.CFG	HP ThinLAN PC Adapter Card (27250A)
!ISAD700.CFG	Hughes 4140 Ethernet Board
!ISAD701.CFG	Hughes 6130 Broadband Network Card
!ISAD702.CFG	Hughes (Sytek) 6140 Token Ring Net. Board
!ISA8305.CFG	IBM PC Network

!ISA830B.CFG	IBM Token Ring 4/16 Adapter
!ISA8306.CFG	IBM TOKEN RING Adapter I
!ISA8307.CFG	IBM TOKEN RING Adapter II
!ISA830A.CFG	IBM Token Ring II Short Adapter
!ISA9700.CFG	IMC PCnic 16bit NIC
!ISA9600.CFG	Madge AT Ring Node
!ISA9303.CFG	MICOM-Interlan NI5210/16 Ethernet
!ISA9302.CFG	MICOM-Interlan NI5210/8 Ethernet
!ISA9300.CFG	MICOM-Interlan NP600A Ethernet 16bit
!ISA8A00.CFG	NESTAR ARCNET PLAN 2000
!ISA8711.CFG	Novell NE1000 Ethernet Adapter
!ISA8712.CFG	Novell NE2000 Ethernet Adapter
!ISA8713.CFG	Novell RX-Net REV B,C,D NIC
!ISA8714.CFG	Novell RX-Net REV E,F,G NIC
!ISA9500.CFG	Proteon ProNET-4/AT P1344
!ISAA501.CFG	Pure Data PDI508 ArcNet
!ISAA500.CFG	Pure Data PDI8025 Token Ring
!ISABD03.CFG	Racal-Interlan NI5210/16 Ethernet
!ISABD02.CFG	Racal-Interlan NI5210/8 Ethernet
!ISABD00.CFG	Racal-Interlan NP600A Ethernet 16bit
!ISAC900.CFG	SIIG ARCLAN-100 Arcnet Network Board.
!ISA8900.CFG	SMC ARCNET PC
!ISA8901.CFG	SMC ARCNET PC100
!ISA8902.CFG	SMC ARCNET PC110
!ISA8903.CFG	SMC Arcnet PC130/E
!ISA8904.CFG	SMC Arcnet PC220/120
!ISA8905.CFG	SMC Arcnet PC270/E
!ISA8906.CFG	SMC Arcnet PC500
!ISA8907.CFG	SMC Ethernet PC510
!TCC030D.CFG	Thomas-Conrad TC6042 ARC-Card/CE
!TCC010C.CFG	Thomas-Conrad TC6045 ARC-Card/AT
!TCC040B.CFG	Thomas-Conrad TC6142 ARC-Card/CE
!ISA8D00.CFG	Tiara LANCARD/A REV B
!ISA8D01.CFG	Tiara LANCard/E * PC 16
!ISADA00.CFG	Torus Systems Ethernet Adapter
!ISADA01.CFG	Torus Systems Ethernet Adapter/SB
!UBIB200.CFG	Ungermann-Bass 3270 NIUpc
!UBIC100.CFG	Ungermann-Bass NIC
!UBIB100.CFG	Ungermann-Bass NIUpc
!UBID100.CFG	Ungermann-Bass NIUpc/Token Ring
!UBIA100.CFG	Ungermann-Bass Personal NIU
!UBIA200.CFG	Ungermann-Bass Personal NIU/ex
!WDC03E4.CFG	Western Digital EtherCard + 8003EB 61- 600090-00
!WDC03E2.CFG	Western Digital EtherCard + 8003EB 61- 600245-02
!WDC13E0.CFG	Western Digital EtherCard PLUS 16 8013EBT
!WDC03E0.CFG	Western Digital EtherCard PLUS 8003E
!WDC03E3.CFG	Western Digital EtherCard PLUS TP 8003WT
!WDC03E1.CFG	Western Digital EtherCard PLUS w/Boot 8003EBT
!WDC0300.CFG	Western Digital StarCard PLUS 8003S

!WDC0301.CFG Western Digital StarLink PLUS 8003SH
!WDC0510.CFG Western Digital TokenCard 8005TR/8005TRWS

Video Adapter CFG Files

These files are all contained in the file CFGVID.COM.

!ISA8F01.CFG AT&T Truevision Image Capture Board
!ISAAC00.CFG ATI Tech. Inc. EGA WONDER
!ISAAC01.CFG ATI Tech. Inc. VGA WONDER
!ISACF00.CFG Atronic Professional Image Board Plus
!ISAB600.CFG Computer Peripherals Monographic Video
!ISAB601.CFG Computer Peripherals VisionMaster VGA
!ISAA700.CFG Control Systems Artist 10
!ISAA701.CFG Control Systems Artist XJ10
!ISA9F00.CFG Genoa Super VGA 16-Bit
!ISA9F03.CFG Genoa SuperEGA HiRes+
!ISA9F05.CFG Genoa SuperSpectrum Model 4640
!ISA9F04.CFG Genoa SuperSpectrum Model 4650
!ISA9F02.CFG Genoa SuperVGA
!ISAB602.CFG Graphmaster Plus EGA Video Adapter
!ISA9000.CFG Hercules GB222 InColor Card
!ISA9001.CFG Hercules Graphics Card Plus
!ISA9002.CFG Hercules VGA Card
!ISA9B00.CFG HP 82328A Intelligent Graphics Controller
!HWP0030.CFG HP Enhanced Graphics Adapter Board (45983A)
!HWP0060.CFG HP Intelligent Graphics Controller 10 (A1086A)
!HWP0070.CFG HP Intelligent Graphics Controller 20 (A1083A)
!HWP0000.CFG HP Monochrome Plus Video Board (35732A)
!HWP0020.CFG HP Multimode Color Adapter Board (45984A)
!HWP0010.CFG HP Multimode Video Adapter (45981A)
!HWP0091.CFG HP Super VGA Board (D2382A)
!HWP0040.CFG HP VGA Adapter Board (D1180A)
!ISA830C.CFG IBM Enhanced Graphics Adapter
!ISA8308.CFG IBM Monochrome Adapter
!ISA830D.CFG IBM PGA
!ISA8309.CFG IBM VGA Display Adapter
!ISAC701.CFG LSE Electronics Platinum VGA16 Card
!ISA9C02.CFG Matrox PG-1024
!ISA9C01.CFG Matrox PG-1281
!ISA9C03.CFG Matrox PG-641
!MET1104.CFG Metheus UGA 1104 Graphics Controller
!MET1128.CFG Metheus UGA 1124/1128 Graphics Ctlr.
!ISAD900.CFG NEC Multisync Graphics Board GB-1
!ISADC00.CFG Nth Graphics Nth Engine
!ISAA101.CFG Orchid ProDesigner VGA/VGA+
!ISAA100.CFG Orchid TurboPGA

!ISAA202.CFG	Paradise Autoswitch EGA
!ISA9710.CFG	Paradise Autoswitch EGA 480 Card
!ISAA201.CFG	Paradise VGA Plus 8-bit
!ISAA200.CFG	Paradise VGA Professional 16-bit
!ISA9E00.CFG	Pixelworks Micro Clipper Graphics
!ISA9E01.CFG	Pixelworks Ultra Clipper Graphics
!ISA9100.CFG	Quadram QuadEGA+
!ISA9101.CFG	Quadram QuadVGA Video Adapter
!ISA9D00.CFG	Renaissance GRX Rendition I
!ISA9D01.CFG	Rendition II Intelligent Graphics Controller
!ISA9901.CFG	Sigma Designs SigmaVGA or VGA/HP8
!ISA9900.CFG	Sigma Designs VGA-PC-HP160/162
!ISAB402.CFG	STB Chauffeur HT
!ISAB404.CFG	STB EGA MultiRes
!ISAB401.CFG	STB Systems EGA Plus
!ISAB403.CFG	STB VGA Extra
!ISA8804.CFG	Tecmar EGA Masater 480/800
!ISAA300.CFG	Truevision ATVista ICB
!VMI0211.CFG	Vermont Cobra
!VMI0E01.CFG	Vermont Cobra Plus
!VMI0201.CFG	Vermont Image Manager 1024
!VMI0601.CFG	Vermont Image Manager 640
!ISAA000.CFG	Vermont Page Manager 100
!ISA9A00.CFG	Verticom M16/M256E
!ISA9A01.CFG	Verticom MX16/AT & MX256/AT
!ISA9802.CFG	Video Seven FastWrite VGA Video Adapter
!ISA9800.CFG	Video Seven V-RAM VGA
!ISA9801.CFG	Video Seven Vega Deluxe EGA Adapter

Miscellaneous CFG Files

These files are all contained in the file CFGOTH.COM.

!ISABA03.CFG	Alloy FTFA Tape & Floppy Controller
!ISABA02.CFG	Alloy PC-HIA XBUS Controller
!ISABB00.CFG	BIT3 403/404/405 Bus Communications Adaptors
!ISABC01.CFG	Boca Research I/O Master AT
!ISAC500.CFG	CEC PC 488 IEEE Printer Controller
!ISABF00.CFG	EOgraph Plus
!HWP1430.CFG	HP BASIC Language Processor board (82321C)
!HWP1450.CFG	HP HP-IB Interface (82335A)
!ISA8304.CFG	IBM Serial/Parallel Adapter
!ISACE00.CFG	Ideaphone Input Device
!ISA9207.CFG	Intel Visual Edge printing enhancement system
!ISAB702.CFG	Iomega Bernoulli II Combo Adapter Board
!ISAB701.CFG	Iomega Bernoulli PC2/50, PC2B/50 Boards
!ISAB700.CFG	Iomega Bernoulli PC3B/50 Board
!ISAC700.CFG	LSE Electronics YC808 Color Graphics Printer Adapter

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!ISABE00.CFG	Microsoft Mouse Controller
!ISACA01.CFG	National Instruments AT-GPIB
!ISACA02.CFG	National Instruments GPIB-PC
!ISACA00.CFG	National Instruments GPIB-PCIIA
!ISADE00.CFG	QMS JetScript
!ISABE04.CFG	Qua Tech DS-201 Dual Channel RS-422
!ISABE06.CFG	Qua Tech DSDP-402 Dual Serial/Dual Parallel
!ISABE03.CFG	Qua Tech MXI-100 IEEE 488 GPIB
!ISABE00.CFG	Qua Tech PXB-1608 Parallel Expansion Board
!ISABE05.CFG	Qua Tech PXB-721 Parallel Expansion
!ISABE07.CFG	Qua Tech WSB-10 Waveform Synthesizer
!ISAC800.CFG	Street Electronics ECHO PC+ Speech Synthesizer

HP Vectra 486/33T Tested Products

C

This is a list of software and hardware products that have been tested by HP for use on the HP Vectra 486/33T PC, along with the configurations they were tested on. It does not include all products that are compatible with the HP Vectra 486/33T PC. It is a sample of selected products tested to verify compatibility with industry standards.

Please note that HP does not support the third-party software and hardware products included in this list, and therefore cannot warrant their compliance with worldwide regulatory requirements.

<u>Description</u>	<u>Vendor</u>	<u>System Config</u>
386/MAX 4.00	Qualitas	B,C
AboveBoard 386	Intel	C
AdvanceWrite Plus F.02.00	Hewlett-Packard	B
Adv NetWare 2.15C /NE2000	Novell	E,F,G
Adv NetWare 2.15C /SMC PD 130	Novell	E,F,G
Adv NetWare 2.15C /RS-NET II	Novell	E,F,G
ALC (w/asynchronous mode)	Computone	C
AutoCAD 10.00	Autodesk	C
Bananoids		B
BASIC Interpreter 5.36	Microsoft	B
Brooklyn Bridge	White Crane	C,D
Cobra Plus	Vermont Microsystems	C
Concurrent DOS/386 5.00	Digital Research	B,C
DCA IRMALink File Transfer	DCA	C
Deluxe Paint II	Electronic Arts	B
Desqview 386 w/QEMM 2.20	Quarterdeck	C,D
ES3210 EISA LAN	Racal Interlan, Inc.	C,D
Excel 2.1	Microsoft	B,C
Excel for OS/2	Microsoft	C
Excel in Compatibility Box	Microsoft	C
Hercules Graphics Card	Hercules	C
IBM Monochrome Card	IBM	C,D
3270 Emulation (gateway) 3.03	IBM	C
3270 Emulation (server) 3.03	IBM	C
Lotus 1-2-3 3.0	Lotus	B
Manuscript 2.00	Lotus	B
Multimate Advantage 3.30	Ashton-Tate	B
Multimate Advantage & OnFile 3.6	Ashton-Tate	B
Norton Utilities, Advanced 4.5	Norton Computing	B,C,D
Novell 386 /NE2000	Novell	E,F,G
Novell 386 /NE3200	Novell	E,F,G
Novell 386 /SMC PD 130	Novell	E,F,G
Novell 386 /RS-NET II	Novell	E,F,G
Novell NetWare 3.1	Novell	D
OS/2 1.21 DOS box	Hewlett-Packard	A
w/ AdvanceLink B.01.01	Hewlett-Packard	A

w/ Drawing Gallery	B.03.00	Hewlett-Packard	A
w/ Exec. MemoMaker	A.03.03	Hewlett-Packard	A
PageMaker 1.0a		Aldus	B
Paradox 386 2.00		Ansa SW	B
PC Tools Deluxe 5.00		Central Point Software	C
PC Tools Deluxe 6.0		Central Point Software	C
PC-MOS/386 1.02		Software Link	C
Pronet 4/16 EISA LAN		Proteon	C,D
Proteon 4/16 EISA LAN		Proteon	C,D
Publisher's Paintbrush for OS/2		Z-Soft	C
Quattro 1.00		Borland	B
Rbase 5000 1.01		Microrim	B
SFT NetWare /NE2000		Novell	E,F,G
SFT NetWare /NE3200		Novell	E,F,G
SFT NetWare /SMC PD 130		Novell	E,F,G
Sidekick for PM 1.00		Borland	B,C
SideWays 3.11		Funk SW	B
Smart 16/4 (Token Ring) EISA LAN		Madge	C,D
SuperCalc		Computer Associates Intl	D
Symphony 1.20		Lotus	B
Windows/286 2.1		Hewlett-Packard	B
Windows/286 2.11		Hewlett-Packard	
w/ AdvanceLink	B.01.01	Hewlett-Packard	A
w/ Drawing Gallery	B.03.00	Hewlett-Packard	A
w/ Exec. MemoMaker	A.03.00	Hewlett-Packard	A
Windows/386 2.1		Hewlett-Packard	B
Windows/386 2.11		Hewlett-Packard	
w/ AdvanceLink	B.01.01	Hewlett-Packard	A
w/ Drawing Gallery	B.03.00	Hewlett-Packard	A
w/ Exec. MemoMaker	A.03.00	Hewlett-Packard	A
Windows 3.0		Microsoft	C
Word 4.00A		Microsoft	B
Word 5.00		Microsoft	C
Wordstar Professional 3.31		Micropro	B
Xenix 286 2.3.2		SCO	C
Xenix 386 2.3.2		SCO	C

Vectra 486/33T Test Configurations

All test configurations used HP components.

System Configuration A

Vectra 486/33T
 4MB memory (4 x 80ns)
 Embedded-AT controller
 controller
 1.2MB flexible disk drive

System Configuration B

Vectra 486/33T
 4MB memory (4 x 80ns)
 ESDI High-performance
 1.2MB flexible disk drive

170MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
Mini-DIN mouse
MS-DOS 4.0

Windows/286 2.11
Windows/386 2.11
HPMM Memory Manager

System Configuration C

Vectra 486/33T
4 MB memory (4 x 80ns)
Embedded-AT controller
controller
1.2MB flexible disk drive
1.44MB flexible disk drive
170MB hard disk drive -
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
Mini-DIN mouse
MS-DOS 4.0

HPMM Memory Manager

System Configuration E

Vectra 486/33T
8MB Memory (2x4MB 80ns)
Embedded-AT controller
controller
1.2MB flexible disk drive
1.2MB flexible disk drive
170MB hard disk drive
170MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
MS-DOS 4.0

ESDI 330MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
Mini-DIN mouse
MS-DOS 4.0

OS/2 1.2
Windows/286 2.11
Windows/386 2.11
HPMM Memory Manager

System Configuration D

Vectra 486/33T
4 MB memory (4 x 80ns)
ESDI High-performance
1.2MB Flexible disk drive
1.44MB Flexible disk drive
ESDI 330MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
Mini-DIN mouse
MS-DOS 4.0
OS/2 1.2
HPMM Memory Manager

System Configuration F

Vectra 486/33T
8MB Memory (2x4MB 80ns)
ESDI High-performance
1.2MB flexible disk drive
1.2MB flexible disk drive
ESDI 330MB hard disk drive
ESDI 330MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
MS-DOS 4.0

System Configuration G

Vectra 486/33T
8MB Memory (2x4MB 80ns)
ESDI High-performance controller
1.2MB flexible disk drive
1.2MB flexible disk drive
ESDI 670MB hard disk drive
ESDI 670MB hard disk drive
Super VGA board
VGA Color Monitor
Mini-DIN keyboard
MS-DOS 4.0