

P5VD2-VM SE

ASUS[®]

Motherboard

E2950

First Edition V1

July 2007

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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.



This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**
This chapter describes the features of the motherboard and the new technology it supports. This chapter also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.
- **Chapter 2: BIOS setup**
This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.
- **Chapter 3: Software support**
This chapter describes the contents of the support CD that comes with the motherboard package.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**
The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.
2. **Optional documentation**
Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.



DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.



CAUTION: Information to prevent damage to the components when trying to complete a task.



IMPORTANT: Instructions that you **MUST** follow to complete a task.



NOTE: Tips and additional information to help you complete a task.

Typography

Bold text

Indicates a menu or an item to select.

Italics

Used to emphasize a word or a phrase.

<Key>

Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.

Example: <Enter> means that you must press the Enter or Return key.

<Key1>+<Key2>+<Key3>

If you must press two or more keys simultaneously, the key names are connected with a plus sign (+).

Example: <Ctrl>+<Alt>+<D>

Command

Means that you must type the command exactly as shown.

Example: At the DOS prompt, type the command line:

```
afudos /i [filename]
afudos /iP5VD2VMS.ROM
```

P5VD2-VM SE specifications summary

CPU	LGA775 socket for Intel® Core™2 Duo/Pentium® D/ Pentium® 4/Celeron® D processors Supports Intel EIST/EM64T/Hyper-Threading Technology
Chipset	Northbridge: VIA P4M900 Southbridge: VIA VT8237S
Front side bus	1066/800/533 MHz
Memory	2 x 240-pin DIMM sockets support up to 4 GB unbuffered non-ECC DDR2 667/533/400 MHz memory modules
Expansion slots	1 x PCI Express x16 1 x PCI Express x1 2 x PCI slots
VGA	Integrated Graphics, up to 256MB shared memory Support max. resolution to 1920 x 1440 (@75Hz)
Storage	VIA VT8237S Southbridge supports: - 1 x Ultra DMA 133/100/66/33 interfaces for two (2) hard disk devices - 2 x Serial ATA with RAID 0, RAID 1, and JBOD configuration
Audio	Realtek® ALC662 6-channel CODEC
LAN	10/100 LAN Controller
USB	Supports up to 8 USB 2.0/1.1 ports
Special features	ASUS EZ Flash ASUS CrashFree BIOS 2 ASUS Q-Fan MyLogo

(continued on the next page)

P5VD2-VM SE specifications summary

Rear panel	1 x Parallel port 1 x LAN (RJ-45) port 4 x USB 2.0/1.1 ports 1 x VGA port 1 x COM port 1 x PS/2 keyboard port 1 x PS/2 mouse port 6-Channel Audio I/O ports
BIOS features	4 Mb Flash ROM, AMI BIOS, PnP, DMI2.0, WfM2.0, ACPI2.0a, SM BIOS 2.3
Manageability	WOL by PME, WOR by PME, PXE
Internal connectors	2 x USB 2.0 connectors for 4 additional USB 2.0 ports 1 x Primary IDE connector 1 x Floppy disk drive connector 1 x CPU fan connector 1 x Chassis fan connector 1 x 24-pin ATX power connector 1 x 4-pin ATX 12 V power connector 1 x CD-in connector 1 x 4-pin Speaker out connector 1 x Front panel audio connector 1 x S/PDIF out connector Chassis intrusion connector System panel connector
Form Factor	uATX form factor: 9.6 in x 7.0 in (24.5 cm x 17.8 cm)
Support CD contents	Device drivers ASUS PC Probe 2 ASUS Live Update utility Adobe Acrobat Reader 7.0 Anti-virus software (OEM version)

*Specifications are subject to change without notice.

This chapter describes the motherboard features and the new technologies it supports.

1 Product introduction

1.1 Welcome!

Thank you for buying an ASUS® P5VD2-VM SE motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	ASUS P5VD2-VM SE motherboard
Cables	1 x Serial ATA power cable 1 x Serial ATA signal cable 1 x Ultra DMA 133/100/66 cables 1 x Floppy disk drive cable
Accessories	I/O shield
Application CD	ASUS motherboard support CD ASUS Superb Software Library CD
Documentation	User guide



If any of the above items is damaged or missing, contact your retailer.

1.3 Special features

1.3.1 Product highlights

Intel® Core™2 Processor Ready



This motherboard supports the latest Intel® Core™2 processor in the LGA775 package. With the new Intel® Core™ microarchitecture technology and 1066 / 800 MHz FSB, Intel® Core™2 processor is one of the most powerful and energy efficient CPU in the world.



Intel® 65nm Dual-Core CPU support

This motherboard supports Intel® Pentium® D/Pentium® 4/Celeron® D dual-core processors built on the 65-nanometer (nm) process technology with copper interconnect. Dual-core processors contain two physical CPU cores with dedicated L2 caches to meet demands for more powerful processing. Intel®'s 65nm process is the most advanced chip manufacturing technology, delivering breakthrough performance, enhanced media experience, and low power consumption. Intel® 65nm dual-core processors utilize the latest package technologies for a thinner, lighter design without compromising performance.

PCI Express™ interface

The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clockspeeds by carrying data in packets. This high speed interface is software compatible with existing PCI specifications.



Serial ATA 3Gb/s technology

This motherboard supports the next-generation hard drives based on the Serial ATA (SATA) 3Gb/s storage specification, delivering enhanced scalability and doubling the bus bandwidth for high-speed data retrieval and saves. The onboard VIA VT8237S chipset allows RAID 0, RAID 1, and JBOD configurations for two SATA 3Gb/s connectors.

USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1. See pages 1-27 and 1-33 for details.

S/PDIF digital sound ready

The motherboard supports the S/PDIF Out function through the S/PDIF interface at midboard. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems. See page 1-30 for details.

6-channel high definition audio



Enjoy high-end sound quality on your PC! The onboard 6-channel HD audio (High Definition Audio, previously codenamed Azalia) CODEC enables high-quality 192 KHz/ 24-bit audio output and jack-sensing feature! With CODEC, 6-channel audio ports, and S/PDIF interfaces, you can connect your computer to home theater decoders to produce crystal-clear digital audio.

1.3.2 Innovative ASUS features

ASUS CrashFree BIOS 2

This feature allows you to restore the original BIOS data from the support CD when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. See page 2-10 for details.

ASUS EZ Flash

With the ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-6 for details.

ASUS Q-Fan technology

The ASUS Q-Fan technology smartly adjusts the CPU fan speed according to the system loading to ensure quiet, cool, and efficient operation. See page 2-29 for details.

1.4 Before you proceed

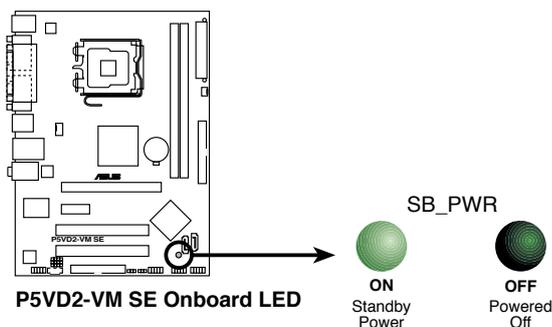
Take note of the following precautions before you install motherboard components or change any motherboard settings.



- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

Onboard LED

The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



1.5 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

1.5.1 Placement direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

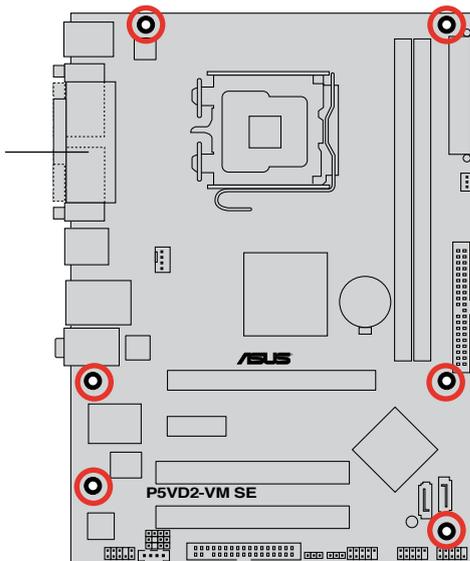
1.5.2 Screw holes

Place six (6) screws into the holes indicated by circles to secure the motherboard to the chassis.

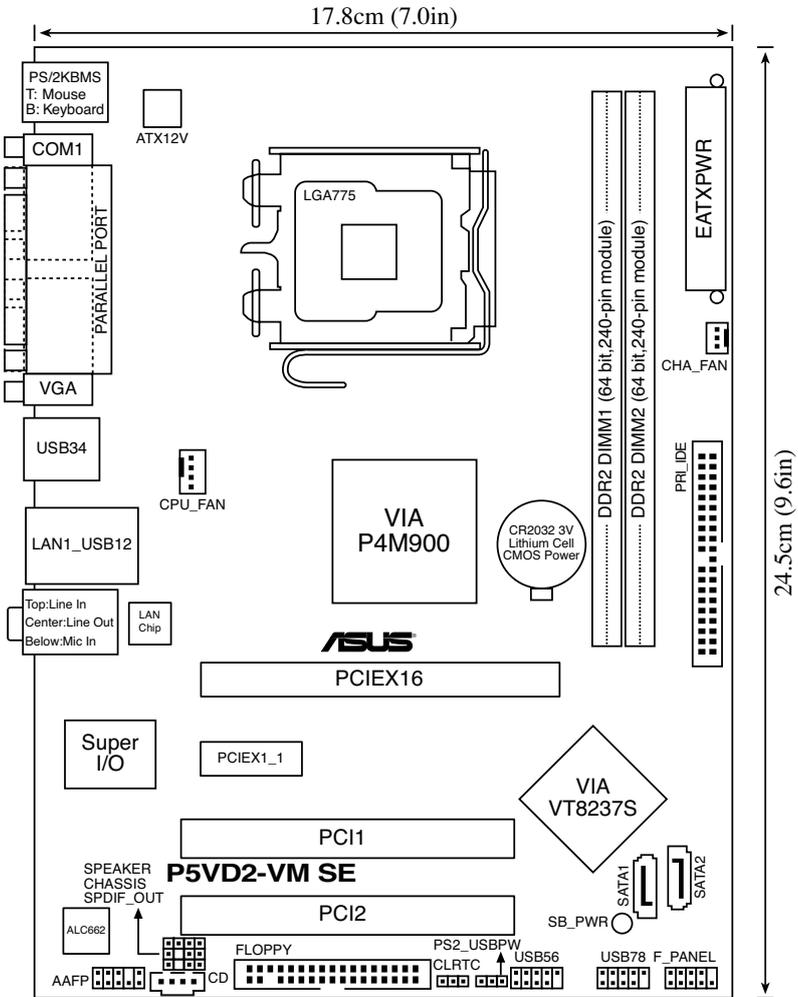


Do not overtighten the screws! Doing so can damage the motherboard.

Place this side towards
the rear of the chassis



1.5.3 P5VD2-VM SE Motherboard layout



Refer to **1.10 Connectors** for more information about rear panel connectors and internal connectors.

1.6 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA775 socket designed for the Intel® Core™2 Duo/Pentium® D/ Pentium® 4/Celeron® D processor in the 775-land package.

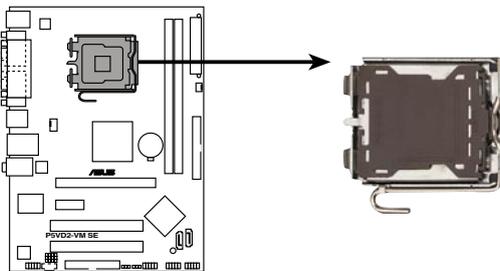


- Your boxed Intel® Core™2 Duo/Pentium® D/Pentium® 4/Celeron® D LGA775 processor package should come with installation instructions for the CPU, fan and heatsink assembly. If the instructions in this section do not match the CPU documentation, follow the latter.
- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket pins are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket pins/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket.
- The product warranty does not cover damage to the socket pins resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

1.6.1 Installing the CPU

To install a CPU:

1. Locate the CPU socket on the motherboard.

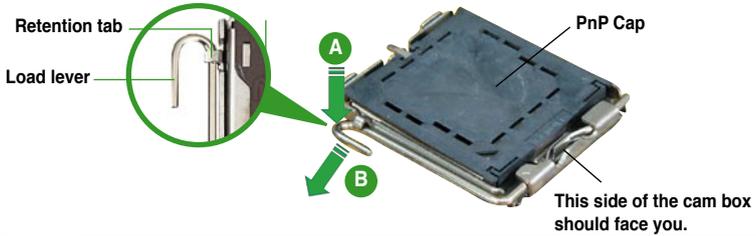


P5VD2-VM SE CPU Socket 775



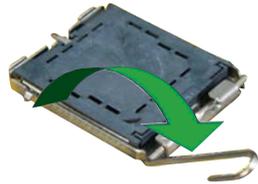
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

2. Press the load lever with your thumb (A) and move it to the left (B) until it is released from the retention tab.

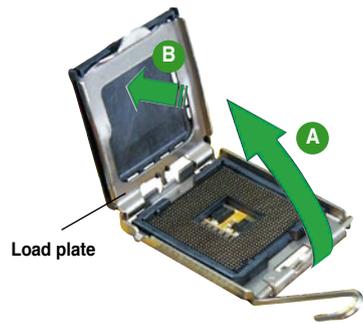


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

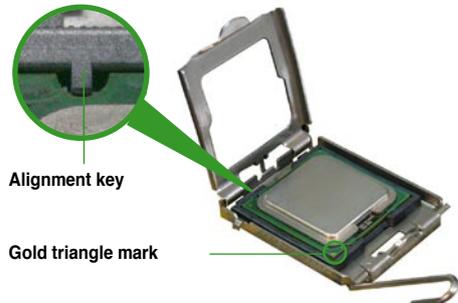
3. Lift the load lever in the direction of the arrow to a 135° angle.



4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch.



6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.



The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

Notes on Intel® Hyper-Threading Technology



- This motherboard supports Intel® Pentium® 4 CPUs in the 775-land package with Hyper-Threading Technology.
- Hyper-Threading Technology is supported under Windows® XP/2003 Server and Linux 1.7.x (kernel) and later versions only. Under Linux, use the Hyper-Threading compiler to compile the code. If you are using any other operating systems, disable the Hyper-Threading Technology item in the BIOS to ensure system stability and performance.
- Installing Windows® XP Service Pack 1 or later version is recommended.
- Make sure to enable the Hyper-Threading Technology item in BIOS before installing a supported operating system.
- For more information on Hyper-Threading Technology, visit www.intel.com/info/hyperthreading.

To use the Hyper-Threading Technology on this motherboard:

1. Install an Intel® Pentium® 4 CPU in the 775-land package that supports Hyper-Threading Technology.
2. Power up the system and enter the BIOS Setup (see Chapter 2: BIOS setup). Under the Advanced Menu, make sure that the item Hyper-Threading Technology is set to Enabled. The item appears only if you installed a CPU that supports Hyper-Threading Technology.
3. Reboot the computer.

1.6.2 Installing the CPU heatsink and fan

The Intel® Pentium® 4 LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.



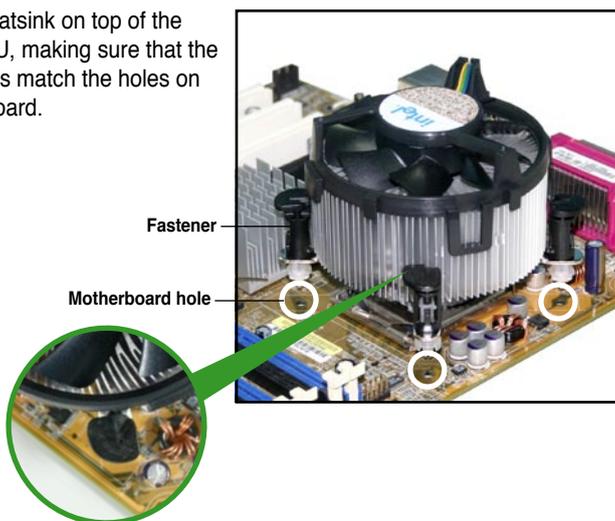
- Install the motherboard to the chassis before you install the CPU fan and heatsink assembly
- When you buy a boxed Intel® Pentium® 4 processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
- Your Intel® Pentium® 4 heatsink and fan assembly comes in a push-pin design and requires no tool to install.



If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.

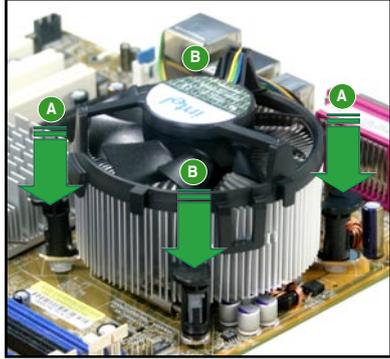
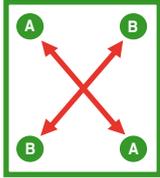
To install the CPU heatsink and fan:

1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

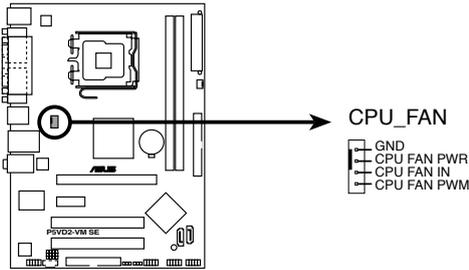


Make sure each fastener is oriented as shown, with the narrow groove directed outward.

2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.



3. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.



P5VD2-VM SE CPU fan connector



Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

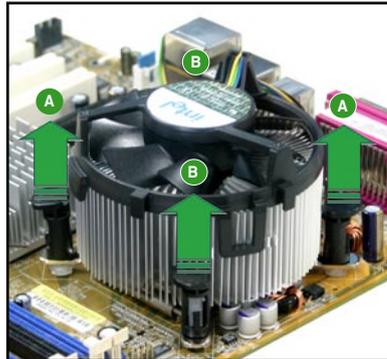
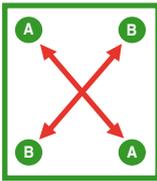
1.6.3 Uninstalling the CPU heatsink and fan

To uninstall the CPU heatsink and fan:

1. Disconnect the CPU fan cable from the connector on the motherboard labeled CPU_FAN.
2. Rotate each fastener counterclockwise.



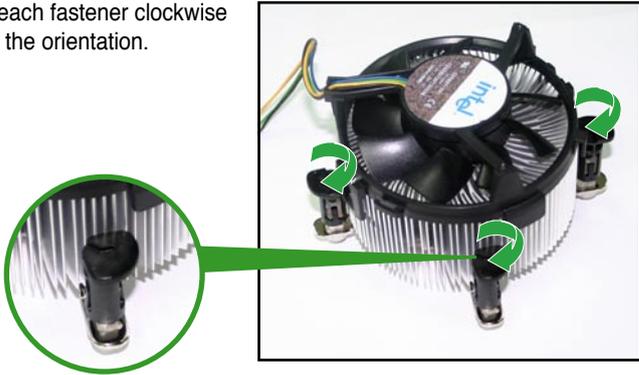
3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.



4. Remove the heatsink and fan assembly from the motherboard.



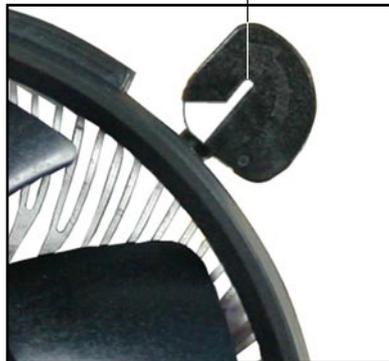
5. Rotate each fastener clockwise to reset the orientation.



Narrow end of the groove



The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.)



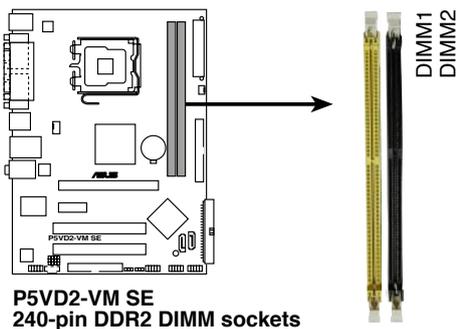
1.7 System memory

1.7.1 Overview

The motherboard comes with two Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket.

The figure illustrates the location of the DDR2 DIMM sockets:



1.7.2 Memory configurations

You may install 256 MB, 512 MB, 1 GB, and 2 GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.



- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. Refer to the DDR2 Qualified Vendors List on the next page for details.
- Due to chipset resource allocation, the system may detect less than 4 GB system memory when you installed two 2 GB DDR2 memory modules.

Qualified Vendors Lists (QVL)

DDR2-667 MHz capability

Size	Vendor	SS/DS	Chip No.	Part No.	DIMM support	
					A*	B*
256MB	Kingston	SS	KVR667D2N5/256	E2508AB-6E-E	*	*
512MB	Kingston	SS	KVR667D2N5/512	D6408TE8WL-27	*	*
1024MB	Kingston	DS	KVR667D2N5/1G	D6408TE8WL-3	*	*
1024MB	Kingston	DS	KVR667D2N5/1G	D6408TEBGL3U	*	*
512MB	Samsung	SS	KR M378T6553CZ0-CE6	K4T51083QC	*	*
512MB	Samsung	DS	KR M378T6453FZ0-CE6	K4T56083QF-ZCE6	*	*
512MB	Samsung	SS	M378T6553CZ3-CE6	K4T51083QC-ZCE6	*	*
1024MB	Samsung	DS	M378T2953CZ3-CE6	K4T51083QC-ZCE6	*	*
1024MB	Samsung	DS	KR M378T2953CZ0-CE6	K4T51083QC-ZCE6	*	*
256MB	Qimonda	SS	HYS64T32000HU-3S-A	HYB18T512160AF-3SSSS17310	*	*
512MB	Qimonda	SS	HYS64T32000HU-3S-A	HYB18T5128000AF-3SSSS27416	*	*
512MB	Qimonda	SS	HYS64T64000HU-3S-A	HYB18T512800AF3SFSS05346	*	*
1024MB	Qimonda	DS	HYS64T128020HU-3S-A	HYB18T512800AF3SSSS28104	*	*
512MB	Corsair	DS	VS512MB667D2	MIII0052532M8CEC	*	*
512MB	Corsair	SS	CM2X512-5400C4	Heat-Sink Package	*	*
1024MB	Corsair	DS	VS1GB667D2	MID095D62864M8CEC	*	*
256MB	HY	SS	HYMP532U64CP6-Y5 AB	HY5PS121621CFP-Y5	*	*
512MB	HY	SS	HYMP564U64AP8-Y4 AA	HY5PS12821AFP-Y4	*	*
512MB	HY	SS	HYMP564U64AP8-Y5 AA	HY5PS12821AFP-Y5	*	*
1024MB	HY	DS	HYMP512U64AP8-Y5 AB	HY5PS12821AFP-Y5	*	*
1024MB	HY	DS	HYMP512U64CP8-Y5 AB	HY5PS12521CFP-Y5	*	*
512MB	Kingmax	SS	KLCC28F-A8EB5	E5108AE-6E-E	*	*
512MB	Kingmax	SS	KLCC28F-A8KB5	KKEA88B4LAUG-29DX	*	*
1024MB	Kingmax	DS	KLCD48F-A8KB5	KKEA88B4LAUG-29DX	*	*
512MB	Apacer	SS	78.91092.420	E5108AE-6E-E	*	*
512MB	Apacer	SS	AU512E667C5KBGC	AM4B5708MIJ57E0627B	*	*
512MB	Apacer	SS	AU512E667C5KBGC	AM4B5708GQS7E06332F	*	*
1024MB	Apacer	DS	AU01GE667C5KBGC	AM4B5708GQS7E0636B	*	*
1024MB	Apacer	DS	78.01092.420	E5108AE-6E-E	*	*
1024MB	Apacer	DS	AU01GE667C5KBGC	AM4B5708MIJ57E0627B	*	*
512MB	ADATA	SS	M20EL5G3H3160B1C0Z	E5108AE-6E-E	*	*
512MB	ADATA	SS	M20AD5G3H316611C52	AD29608A8A-3EG20648	*	*
1024MB	ADATA	DS	M20AD5G3I417611C52	AD29608A8A-3EG20645	*	*

DDR2-667 MHz capability

Size	Vendor	SS/DS	Chip No.	Part No.	DIMM support	
					A*	B*
512MB	VDATA	SS	M2GVD5G3H31A411C52	VD29608A8A-3EC20615	*	*
512MB	VDATA	SS	M2YVD5G3H31P411C52	VD29608A8A-3EG20627	*	*
512MB	VDATA	SS	M2GVD5G3H16611C52	VD29608A8A-3EG20637	*	*
1024MB	VDATA	DS	M2GVD5G3I41P611C52	VD29608A8A-3EG20627	*	*
1024MB	VDATA	DS	M2GVD5G3I41C411C52	VD29608A8A-3EC20620	*	*
1024MB	VDATA	DS	M2GVD5G3I417611C52	VD29608A8A-3EG20641	*	*
512MB	PSC	SS	AL6E8E63B-6E1K	A3R12E3GEF637BLC5N	*	*
1024MB	PSC	DS	AL7E8E63B-6E1K	A3R12E3GEF637BLC5N	*	*
256MB	Nanya	SS	NT256T64UH4A1FY-3C	NT5TU32M16AG-3C	*	*
512MB	Nanya	SS	NT512T64U88A1BY-3C	NT5TU64M8AE-3C	*	*
512MB	MDT	SS	MDT 512MB	18D51280D-30648	*	*
1024MB	MDT	DS	MDT 1024MB	18D51200D-30646	*	*
1024MB	MDT	DS	MDT 1024MB	18D51280D-30646E	*	*
1024MB	POI	DS	DDR2-667U 1G	HY5PS12821BFP-E3 A	*	*
512MB	AENEON	SS	AET660UD00-30DA98Z	AET93F30DA 0552	*	*
512MB	AENEON	SS	AET660UD00-30DB97X	AET93R300B 0634	*	*
1024MB	AENEON	DS	AET760UD00-30DA98Z	AET93F30DA8EE47414G 0540	*	*
512MB	AENEON	SS	AET660UD00-30DA98Z	AET93F300A 0606	*	*
1024MB	AENEON	DS	AET760UD00-30DA98Z	AET93F30DA 0604	*	*
1024MB	AENEON	DS	AET760UD00-30DB97X	AET93R300B 0639	*	*
512MB	VERITECH	SS	GTP512HLTM45EG	VTD264M8PC6G01A164129621	*	*
1024MB	VERITECH	DS	GTP01GHLM55EG	VTD264M8PC6G01A164129621	*	*
512MB	GEIL	SS	GX21GB5300DC	Heat-Sink Package	*	*
512MB	TEAM	SS	TVDD512M667C5	T2D648MT-6	*	*
1024MB	TEAM	DS	TVDD1.02M667C4	T2D648PT-6	*	*
512MB	Century	SS	CENTURY 512MB	NT5TU64M8AE-3C	*	*
512MB	Century	SS	CENTURY 512MB	HY5PS12821AFP-Y5	*	*
1024MB	Century	DS	CENTURY 1G	NT5TU64M8AE-3C	*	*
512MB	KINGBOX	SS	512MB 667MHz	EPD264082200-4	*	*
1024MB	KINGBOX	DS	DDRII 1G 667MHz	EPD264082200-4	*	*

Qualified Vendors Lists (QVL)

DDR2-533 MHz capability

Size	Vendor	SS/DS	Chip No.	Part No.	DIMM support	
					A*	B*
256MB	Kingston	SS	KVR533D2N4/256	E5116AB-5C-E	*	*
256MB	Kingston	SS	KVR533D2N4/256	E5116AF-5C-E	*	*
512MB	Kingston	DS	KVR533D2N4/512	HY5PS56821F-C4	*	*
512MB	Kingston	SS	KVR533D2N4/512	HYB18T512800AF3733336550	*	*
1024MB	Kingston	DS	KVR533D2N4/1G	D6408TE7BL-37	*	*
256MB	Samsung	SS	M378T3253FG0-CD5	K4T56083QF-GCD5	*	*
512MB	Samsung	SS	M378T6553BG0-CD5	K4T51083QB-GCD5	*	*
256MB	Qimonda	SS	HY564T32000HU-3.7-A	HYB18T512160AF-3.7AFSS31270	*	*
512MB	Qimonda	SS	HY564T64000GU-3.7-A	HYB18T512800AC37SS11511	*	*
512MB	Qimonda	SS	HY564T64000HU-3.7-A	HYB18T512800AF37SS12079	*	*
512MB	Qimonda	SS	HY564T64000HU-3.7-A	HYB18T512800AF37FS29334	*	*
256MB	HY	SS	HYMP532U64CP6-C4 AB	HY5PS121621CFP-C4	*	*
1024MB	HY	DS	HYMP512U64CP8-C4 AB	HY5PS12821CFP-C4	*	*
512MB	Micron	DS	MT 16HTF6464AG-53EB2	D9BOM	*	*
512MB	Micron	DS	MT 16HTF6464AG-53EB2	Z9BQT	*	*
1024MB	Micron	DS	MT 16HTF12864AY-53EA1	D9CRZ	*	*
512MB	Corsair	DS	V5S12MB533D2	MIII0052532M8CEC	*	*
512MB	Elpida	SS	EBE51UD8ABFA-5C-E	E5108AB-5C-E	*	*
512MB	Kingmax	SS	KLBC28F-A8KB4	KKEA88B4IAK-37	*	*
256MB	Kingmax	SS	KLBB68F-36EP4	E5116AB-5C-E	*	*
512MB	Kingmax	SS	KLBC28F-A8EB4	E5108AE-5C-E	*	*
512MB	PQI	SS	MEAB-323LA	D2-E04180W025	*	*
1024MB	PQI	DS	MEAB-423LA	D2-E04230W107	*	*
512MB	AENEON	SS	AET660UD00-370A98Z	AET93F370A G 0513	*	*
256MB	AENEON	SS	AET560UD00-370A98Z	AET94F370AWVV34635G0520	*	*
512MB	AENEON	SS	AET660UD00-370A98Z	AET93F370A 3VV36328G 0522	*	*
512MB	AENEON	SS	AET660UD00-370A98X	AET93F370A 0518	*	*
512MB	AENEON	DS	AET660UD00-370A88S	AET82F370A 0550	*	*
512MB	AENEON	SS	AET660UD00-370B97X	AET93R370B 0640	*	*
1024MB	AENEON	DS	AET760UD00-370A98Z	AET93F370A 0551	*	*
1024MB	AENEON	DS	AET760UD00-370A98S	AET92F370A 0606	*	*
1024MB	AENEON	DS	AET760UD00-370B97X	AET93R370B 0640	*	*
1024MB	AENEON	DS	AET760UD00-370B97S	AET92R370B 0644	*	*

DDR2-533 MHz capability

Size	Vendor	SS/DS	Chip No.	Part No.	DIMM support	
					A*	B*
2048MB	AENEON	DS	AET860UD00-370A08X	AET03F370AFVV26176G 0542	*	*
512MB	REMAXEL	SS	RML1040EG38D6F-533	E5108AG-5C-E	*	*
512MB	VERITECH	SS	GTP512HLTM46DG	VTD264M8PC6G01A164129621	*	*
1024MB	VERITECH	DS	GTP01GHMTM56DG	VTD264M8PC6G01A164129621	*	*

Side(s): SS - Single-sided DS - Double-sided

DIMM support:

A - Supports one module inserted in any slot as Single-channel memory configuration

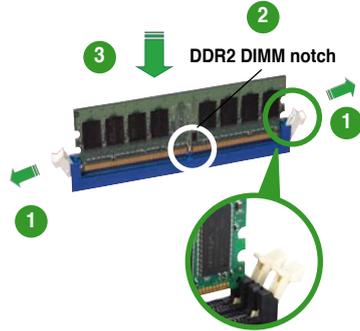
B - Supports one pair of modules inserted into both slots

1.7.3 Installing a DIMM



Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



Unlocked retaining clip

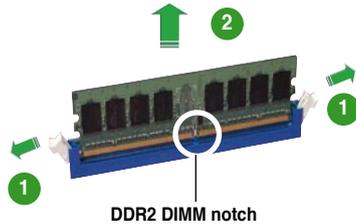


- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.
- The DDR2 DIMM sockets do not support DDR DIMMs. Do not install DDR DIMMs to the DDR2 DIMM sockets.

1.7.4 Removing a DIMM

To remove a DIMM:

1. Simultaneously press the retaining clips outward to unlock the DIMM.



Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.

1.8 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.



Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.8.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.8.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

1.8.3 Interrupt assignments

IRQ	Priority	Standard function
0	1	System Timer
1	2	Keyboard Controller
2	–	Redirect to IRQ#9
4	12	Communications Port (COM)*
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller *
7	15	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	IRQ holder for PCI steering*
10	5	IRQ Holder for PCI Steering*
11	6	PCI-E x1
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard

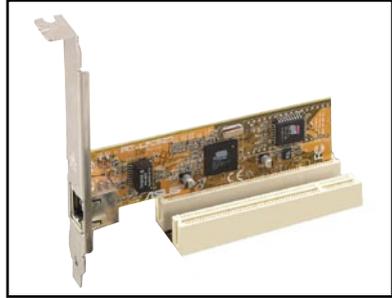
	A	B	C	D
PCI slot 1	–	shared	–	–
PCI slot 2	–	–	–	shared
PCIe x 1 slot	fixed	fixed	fixed	fixed
Onboard USB controller 1	shared	–	–	–
Onboard USB controller 2	–	shared	–	–
Onboard USB controller 3	–	–	shared	–
Onboard USB controller 4	–	–	–	shared
Onboard USB 2.0 controller	–	–	shared	–
Onboard LAN	shared	–	–	–
Onboard audio	–	shared	–	–
Onboard VGA	shared	–	–	–



When using PCI cards on shared slots, ensure that the drivers support “Share IRQ” or that the cards do not need IRQ assignments; otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

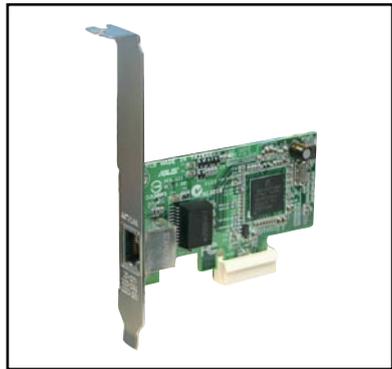
1.8.4 PCI slots

The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed on a PCI slot.



1.8.5 PCI Express x1 slot

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications. The figure shows a network card installed on the PCI Express x1 slot.



1.8.6 PCI Express x16 slot

This motherboard supports PCI Express x16 graphic cards that comply with PCI Express specifications. The figure shows a graphics card installed on the PCI Express x16 slot.



1.9 Jumpers

1. Clear RTC RAM (CLRRTC)

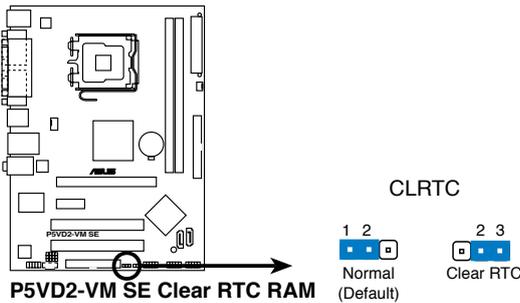
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the key during the boot process and enter BIOS setup to re-enter data.



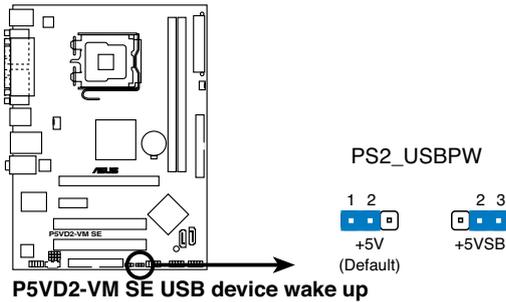
Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!



You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

2. Keyboard / USB device wake-up (3-pin PS2_USBPW)

This jumper allows you to enable or disable the keyboard and the USB device wake-up feature. When you set this jumper to pins 2-3 (+5VSB), you can wake up the computer by pressing a key on the keyboard (the default is the Space Bar) or using a USB device. This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS.



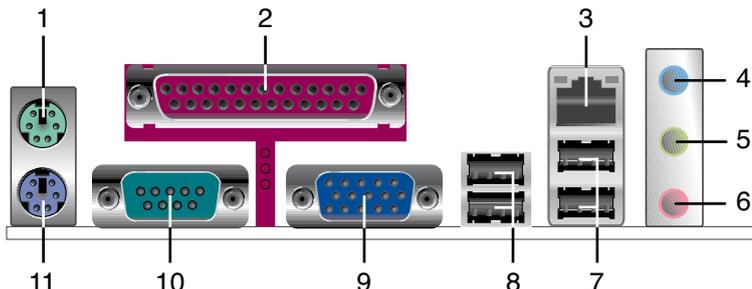
P5VD2-VM SE USB device wake up



- The keyboard / USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for each USB port; otherwise, the system would not power up.
- The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

1.10 Connectors

1.10.1 Rear panel connectors

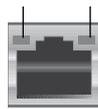


1. PS/2 mouse port (green). This port is for a PS/2 mouse.
2. Parallel port. This 25-pin port connects a parallel printer, a scanner, or other devices.
3. LAN (RJ-45) port. This port allows 10/100 connection to a Local Area Network (LAN) through a network hub.

LAN port LED indications

100M LED		10M LED	
Status	Description	Status	Description
OFF	No link	OFF	No link
ORANGE	Linked	GREEN	Linked
BLINKING	Data activity	BLINKING	Data activity

100M LED 10M LED



LAN port

4. Line In port (light blue). This port connects a tape, CD, DVD player, or other audio sources. In 4-channel and 6-channel configuration, the function of this port becomes Front Speaker Out.
5. Line Out port (lime). This port connects a headphone or a speaker. In 4-channel and 6-channel configuration, the function of this port becomes Rear Speaker Out.
6. Microphone port (pink). This port connects a microphone. In a 6-channel configuration, the function of this port becomes Bass/Center Speaker.



Refer to the audio configuration table for the function of the audio ports in 2, 4, or 6-channel configuration.

Audio 2, 4, or 6-channel configuration

Port	Headset 2-channel	4-channel	6-channel
Light Blue	Line In	Surround	Surround
Lime	Headphone/Front	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Center/Subwoofer

7. USB 2.0 ports 1 and 2. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
8. USB 2.0 ports 3 and 4. These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
9. VGA port. This 15-pin VGA port connects to a VGA monitor.
10. Serial port. This 9-pin COM1 port is for pointing devices or other serial devices.
11. PS/2 keyboard port (purple). This port is for a PS/2 keyboard.

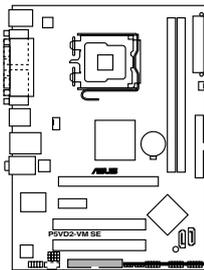
1.10.2 Internal connectors

1. Floppy disk drive connector (34-1 pin FLOPPY)

This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.



Pin 5 on the connector is removed to prevent incorrect cable connection when using an FDD cable with a covered Pin 5.



P5VD2-VM SE Floppy disk drive connector

FLOPPY

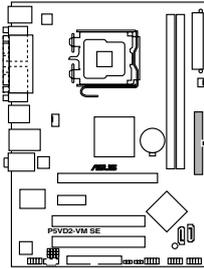


PIN 1

NOTE: Orient the red markings on the floppy ribbon cable to PIN 1.

2. Primary IDE connector (40-1 pin PRI_IDE [blue])

The onboard IDE connector is for an Ultra DMA 133/100/66 signal cable. There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device(s).



P5VD2-VM SE IDE connector



PRI_IDE
NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1.

	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	



- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 100/66 IDE devices.

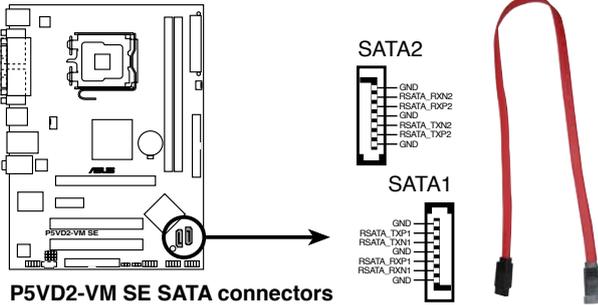


If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting.

3. Serial ATA connectors (7-pin SATA1, SATA2)

These connectors are for the Serial ATA signal cables for Serial ATA 3.0 Gb/s hard disk drives.

If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, and JBOD configuration through the onboard VIA VT8237S RAID controller. Refer to the RAID controllers user manual in the motherboard support CD for detailed information on RAID configurations. See section “3.2.5 Manuals menu”.



P5VD2-VM SE SATA connectors

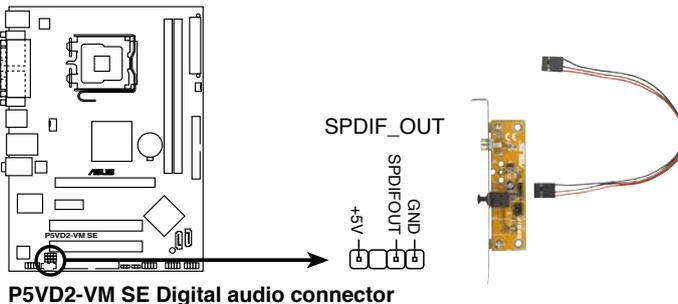


Important notes on Serial ATA

- The Serial ATA RAID feature (RAID 0, RAID 1, and JBOD) is available only if you are using Windows® 2000/2003 Server/XP/Vista operation system.
- Install the Windows® 2000 Service Pack 4, the Windows® XP Service Pack1 or later version before using Serial ATA.

4. Digital Audio connector (4-1 pin SPDIF_OUT)

This connector is for the S/PDIF audio module to allow digital sound output. Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module.



P5VD2-VM SE Digital audio connector



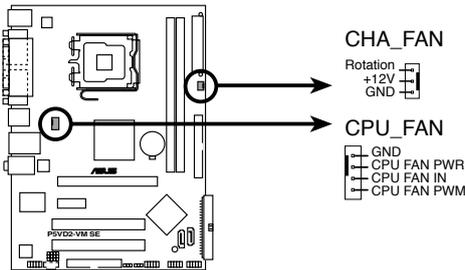
The S/PDIF module is purchased separately.

5. CPU and Chassis fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN)

The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.



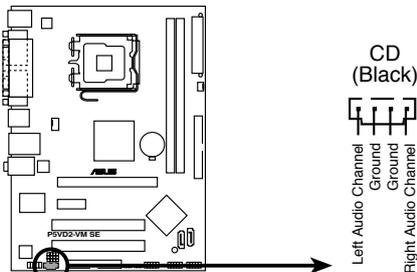
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.



P5VD2-VM SE Fan connectors

6. Internal audio connectors (4-pin CD)

The connector allows you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, MPEG card or modem.



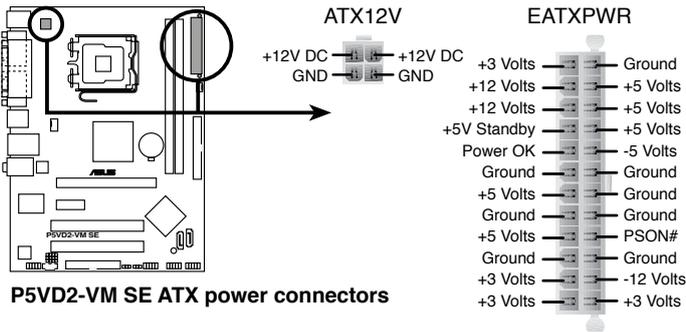
P5VD2-VM SE Internal audio connector

7. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

These connectors are for an ATX power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



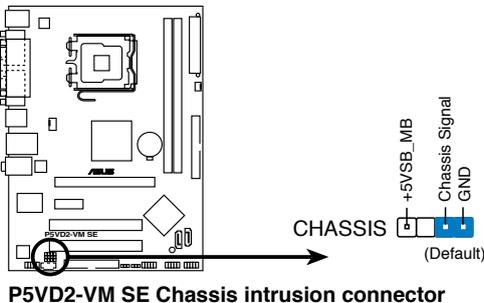
- Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot up.
- Use a PSU with a minimum power rating of 300 W on this motherboard. Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.



8. Chassis intrusion connector (4-1 pin CHASSIS)

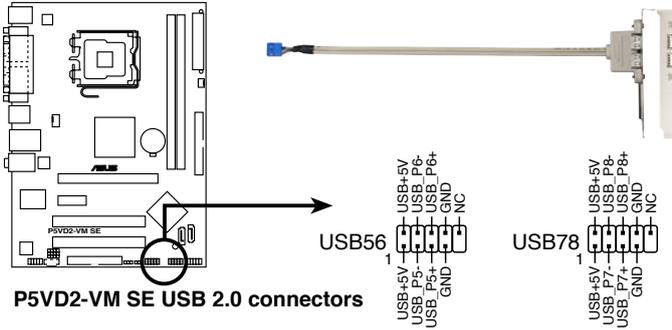
This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

By default, the pins labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



9. USB connectors (10-1 pin USB56, USB78)

These connectors are for USB 2.0 ports. Connect the optional USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



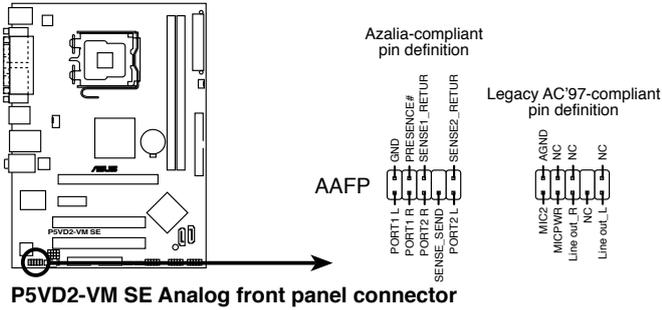
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



The USB 2.0 module is purchased separately.

10. Front panel audio connector (10-1 pin AAFP)

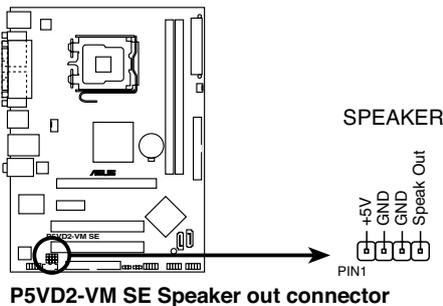
This connector is for a chassis-mounted front panel audio I/O module that supports either High Definition Audio or legacy AC '97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.



- Use a chassis that provides a high-definition audio front panel audio I/O to use the high-definition audio features.
- If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Type** item in the BIOS setup to **[HD Audio]**; if you want to connect an AC'97 front panel audio module to this connector, set the item to **[AC'97]**. By default, this connector is set to **[HD Audio]**. See section **2.4.4 Onboard Devices Configuration** for details.

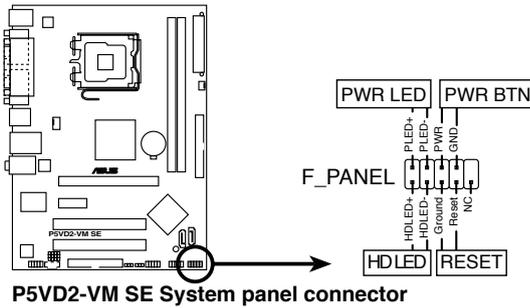
11. Speaker out connector (4-pin SPEAKER)

This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.



12. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.



- **System power LED (2-pin PWRLED)**
This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
- **Hard disk drive activity LED (2-pin HDLED)**
This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
- **Power/Soft-off button (2-pin PWRBTN)**
This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Reset button (2-pin RESET)**
This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

BIOS setup **2**

2.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup.

1. ASUS Update (Updates the BIOS in Windows® environment.)
2. ASUS AFUDOS (Updates the BIOS in DOS mode using a bootable floppy disk.)
3. ASUS EZ Flash utility (Updates the BIOS in DOS using a floppy disk during POST.)
4. ASUS CrashFree BIOS 2 (Updates the BIOS using a bootable floppy disk or the motherboard support CD when the BIOS file fails or gets corrupted.)

Refer to the corresponding sections for details on these utilities.



Save a copy of the original motherboard BIOS file to a bootable floppy disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFUDOS utilities.

2.1.1 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file
- Download the latest BIOS file from the Internet
- Update the BIOS from an updated BIOS file
- Update the BIOS directly from the Internet, and
- View the BIOS version information.

This utility is available in the support CD that comes with the motherboard package.



ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

Installing ASUS Update

To install ASUS Update:

1. Place the support CD in the optical drive. The Drivers menu appears.
2. Click the Utilities tab, then click ASUS Update. See page 3-4 for the Utilities screen menu.
3. The ASUS Update utility is copied to your system.

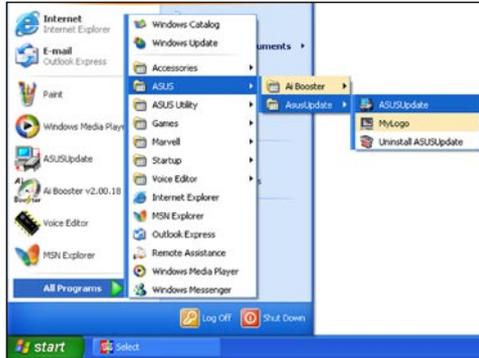


Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking Start > Programs > ASUS > ASUSUpdate > ASUSUpdate. The ASUS Update main window appears.



2. Select Update BIOS from the Internet option from the drop-down menu, then click Next.



3. Select the ASUS FTP site nearest you to avoid network traffic, or click Auto Select. Click Next.

- From the FTP site, select the BIOS version that you wish to download. Click Next.
- Follow the screen instructions to complete the update process.



The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail of all its features.



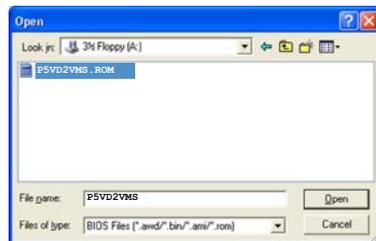
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

- Launch the ASUS Update utility from the Windows® desktop by clicking Start > Programs > ASUS > ASUSUpdate > ASUSUpdate. The ASUS Update main window appears.
- Select Update BIOS from a file option from the drop-down menu, then click Next.



- Locate the BIOS file from the Open window, then click Save.
- Follow the screen instructions to complete the update process.



2.1.2 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.
 - DOS environment*
 - a. Insert a 1.44MB floppy disk into the drive.
 - b. At the DOS prompt, type **format A: /S** then press <Enter>.
 - Windows® XP environment*
 - a. Insert a 1.44 MB floppy disk to the floppy disk drive.
 - b. Click Start from the Windows® desktop, then select My Computer.
 - c. Select the 3 1/2 Floppy Drive icon.
 - d. Click File from the menu, then select Format. A Format 3 1/2 Floppy Disk window appears.
 - e. Windows® XP users: Select Create an MS-DOS startup disk from the format options field, then click Start.
 - Windows® 2000 environment*

To create a set of boot disks for Windows® 2000:

 - a. Insert a formatted, high density 1.44 MB floppy disk into the drive.
 - b. Insert the Windows® 2000 CD to the optical drive.
 - c. Click Start, then select Run.
 - d. In the Open field, type **D:\bootdisk\makeboot a:**
assuming that D is your optical drive letter.
 - e. Press <Enter>, then follow screen instructions to continue.
2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

2.1.3 ASUS EZ Flash utility

The ASUS EZ Flash feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self Tests (POST).

To update the BIOS using EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard and rename the same to **P5VD2VMS.ROM**.
2. Save the BIOS file to a floppy disk, then restart the system.
3. Press <Alt> + <F2> during POST to display the following.

```
EZFlash starting BIOS update
Checking for floppy...
```

4. Insert the floppy disk that contains the BIOS file to the floppy disk drive. When the correct BIOS file is found, EZ Flash performs the BIOS update process and automatically reboots the system when done.

```
EZFlash starting BIOS update
Checking for floppy...
Floppy found!
Reading file "P5VD2VMS.ROM". Completed.
Start erasing.....|
Start programming...|
Flashed successfully. Rebooting.
```



- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!
- A "Floppy not found!" error message appears if there is no floppy disk in the drive. A "**P5VD2VMS.ROM not found!**" error message appears if the correct BIOS file is not found in the floppy disk. Make sure that you rename the BIOS file to P5VD2VMS.ROM.

2.1.4 AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:



- Make sure that the floppy disk is not write-protected and has at least 1.2 MB free space to save the file.
- The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.

1. Copy the AFUDOS utility (afudos.exe) from the motherboard support CD to the bootable floppy disk you created earlier.
2. Boot the system in DOS mode, then at the prompt type:

```
afudos /o[filename]
```

where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

```
A:\>afudos /oOLDBIOS1.rom
```

Main filename

Extension name

3. Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19 (ASUS V2.21ES (05.09.06BB))
Copyright (C) 2003 American Megatrends, Inc. All rights reserved.
Reading flash ..... done
Write to file..... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

1. Visit the ASUS website (www.asus.com) and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable floppy disk.



Write the BIOS filename on a piece of paper. You need to type the exact BIOS filename at the DOS prompt.

2. Copy the AFUDOS utility (`afudos.exe`) from the motherboard support CD to the bootable floppy disk you created earlier.
3. Boot the system in DOS mode, then at the prompt type:

```
afudos /i[filename]
```

where [filename] is the latest or the original BIOS file on the bootable floppy disk.

```
A:\>afudos /iP5VD2VMS.com
```

4. The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iP5VD2VMS.com
AMI Firmware Update Utility - Version 1.19(ASUS V2.21ES(05.09.06BB))
Copyright (C) 2003 American Megatrends, Inc. All rights reserved.

WARNING!! Do not turn off power during flash BIOS
Reading file ..... done
Reading flash ..... done

Advance Check .....
Erasing flash ..... done
Writing flash ..... 0x0008CC00 (9%)
```



Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iP5VD2VMS.com
AMI Firmware Update Utility - Version 1.19 (ASUS V2.07 (03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

WARNING!! Do not turn off power during flash BIOS
Reading file ..... done
Reading flash ..... done

Advance Check .....
Erasing flash ..... done
Writing flash ..... done
Verifying flash ..... done
Erasing BootBlock... done
Verifying BootBlock.. done

Please restart your computer
A:\>
```

2.1.5 ASUS CrashFree BIOS 2 utility

The ASUS CrashFree BIOS 2 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard support CD or the floppy disk that contains the updated BIOS file.



-
- Prepare the motherboard support CD or the floppy disk containing the updated motherboard BIOS before using this utility.
 - Make sure that you rename the original or updated BIOS file in the floppy disk to **P5VD2VMS.ROM**.
-

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1. Turn on the system.
2. Insert the floppy disk with the original or updated BIOS file to the floppy disk drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...  
Checking for floppy...
```

When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...  
Checking for floppy...  
Floppy found!  
Reading file "P5VD2VMS.ROM". Completed.  
Start flashing...
```



DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

4. Restart the system after the utility completes the updating process.

Recovering the BIOS from the support CD

To recover the BIOS from the support CD:

1. Remove any floppy disk from the floppy disk drive, then turn on the system.
2. Insert the support CD to the optical drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...  
Checking for floppy...
```

When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...  
Checking for floppy...  
Floppy not found!  
Checking for CD-ROM...  
CD-ROM found!  
Reading file "P5VD2VMS.ROM". Completed.  
Start flashing...
```



DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

4. Restart the system after the utility completes the updating process.



The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website (www.asus.com) to download the latest BIOS file.

2.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section “2.1 Managing and updating your BIOS.”

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to “Run Setup.” This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM or the firmware hub.

The firmware hub on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press during the Power-On-Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

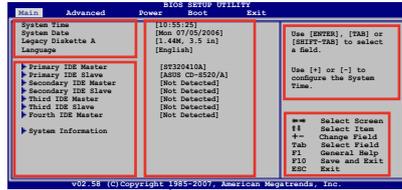


-
- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Default Settings item under the Exit Menu. See section “2.7 Exit Menu.”
 - The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
 - Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.
-

2.2.4 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items.

The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.



Main menu items

2.2.5 Sub-menu items

A solid triangle before each item on any menu screen means that the item has a sub-menu. To display the sub-menu, select the item and press <Enter>.

2.2.6 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

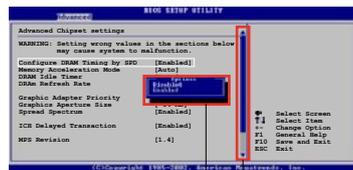
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to “2.2.7 Pop-up window.”

2.2.7 Pop-up window

Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item.

2.2.8 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen.



Pop-up window

Scroll bar

2.2.9 General help

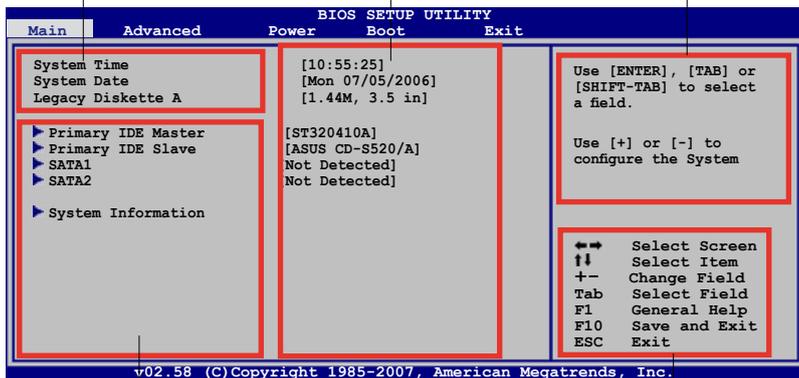
At the top right corner of the menu screen is a brief description of the selected item.

2.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information.



Refer to section “2.2.1 BIOS menu screen” for information on the menu screen items and how to navigate through them.



2.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

2.3.2 System Date [Day xx/xx/xxxx]

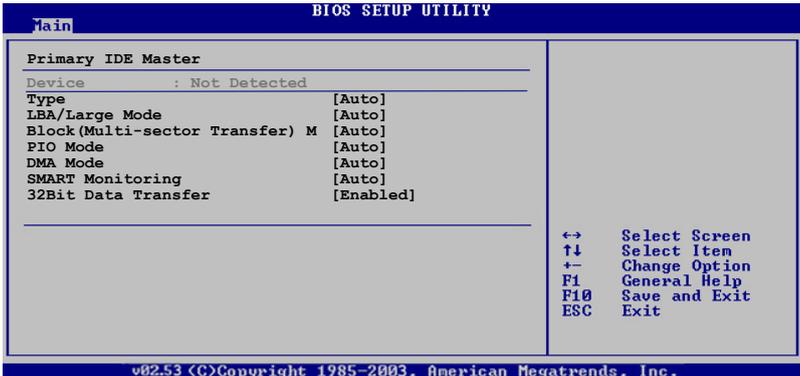
Allows you to set the system date.

2.3.3 Legacy Diskette A [1.44M, 3.5 in.]

Sets the type of floppy drive installed. Configuration options: [Disabled] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K , 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

2.3.4 Primary IDE Master/Slave SATA1/SATA2

The BIOS automatically detects the connected IDE/SATA devices. There is a separate sub-menu for each IDE/SATA device. Select a device item, then press <Enter> to display the IDE/SATA device information.



The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

This item appears only when you select the Primary IDE Master/Slave item. Selects the type of IDE drive. Setting to [Auto] allows automatic selection of the appropriate IDE device type. Select [CDROM] if you are specifically configuring a CD-ROM drive. Select [ARMD] (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive.

Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to [Auto] enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sector transfer mode. When set to [Auto], the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time.

Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode.

Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology.

Configuration options: [Auto] [Disabled] [Enabled]

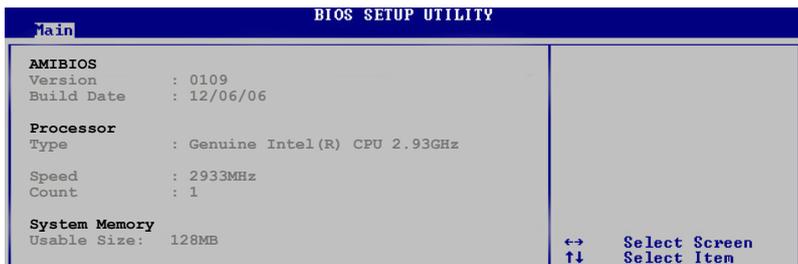
32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer.

Configuration options: [Disabled] [Enabled]

2.3.5 System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.



AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected CPU specification.

System Memory

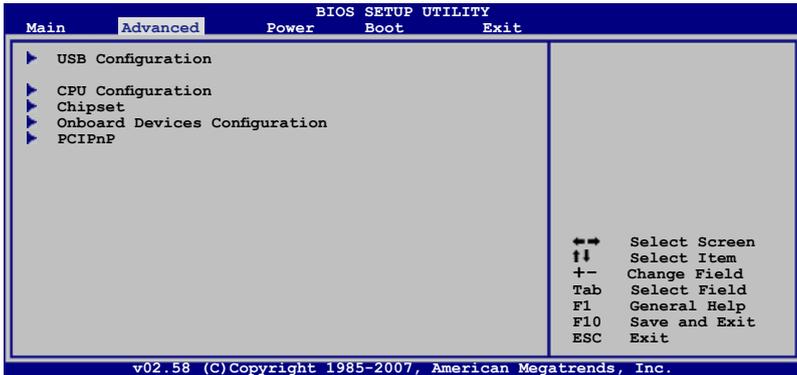
Displays the auto-detected system memory.

2.4 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

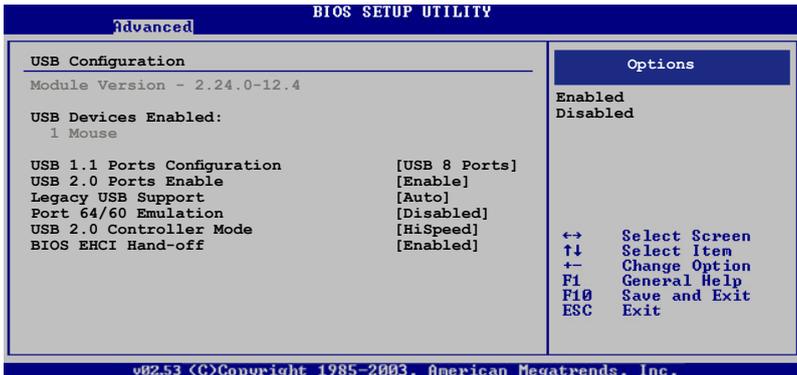


Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.



2.4.1 USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.



The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

USB 1.1 Ports Configuration [USB 8 Ports]

Allows you to enable or disable the USB 1.1 controllers.

Configuration options: [Disabled] [USB 2 Ports] [USB 4 Ports] [USB 6 Ports] [USB 8 Ports]



The following item appears only when the USB 1.1 Controller is set to [Enabled].

USB 2.0 Ports Enabled [Enable]

Allows you to enable or disable the USB 2.0 controllers.

Configuration options: [Enable] [Disabled]

Legacy USB Support [Auto]

Allows you to enable or disable support for legacy USB devices. Setting to [Auto] allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Configuration options: [Disabled] [Enabled] [Auto]

Port 64/60 Emulation [Disabled]

Allows you to enable or disable the I/O port 60h/64h emulation support.

Configuration options: [Disabled] [Enabled]

USB 2.0 Controller Mode [HiSpeed]

Allows you to set the USB 2.0 controller mode to HiSpeed (480 Mbps) or FullSpeed (12 Mbps).

Configuration options: [FullSpeed] [HiSpeed]

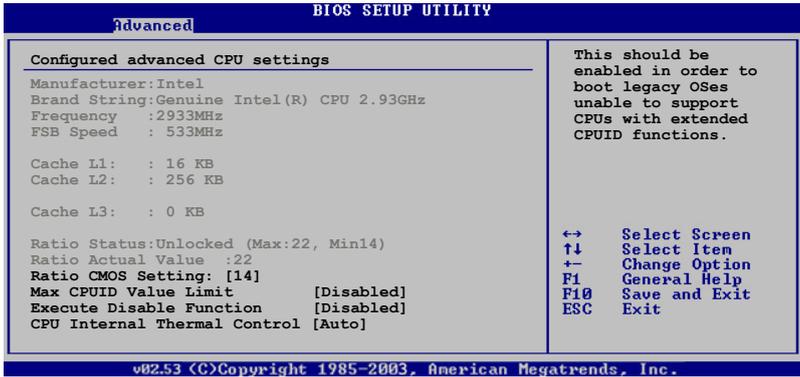
BIOS EHCI Hand-off [Enabled]

Allows you to enable support for operating systems without an EHCI hand-off feature.

Configuration options: [Disabled] [Enabled]

2.4.2 CPU Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.



Ratio CMOS Setting [14]

Use the <+> and <-> keys to select the CMOS ratio values.

Max CPUID Value Limit [Disabled]

Setting this item to [Enabled] allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

Configuration options: [Disabled] [Enabled]

Execute Disable Function [Disabled]

Allows you to enable or disable the No-Execution Page Protection Technology.

Setting this item to [Enabled] forces the XD feature flag to always return to zero (0)

Configuration options: [Disabled] [Enabled]

CPU Internal Thermal Control [Auto]

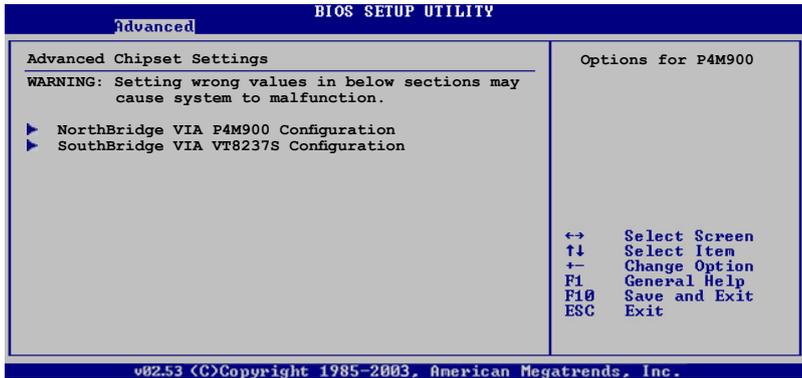
Allows you to disable or set to auto the CPU Internal Thermal Control function.

When set to [Auto], the BIOS automatically checks the CPU's capability to enable TM or TM2 support. In TM mode, the CPU power consumption is reduced. In TM2 mode, the CPU core ratio and VID are reduced.

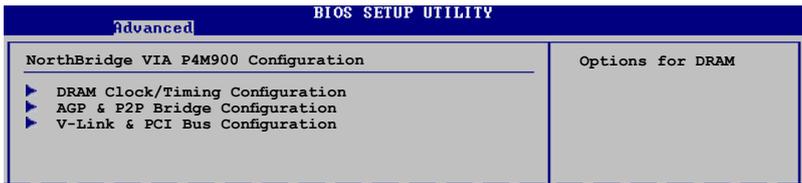
Configuration options: [Auto] [Disabled]

2.4.3 Chipset

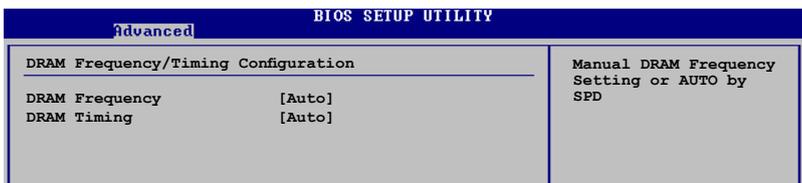
The Chipset menu allows you to change the advanced chipset settings. Select an item then press <Enter> to display the sub-menu.



NorthBridge VIA P4M900 Configuration



DRAM Frequency/Timing Configuration



DRAM Frequency [Auto]

Sets the DRAM frequency manually or automatically according to the DRAM SPD (Serial Presence Detect).

Configuration options: [Auto] [200MHz] [266MHz] [333MHz] [400MHz] [533MHz] [667MHz]

DRAM Timing [Auto]

When this item is set to [Auto], [Turbo], or [Ultra], the DRAM timing parameters are set according to the DRAM SPD (Serial Presence Detect), Turbo, or Ultra.

When set to [Manual], you can manually set the DRAM timing parameters. The Configuration options: [Manual] [Auto] [Turbo] [Ultra]



The following items appear when the DRAM Timing item is set to [Manual].

DRAM CAS# Latency [4]

Controls the latency between the SDRAM read command and the time the data actually becomes available.

Configuration options: [2] [3] [4] [5]

Precharge to Active(Trp) [4T]

Configuration options: [2T] ~ [5T]

Active to Precharge(Tras) [7T]

Configuration options: [5T] ~ [20T]

Active to CMD (Trcd) [4T]

Configuration options: [2T] ~ [5T]

AGP & P2P Bridge Configuration

Advanced		BIOS SETUP UTILITY	
AGP & P2P Bridge Configuration		Manual DRAM Frequency Setting or AUTO by SPD	
Primary Graphics Adapter	[PCIE]		
AGP Aperture Size	[128MB]		
AGP 3.0 Mode	[8X]		
▶ OnChip VGA Configuration			

Primary Graphics Adapter [PCIE]

Allows selection of the graphics controller to use as primary boot device.

Configuration options: [PCI] [Onboard VGA] [PCIE]

AGP Aperture Size [128MB]

Configuration options: [32MB] [64MB] [128MB] [256MB] [512MB] [1GB]

AGP 3.0 Mode [8X]

Configuration options: [8X] [4X]

OnChip VGA Configuration

Onboard VGA Frame Buffer Size [128MB]

Allows you to set the onboard VGA Frame buffer size.

Configuration options: [8MB] [16MB] [32MB] [64MB] [128MB] [256MB]

AGP & P2P Bridge Configuration

Advanced		BIOS SETUP UTILITY	
V-Link & PCI Bus Configuration		Select V-Link Mode	
V-Link mode selection	[Auto]		
V-Link 8X Supported	[Enabled]		
V-Link Data 2X Support	[Disabled]		

V-Link mode selection [Auto]

Allows selection of the V-Link mode.

Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

V-Link 8X Supported [Enabled]

Allows you to enable or disable the V-Link 8X mode.

Configuration options: [Disabled] [Enabled]

V-Link Data 2X Support [Disabled]

Allows you to enable or disable the V-Link 2X mode.

Configuration options: [Disabled] [Enabled]

SouthBridge VIA VT8237S Configuration

Advanced		BIOS SETUP UTILITY	
SouthBridge VIA VT8237S Configuration		Options	
SATA Controller	[IDE]	IDE	
SATA Option ROM	[Disabled]	RAID	
LAN Controller	[Enabled]		
LAN Option ROM	[Disabled]		
High Definition Audio	[Enabled]		
Front Panel Support Type	[HD Audio]		

SATA Controller [IDE]

Allows you to set the mode of the Serial ATA controller. When this item is set to [RAID], the following item appears.

Configuration options: [IDE] [RAID]

SATA Option ROM [Disabled]

Allows you to enable or disable the Serial ATA boot ROM.

Configuration options: [Disabled] [Enabled]

LAN Controller [Enabled]

Allows you to enable or disable the LAN controller. When this item is set to [Disabled], the following item disappears.

Configuration options: [Enabled] [Disabled]

LAN Option ROM [Disabled]

Allows you to enable or disable the onboard LAN boot ROM.
Configuration options: [Disabled] [Enabled]

High Definition Audio [Enabled]

Allows you to disable or set to [Auto] the high-definition audio CODEC.
Configuration options: [Enabled] [Disabled]

Front Panel Support Type [HD Audio]

Allows you to set the front panel audio connector (AAFP) mode to legacy AC'97 or high-definition audio depending on the audio standard that the front panel audio module supports. Configuration options: [AC97] [HD Audio]

2.4.4 Onboard Devices Configuration

Advanced		BIOS SETUP UTILITY
Configure W83627EHG Super IO Chipset		Allows BIOS to Select Serial Port1 Base Addresses.
Serial Port1 Address	[3F8/IRQ4]	
Parallel Port Address	[378]	
Parallel Port Mode	[ECP]	
ECP Mode DMA Channel	[DMA3]	
Parallel Port IRQ	[IRQ7]	

Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

Parallel Port Address [378]

Allows you to select the Parallel Port base address.
Configuration options: [Disabled] [378] [278] [3BC]

Parallel Port Mode [ECP]

Allows you to select the Parallel Port mode.
Configuration options: [Normal] [Bi-Directional] [EPP] [ECP]

EPP Version [1.9]

Appears only when the Parallel Port Mode is set to [EPP]. This item allows the BIOS to select the Parallel Port EPP version.
Configuration options: [1.9] [1.7]

ECP Mode DMA Channel [DMA3]

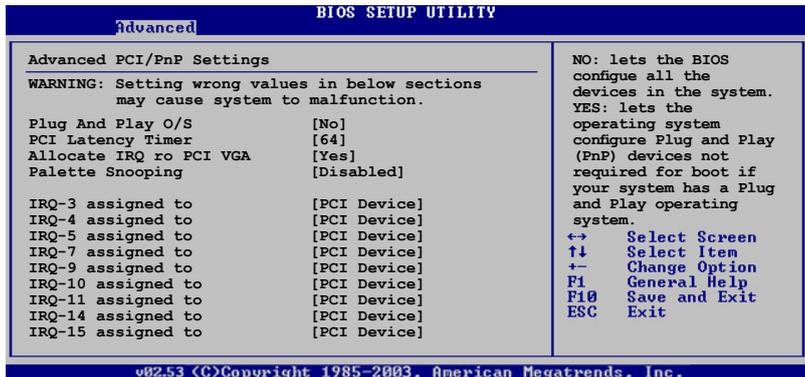
Appears only when the Parallel Port Mode is set to [ECP]. This item allows the BIOS to set the Parallel Port ECP DMA.
Configuration options: [DMA0] [DMA1] [DMA3]

Parallel Port IRQ [IRQ7]

Allows you to select the parallel port IRQ.
Configuration options: [IRQ5] [IRQ7]

2.4.5 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices.



Plug And Play O/S [No]

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot. Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [No] [Yes]

Palette Snooping [Disabled]

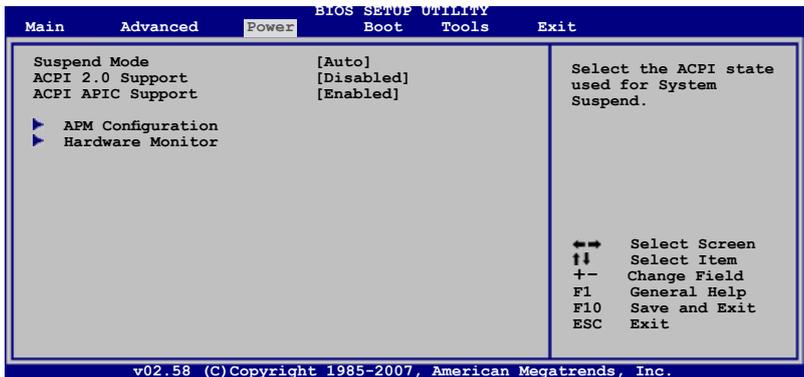
When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

When set to [PCI Device], the specific IRQ is free for use of PCI/PnP devices. When set to [Reserved], the IRQ is reserved for legacy ISA devices. Configuration options: [PCI Device] [Reserved]

2.5 Power menu

The Power menu items allow you to change the settings for the ACPI and Advanced Power Management (APM) features. Select an item then press <Enter> to display the configuration options.



2.5.1 Suspend Mode [Auto]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Setting this item to [Auto] allows the OS to select the ACPI state. Configuration options: [S1 (POS) only] [S3 only] [Auto]

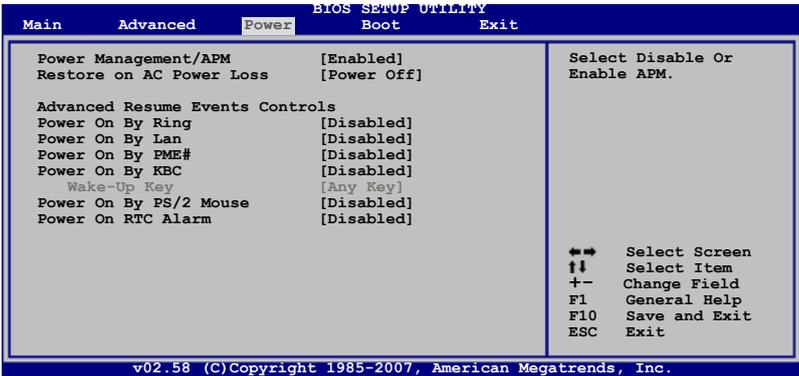
2.5.2 ACPI 2.0 Support [Disable]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [Disabled] [Enabled]

2.5.3 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Advanced Programmable Interrupt Controller (APIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

2.5.4 APM Configuration



Power Management/APM [Enabled]

Enables or disables the Advanced Power Management (APM) features.

Configuration options: [Disabled] [Enabled]

Restore on AC Power Loss [Power Off]

When set to Power Off, the system goes into off state after an AC power loss.

When set to Power On, the system goes on after an AC power loss. When set to Last State, the system goes into either off or on state, whatever the system state was before the AC power loss.

Configuration options: [Power Off] [Power On] [Last State]

Power On By Ring [Disabled]

Enables or disables the RI to generate a wake event.

Configuration options: [Disabled] [Enabled]

Power On By Lan [Disabled]

Enables or disables the LAN to generate a wake event.

Configuration options: [Disabled] [Enabled]

Power On By PME# [Disabled]

Enables or disables the Power Management Event (PME) function to generate a wake event. Configuration options: [Disabled] [Enabled]

Power On By KBC [Disabled]

Allows you to use the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Configuration options: [Disabled] [Enabled]

Wake-Up Key [Any Key]

Allows you to use any key or specific keys to turn on the system. This item becomes user-configuration when you set the **Power On By KBC** item to [Enabled].

Configuration options: [Any Key] [Specific Key]

Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Resume on RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. Configuration options: [Disabled] [Enabled]



The succeeding items appear when the Resume on RTC Alarm item is set to [Enabled].

RTC Alarm Date [xx]

To set the alarm date, highlight this item and press the <+> or <-> key to make the selection. Configuration options: [Every day] [1] [2] [3]... ~ [31]

System Time [xx:xx:xx]

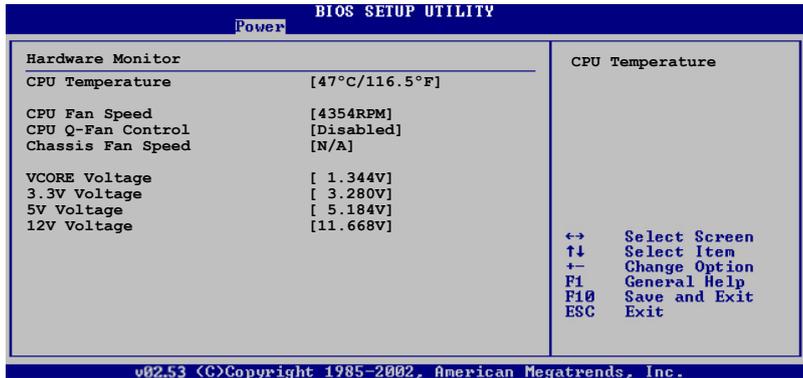
To set the alarm time, use [ENTER], [TAB], or [SHIFT-TAB] to select a field and press the <+> or <-> key to make the selection.

Configuration options: [00] [01]... ~ [23]

[00] [01]... ~ [59]

[00] [01]... ~ [59]

2.5.5 Hardware Monitor



CPU Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the motherboard temperature. Select [Ignored] if you do not wish to display the detected temperatures.

CPU/Chassis Fan Speed (RPM) [xxxxRPM] or [N/A] or [Ignored]

The onboard hardware monitor automatically detects and displays the CPU/Chassis fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select [Ignore] from the item options to disable CPU fan speed monitoring.

CPU Q-Fan Control [Disabled]

Allows you to enable or disable the CPU Q-Fan feature that smartly adjusts the fan speeds for more efficient system operation.

Configuration options: [Disabled] [Enabled]



The following item appears when the CPU Q-Fan Control item is set to [Disabled].

CPU Target Temperature [50°C]

Allows the Q-Fan to sense the CPU temperature and to adjust the CPU fan speed.

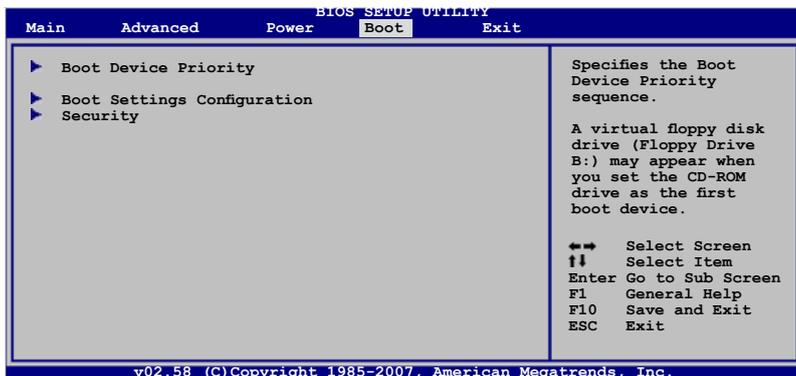
Configuration options: [35°C] [38°C] [41°C] [44°C] [47°C] [50°C] [53°C] [56°C] [59°C] [62°C] [65°C]

VCore1 Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

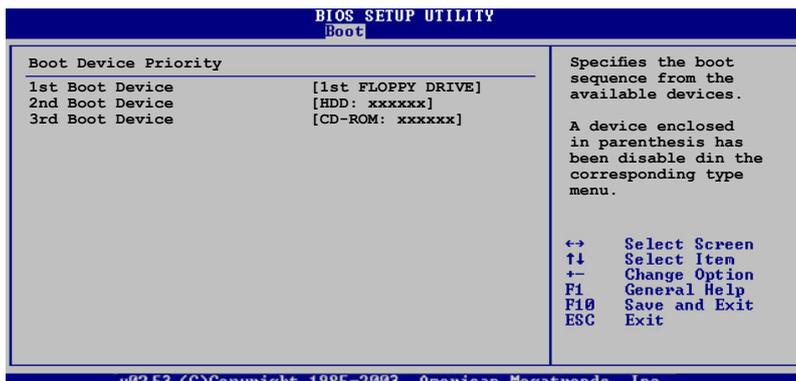
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

2.6 Boot menu

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.



2.6.1 Boot Device Priority



1st ~ xxth Boot Device [1st FLOPPY DRIVE]

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

Configuration options: [1st FLOPPY DRIVE] [Hard Drive] [ATAPI CD-ROM] [Disabled]

2.6.2 Boot Settings Configuration

BIOS SETUP UTILITY	
Boot	
Boot Settings Configuration	
Quick Boot	[Enabled]
Full Screen Logo	[Enabled]
AddOn ROM Display Mode	[Force BIOS]
Bootup Num-Lock	[On]
PS/2 Mouse Support	[Auto]
Wait For 'F1' If Error	[Enabled]
Hit 'DEL' Message Display	[Enabled]
Interrupt 19 Capture	[Disabled]

Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some power on self tests (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items.

Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

Allows you to enable or disable the full screen logo display feature.

Configuration options: [Disabled] [Enabled]

AddOn ROM Display Mode [Force BIOS]

Sets the display mode for option ROM.

Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock.

Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse.

Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

When set to Enabled, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

Hit 'DEL' Message Display [Enabled]

When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

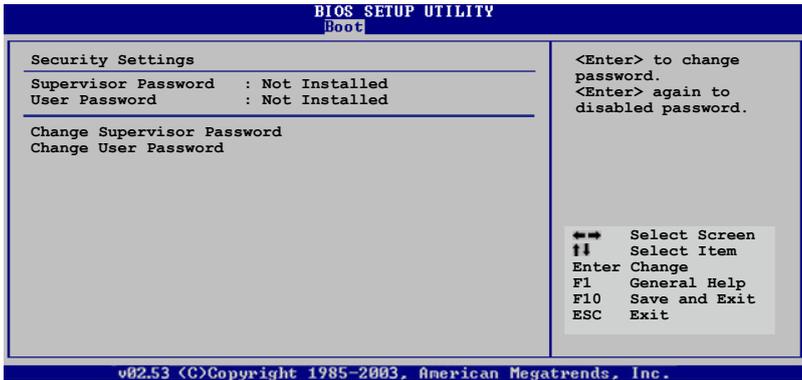
Interrupt 19 Capture [Disabled]

When set to [Enabled], this function allows the option ROMs to trap Interrupt 19.

Configuration options: [Disabled] [Enabled]

2.6.3 Security

The Security menu items allow you to change the system security settings. Select an item then press <Enter> to display the configuration options.



Change Supervisor Password

Select this item to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a Supervisor Password:

1. Select the Change Supervisor Password item, then press <Enter>.
2. From the password box, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

The message “Password Installed” appears after you successfully set your password.

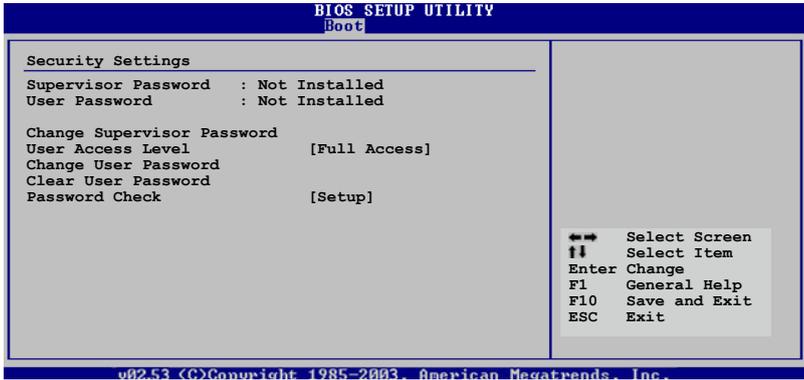
To change the supervisor password, follow the same steps as in setting a user password.

To clear the supervisor password, select the Change Supervisor Password then press <Enter>. The message “Password Uninstalled” appears.



If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section “1.9 Jumpers” for information on how to erase the RTC RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.



User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items.
Configuration options: [No Access] [View Only] [Limited] [Full Access]

No Access prevents user access to the Setup utility.

View Only allows access but does not allow change to any field.

Limited allows changes only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a User Password:

1. Select the Change User Password item and press <Enter>.
2. On the password box that appears, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

The message “Password Installed” appears after you set your password successfully.

To change the user password, follow the same steps as in setting a user password.

Clear User Password

Select this item to clear the user password.

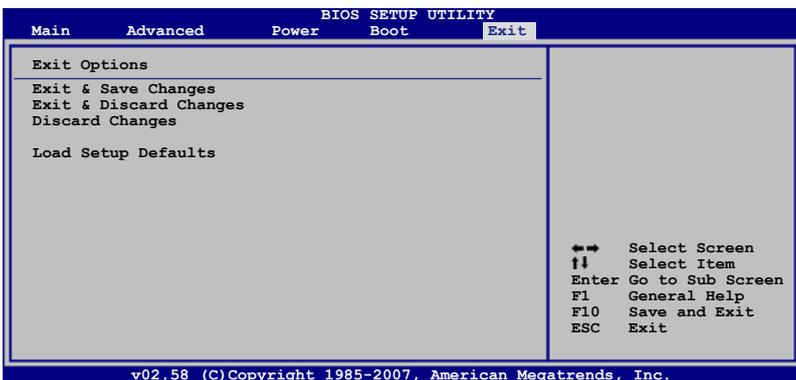
Password Check [Setup]

When set to [Setup], BIOS checks for user password when accessing the Setup utility. When set to [Always], BIOS checks for user password both when accessing Setup and booting the system.

Configuration options: [Setup] [Always]

2.7 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.



Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the computer is turned off. When you select this option, a confirmation window appears. Select OK to save the changes and exit.



If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Discard Changes

Allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select Ok to discard any changes and load the previously saved values.

Load Setup Defaults

Allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select Ok to load default values. Select Exit & Save Changes or make other changes before saving the values to the non-volatile RAM.

This chapter describes the contents of the support CD that comes with the motherboard package.

3 Software support

3.1 Installing an operating system

This motherboard supports Windows® 2000/2003 Server/XP/Vista operating systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.



- Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.
- Make sure that you install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

3.2 Support CD information

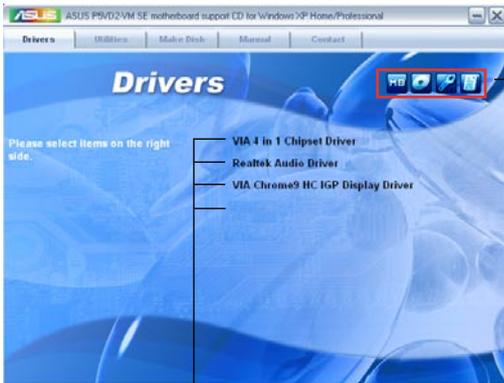
The support CD that came with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.



The contents of the support CD are subject to change at any time without notice. Visit the ASUS website(www.asus.com) for updates.

3.2.1 Running the support CD

Place the support CD to the optical drive. The CD automatically displays the Drivers menu if Autorun is enabled in your computer.



Click an icon to display support CD/motherboard information

Click an item to install



If Autorun is NOT enabled in your computer, browse the contents of the support CD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the CD.

3.2.2 Drivers menu

The drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.



VIA 4 in 1 Chipset Driver

Installs the VIA 4 in 1 chipset Driver.

Realtek Audio Driver

Installs the Realtek® ALC662 audio controller and application.

VIA Chrome9 HC IGP Display Driver

Installs the VIA Chrome9 HC IGP Display Driver.

VIA Rhine Family Fast Ethernet Adapter Driver

Installs the VIA Rhine Family Fast Ethernet Adapter Driver.

3.2.3 Utilities menu

The Utilities menu shows the applications and other software that the motherboard supports.



ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP). See page 2-7 for details.

ASUS PC Probe II

This smart utility monitors the fan speed, CPU temperature, and system voltages, and alerts you of any detected problems. This utility helps you keep your computer in healthy operating condition.



You can also install the following utilities from the ASUS Superb Software Library CD.



Anti-Virus Utility

The anti-virus application detects and protects your computer from viruses that destroys data. You can also download the utility by clicking the Security tab.

Anti-Virus Utility Download

Allows you to choose the language version and download the anti-virus application from the website.



Corel Snapfire Plus SE

Installs the Corel Snapfire Plus SE software. You can also download the utility by clicking the Photo-Editing tab.



DVD Copy5 Trial

Installs the WinDVD Copy5 Trial version. You can also download the utility by clicking the DVD Burner tab.



Adobe Acrobat Reader V7.0

Installs the Adobe® Acrobat® Reader that allows you to open, view, and print documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX 9.0 driver. The Microsoft DirectX® 9.0 is a multimedia technology that enhances computer graphics and sound. DirectX® improves the multimedia features of your computer so you can enjoy watching TV and movies, capturing videos, or playing games in your computer. Visit the Microsoft website (www.microsoft.com) for updates.

ASUS Motherboard Installation Guide

The ASUS Motherboard Installation Guide contains a general and clear instruction on how to install your new ASUS motherboard, FAQs, and how to maintain your PC.

3.2.4 Make Disk menu

The Make Disk menu allows you to make a RAID driver disk.



VIA 32/64 bit RAID Driver

Allows you to create a VIA VT8237S RAID driver disk for a 32/64-bit system.

3.2.5 Manuals menu

The Manuals menu contains a list of supplementary user manuals. Click an item to open the folder of the user manual.



Most user manual files are in Portable Document Format (PDF). Install the Adobe® Acrobat® Reader from the Utilities menu before opening a user manual file.



3.2.6 ASUS Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.

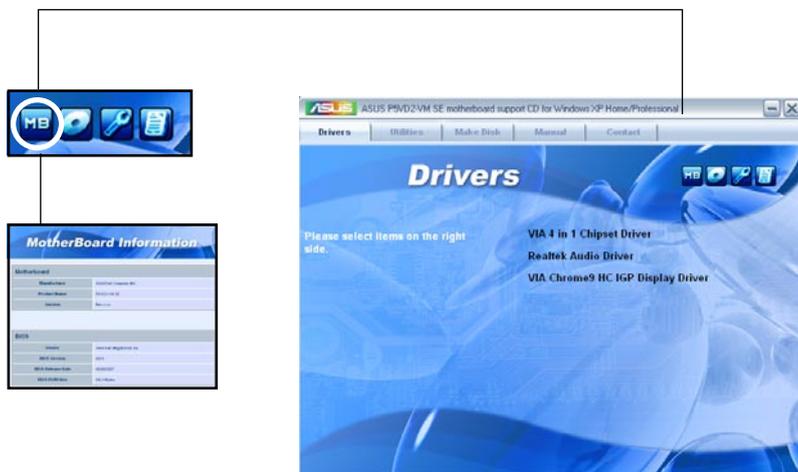


3.2.7 Other information

The icons on the top right corner of the screen give additional information on the motherboard and the contents of the support CD. Click an icon to display the specified information.

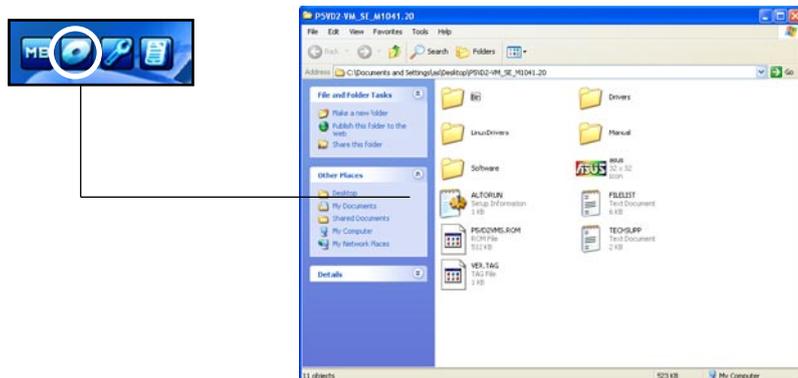
Motherboard Info

Displays the general specifications of the motherboard.



Browse this CD

Displays the support CD contents in graphical format.



Technical support Form

Displays the ASUS Technical Support Request Form that you have to fill out when requesting technical support.



ASUS/ASUS TECHNICAL SUPPORT REQUEST FORM DATE:

ORGANIZATION DESCRIPTION: _____

COMPANY NAME: _____ CONTACT NAME: _____

PHONE (AREA): _____ FAX # (AREA): _____

EMAIL ADDRESS: _____

HARDWARE DESCRIPTION

MOTHERBOARD :	REVISION #:	BIOS:#4G01AD-
CD/D BRAND :	SPEED(MHz):	
DRAM BRAND :	SPEED(MHz) :	SIZE(MB):
CACHE BRAND :	SPEED(MHz) :	SIZE(MB):
RAMBUS DIM :	MODEL NAME:	SIZE(MB):
COLOR BRAND :	MODEL NAME:	SIZE(MB):
BACKUP BRAND :	MODEL NAME:	SIZE(MB):
OTHER STORAGE:	MODEL NAME:	SIZE(MB):

ADD-IN CARD DESCRIPTION (MODEL NAME/VENDOR)

(PCI)A SLOT 1:		
(PCI)A SLOT 2:		
(PCI)A SLOT 3:		
(PCI)A SLOT 4:		
PCI-E SLOT 1:		
PCI-E SLOT 2:		
PCI-E SLOT 3:		
PCI :		
PCI SLOT 1:		
PCI SLOT 2:		
PCI SLOT 3:		
PCI SLOT 4:		
PCI SLOT 5:		

Filelist

Displays the contents of the support CD and a brief description of each in text format.



File list for the Winload support software for P5VD2-VM SE motherboard

File Name: _____ Description: _____

```

-drivers
--realtek      Realtek high definition audio system software v6.0.1.1872 for windows v1414
--chipset      VIA V85222 chipset driver driver v6.0.2728.100 for windows 2000/XP/9
--usb          nVidia USB2.0 driver 3.11 for windows 2000/XP/9 MCE/2003/XP 64bit/200
--usb          VIA USB2.0 driver v7.0.603.949 for windows v6.0.1.1872 for windows v
--usb          VIA Chrome9 MC 3AP display driver v5.14.10.5033 for windows 2000/XP/2003/9
--usb          V7-12-20-008 for windows v1414 v7.12.10.0008 for windows v1414 64bit/200
--usb          VIA 8798 family fast ethernet adapter driver v5.06.0.431 for windows 2000/20
--truedrivers  support linux drivers.
--linux       linux 8k ac audio driver v3.1.3
--lan         linux 8k fast ethernet driver v0.40.9 for the atlantic03 li chipset ethernet adapter
--raid
--IDE_PATCH  Patch the Linux IDE driver for Sata/Sata/ATA/ATA
--linux_raid_v200  For Sata's Core 4      RAID driver for Sata's Core 4
--linux_raid_v230  For Sata's Core 4      RAID driver for Sata's Core 4
--linux_raid_v230  For IDE's Core 4       RAID driver for IDE's Core 4
--linux_raid_v310  For WinXP/Win2000    RAID driver for WinXP/Win2000
--vga         linux release v1.00                 RAID driver for others linux
--vga_linux_all_sata_control_patch_source_package_v1.0 linux 8k v1a sata vga driver

-software
--MFD00C.txt  -Information on how to use the MBI FLD00C00 ID Utility.
--MFD00C.exe  -utility v2.16 for update the motherboard's MBI BIOS.
--SoundProbeIT  ASUS AC Probe II V1.04.08 for windows 2000/XP/9 MCE/2003/XP 64bit/2003 64b
--AutoUpdate  ASUS update v7.09.02 for windows 2000/XP/9 MCE/2003/XP 64bit/2003 64bit/v1
  
```

3.3 RAID configurations

The motherboard comes with the VIA® VT8237S RAID controller that allows you to configure Serial ATA hard disk drives as RAID sets.

3.3.1 RAID definitions

RAID 0 (Data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup.

RAID 1 (Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

JBOD (Spanning) stands for Just a Bunch of Disks and refers to hard disk drives that are not yet configured as a RAID set. This configuration stores the same data redundantly on multiple disks that appear as a single disk on the operating system. Spanning does not deliver any advantage over using separate disks independently and does not provide fault tolerance or other RAID performance benefits.



If you want to boot the system from a hard disk drive included in a RAID set, copy first the RAID driver from the support CD to a floppy disk before you install an operating system to a selected hard disk drive. Refer to section “3.4 Creating a RAID driver disk” for details.

3.3.2 Installing Serial ATA (SATA) hard disks

The motherboard supports Serial ATA hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

To install the SATA hard disks for a RAID configuration:

1. Install the SATA hard disks into the drive bays.
2. Connect the SATA signal cables.
3. Connect a SATA power cable to the power connector on each drive.



Refer to the RAID controllers user manual in the motherboard support CD for detailed information on RAID configurations. See section “3.2.5 Manuals menu”.

3.3.3 VIA® RAID configuration

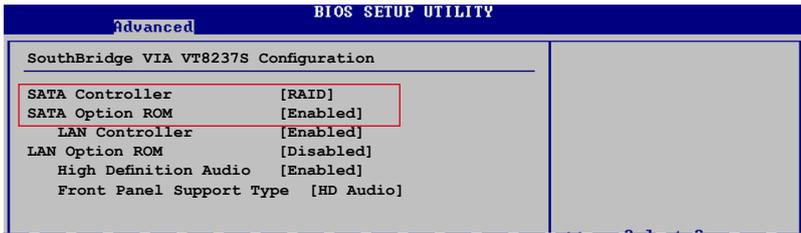
This motherboard supports RAID 0, RAID 1, and JBOD configurations for Serial ATA hard disk drives through the VIA® VT8237S southbridge chipset.

Setting the RAID items in the BIOS

After installing the hard disk drives, make sure to set the necessary RAID items in the BIOS before setting your RAID configuration.

To set the BIOS RAID items:

1. Enter the BIOS Setup during POST.
2. Set the **SATA Controller** item to [RAID], and enable the **SATA Option ROM** item. See page 2-23 “**SouthBridge VIA VT8237S Configuration**” for details.



3. Save your changes and exit the BIOS setup/

Entering VIA Tech RAID BIOS Utility

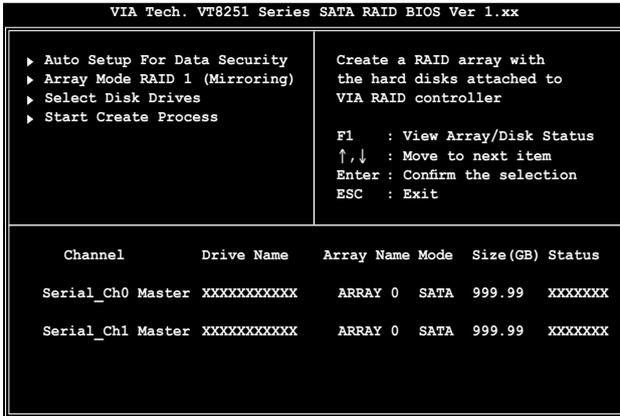
1. Boot-up your computer.
2. During POST, press <Tab> to enter VIA RAID configuration utility. The following menu options will appear.



The RAID BIOS information on the setup screen shown below is for reference only. What you see on your screen may not exactly match what is shown here.

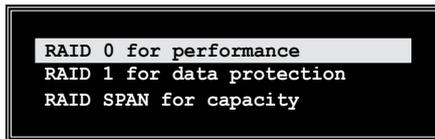
Create Array

From the VIA RAID BIOS utility main menu, select Create Array then press <Enter>. The main menu items on the upper-left corner of the screen are replaced with create array menu options.

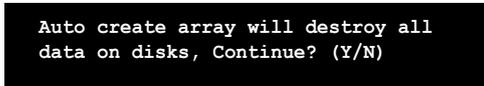


RAID 0 for performance

1. From the create array menu, select Array Mode, then press <Enter>. The supported RAID configurations appear on a pop-up menu.



2. Select RAID 0 for performance then press <Enter>. From this point, you may choose to auto-configure the RAID array by selecting Auto Setup for Performance or manually configure the RAID array for striped sets. If you want to auto-configure, proceed to the next step, otherwise, skip to step 5.
3. Select Auto Setup for Performance and press <Enter>. The following confirmation message appears.



4. Press <Y> to confirm or <N> to return to the configuration options. If you selected <Y>, proceed to step 9.
5. Select Select Disk Drives, then press <Enter>. Use arrow keys to select disk drive, then press <Enter> to mark selected drive. An asterisk appears before a selected drive.
6. Select Block Size, then press <Enter> to set array block size. A list of valid array block sizes are displayed on a pop-up menu.



TIP: For server systems, use of a lower array block size is recommended. For multimedia computer systems used mainly for audio and video editing, a higher array block size is recommended for optimum performance.

Use arrow keys to move selection bar on items and press <Enter> to select.

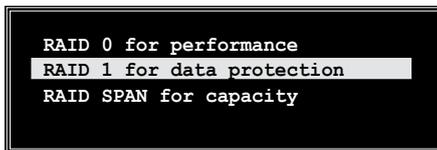
7. Select Start Create Process and press <Enter> to set up hard disk for RAID system. The following confirmation message appears:

The data on the selected disks will be destroyed. Continue? (Y/N)

8. Press <Y> to confirm or <N> to return to the configuration options.
9. Press <Esc> to go back to main menu.

RAID 1 for data protection

1. From the create array menu, select Array Mode, then press <Enter>. The supported RAID configurations appear on a pop-up menu.



2. Select RAID 1 for data protection then press <Enter>.

- From this point, you can auto-configure the RAID array by selecting Auto Setup for Data Security or manually configure the RAID array for mirrored sets. If you want to auto-configure, proceed to the next step, otherwise, skip to step 6.
- Select Auto Setup for Data Security and press <Enter>. The following confirmation message appears.

```
Auto create array will destroy all
data on disks, Continue? (Y/N)
```

- Press <Y> to confirm or <N> to return to the configuration options. If you selected <Y>, proceed to step 11.
- Select Select Disk Drives, then press <Enter>. Use arrow keys to select disk drive/s, then press <Enter>. An asterisk appears before a selected drive.
- Select Start Create Process and press <Enter> to setup hard disk for RAID system. The following inquiry appears:

```
Save the data on source disk to
mirror after creation? (Y/N)
```

- If you select <Y> the utility will duplicate your data. Press <Y> anytime if you want to exit the duplication process.

```
Duplicating...
Press Yes (Y) to Escape
```

- If you select <N>, the following confirmation message appears.

```
The data on the selected disks will
be destroyed. Continue? (Y/N)
```

- Press <Y> to confirm or <N> to return to the configuration options.
- Press <Esc> to go back to main menu.

3.4 Creating a RAID driver disk

A floppy disk with the RAID driver is required when installing Windows® XP operating system on a hard disk drive that is included in a RAID set. For Windows® Vista operating system, use either a floppy disk or a USB device with the RAID driver.

3.4.1 Creating a RAID driver disk without entering the OS

To create a RAID/SATA driver disk without entering the OS:

1. Boot your computer.
2. Press during POST to enter the BIOS setup utility.
3. Set the optical drive as the primary boot device.
4. Insert the support CD into the optical drive.
5. Save changes and exit BIOS.
6. Press any key when the system prompts "Press any key to boot from the optical drive."
7. When the menu appears, press <1> to create a RAID driver disk.
8. Insert a formatted floppy disk into the floppy drive then press <Enter>.
9. Follow succeeding screen instructions to complete the process.

3.4.2 Creating a RAID driver disk in Windows®

To create a RAID driver disk in Windows®:

1. Start Windows®.
2. Place the motherboard support CD into the optical drive.
3. Go to the **Make Disk** menu, then click **VIA 32/64bit RAID Driver** to create a VIA VT8237S RAID driver disk.
4. Insert a floppy disk/USB device into the floppy disk drive/USB port.
5. Follow succeeding screen instructions to complete the process.



Write-protect the floppy disk to avoid computer virus infection.

To install the RAID driver in Windows® XP:

1. During the OS installation, the system prompts you to press the F6 key to install third-party SCSI or RAID driver.
2. Press <F6> then insert the floppy disk with RAID driver into the floppy disk drive.
3. When prompted to select the SCSI adapter to install, make sure you select **VIA RAID controller series *** (OS)**.
4. Follow the succeeding screen instructions to complete the installation.

