

P5VDC-X

ASUS[®]

Motherboard

E2466

First Edition
April 2006

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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.



The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. 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 linked with a plus sign (+)

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

Command

Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets

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

```
afudos /i [filename]
afudos /iP5VDC-X.ROM
```

P5VDC-X specifications summary

CPU	LGA775 socket for Intel® Pentium® 4/ Pentium® D/ Celeron processors Supports Intel® Dual-Core 65nm Intel® processors Supports Intel® Hyper-Threading Technology Supports Intel® Enhanced Intel SpeedStep Technology (EIST)
Chipset	Northbridge: VIA PT880 Ultra Southbridge: VIA VT8237A
Front Side Bus	1066/ 800/533 MHz
Memory	2 x 184-pin DIMM sockets support up to 2GB 400/333/ 266 unbuffered non-ECC DDR memory modules 2 x 240-pin DIMM sockets support up to 2GB DDR2 533/400 unbuffered non-ECC memory modules
Expansion slots	1 x AGP 8X slot 1 x PCI Express x16 (max. x4 mode) 3 x PCI slots
Storage	Southbridge VIA VT8237A supports: - 2 x Ultra DMA 133/100/66 - 2 x Serial ATA with RAID 0, RAID 1, and JBOD configuration
Audio	ADI AD1986A High Definition Audio 6-channel CODEC Supports Jack-Sensing and Enumeration Technology S/PDIF Out interface
LAN	Realtek® 10/100 Mbps LAN PHY
USB	Supports up to 8 USB 2.0 ports
BIOS	4 MB Flash ROM, AMI BIOS, Green, PnP, DMI, WfM 2.0, SM BIOS 2.3
ASUS Special Features	ASUS EZ Flash ASUS CrashFree BIOS 2 ASUS MyLogo
Rear panel	1 x PS/2 mouse port 1 x Parallel port 1 x LAN (RJ-45) port 6-channel audio ports 4 x USB ports 1 x Serial port 1 x PS/2 keyboard port 1 x SPDIF out port

(continued on the next page)

P5VDC-X specifications summary

Internal connectors	1 x Floppy disk drive connector 2 x IDE connectors 2 x Serial ATA connectors 2 x USB 2.0 connectors for 4 additional USB ports 1 x 24-pin EATX power connector 1 x 4-pin ATX 12 V power connector 1 x Front panel audio connector 1 x CD audio-in connector CPU/Chassis/Power fan connectors
Form factor	ATX form factor: 12 in x 8.6 in
Support CD contents	Drivers ASUS PC Probe II ASUS Live Update utility Anti-virus software

*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® P5VDC-X 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 P5VDC-X motherboard
Cables	1 x Serial ATA cable 1 x Serial ATA power cable 1 x Ultra DMA 133/100/66 cable 1 x Floppy disk drive cable
Accessories	I/O shield
Application CD	ASUS motherboard support 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

Latest processor technology



The motherboard comes with a 775-pin surface mount Land Grid Array (LGA) socket designed for the Intel® Pentium® 4 processor in the 775-land package. The motherboard supports the Intel® Pentium® 4 processor with 1066/800/533 MHz Front Side Bus (FSB).

The motherboard also supports the Intel® Hyper-Threading Technology, the Intel® Extended Memory 64 Technology (EM64T) that allows 64-bit computing, and the Enhanced Intel Speedstep® Technology (EIST) that intelligently adjusts the CPU voltage and frequency depending on the CPU loading, system speed or power requirement. See page 1-8 for details.

Intel® 65nm Dual-Core CPU support



This motherboard supports Intel® Pentium® D/Pentium® 4/Celeron® 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™ & AGP8X



This motherboard supports PCI Express x16 and AGP8X slots to provide ultimate flexibility for graphics card upgrade. The PCI Express x16 slot running at PCI Express x4 speed outperforms PCI interface with its exceptional high bandwidth up to 2GB/s. See page 1-22 for details.

Dual Channel DDR and DDRII support



Employing the Double Data Rate (DDR) memory technology, the motherboard supports up to 2GB of system memory using DDR400/333/266 DIMMs. The ultra-fast 400MHz memory bus delivers the required bandwidth for the latest 3D graphics, multimedia, and Internet applications.

DDR2 is the next generation memory technology to replace the current DDR. With initial speeds of 533MHz, DDR2 memory provides bandwidth up to 4.3GB/s. Doubled by the dual-channel architecture, the widest memory bus bandwidth 8.6GB/s is achieved on this motherboard. See page 1-15 for details.

Serial ATA RAID technology



Serial ATA is the next generation ATA specification that provides scalable performance for today and tomorrow. With up to 150MB/s data transfer rate, Serial ATA is faster than current Parallel ATA, while providing 100% software compatibility. The onboard VIA VT8237A southbridge allows RAID 0, RAID 1, and JBOD configuration for two SATA connectors. See page 1-29 for details.

10/100 Mbps LAN



Easy connectivity to your network or broadband connection with the onboard LAN port. Allows you to play online games without buying expensive additional LAN cards. See page 1-26 for details.

ADI SoundMAX High-Definition audio



The onboard 6-channel AD1986A High Definition audio CODEC enables high-quality audio which automatically detects and identifies what type of peripherals are plugged into the audio I/O jacks. It also notifies the user of inappropriate connection. See pages 1-26 and 1-27 for details.

S/PDIF digital sound ready



The motherboard supports the S/PDIF Out function through the S/PDIF interfaces on the rear panel. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems. See page 1-26 for details.

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 1-25, 1-27 and 1-31 for details.

1.3.2 Innovative ASUS features

ASUS EZ Flash BIOS



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 2-3 for details.

ASUS CrashFree BIOS 2



This feature allows you to restore the original BIOS data from the support CD in case when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. See page 2-6 for details.

ASUS MyLogo™



This new feature present in the motherboard allows you to personalize and add style to your system with customizable boot logos. See details on page 2-34.

1.4 Before you proceed

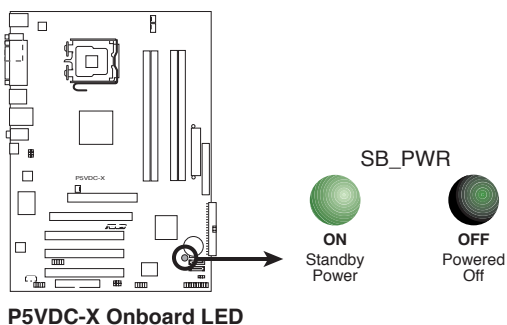
Take note of the following precautions before you install components into the system.



- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or 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.

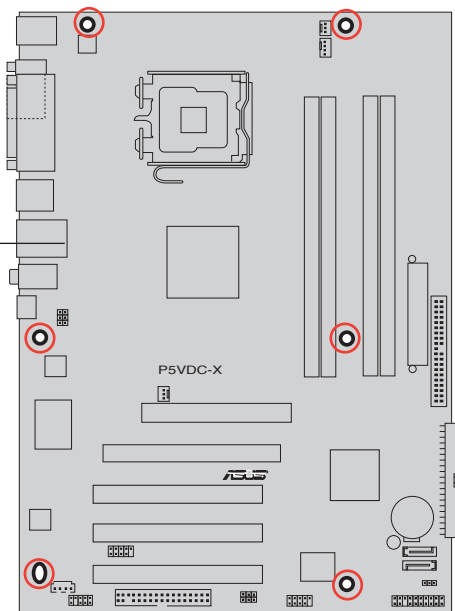
1.5.2 Screw holes

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

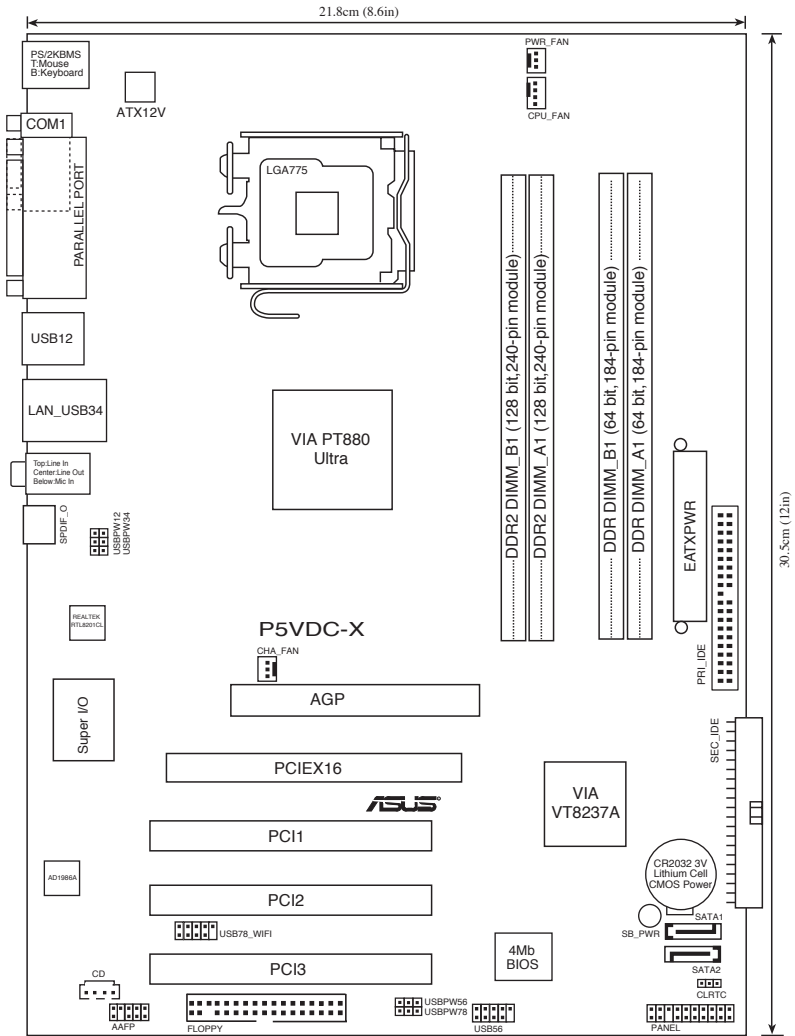


Do not overtighten the screws! Doing so can damage the motherboard.

Place this side towards the rear of the chassis



1.5.3 Motherboard layout



1.6 Central Processing Unit (CPU)

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

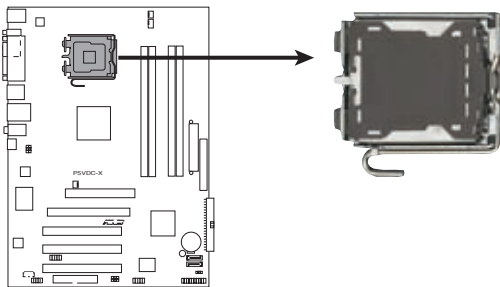


- Your boxed Intel® Pentium® 4 LGA775 processor package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.
- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/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 contacts 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.

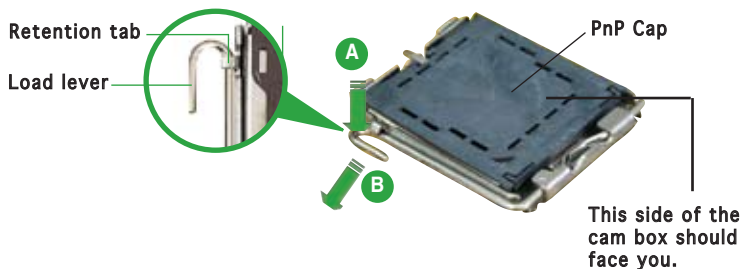


P5VDC-X CPU Socket 775



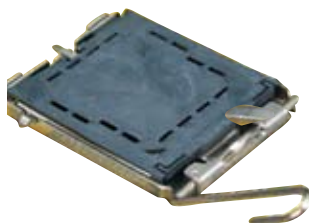
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

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

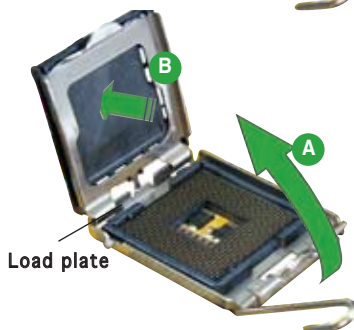


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

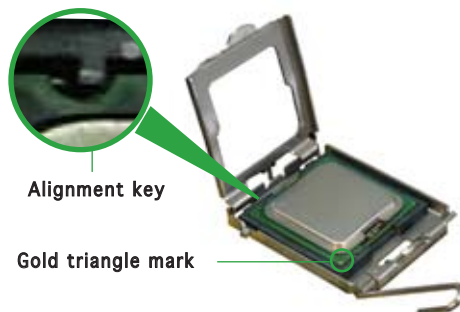
3. Lift the load lever in the direction of the arrow to a 135° angle.



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 on the socket, making sure that the gold triangle fixes on the bottom-left corner of the socket. The socket alignment keys should fit into the CPU notches.



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 processor in the 775-land package with Hyper-Threading Technology.
 - Hyper-Threading Technology is supported under Windows® XP/2003 Server and Linux 2.4.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 that supports Hyper-Threading Technology.
2. Power up the system and enter the BIOS Setup (see Chapter 2: BIOS setup). Under the Advanced BIOS Features Menu, make sure that the item **HyperThreading Function** 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 /Pentium® D 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.
- Your Intel® Pentium® 4 LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install it.



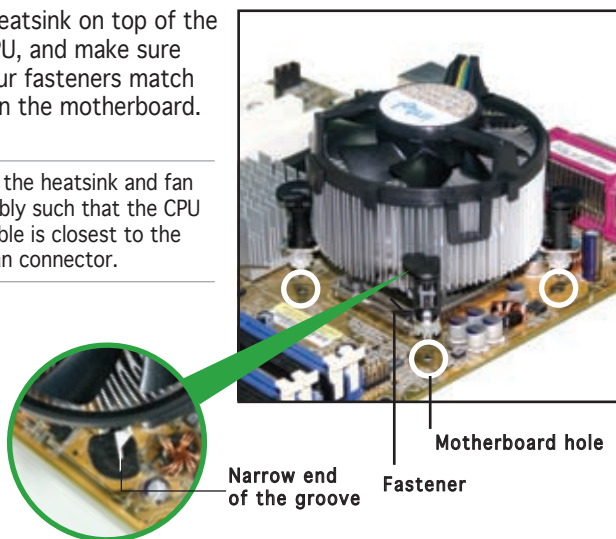
- Make sure that you use Intel®-certified multi-directional heatsink and fan only.
- Make sure that you have installed the motherboard to the chassis before you install the CPU fan and heatsink assembly.

To install the CPU heatsink and fan:

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

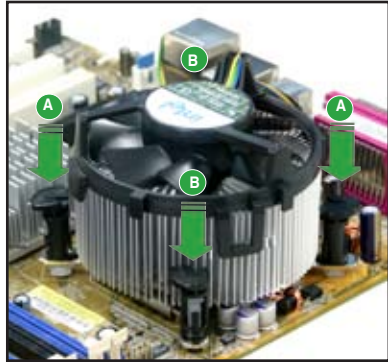
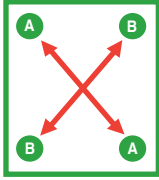


Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.

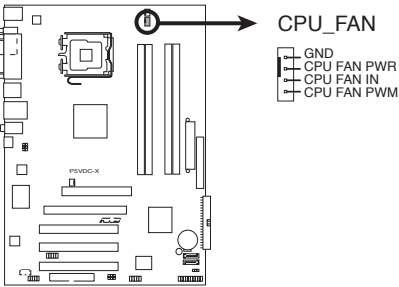


Make sure to orient each fastener with the narrow end of the groove pointing outward. (The photo shows the groove shaded for emphasis.)

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



3. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.



P5VDC-X CPU FAN Connector

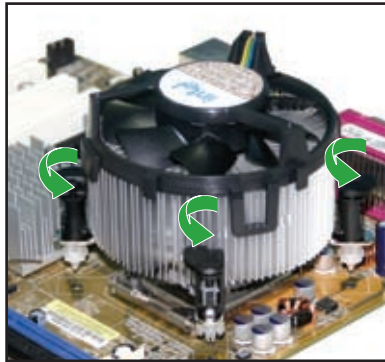


Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

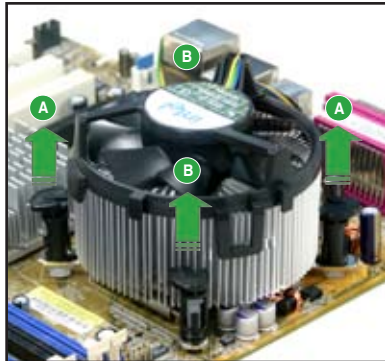
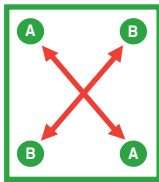
1.6.3 Uninstalling the CPU heatsink and fan

To uninstall the CPU heatsink and fan:

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



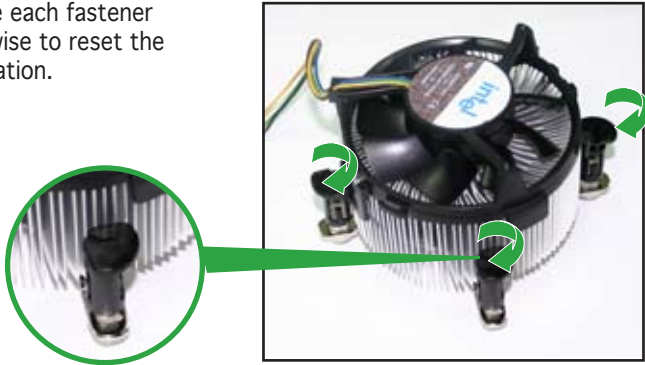
3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.



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



5. Rotate each fastener clockwise to reset the orientation.



Narrow end of the groove



When reset, each fastener should be oriented as shown, with the narrow groove directed outward.



1.7 System memory

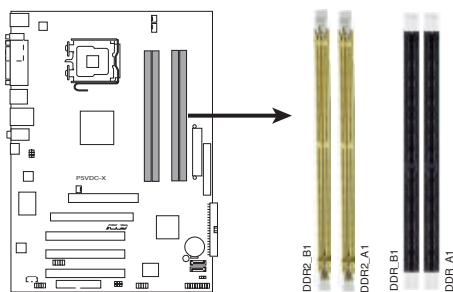
1.7.1 Overview

The motherboard comes with two 240-pin Double Data Rate 2 (DDR2) and two 184-pin DDR Dual Inline Memory Modules (DIMM) sockets.

DDR2 DIMMS are notched differently to prevent misplacement in DDR DIMM sockets.

The following figure illustrates the location of the sockets:

Color	Sockets
Blue	DDR_1 and DDR_2
Yellow	DDR2_1 and DDR2_2



P5VDC-X DDR & DDR2 DIMM Sockets



- To prevent damage to the motherboard, **do not use DDR and DDR2 memory simultaneously.**
- Due to chipset resource allocation, the system may detect less than 2 GB system memory when you installed two 1 GB DDR2 or DDR memory modules.

1.7.2 Memory Configurations

You may install 256 MB, 512 MB and 1 GB unbuffered non-ECC DDR/DDR2 DIMMs into the DIMM sockets using the memory configurations in this section.

DDR2 (533 MHz) Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Component	DIMM support	
						A	B
256MB	Kingston	KVR533D2N4/256	Elpida	SS	E5116AB-5C-E	•	•
256MB	Kingston	KVR533D2N4/256	Elpida	SS	E5116AF-5C-E	•	•
512MB	Kingston	KVR533D2N4/512	Hynix	DS	HY5PS56821	•	•
512MB	Kingston	KVR533D2N4/512	Infineon	SS	HYB18T512800AF3733336550	•	•
1G	Kingston	KVR533D2N4/1G	Kingston	DS	D6408TE7BL-37	•	•
1G	Kingston	KVR533D2N4/1G	Micron	DS	5VD11D9GCT	•	•
256MB	Samsung	M378T3253FG0-CD5	Samsung	SS	K4T560830F-GCD5	•	•
512MB	Samsung	M378T6553BG0-CD5	Samsung	SS	K4T51083QB-GCD5	•	•
256MB	Infineon	HYS64T32000HU-3.7-A	Infineon	SS	HYB18T512160AF-3.7AFSS31270	•	•
512MB	Infineon	HYS64T64000GU-3.7-A	Infineon	SS	HYB18T512800AC37SSS11511	•	•
512MB	Infineon	HYS64T64000HU-3.7-A	Infineon	SS	HYB18T512800AF37SSS12079	•	•
512MB	Infineon	HYS64T64000HU-3.7-A	Infineon	SS	HYB18T512800AF37FSS29334	•	•
512MB	Micron	MT 16HTF6464AG-53EB2	Micron	DS	D9BOM	•	•
512MB	Micron	MT 16HTF6464AG-53EB2	Micron	DS	Z9BQT	•	•
1G	Micron	MT 16HTF12864AY-53EA1	Micron	DS	D9CRZ	•	•
512MB	Corsair	V5S12MB533D2	Corsair	DS	MII0052532M8CEC	•	•
512MB	Elpida	EBE51UD8ABFA-5C-E	Elpida	SS	E5108AB-5C-E	•	•
512MB	Kingmax	KLBC28F-A8KB4	Kingmax	SS	KKEA88B4IAK-37	•	•
256MB	Kingmax	KLBB68F-36EP4	Elpida	SS	E5116AB-5C-E	•	•
512MB	Kingmax	KLBC28F-A8EB4	Elpida	SS	E5108AE-5C-E	•	•

Legend:

A - supports one module inserted in any **yellow** slot.

B - supports one pair of modules inserted into both of the **yellow** slots.

SS - Single-sided

DS - Double-sided

DDR (400 MHz) Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Component	DIMM support	
						A	B
256MB	Kingston	KVR333X64C25/256	Kingston	SS	D3208DH1T-6	•	•
256MB	Kingston	KVR333X64C25/256	Hynix	DS	HY5DU56822BT-D43	•	•
512MB	Kingston	KVR333X64C25/512	Kingston	DS	D3208DH1T-6	•	•
512MB	Kingston	KVR400X64C3A/512	Hynix	DS	HY5DU56822BT-D43	•	•
512MB	Kingston	KVR400X64C3A/512	Kingston	DS	D3208DH1T-5	•	•
512MB	Kingston	KVR400X64C3A/512	Hynix	SS	HY5DU12822BT-D43	•	•
512MB	Kingston	KVR400X64C3A/512	Hynix	SS	HY5DU12822CTP-D43	•	•
512MB	Kingston	KVR400X64C3A/512	Promos	DS	V58C2256804SCI58	•	•
256MB	Kingston	KVR400X64C3A/256	Hynix	SS	HY5DU56822BT-D43	•	•
256MB	Kingston	KVR400X64C3A/256	Kingston	SS	D3208DL3T-5A	•	•
256MB	Kingston	KVR400X64C3A/256	PSC	SS	A2S56D30BTP	•	•
1G	Kingston	KVR400X64C3A/1G	Infineon	DS	HYB25D512800BE-5B	•	•
256MB	Infineon	HYS64D32300HU-5-C	Infineon	SS	HYB25D5256800CE-5C	•	•
512MB	Infineon	HYS64D64320HU-5-C	Infineon	DS	HYB25D256800CE-5C	•	•
512MB	Infineon	HYS64D64300HU-5-B	Infineon	SS	HYB25D512800BE-5B	•	•

(Continued on the next page)

DDR (400 MHz) Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Component	DIMM support	
						A	B
256MB	Corsair	VS256MB400	Value select	SS	VS32M8-5 2B0409	•	
256MB	Corsair	XMS3202v3.1	Infineon	DS	HYB25D256807BT-5B	•	
512MB	Corsair	XMS3205v1.2	Winbond	DS	W942508CH-5	•	•
512MB	Corsair	VS512MB400	Value select	DS	VS32M8-5 2B0402	•	
256MB	Corsair	XMS2700v1.1	Winbond	SS	W942508BH-6	•	•
256MB	Corsair	VS256MB333	Samsung	SS	K4H560838D-TCB3	•	•
512MB	Corsair	XMS2702v3.1	Mosel	DS	V58C2256804SAT6	•	
512MB	Corsair	XMS2702v1.2	Winbond	DS	W942508CH-6	•	•
512MB	Micron	MT16VDDT6464AG-335GB	Micron	DS	MT46V32M8TG-6TG	•	•
256MB	Micron	MT8VDDT3264AG-335GB	Micron	SS	MT46V32M8TG-6TG	•	•
256MB	Micron	MT8VDDT3264AG-40GB	Micron	SS	MT46V32M8TG-5BG	•	•
512MB	Micron	MT16VDDT6464AG-40BCB	Micron	DS	MT46V32M8TG-5BC	•	•
256MB	Samsung	M368L3223FTN-CCC	Samsung	SS	K4H560838F-TCCC	•	•
512MB	Samsung	M368L6423FTN-CCC	Samsung	DS	K4H560838F-TCCC	•	•
256MB	Samsung	M368L3223FTN-CB3	Samsung	SS	K4H560838F-TCB3	•	•
512MB	Samsung	M368L6423FTN-CB3	Samsung	DS	K4H560838F-TCB3	•	•
256MB	Elpida	U24256ADEPG6H20	Elpida	SS	DD2508AKTA-5C	•	•
512MB	Elpida	U24512ADEPG6H20	Elpida	DS	DD2508AMTA	•	
512MB	Apacer	77.90728.U1G	Apacer	DS	AM3A568AJT-6B	•	•
256MB	Apacer	77.10636.46G	Samsung	SS	K4H560838E-TCCC	•	•
256MB	Apacer	77.10636.56G	Mosel	SS	V58C2256804SAT5B	•	•
256MB	Transcend	DDR400-256	Samsung	SS	K4H560838F-TCCC	•	•
256MB	Transcend	DDR400-256	Mosel	SS	V58C2256804SAT5B	•	•
256MB	Transcend	103004-0720	PSC	SS	A2S56D30BTP	•	
512MB	Transcend	102709-0001	PSC	DS	A2S56D30AATP	•	•
512MB	Transcend	DDR400-512	Mosel	DS	V58C2256804SAT5B	•	
512MB	Transcend	DDR400-512	Samsung	DS	K4H560838F-TCCC	•	•
256MB	Transcend	111448-0214	PSC	SS	A2S56D30BTP	•	•
512MB	Transcend	DDR333-512	Hynix	DS	HY5DU56822CT-J	•	•
256MB	Kingmax	MPMB62D-38LT3R	Mosel	SS	V58C2256804SAT6	•	•
512MB	Kingmax	MPMC22D-38HT3R	Hynix	DS	HY5DU56822BT-J	•	•
256MB	Kingmax	MPXB62D-38KT3R	Kingmax	SS	KDL388P4LA-50	•	
512MB	Kingmax	MPXC22D-38KT3R	Kingmax	DS	KDL388P4EA-50	•	•
256MB	Vdata	MDYVD6F4G2880B1EOH	Vdata	SS	VDD9616A8A-5C	•	•
256MB	Infineon	HYS64D32300GU-5-C	Infineon	SS	HYB25D256800CE-5C	•	•
512MB	Infineon	HYS64D64320HU-6-C	Infineon	DS	HYB25D256800CE-6C	•	•
256MB	HY	HYMD232646D8J-D43	Hynix	SS	HY5DU56822DT-D43	•	
512MB	HY	HYMD264646D8J-D43	Hynix	DS	HY5DU56822DT-D43	•	•
256MB	HY	HYMD232646B8J-J	Hynix	SS	HY5DU56822BT-J	•	•
512MB	HY	HYMD264646B8J-J	Hynix	DS	HY5DU56822BT-J	•	•

Legend:

A - supports one module inserted in any **blue** slot.

B - supports one pair of modules inserted into both of the **blue** slots.

SS - Single-sided

DS - Double-sided



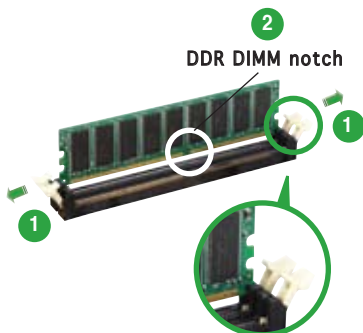
Visit the system builder's website for the latest DDR2-533, DDR-400, or DDR-333 Qualified Vendors List.

1.7.3 Installing a DDR1 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 DDR1 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.

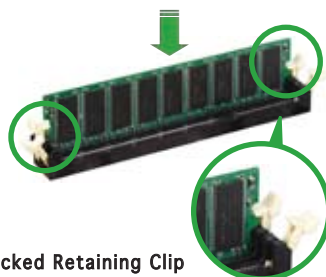


Unlocked retaining clip



A DDR 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.

3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.

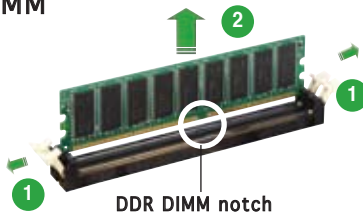


Locked Retaining Clip

1.7.4 Removing a DDR1 DIMM

To remove a DDR1 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.

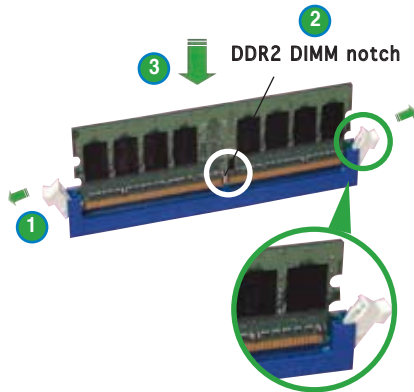
1.7.5 Installing a DDR2 DIMM



Unplug the power supply before inserting or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DDR2 DIMM:

1. Unlock a DDR2 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.

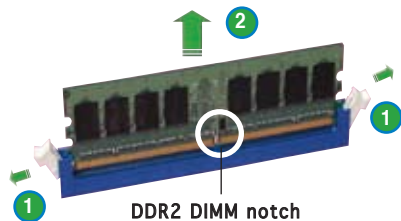
1.7.6 Removing a DDR2 DIMM

Follow these steps to remove a DDR2 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

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	-	Re-direct to IRQ#9
3	11	Communications Port (COM2)*
4	12	Communications Port (COM1)*
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	IRQ holder for PCI steering*
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	E	F	G	H
PCI slot 1	shared	—	—	—	—	—	—	—
PCI slot 2	—	shared	—	—	—	—	—	—
PCI slot 3	—	—	shared	—	—	—	—	—
PCI x4 slot*	—	—	—	—	—	—	—	shared
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	—	—	—	—	—	—



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.

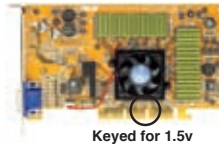
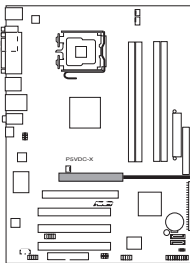


1.8.5 AGP slot

The Accelerated Graphics Port (AGP) slot supports AGP8X cards. When you buy an AGP card, make sure that you ask for one with +1.5V specification. Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.



Install only 1.5 V or 0.8 V AGP cards on this motherboard!



P5VDC-X Accelerated Graphics Port (AGP)

1.8.6 PCI Express x16 slot

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



The PCI Express x 16 slot runs at x 4 speed max.

VGA Qualified Vendors List (PCIe x4 mode)

PCIe X 16 VGA Card	PCB version
ASUS EAX300	-
ASUS EAX300SE/T	Rev. V1.01
ASUS EAX300SE/TD	Rev. V1.00
ASUS EAX600 Pro	Rev. V1.01
ASUS EAX600XT	Rev. V1.02
ASUS EAX600XT/TD	Rev. V1.02
ASUS EAX700	-
ASUS EAX700-X/TD	Rev.V1.02
ASUS EAX8002DTV	Rev. V1.00
ASUS EAX800 Pro	-
ASUS EAX800/2DTV	Rev. V1.00
ASUS EAX800SILENCER/2DTV	Rev. V1.00
ASUS EAX850XT/2DHTV	-
ASUS EAX850XTP/2DHTV	Rev. B
ASUS EAX850 Pro	-
ASUS EAX1300 Pro/TD	Rev. V1.01
ASUS EN5750/TD/P	Rev. V1.01
ASUS EN6200GE	Rev. V1.00A
ASUS EN6200TC256/TD	Rev.1.02
ASUS EN6600GT	Rev. V1.00
ASUS EN6600GT SILENCER	Rev. V1.03
ASUS EN6600/TD	Rev. V1.00A
ASUS EN6600 TOP/TD	Rev.V1.00
ASUS EN6600SILENCER/TD	Rev.1.00A
ASUS EN6800/TD	Rev. V1.00A
ASUS EN6800GT	Rev. V1.02
ASUS EN6800Ultra/2TD	Rev. V1.00A
ASUS EN6800LE/HTD	Rev. V1.00
ASUS EN6800/TD	Rev. V1.00
ASUS EN6800GT/2DT	Rev. V1.00A
ASUS EN7800GTX/2DHTV	-
ASUS EN7800GTX TOP	-
ASUS N5900	Rev. V1.00
Powercolor X300	-
Powercolor X800	-
Powercolor-X850XT	Rev. B



- Some PCI Express graphics cards cannot operate on PCIe x4 mode.
- Visit the ASUS website for the latest VGA Qualified Vendors List.

1.9 Jumpers

1. Clear RTC RAM (CLRRTC)

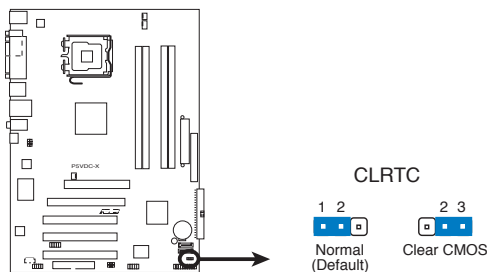
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

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!



P5VDC-X Clear RTC RAM

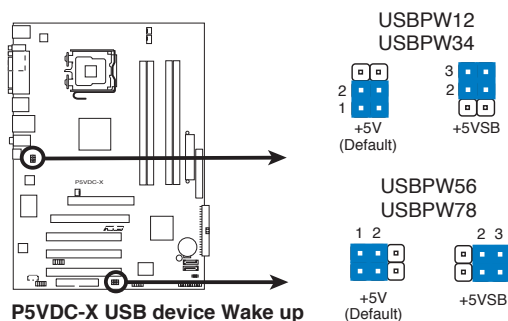


You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

2. USB device wake-up (3-pin USBPW12, USBPW34, USBPW56, USBPW78)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).

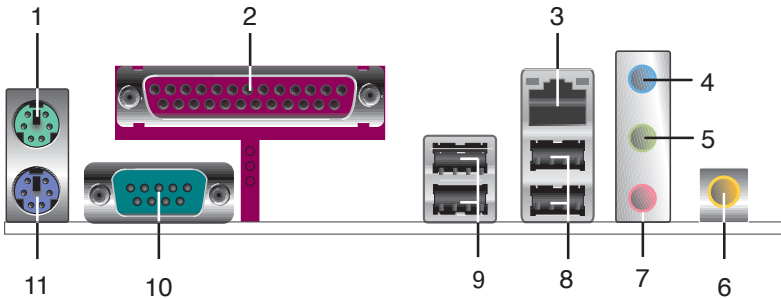
The USBPW12 and USBPW34 jumpers are for the rear USB ports. The USBPW56 and USBPW78 jumpers are for the internal USB connectors that you can connect to additional USB ports.



- The USB device wake-up feature requires a power supply that can provide 500 mA 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

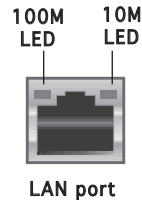
1.10.1 Rear panel connectors



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 Mbps connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

100M LED		10M LED	
Status	Description	Status	Description
OFF	No link	OFF	No link
ORANGE	100M speed	GREEN	10M speed
BLINKING	Acting	BLINKING	Acting



4. **Line In port (light blue).** This port connects a tape, CD, DVD player, or other audio sources.
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 Front Speaker Out.
6. **Coaxial S/PDIF Out port.** This port connects an external audio output device via a coaxial S/PDIF cable.
7. **Microphone port (pink).** This port connects a microphone.



Refer to the audio configuration table on the next page for the function of the audio ports with 6-channel configuration.

Audio 2, 4, or 6-channel configuration

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

- USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
- USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
- Serial port.** This 9-pin COM1 port is for pointing devices or other serial devices.
- PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

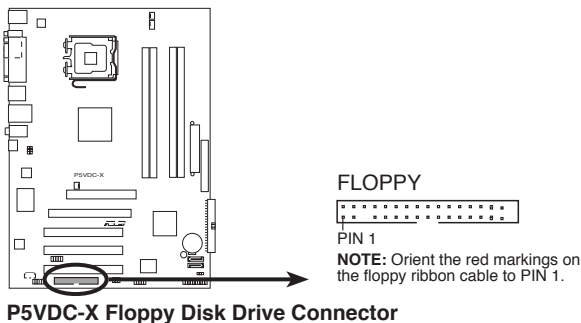
1.10.2 Internal connectors

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 a FDD cable with a covered Pin 5.



2. IDE connectors (40-1 pin PRI_IDE, SEC_IDE)

The onboard IDE connectors are for Ultra DMA 133/100/66 signal cables. 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).

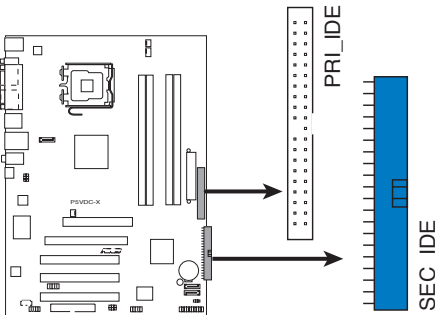
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master Slave	Black Gray
	Master Slave	Master Slave	Black or gray



- 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 133/100/66 IDE devices.



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

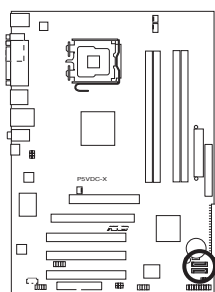


P5VDC-X IDE Connectors

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

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

These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives.



P5VDC-X SATA Connectors

SATA1



SATA2



Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack 1 before using Serial ATA.



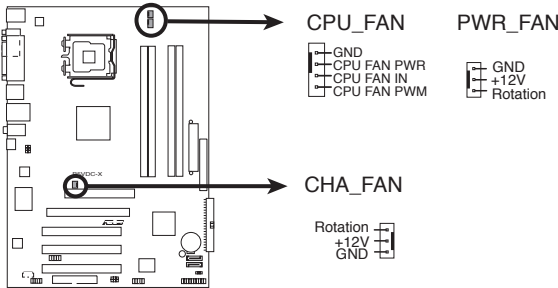
For detailed instructions on how to configure RAID 0, RAID 1, and JBOD, refer to the RAID manual in the support CD. See page 3-6 for details.

4. CPU, Chassis and Power Fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN, 3-pin PWR_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.



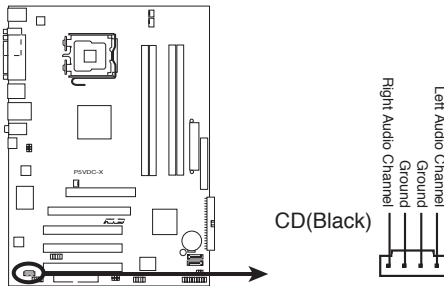
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



P5VDC-X FAN Connectors

5. Internal audio connectors (4-pin CD)

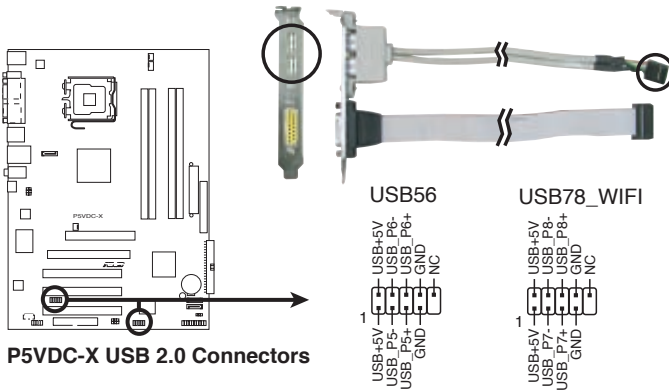
This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.



P5VDC-X Internal Audio Connector

6. USB connectors (10-1 pin USB56, USB78_WIFI)

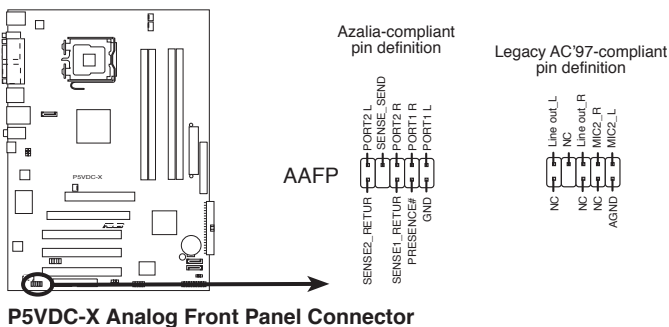
These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



The USB module is purchased separately.

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

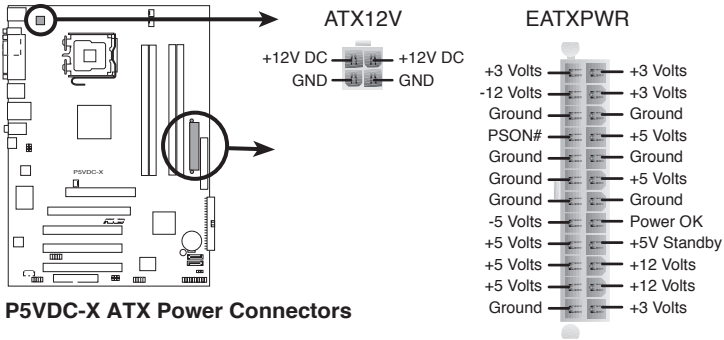
This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy Azalia audio standard.



It is recommended that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

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

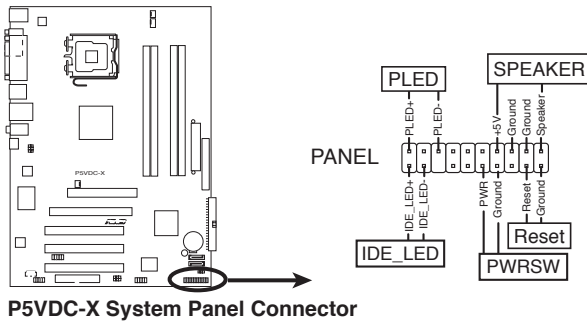
These connectors are for ATX power supply plugs. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



- You can also use a Power Supply Unit (PSU) with a 24-pin ATX power connector on this motherboard.
- 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. We recommend that you use a PSU with a higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

9. System panel connector (20-1 pin PANEL)

This connector supports several chassis-mounted functions.



The system panel connector is color-coded for easy connection. Refer to the connector description below for details.

- **System power LED (Green 3-pin PLED)**
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 (Red 2-pin IDE_LED)**
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.
- **System warning speaker (Orange 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.
- **ATX power button/soft-off button (Yellow 2-pin PWRSW)**
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 (Blue 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 AFUDOS** (Updates the BIOS in DOS mode using a bootable floppy disk.)
2. **ASUS EZ Flash** (Updates the BIOS using a floppy disk during POST.)
3. **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.)
4. **ASUS Update** (Updates the BIOS in Windows® environment.)

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 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. 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. From the Open field, type
D:\bootdisk\makeboot a:
assuming that D: is your optical drive.
 - e. Press <Enter>, then follow screen instructions to continue.
2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

2.1.2 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-Test (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 P5VDCX.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 "P5VDC-X.ROM". Completed.  
Start erasing.....|  
Start programming...|  
Flashed successfully. Rebooting.
```



- Do not shutdown 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 "P5VDC-X.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 P5VDC-X.ROM.

2.1.3 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 600 KB free space to save the file.
- The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be exactly the 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 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
Reading flash ..... done
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 /iP5VDC-X.ROM
```

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

```
A:\>afudos /iP5VDC-X.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
Reading file ..... done
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 /iP5VDC-X.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
Reading file ..... done
Erasing flash .... done
Writing flash .... 0x0008CC00 (9%)
Verifying flash .. done
A:\>
```

2.1.4 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 P5VDC-X.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 "P5VDC-X.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 "P5VDC-X.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.

2.1.5 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 **Install ASUS Update Vx.XX.XX**. See page 3-4 for the Utilities screen menu.
3. The ASUS Update utility is copied to your system.

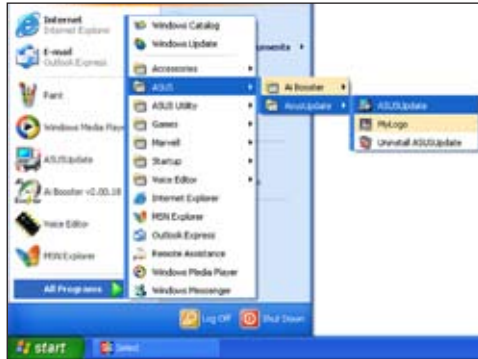


Quit all Windows® applications before you update the BIOS using this utility.

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 all its features.



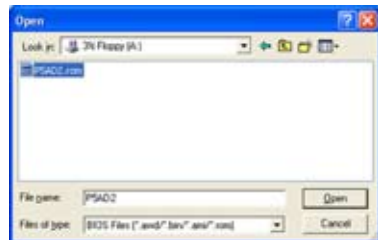
Updating the BIOS through a BIOS file

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 **Open**.
- Follow the screen instructions to complete the update process.



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 of 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.

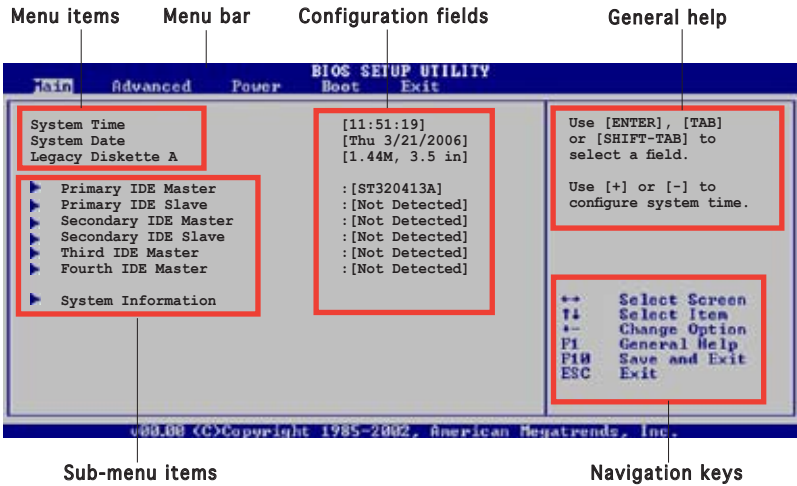
If you wish to enter Setup after POST, restart the system by pressing <Ctrl>+<Alt>+, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

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.
-

2.2.1 BIOS menu screen



2.2.2 Menu bar

The menu bar on top of the screen has the following main items:

- Main** For changing the basic system configuration
- Advanced** For changing the advanced system settings
- Power** For changing the advanced power management (APM) configuration
- Boot** For changing the system boot configuration
- Exit** For selecting the exit options and loading default settings

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

2.2.3 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

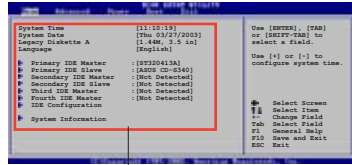


Some of the navigation keys differ from one screen to another.

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.

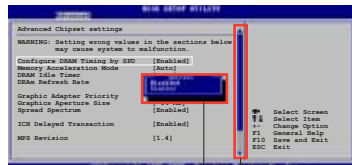
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to “2.2.7 Pop-up window.”

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:xxxx]

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

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, Secondary Master/Slave, Third and Fourth IDE Master

While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE 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]

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) [Auto]

Enables or disables data multi-sectors transfers. 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] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5] [UDMA6]

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

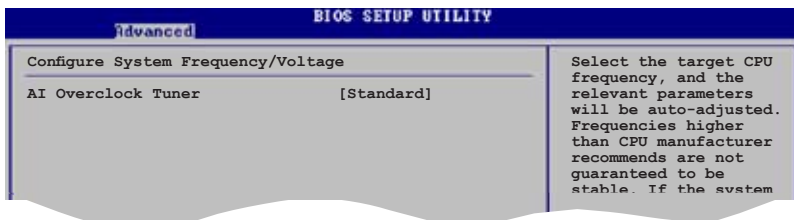
The Advanced menu items allow you to change the settings for the CPU and other system devices.



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



2.4.1 JumperFree Configuration



AI Overclock Tuner [Standard]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking options. Configuration options: [Manual] [Standard] [Overclock 5%] [Overclock 10%] [Overclock 20%] [Overclock 30%]



The following item appears only when you set the AI Overclocking item to [Manual].

CPU Frequency [XXX]

Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the <+> and <-> keys to adjust the CPU frequency. You can also type the desired CPU frequency using the numeric keypad. The values range from 100 to 400. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings.

FSB/CPU External Frequency Synchronization

Front Side Bus	CPU External Frequency
FSB 1066	266 MHz
FSB 800	200 MHz
FSB 533	133 MHz

AGP/PCI Frequency [Auto]

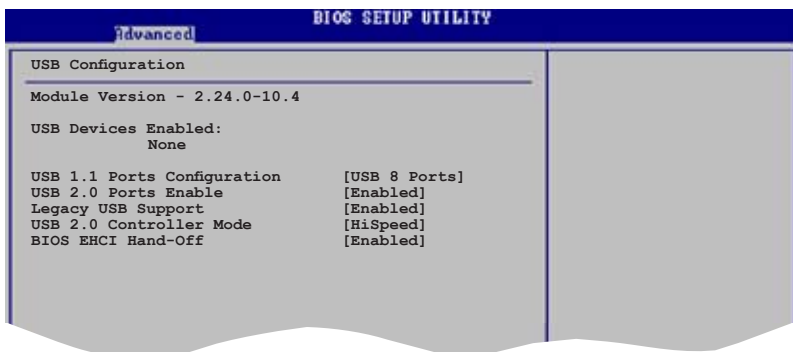
Sets the AGP/PCI frequency. Configuration options: [Auto] [66.6/33.3] [75.0/37.5] [88.0/44.0]

PCIe Frequency [Sync]

Allows you to select the PCIe frequency mode. Configuration options: [Sync] [Async]

2.4.2 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]

Disables or set the 1.1 USB host controllers.

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

USB 2.0 Ports Enable [Enabled]

Enables or disables USB 2.0 Ports.

Configuration options: [Enabled] [Disabled]

Legacy USB Support [Enabled]

Allows you to enable or disable support for USB devices on legacy operating systems (OS). 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]

USB 2.0 Controller Mode [HiSpeed]

Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [Full Speed] [HiSpeed]

BIOS EHCI Hand-off [Enabled]

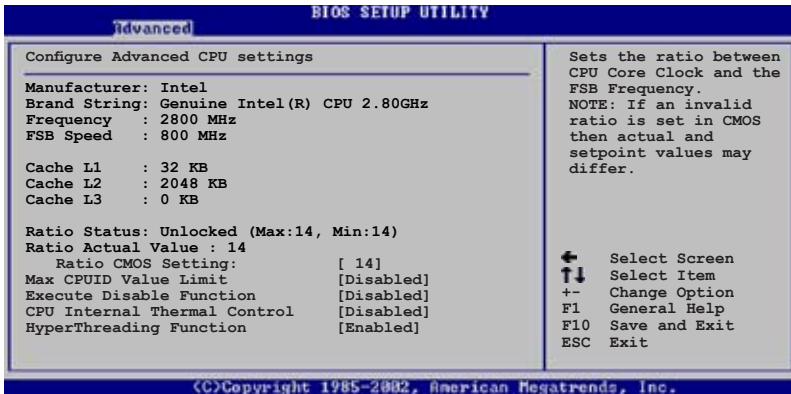
Allows you to enable support for operating systems without an EHCI hand-off feature. Configuration options: [Disabled] [Enabled]



Do not disable the BIOS EHCI Hand-Off option if you are running a Windows® operating system with USB device.

2.4.3 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.



Ratio CMOS Setting [14]

Sets the ratio between the CPU Core Clock and the Front Side Bus frequency. The default value of this item is auto-detected by BIOS. Use the <+> or <-> keys to adjust the values.



The following item appears only when you install a CPU that supports the lock free feature. Only some latest CPUs support this feature.

Max CPUID Value Limit [Disabled]

Enable this item to boot legacy operating systems that cannot support CPUs with extended CPUID functions.

Configuration options: [Disabled] [Enabled]

Execute Disable Function [Disabled]

Allows you to enable or disable the no execution on page protection technology. When enabled, the system forces the XD feature flag to always return to zero. Configuration options: [Disabled] [Enabled]

CPU Internal Thermal Control [Disabled]

Disables or sets the CPU internal thermal control.

Configuration options: [Auto] [Disabled]

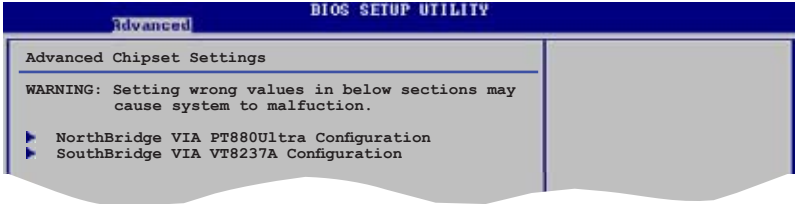
Hyper-Threading Function [Enabled]

Allows you to enable or disable the processor Hyper-Threading Technology.

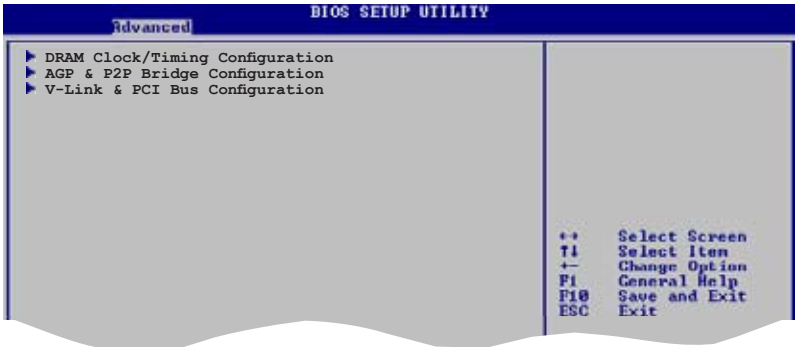
Configuration options: [Disabled] [Enabled]

2.4.4 Chipset

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



NorthBridge Configuration



DRAM Clock/Timing Configuration

If you select the option of DRAM Clock/Timing Configuration, the following options will appeared.



DRAM Frequency [Auto]

Allows you to select the DRAM frequency. Configuration options: [Auto] [Manual] [Turbo] [Ultra]

DRAM Timing [Auto]

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



The following item appears only when you set the DRAM Timing to [Manual].

DRAM CAS# Latency [2.5]

Configuration options: [1.5] [2.0] [2.5] [3.0]

Precharge to Active(Trp) [4T]

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

Active to Precharge(Tras) [7T]

Configuration options: [5T] [6T] [7T].... [20T]

Active to CMD(Trcd) [4T]

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

DRAM BUS selection [Auto]

Allows you to select the DRAM Bus mode.

Configuration options: [Auto] [Single Channel] [Dual Channel]

AGP & P2P Bridge Configuration

If you select the option of AGP & P2P Bridge Configuration, the following options will appeared.



AGP 2.0 Mode [4x]

Allows you to select the AGP mode.

Configuration options: [4x][2x] [1x]

AGP Fast Write [Enabled]

Allows you to enable or disable the AGP fast write.

Configuration options: [Disabled] [Enabled]

AGP Aperture Size [128MB]

Allows you to select the AGP aperture size.

Configuration options: [32 MHz] [64 MHz] [128 MHz] [256 MHz]

Primary Graphics Adapter [PCI Express]

Allows you to set the primary graphics adapter.

Configuration options: [PCI] [AGP] [PCI Express]

V-Link & PCI Bus Configuration

If you select the option of V-Link & PCI Bus Configuration, the following options will appeared.



V-Link mode selection [Auto]

Allows you to select the V-Link mode. Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

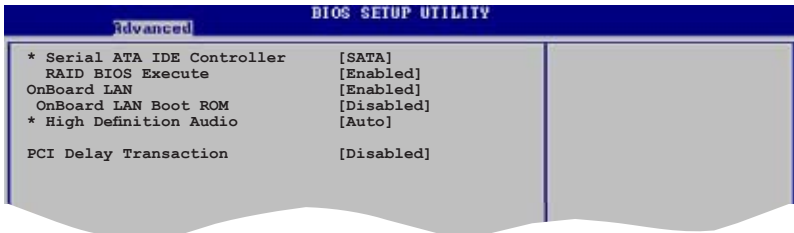
V-Link 8X Supported [Enabled]

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 Configuration



The screenshot shows the BIOS Setup Utility interface with the 'Advanced' tab selected. The title bar reads 'BIOS SETUP UTILITY'. The settings are as follows:

Setting	Value
* Serial ATA IDE Controller	[SATA]
RAID BIOS Execute	[Enabled]
OnBoard LAN	[Enabled]
OnBoard LAN Boot ROM	[Disabled]
* High Definition Audio	[Auto]
PCI Delay Transaction	[Disabled]

Serial ATA IDE Controller [SATA]

This option allows you to set the Serial ATA IDE controller mode.

Configuration options: [Disabled] [SATA] [RAID]

RAID BIOS Execute [Enabled]

This option allows you to enable or disable the RAID BIOS Execute.

Configuration options: [Disabled] [Enabled]

OnBoard LAN [Enabled]

This option allows you to enable or disable Onboard LAN .

Configuration options: [Disabled] [Enabled]

OnBoard LAN Boot ROM [Disabled]

This option allows you to enable or disable the Onboard LAN boot ROM.

Configuration options: [Enabled] [Disabled]

High Definition Audio [Auto]

This option allows you to set the High Definition Audio.

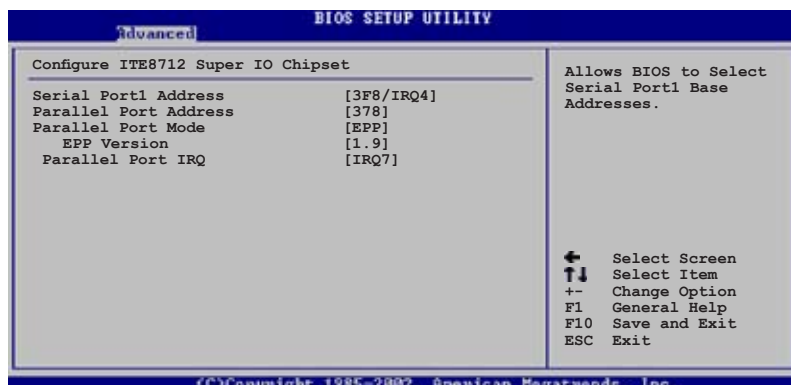
Configuration options: [Disabled] [Auto]

PCI Delay Transaction [Disabled]

Allows you to enable or disable the PCI Delay Transaction.

Configuration options: [Disabled] [Enabled]

2.4.5 Onboard Devices Configuration



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 addresses.

Configuration options: [Disabled] [378] [278]

Parallel Port Mode [EPP]

Allows you to select the Parallel Port mode.

Configuration options: [Normal] [Bi-Directional] [EPP] [ECP]

EPP Version [1.9]

This item allows you to set the Parallel Port EPP Version.

Configuration options: [1.9] [1.7]

Parallel Port IRQ [IRQ7]

Allows you to select the Parallel Port IRQ.

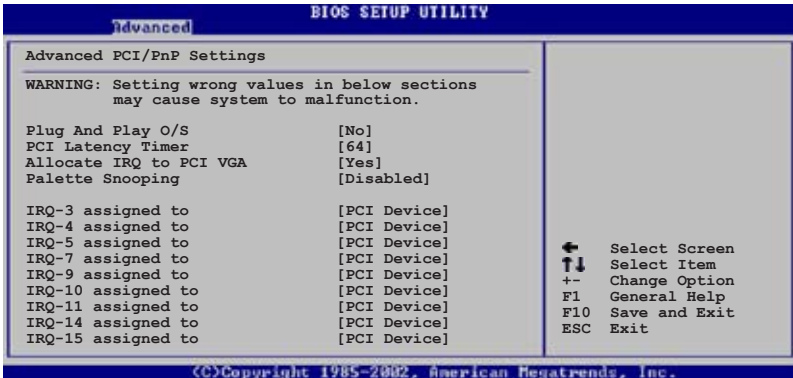
Configuration options: [IRQ5] [IRQ7]

2.4.6 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.



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



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]

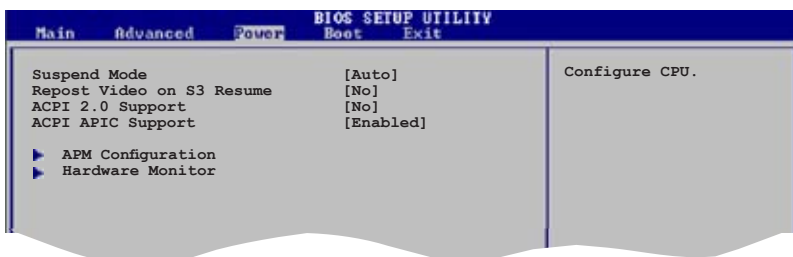
When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [No] [Yes]

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]

2.5 Power menu

The Power menu items allow you to change the settings for the Advanced Configuration and Power Interface (ACPI) and the Advanced Power Management (APM). 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.

Configuration options: [S1 (POS) Only] [S3 Only] [Auto]

2.5.2 Repost Video on S3 Resume [No]

Determines whether to invoke VGA BIOS POST on S3/STR resume.

Configuration options: [No] [Yes]

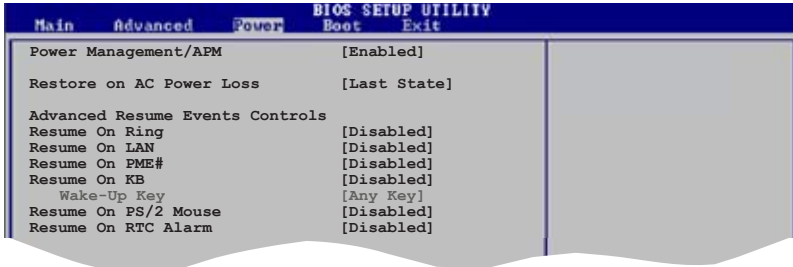
2.5.3 ACPI 2.0 Support [No]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [No] [Yes]

2.5.4 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

2.5.5 APM Configuration



Power Management/APM [Enabled]

Allows you to enable to disable the Power Management/APM function.
Configuration options: [Disabled] [Enabled]

Restore on AC Power Loss [Last State]

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]

Resume On Ring [Disabled]

When set to [Enabled], the system enables the RI to generate a wake event while the computer is in Soft-off mode.
Configuration options: [Disabled] [Enabled]

Resume On LAN [Disabled]

When set to [Enabled], this parameter allows you to turn on the system through a PCI LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.
Configuration options: [Disabled] [Enabled]

Resume On PME# [Disabled]

When set to [Enabled], the system enables the PME to generate a wake event while the computer is in Soft-off mode.
Configuration options: [Disabled] [Enabled]

Resume On KB [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 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]

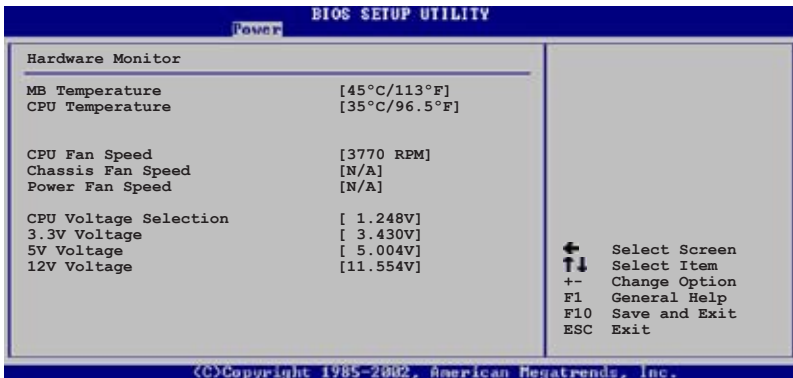
Resume On PS/2 Mouse [Disabled]

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. When this item is set to Enabled, the items RTC Alarm Date, and System Time appear with set values. Configuration options: [Disabled] [Enabled]

2.5.6 Hardware Monitor



CPU Temperature [xxx°C/xxx°F]

MB Temperature [xxx°C/xxx°F]

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

Configuration options: [Ignored] [xxx°C/xxx°F]

CPU Fan Speed [xxxxRPM] or [N/A]

The onboard hardware monitor automatically detects and displays the CPU fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A.

Configuration options: [Ignored] [xxxRPM]

Chassis Fan Speed [xxxxRPM] or [N/A]

The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A.

Configuration options: [Ignored] [xxxRPM] or [N/A]

Power Fan Speed [xxxxRPM] or [N/A]

The onboard hardware monitor automatically detects and displays the power fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A.

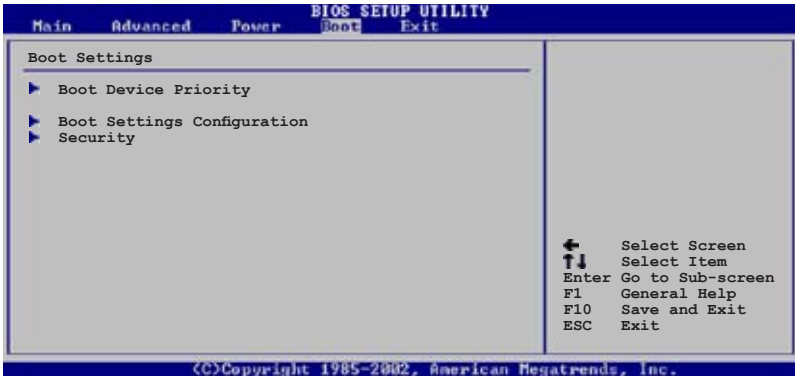
Configuration options: [Ignored] [xxxRPM] or [N/A]

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

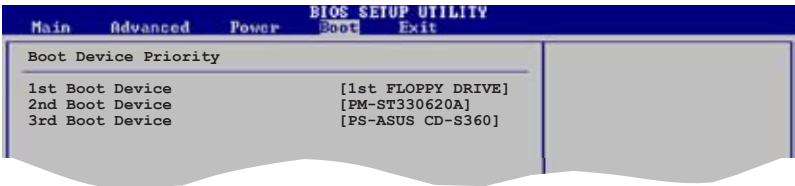
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

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

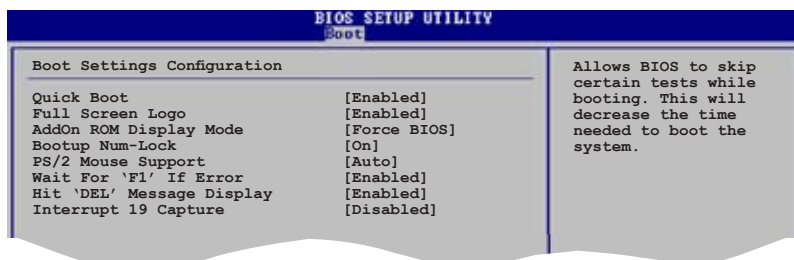


1st ~ xxth Boot Device [1st Floppy Drive]

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: [xxxxx Drive] [Disabled]

2.6.2 Boot Settings Configuration



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]

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

Configuration options: [Disabled] [Enabled]



Set this item to [Enabled] to use the ASUS MyLogo™ feature.

Add On 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]

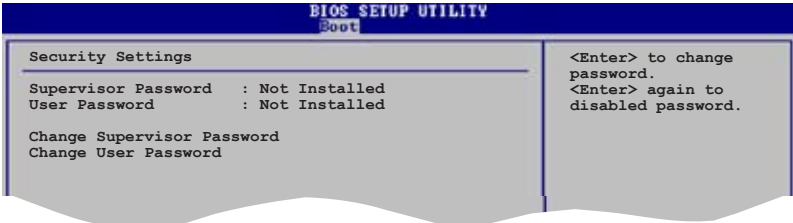
When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

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 and 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.

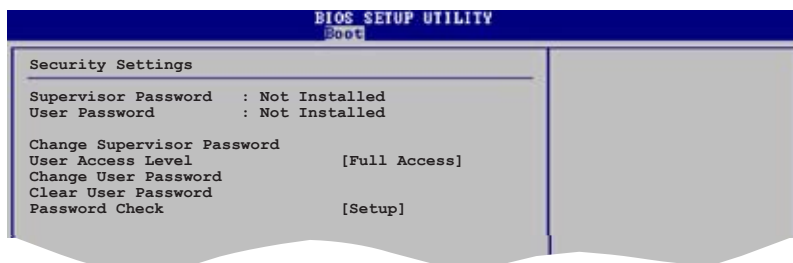
To change the supervisor password, follow the same steps as in setting a user password.

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 "2.6 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.

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:

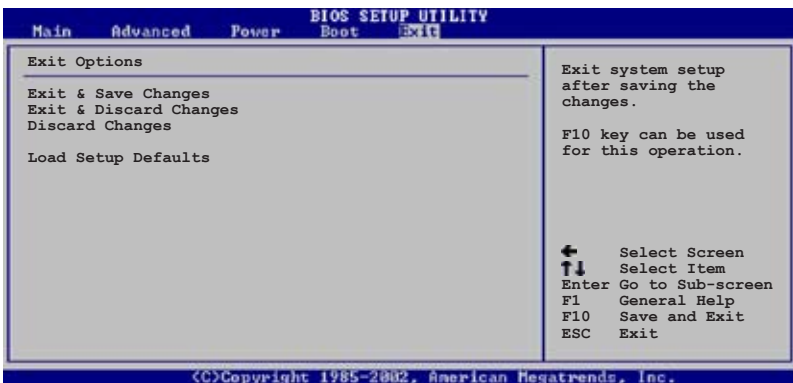
1. Select the Change User Password item and press <Enter>.
2. On the password box that appears, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

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.

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 PC is turned off. When you select this option, a confirmation window appears. Select Ok to save 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

This option 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

This option 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/XP/2003 Server 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

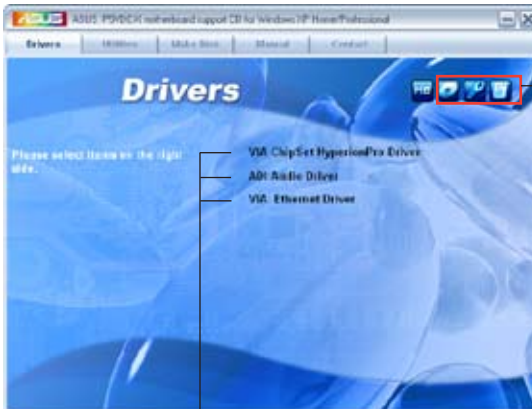
The support CD that came with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.



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 ChipSet HyperionPro Driver

Installs the VIA Chipset HyperionPro driver.

ADI Audio Driver

Executes the wizard to install the ADI Audio driver and application.

VIA Ethernet Driver

Installs the VIA Ethernet driver.

3.2.3 Utilities menu

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



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.

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 2-8 for details.

ADOBE Acrobat Reader V7.0

Installs the Adobe® Acrobat® Reader V7.0.

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX 9.0c driver.

Anti-Virus utility

The anti-virus application scans, identifies, and removes computer viruses. View the online help for detailed information.

ASUS Screen Saver

Installs the ASUS screen saver.

3.2.4 Make disk

The Utilities menu shows you to make a RAID driver disk.



VIA RAID Driver

Allows you to create a VT8237A 32/64bit RAID driver disk.

3.2.4 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.



Intel LGA775 CPU install User's Manual

Allows you to open the Intel LGA775 CPU install user's manual.

VIA8237 SATA Quick setup User's Manual

Allows you to open the VIA8237 SATA RAID quick setup user's manual.

3.2.5 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.



