



Pundit P1-PH1

Barebone System

User Guide



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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.



WARNING! 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 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 devices into the system, carefully read all the documentation 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.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT: Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

About this guide

Audience

This guide provides general information and installation instructions about the ASUS Book size barebone system. This guide is intended for experienced users and integrators with hardware knowledge of personal computers.

How this guide is organized

This guide contains the following parts:

1. Chapter 1: System introduction

This chapter gives a general description of the ASUS Book size barebone system. The chapter lists the system features including introduction on the front and rear panels, and internal components.

2. Chapter 2: Basic installation

This chapter provides step-by-step instructions on how to install components in the system.

3. Chapter 3: Starting up

This chapter helps you power up the system and install drivers and utilities from the support CD.

4. Chapter 4: Motherboard information

This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

5. Chapter 5: BIOS setup

This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

Conventions used in this guide



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: Information that you MUST follow to complete a task.



NOTE: Tips and additional information to aid in completing a task.

Where to find more information

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

1. ASUS websites

The ASUS websites worldwide provide 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.

System package contents

Check your book size barebone system package for the following items.

1. ASUS book size barebone system with:

- ASUS motherboard
- CPU fan and heatsink assembly
- CompactFlash card reader
- 3-in-1 storage card reader
- PCI riser card
- 250W power supply unit

2. Cables

- Power cable and plug
- Serial ATA power cable and signal cable
- USB cable (Type A to Type B)
- IDE cables (one is preinstalled , 2 in the accessory box)

3. CDs

- Support CD
- Recover PRO CD

4. Quick Installation Guide



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

System introduction

This chapter gives a general description of the ASUS book size barebone system. The chapter lists the system features including introduction on the front and rear panel, and internal components.



1.1 Welcome!

Thank you for choosing the ASUS book size barebone system!

The ASUS book size barebone system is a union of power, design, and performance built on ASUS technology and innovation. Inside the elegant casing is the ASUS motherboard that supports Intel® Pentium® 4 processor with up to 800MHz front side bus (FSB), and up to 2GB system memory.

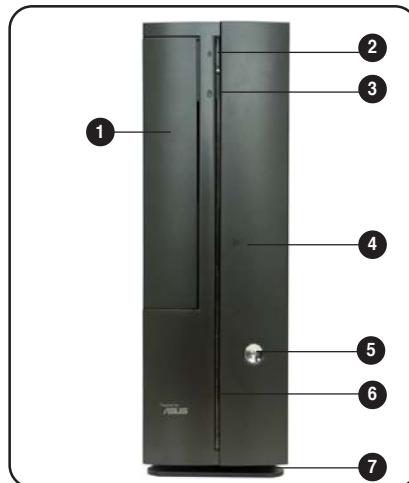
This system features a complete array of multimedia capabilities and seamless connectivity including dual display function, PnP function, Fast Ethernet, 3-in-1 card reader, CF card reader, USB, S/PDIF, and IEEE 1394 interfaces.

The ergonomic design, silent operation, and cost effective architecture of the ASUS book size barebone system makes it an ideal solution for your multimedia and computing needs.

1.2 Front panel (external)

The front panel includes the system and audio control buttons, system LEDs, and LED panel.

1. **Optical drive bay cover.** This door opens when you eject the loading tray.
2. **Eject button ▲.** Press this button to eject the loading tray of the optical drive.
3. **HDD LED** . This LED lights up when data is being read from or written to the hard disk drive.
4. **Front panel I/O door.** Open this door to show the front panel input/output ports.
5. **Power button** . Press this button to turn the system on.
6. **Power LED** . When lit, this LED indicates that the system is ON.
7. **Foot stand.** The foot stand allows you to place the system in a vertical position. See page 2-21 for details.

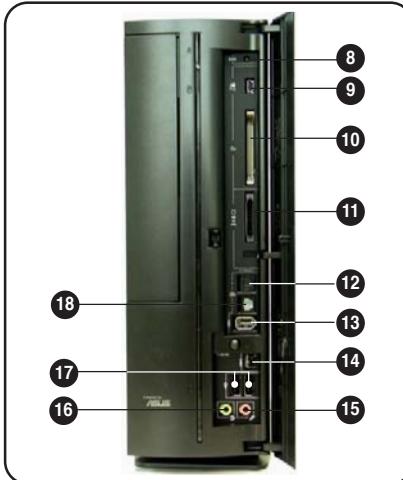


1.3 Front panel (internal)

The optical drive, storage card reader, and several I/O ports are located inside the front panel door.

Open the front panel door by pressing the **PUSH** mark.

8. **Reset button** . Press this button to reset the system.
9. **Plug N' Share mini USB port** . See page 2-19 for details.
10. **CF card slot** . This slot is for a **CompactFlash®** compliant card.
11. **3-in-1 card slot** . This slot is for Memory Stick®/Pro™, SecureDigital™ and MultiMediaCard.

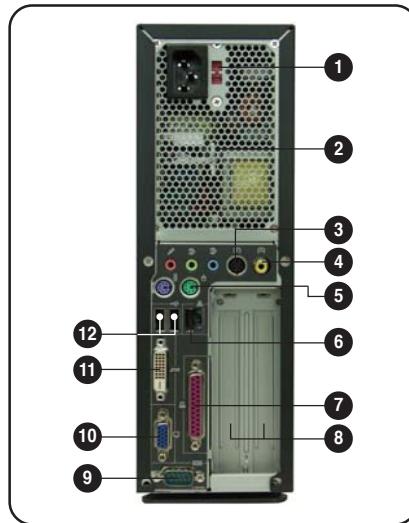


-  You can not close the front panel I/O door if a storage card is inserted in any of the card slots.
12. **S/PDIF In port** . This port connects your audio system for 5.1-channel surround sound and enhanced 3D audio.
 13. **6-pin IEEE 1394 port** . This port provides high-speed connectivity for IEEE 1394-compliant audio/video devices, storage peripherals, and other PC devices.
 14. **4-pin IEEE 1394 port** . This port provides high-speed connectivity for IEEE 1394-compliant audio/video devices, storage peripherals, and other PC devices.
 15. **Microphone port** . This Mic (pink) port connects a microphone.
 16. **Headphone port** . This port connects a headphone with a stereo mini-plug.
 17. **USB 2.0 ports** . These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
 18. **S/PDIF out port** . This port connects your audio system for 5.1-channel surround sound and enhanced 3D audio.

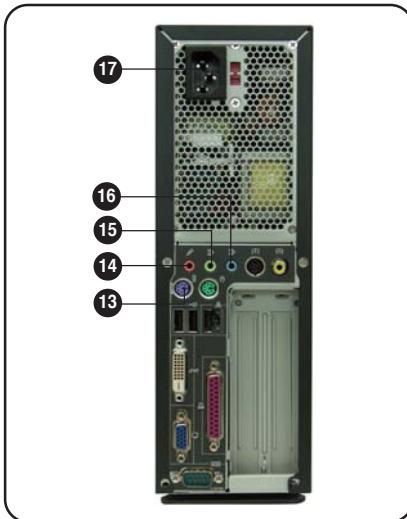
1.4 Rear panel

The system rear panel includes the power socket and several I/O ports that allow convenient connection of devices.

1. **Voltage selector.** This switch allows you to select the appropriate voltage supply in your area. See the “Voltage selector” section on page 2-23 before adjusting this switch.
2. **Power supply unit.** This is a 250W power supply unit.
3. **S-Video port** []. This port connects a video cassette recorder, camcorder, or television with S-Video interface.
4. **TV-out port.** This port connects a television.
5. **PS/2 mouse port** []. This green 6-pin connector is for a PS/2 mouse.
6. **Ethernet LAN port** []. This port allows connection to a Local Area Network (LAN) through a network hub.
7. **Parallel port** []. This 25-pin port connects a printer, scanner, or other devices.
8. **PCI slots.** These PCI slots (covered) are for PCI-compliant cards.
9. **Serial port** []. This port connects a mouse, modem, or other devices that conforms with serial specification.
10. **VGA port** []. This port connects a VGA monitor.
11. **DVI-D port.** This port connects a flat panel or LCD display.
12. **USB 2.0 ports** []. These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.



13. **PS/2 keyboard port** This purple 6-pin connector is for a PS/2 keyboard.
14. **Microphone port** This Microphone (pink) port connects a microphone. In 4/6-channel mode, the function of this port becomes Surround Speaker.
15. **Line Out port** This Line Out (lime) port connects a headphone or a speaker. In 4/6-channel mode, the function of this port becomes Front Speaker Out.
16. **Line In port** This Line In (light blue) port connects a tape player or other audio sources. In 6-channel mode, the function of this port becomes Low Frequency Enhanced Output/Center.



The functions of the Line Out (lime), Line In (blue), and Microphone (pink) ports change when you select the 4-channel or 6-channel audio configuration as shown in the table below.

Audio ports function variation

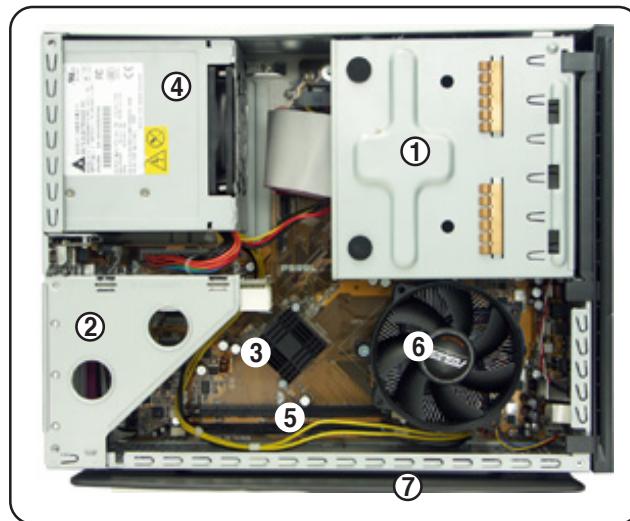
Port	Headphone/2-Channel	4-Channel	6-Channel
Blue	Line In	No function	LFE Output*/Center
Lime	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Surround	Surround

*Low Frequency Enhanced Output

17. **Power socket**. This socket connects the power cable and plug.

1.5 Internal components

The illustration below is the internal view of the system when you remove the cover. The installed components are labeled for your reference. Proceed to Chapter 2 for instructions on installing other system components.

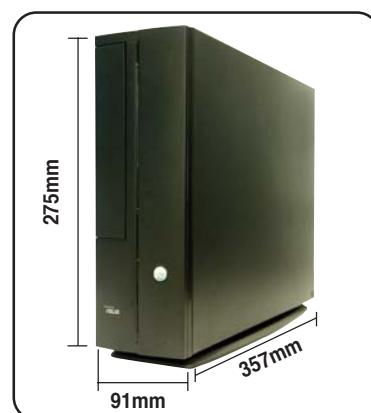


- 1. Storage drive assembly
- 2. PCI riser
- 3. ASUS motherboard
- 4. Power supply unit
- 5. DIMM sockets
- 6. CPU fan and heatsink assembly
- 7. Foot stand

1.6 System dimension

The ASUS booksize barebone system is ergonomically designed to fit and complement your desktop.

You may use the foot stand to place the system vertically on a flat, stable surface.



Basic installation



This chapter provides step-by-step instructions on how to install components in the system.

Chapter 2

2.1 Preparation

Before you proceed, make sure that you have all the components that you plan to install in the system.

Basic components to install

1. Central processing unit (CPU)
2. DDR II Memory Module
3. Expansion card(s)
4. Hard disk drive
5. Optical drive

Tool

Phillips (cross) screw driver

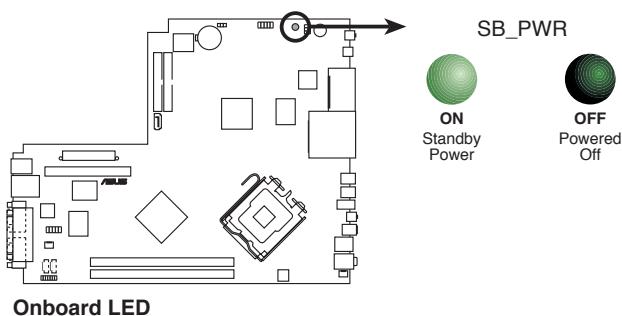
2.2 Before you proceed

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



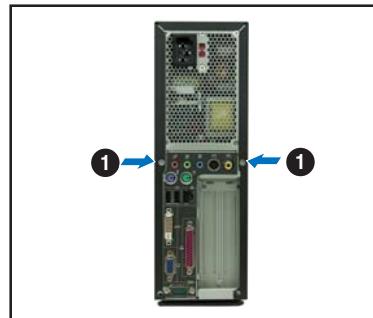
- Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

The motherboard comes with an onboard standby power LED. When lit, this LED indicates that the system is ON, in sleep mode or in soft-off mode, and not powered OFF. Unplug the power cable from the power outlet and make sure that the standby power LED is OFF before installing any system component.



2.3 Removing the cover

To remove the cover:



1. On the rear panel, locate the two screws that secure the cover to the chassis.
2. Use a Phillips (cross) screw driver to remove the cover screws. Keep the screws for later use.
3. Pull the cover slightly toward the rear panel until the cover tabs disengage from the chassis.
4. Lift the cover, then set aside.

2.4 Removing the front panel cover

To remove the front cover:

1. Lift the front cover hooks outward until they disengage from the chassis.
2. Carefully remove the front cover, then set it aside.



2.5 Removing the storage drive assembly

Removing the storage drive assembly provides you more space when installing the CPU and the CPU fan and heatsink assembly.

To remove the front cover and storage drive assembly:

1. Locate and remove three storage drive assembly screws. Keep the screws for later use.



If your system comes with a pre-installed optical drive, disconnect the power, audio, and IDE plugs at the back of the drive before lifting the storage drive assembly.

2. Slightly lift the storage drive assembly until its hooks are released from the chassis holes. Set the storage drive assembly aside.



When removing the storage drive assembly, make sure to hold or support it firmly. The assembly may accidentally drop and damage other system components.

2.6 Installing a CPU

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

2.6.1 Removing the CPU fan and heatsink assembly

The system package includes a pre-installed proprietary CPU fan and heatsink assembly to provide an efficient thermal solution to the CPU.

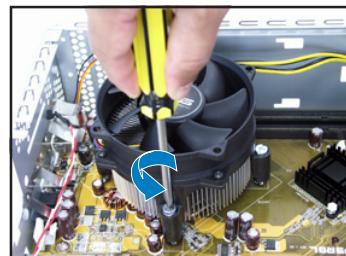


- **DO NOT** replace the proprietary CPU fan and heatsink with other models.
- **Remove** the memory modules first before removing the CPU fan and heatsink assembly to avoid damaging the retaining clips of the DIMM sockets. Refer to the next section for details on how to remove the memory modules.

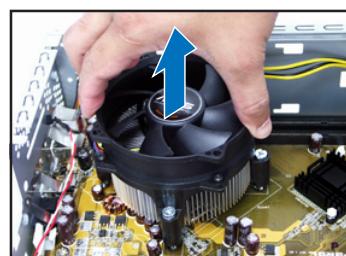
You must remove the CPU fan and heatsink assembly before installing a CPU.

To remove the CPU fan and heatsink assembly:

1. Disconnect the CPU fan cable from the CPU fan connector on the motherboard.
2. Loosen the CPU fan and heatsink assembly screws.



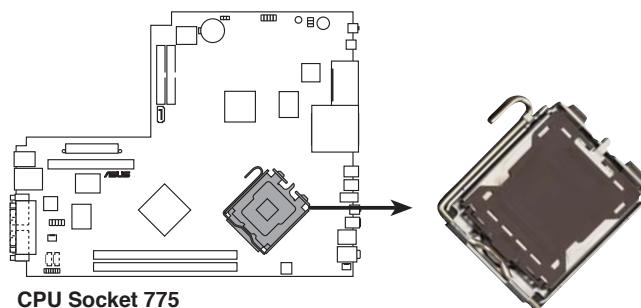
3. Lift the CPU fan and heatsink assembly, then set aside.



2.6.2 CPU installation

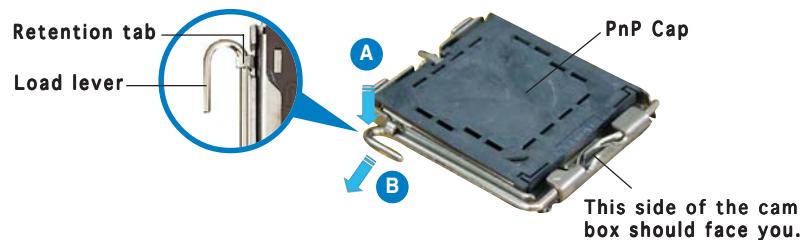
To install the CPU:

1. Locate the 775-pin CPU socket on the motherboard.



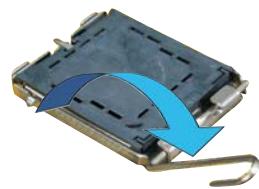
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

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

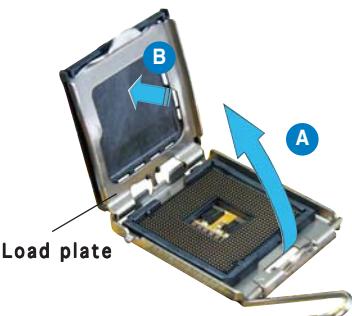


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

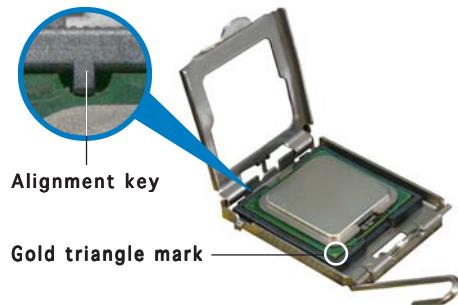
3. Lift the load lever in the direction of the arrow to a 135° angle.



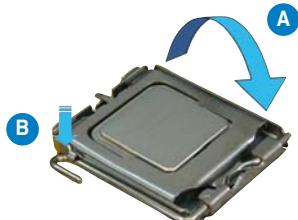
4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



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



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

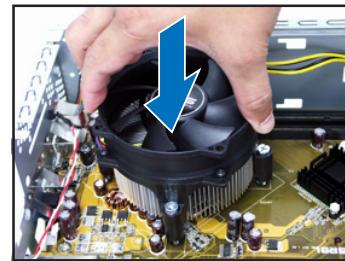


The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

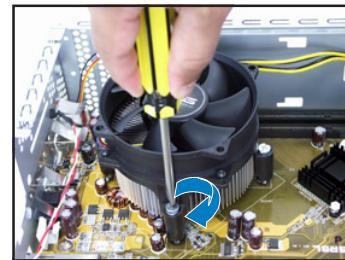
2.6.3 Re-installing the CPU fan and heatsink assembly

To re-install the CPU fan and heatsink assembly:

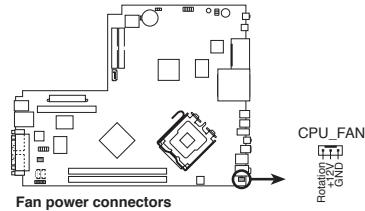
1. Position the CPU fan and heatsink assembly on top of the installed CPU.



2. Hold down the heatsink lightly and twist each of the four screws with a Philips (cross) screwdriver just enough to attach the heatsink to the motherboard. When the four screws are attached, tighten them one by one to completely secure the heatsink.



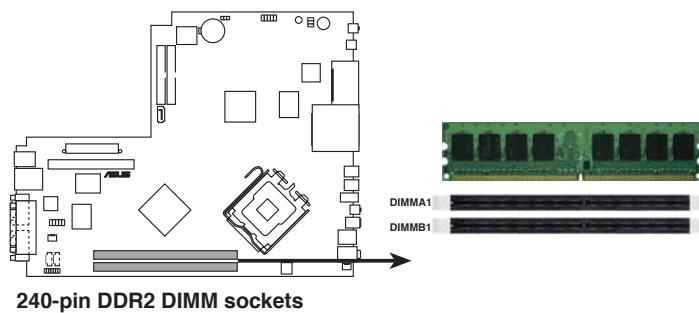
3. Connect the CPU fan cable to the CPU fan connector on the motherboard.



2.7 Installing memory modules

2.7.1 Overview

The system motherboard has two DDR II DIMM sockets that support up to 2GB non-ECC PC5300/4200/3200 DDR II SDRAM DIMMs. Each DIMM socket is double-sided. Refer to the illustration below for the location of the DIMM sockets.



For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. Refer to section 2.7.3 for a list of qualified DDR vendors.

2.7.2 Memory configurations

You may install 64MB, 128MB, 256MB, 512MB, and 1GB DDR II DIMMs to the DIMM sockets.

2.7.3 Qualified Vendor List

The following table lists the DDR II 667 memory modules that have been tested and qualified for use with this motherboard.

Size	Vendor	Model	CL	Brand	SS /DS	Component	DIMM socket support (Optional)	
							A*	B*
256MB	SAMSUNG	M378T3253FZ0-CE6	N/A	SAMSUNG	SS	K4T56083QF-ZCE6	V	V
512MB	SAMSUNG	M378T6453FZ0-CE6	N/A	SAMSUNG	DS	K4T56083QF-ZCE6	V	V
1024MB	Kingston	KVR667D2N5/1G	N/A	Kingston	DS	E5108AE-GE-E	V	V
512MB	Hynix	HYMP564U64AP8-Y5	N/A	Hynix	SS	HY5PS12821AFP-Y5	V	V
1024MB	Hynix	HYMP512U64AP8-Y4	N/A	Hynix	DS	HY5PS12821AFP-Y4	V	V
512MB	Hynix	HYMP564U64AP8-Y4	3	Hynix	SS	HY5PS12821AFP-Y4	V	V
512MB	MICRON	MT16HTF6464AY-667B4	5	MICRON	DS	4VB41D9CZM	V	V
256MB	MICRON	MT8HTF3264AY-667B5	5	MICRON	SS	4SB42D9CZM	V	V
256MB	MICRON	MT8HTF3264AY-667B6	5	MICRON	SS	5FB42D9DPN	V	V
256MB	Infineon	HYS64T32000HU-3S-A	5	Infineon	SS	HYB18T512160AF-3S	V	V
512MB	Infineon	HYS64T64000HU-3S-A	5	Infineon	SS	HYB18T512800AF3S	V	V
1024MB	Infineon	HYS64T128020HU-3S-A	5	Infineon	DS	HYB18T512800AF3S	V	V
512MB	ELPIDA	EBC51UD8AEFA-6E-E	N/A	ELPIDA	SS	E5108AE-GE-E	V	V
1024MB	ELPIDA	EBC11UD8AEFA-6E-E	N/A	N/A	DS	N/A	V	V
256MB	ELPIDA	EBC25UC8ABFA-6E-E	5	ELPIDA	SS	E2508AB-GE-E	V	V

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

B* : Supports one pair of modules inserted into either the blue slots or the black slots as one pair of Dual-channel memory configuration.



Obtain DDR II DIMMs only from ASUS qualified vendors. Visit the ASUS website (www.asus.com) for the latest QVL.

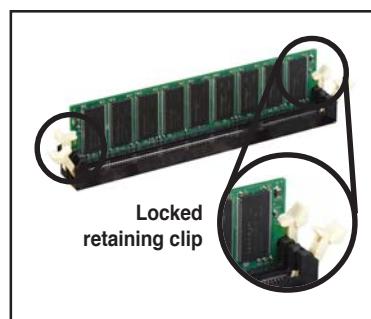
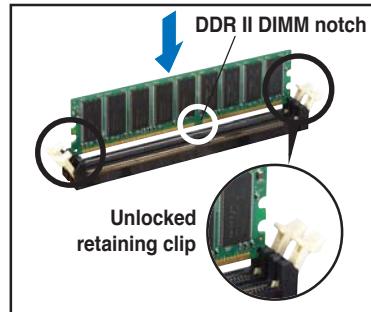
2.7.4 Installing a DIMM



- Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.
- **Re-install** the CPU fan and heatsink assembly before installing the DIMM(s) to avoid damaging the retaining clips of the DIMM sockets. Refer to the previous section for details on how to re-install the CPU fan and heatsink assembly.

Follow these steps to install a DIMM.

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



A DDR II 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.

2.7.5 Removing a DIMM

Follow these steps to remove a DIMM.

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

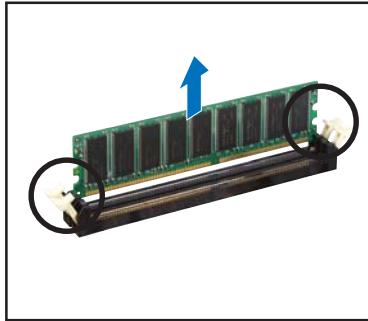


Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.



Remove the CPU fan and heatsink assembly **before** removing the memory module(s). Incorrect installation sequence may damage the DIMM socket retaining clips.



2.8 Installing PCI cards

In the future, you may need to install PCI cards to the system. The system motherboard has one PCI slot with a pre-installed PCI riser assembly that supports two PCI cards.



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.

2.8.1 PCI slots

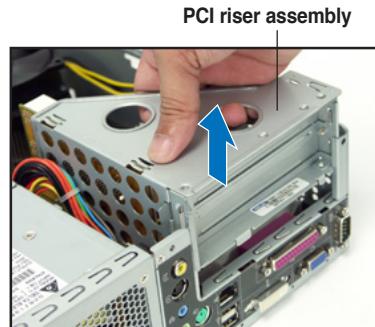
The PCI slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The following figure shows a LAN card installed on a PCI slot.



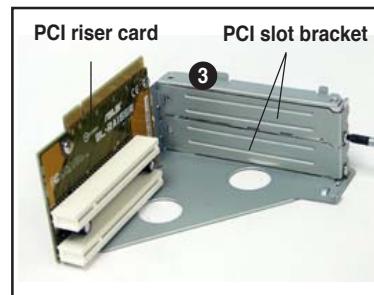
2.8.2 PCI card installation

To install a PCI card:

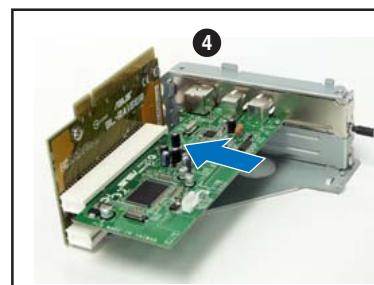
1. Slightly lift the PCI riser assembly until it disengages from the chassis.



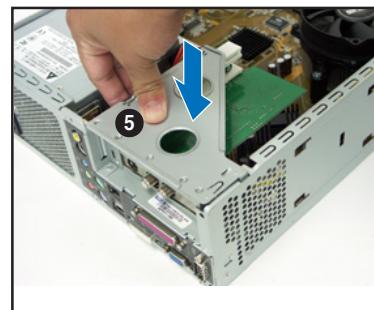
2. Place the PCI riser assembly on a flat surface.
3. Remove the bracket opposite the PCI slot you wish to use. Keep the screw for later use.



4. Align the PCI card connector with the slot and press firmly until the card is completely seated on the slot. Secure the PCI card to the PCI riser assembly with the screw you removed earlier.



5. Re-install the PCI riser assembly to the system chassis.



2.8.3 Configuring an expansion card

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

1. Turn on the system and change the necessary BIOS settings, if any.
See Chapter 5 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables below.
3. Install the software drivers for the expansion card.

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
4*	12	Communications Port (COM1)
5*	13	Sound Card (sometimes LPT2)
6	14	Floppy Disk Controller
7*	15	Printer Port (LPT1)
8	3	System CMOS/Real Time Clock
9*	4	ACPI Mode when used
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

* 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	used	—	—	—	—	—	—	—
PCI slot 2	—	shared	—	—	—	—	—	—
Onboard USB controller HC0	—	—	—	shared	—	—	—	—
Onboard USB controller HC1	—	—	—	shared	—	—	—	—
Onboard USB 2.0 controller	—	—	—	shared	—	—	—	—
Onboard LAN	—	—	—	—	used	—	—	—
Onboard Audio	—	shared	—	—	—	—	—	—
Onboard VGA	—	shared	—	—	—	—	—	—
Onboard 1394 controller	—	—	—	—	—	used	—	—
Onboard SATA1	—	—	—	—	—	—	used	—
Onboard SATA2	—	—	—	—	—	—	—	useddd



When using a PCI card 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.

2.9 Installing optical and storage drives

2.9.1 optical and storage drives installation

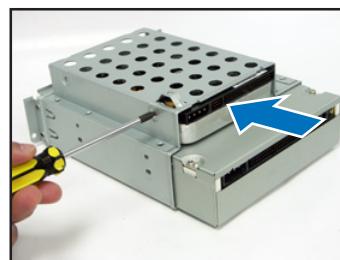
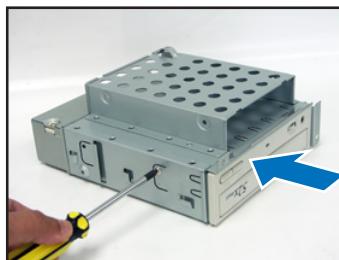
The system supports one UltraATA100/66 IDE or one Serial ATA hard disk drive.



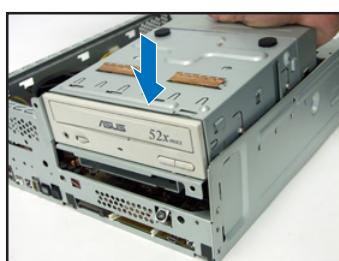
Configure your hard disk drive as Master device before installing it in the storage drive assembly. Refer to the HDD documentation on how to set the drive as a Master device.

To install an **IDE** hard disk drive and optical drive:

1. Turn the storage drive assembly upside down with the 3.5-inch bay on top of the 5.25-inch bay.
2. Insert the optical drive upside down to the 5.25-inch bay, then secure it with two screws on both sides.
3. Turn the storage drive assembly, insert the hard disk drive upside down to the 3.5-inch bay, then secure it with two screws on both sides.



4. Connect the black plug of the IDE cable to the optical drive, then the gray plug to the hard disk drive.
5. Connect the 4-pin power plugs to the power connectors at the back of the drives.
6. Install the storage drive assembly to the chassis.
7. Secure the storage drive assembly with three screws.



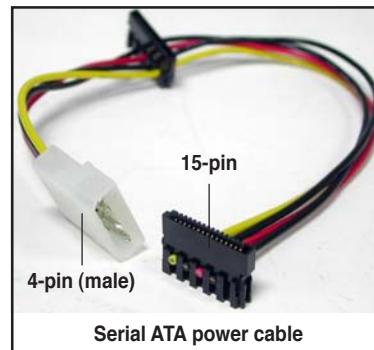
To install a **Serial ATA** hard disk drive:

1. Follow steps 1-3 of the previous section.
2. Connect one end of the supplied 7-pin SATA cable to the connector at the back of the drive, then connect the other end to the SATA connector on the motherboard. See page 64 for the location of the Serial ATA connector.
3. *For Serial ATA HDDs with a 4-pin power connector:*

Connect a 4-pin (female) power plug from the power supply unit (PSU) to the 4-pin (male) power connector at the back of the drive.

For Serial ATA HDDs without a 4-pin power connector:

Use the supplied SATA power cable. Connect a 4-pin plug (female) from the PSU to the 4-pin (male) plug of the SATA power cable. Connect the 15-pin SATA power plug to the power connector at the back of the drive.



2.9.2 Recommended optical drive dimension

You must consider the following optical drive requirements when installing a new optical drive or replacing a defective one.



We recommend that you install and use an ASUS optical drive on this system.

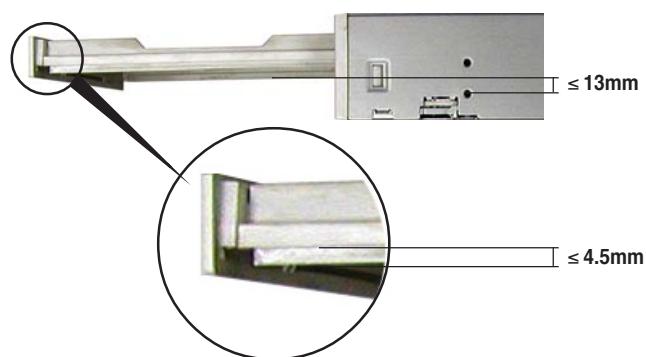
Optical drive buttons

The stop/eject button area of the DVD/CD-ROM drive should be less than or equal to 21.9 millimeters from the right edge of the drive.



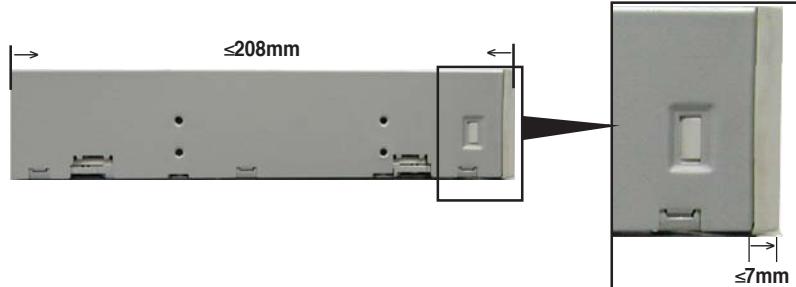
Optical drive tray

The optical drive tray door should not exceed 4.5 millimeters from the bottom edge of the drive tray. The height of the bottom edge of the drive tray should be less than or equal to 13 millimeters in parallel with the lower drive screw holes.



Optical drive cover thickness and length

The thickness of the optical drive front panel cover should be less than or equal to 7 millimeters and the length of the drive should be less than or equal to 208 millimeters.



2.9.3 Enabling Plug and Share (PnS)

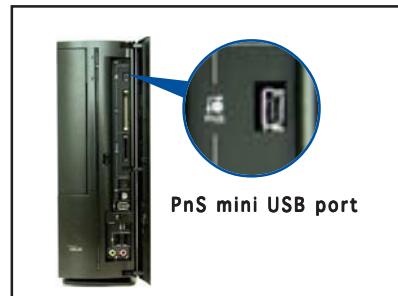
Plug and Share (PnS) allows you to share the optical drive with other devices (e.g. notebook) via the PnS USB port in the front panel.



The Plug and Share feature does not support Serial ATA optical drives.

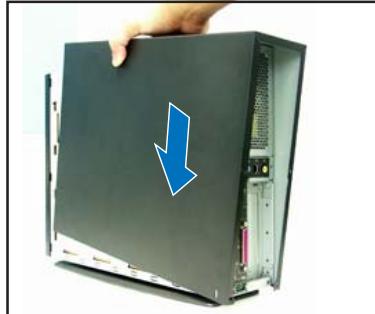
To enable PnS:

1. Install an Window 2000/XP operating system.
2. When finished, turn off the system, then uninstall the storage drive assembly.
3. Remove the pre-installed IDE cable on the PRI_IDE connector, then install the supplied IDE cables to the PRI_IDE and RED_IDE connectors.
4. Connect the cable from the RED_IDE connector to the optical drive, then connect the cable from the PRI_IDE connector to the hard disk drive.
5. Connect the 4-pin power plugs to the power connectors at the back of the drives.
6. Restart the system and Install the USB ODD Driver. See Page 3-5.



2.10 Replacing the cover

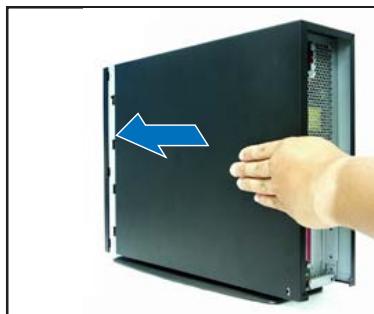
After installing all system components and re-connecting all cables, replace the system cover by following these instructions.



1. Replace the front panel cover by fastening its hooks to the chassis holes until they fit in place.



2. Position the cover at least two inches from the front panel, then align the cover hooks to the chassis rail.



3. Push the system cover toward the front panel until it fits in place.

4. Secure the system cover with the screws you removed earlier.

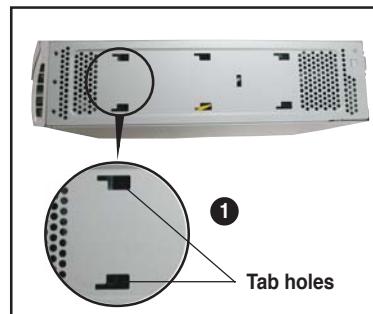
2.11 Removing and re-installing the foot stand

The system comes with a removable foot stand for vertical desktop placement. Follow the instructions to remove or re-install the foot stand.

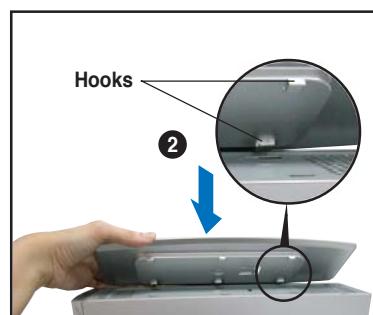
2.11.1 Installing the foot stand

To install the foot stand:

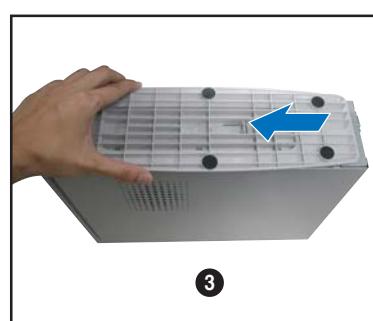
1. Locate six tab holes on the bottom of the chassis.



2. Align the foot stand hooks to the chassis holes, then lay the foot stand over the chassis bottom.



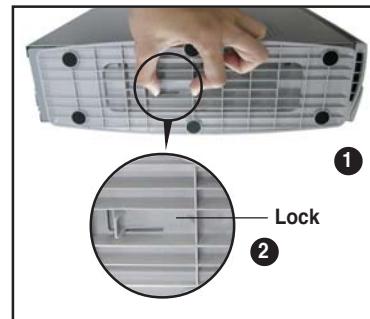
3. Pull the foot stand toward the front panel until it fits in place.



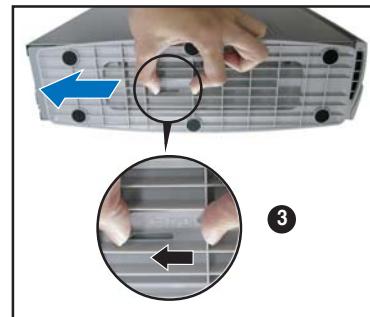
2.11.2 Removing the foot stand

To remove the foot stand:

1. Lay the system upside down on a flat and stable surface.
2. Locate the foot stand lock.



3. Use your thumb to push the lock toward the rear panel until the foot stand tabs are released from the chassis holes.
4. Lift the foot stand, then set it aside.





2.12 Power supply unit information

The system comes with a 250W power supply unit (PSU).

2.12.1 Voltage selector

The PSU has a 115V/230V voltage selector switch located beside the power socket. Use this switch to select the appropriate voltage according to the voltage supply in your area.



The voltage selector is set to 230V by default.

If the voltage supply in your area is 100-127V, set the switch to 115V.

If the voltage supply in your area is 200-240V, set the switch to 230V.



Setting the switch to 115V in a 230V environment will seriously damage the system!



2.12.2 Power supply specifications

Input Characteristics

Input Voltage Range	Min	Nom	Max
Range 1	90V	100-127V	132V
Range 2	180V	200-240V	264V
Input Frequency Range			47 Hz to 63 Hz
Maximum Input ac Current			7A max. at 115Vac 4A max. at 230Vac, full load
Efficiency			65% min. at input 115Vac/230Vac and output full load
Current harmonic			Meet IEC61000-3-2 Class D (input power from 75W to max. continue power.)
AC Inrush Current			Peak inrush current shall be limited to 100A warm start.

Output Characteristics

Output Voltage	Load Range		Regulation		Ripple Max
	Min	Max	Min	Max	
+5V	0.5A	16A	-5%	+5%	50mV _{p-p}
+12V	1A	16A	-5%	+5%	120mV _{p-p}
-12V	0A	0.8A	-10%	+10%	120mV _{p-p}
+3.3V	0.3A	16A	-5%	+5%	50mV _{p-p}
+5VSB	0A	2A	-5%	+5%	50mV _{p-p}

Over-Voltage Protection (OVP)

Output Voltage	Maximum Voltage
+5V	6.5V
+3.3V	4.6V
+12V	15.5V
+5VSB	7V



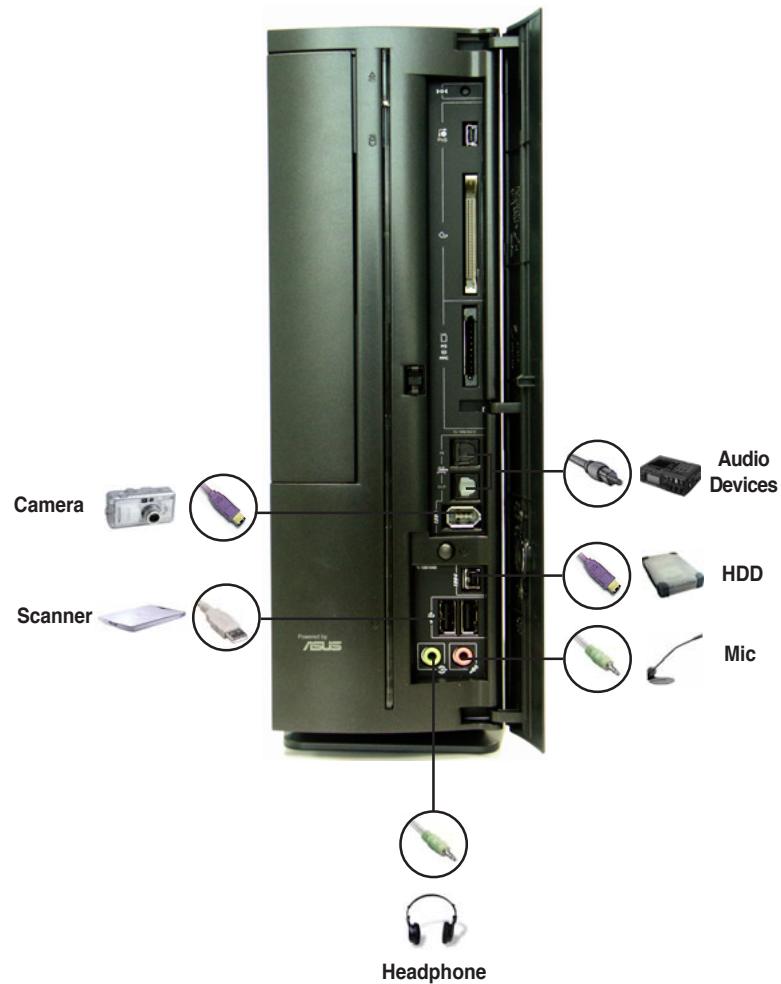
The power supply will shut down and latch off for shorting +5V, +12V, -12V, or +3.3V. By shorting +5VSB, the power supply can latch down or automatically recover when the fault condition is removed

2.13 Connecting devices

To the rear panel



To the front panel



Chapter 3

This chapter helps you to power up and use the system for the first time. This part also provides information on how to install drivers and utilities from the support CD.



Starting up



3.1 Installing an operating system

The ASUS book size barebone system supports Windows® 2000 / XP operating systems (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your book size barebone system.



Because motherboard settings and hardware options vary, use the setup procedures presented in this chapter for general reference only. Refer to your OS documentation for detailed information.

3.2 Powering up

The system has two power buttons located in the front panel. Press the system power button (\odot) to enter the OS.

System power button



3.3 Using the system

The following sections illustrate how to use the storage card reader slots, and the optical drive.

3.3.1 CompactFlash card slot

The system comes with a Compactflash card slot that supports Compactflash cards and Microdrive .

CompactFlash card slot



3.3.2 Storage card slot

A 3-in-1 storage card reader comes pre-installed in your ASUS book size barebone system. The storage card reader supports the following storage cards:

- **Memory Stick® / Pro™**
- **Secure Digital™**
- **MultimediaCard**

3-in-1 card reader



3.3.3 Optical drive

If your system comes with an installed optical drive, follow these instructions to insert a CD/DVD to the drive.

1. Press the EJECT button of the optical drive.
2. Place a CD/DVD on the drive tray. Make sure the CD/DVD is properly seated on the tray locks.
3. Push the drive tray back to the drive.



3.4 Support CD information

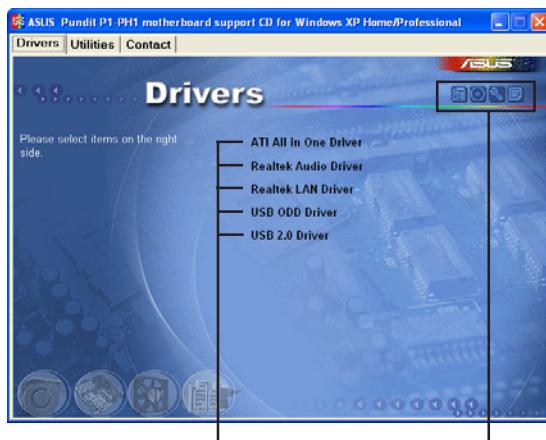
The support CD that came with the system contains useful software and several utility drivers that enhance the system features.



- Screen display and driver options may not be the same for other operating system versions.
- The contents of the support CD are subject to change at any time without notice. Visit the ASUS website for updates.

3.4.1 Running the support CD

To begin using the support CD, place the CD in your optical drive. The CD automatically displays the **Drivers** menu if Autorun is enabled in your computer.



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.

3.4.2 Drivers menu

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

ATI All In One Driver

Click this item to install the ATI All In One Driver.

Realtek Audio Driver

Click this item to install the Realtek Audio Driver.

Realtek LAN Driver

Click this item to install the Realtek LAN Driver.

USB ODD Driver

Click this item to install the Plug and Share (PnP) ODD application. See Page 2-19.

USB 2.0 Driver

Click this item to install the USB 2.0 Driver.

3.4.3 Utilities

The **Utilities** tab displays the applications and softwares that the motherboard supports.



ASUS PC Probe

This utility continuously monitors vital system information such as fan rotations, CPU temperature, and system voltages, and alerts you on any detected problems. This utility helps you keep your computer in a healthy operating condition.

ASUS Update

This item installs the ASUS Update that allows you to update the motherboard BIOS and drivers. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

ASUS Screensaver

This item installs the ASUS Screensaver.

ADOBE Acrobat Reader V7.0

This item installs the Adobe® Acrobat Reader®. The Acrobat® Acrobat Reader® software is for viewing files saved in Portable Document Format (PDF).

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX 9.0c driver.

USB2.0 Card Reader Software

This item installs the USB2.0 Card Reader Software.

Anti-Virus Utility

This item installs the Anti-Virus Utility. View the online help for detailed information.

3.4.4 ASUS contact information

Click the **Contact** tab to display the ASUS contact information.

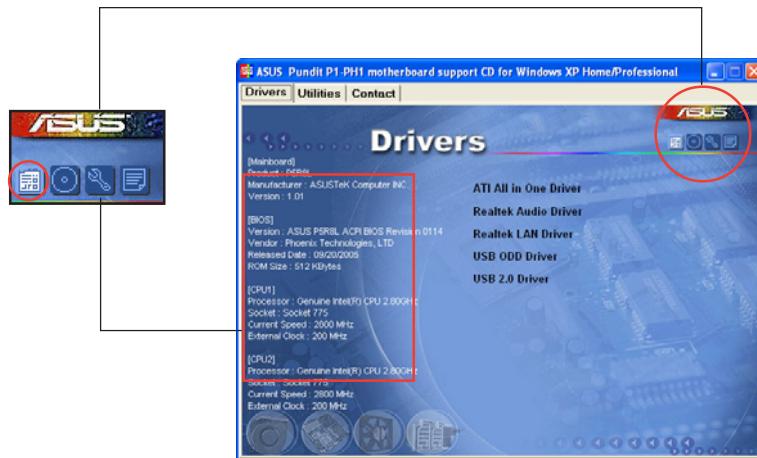


3.4.5 Other information

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

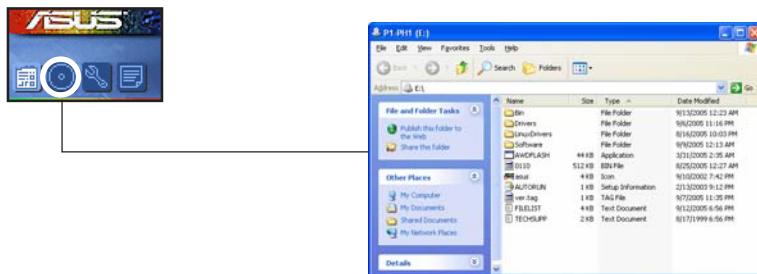
Motherboard info

Displays the general specifications of the motherboard.



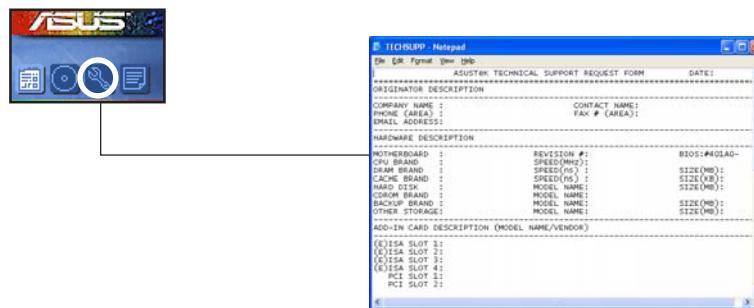
Browse this CD

Displays the support CD contents in graphical format.



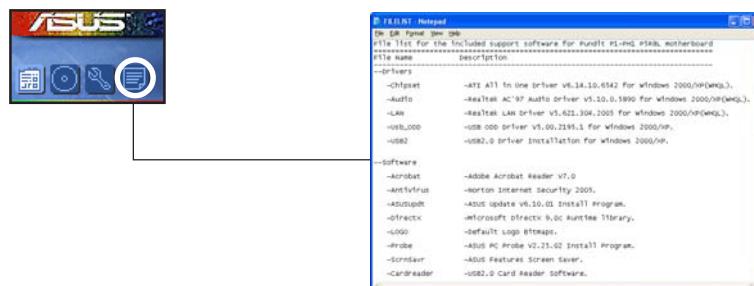
Technical support form

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



Filelist

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



Chapter 4

This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

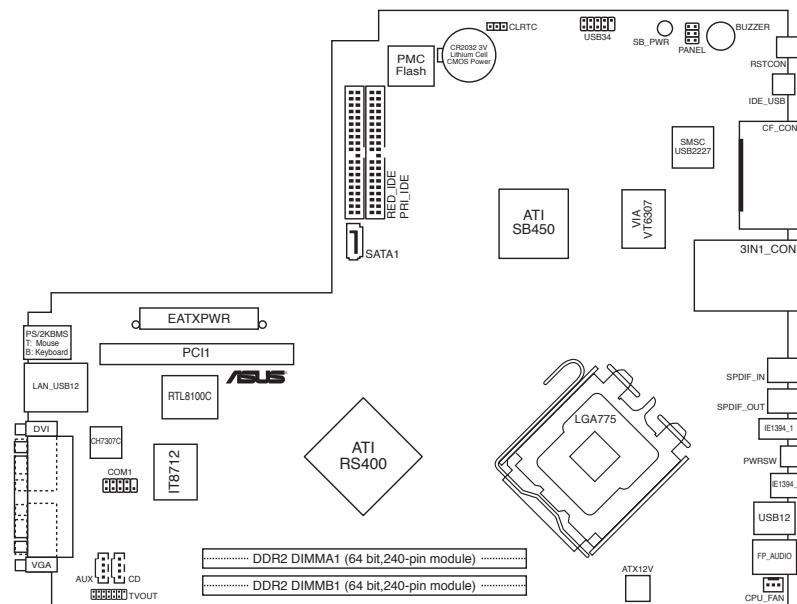


Motherboard info

4.1 Introduction

The ASUS motherboard comes already installed in the ASUS book size barebone system. This chapter provides technical information about the motherboard for future upgrades or system reconfiguration.

4.2 Motherboard layout



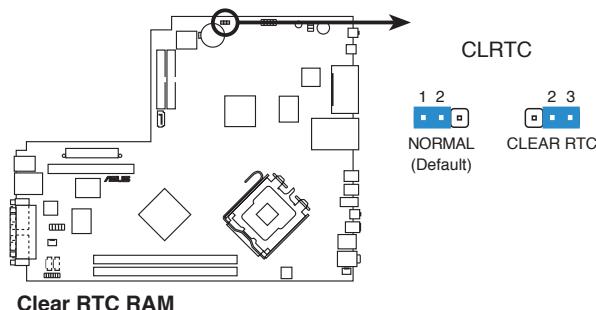
4.3 Jumper

1. Clear RTC RAM (CLRTC)

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 RAM data in CMOS, that include system setup information such as system passwords, is powered by the onboard button cell battery.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the 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.



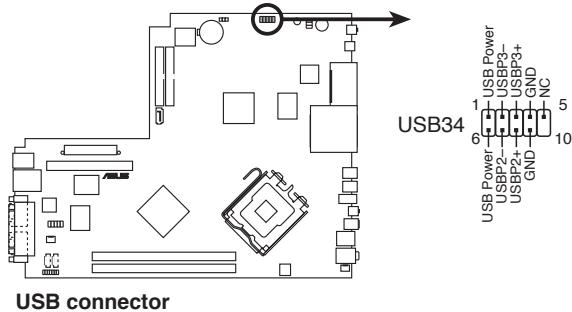
 Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure.

4.4 Internal connectors

This section describes and illustrates the connectors on the motherboard. See page 14-15 for the description of the rear panel connectors.

1. USB connector (10-1 pin USB34)

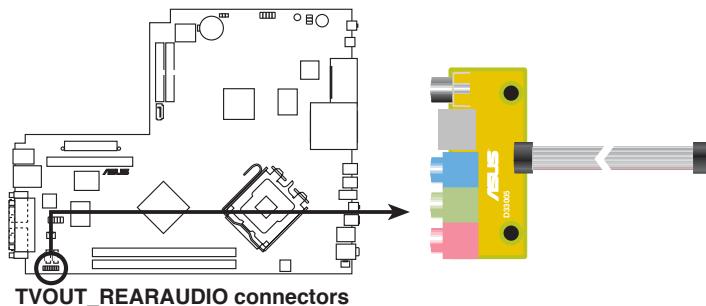
If the rear panel USB 2.0 ports are inadequate, a USB header is available at midboard to accommodate two additional USB ports. You may connect the cable of a two-port USB module to this connector, then mount the module to an open slot in the chassis.



USB connector

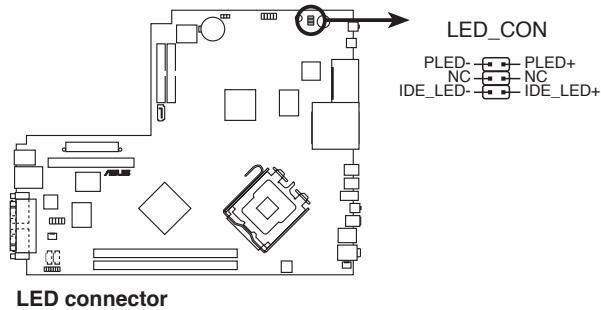
2. Rear panel TV and audio ports connector (14-1 pin TVOUT_R)

This interface is connected to the ASUS proprietary daughter card that supports the rear panel audio I/O, S-Video, and composite video ports.



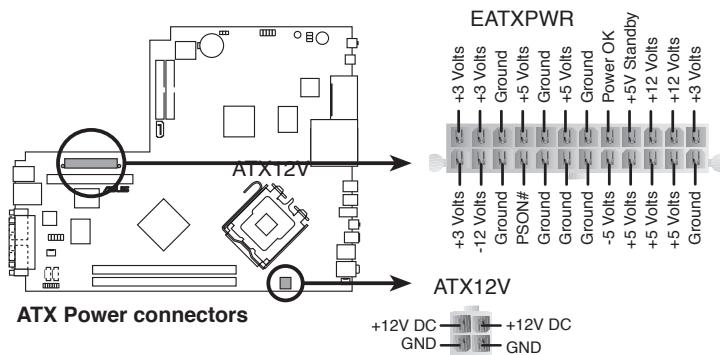
3. LED connector (6-pin LED_CON1)

This connector supports the Power and HDD activity LEDs in the system front panel.



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

These connectors are for the 24-pin and 4-pin power plugs from the power supply unit. The plugs from the power supply unit are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

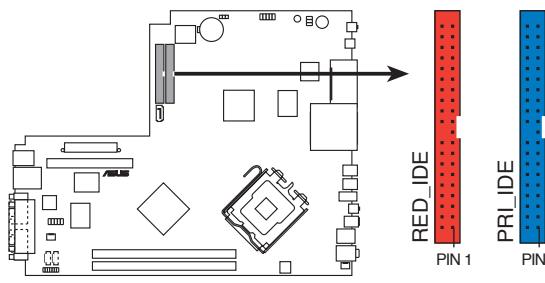


5. IDE connectors (40-1 pin PRI_IDE, RED_IDE)

The PRI_IDE connector is for the primary master device (hard disk drive) . Attach the blue connector of the 40-pin cable to this interface, then attach the black connector to the UltraATA100/66 primary master device (hard disk drive). The RED_IDE connector is for the secondary master device (optical drive). Configure the hard disk drive and the optical drive as primary/secondary master device by adjusting their jumper settings. Refer to their respective documentation for details.



Pin 20 on the IDE connector is removed to match the covered hole on the UltraATA cable connector. This prevents incorrect orientation when you connect the cables.



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



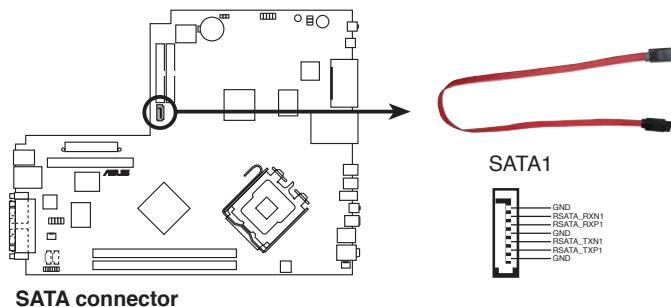
RED_IDE can't connect to Hard Drive.



You can't install OS with RED_IDE connector. See 2.9.1 (Page 2-16) and 2.9.3.(Page 2-19) .

6. Serial ATA connectors (7-pin SATA1)

This next generation connector supports the thin Serial ATA cable for a Serial ATA hard disk drive. The current Serial ATA interface allows up to 150 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (UltraATA133).



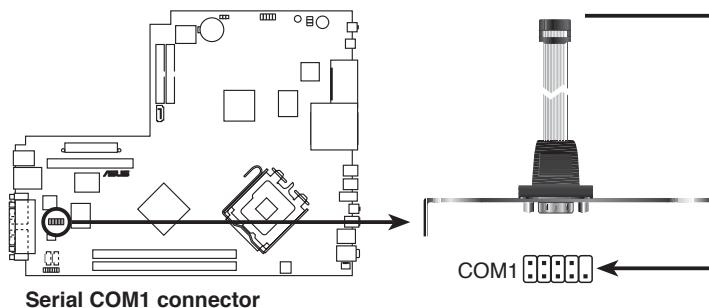
Important notes on Serial ATA



- The Serial ATA cable is smaller and more flexible allowing easier routing inside the chassis. The lower pin count of the Serial ATA cable eliminates the problem caused by the wide, flat ribbon cables of the Parallel ATA interface.
- Hot plug support for Serial ATA drive and connections are not available in this motherboard.
- Install Windows® XP™ Service Pack 1 when using Serial ATA.

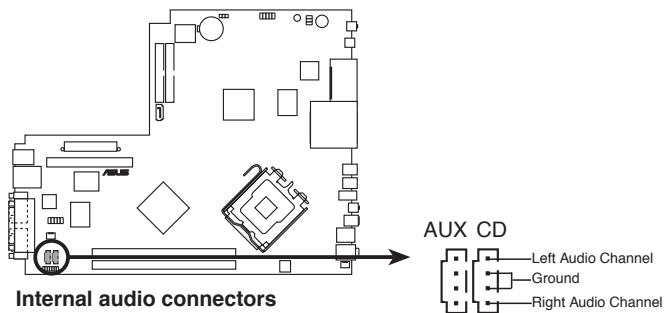
7. Serial port connector (10-1 pin COM1)

This connector supports the rear panel serial port.



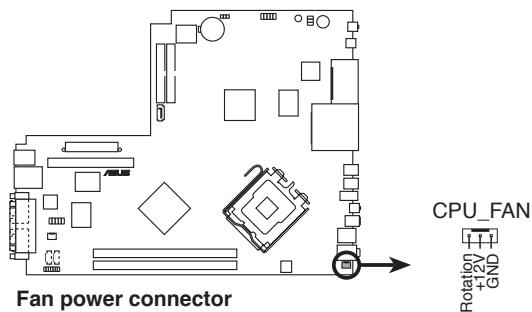
8. Internal audio connectors (4-pin AUX, CD)

These connectors allow you to receive stereo audio input from sound sources such as a optical drive, TV tuner, or MPEG card.



9. CPU fan connectors (3-pin CPU_FAN)

The fan connectors support the proprietary CPU fan. Connect the fan cable to the connector matching the black wire to the ground pin.



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

Chapter 5

This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.



BIOS setup

5.1 Managing and updating your BIOS

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

1. **ASUS EZ Flash** (Updates the BIOS using a flash disk during POST.)
2. **CrashFree BIOS 2** (Updates the BIOS using the support CD when the BIOS gets corrupted.)
3. **ASUS Update** (Updates the BIOS in Windows® environment.)

Refer to the corresponding section for each utility.

Important notes



- It is recommended that you save a copy of the **original motherboard BIOS file** to a **USB flash disk** in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.
- A **working BIOS file** for this motherboard is in the support CD. Use this file only when you do not have a copy of the original motherboard BIOS file in a USB flash disk or floppy disk.
- Visit the ASUS website and download the latest BIOS file for this motherboard using the ASUS Update utility.

5.1.1 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 flash disk and using a DOS-based utility. The EZ Flash utility is built-in the BIOS chip so it is accessible by pressing **<Alt> + <F2>** during the Power-On Self Tests (POST).

To update the BIOS using EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard and rename the same to **P5R8L.BIN**.
2. Save the BIOS file to a flash 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 flash disk that contains the BIOS file to the flash 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 "P5R8L.BIN". Completed.  
Start erasing.....|  
Start programming....|  
Flashed successfully. Rebooting.
```



- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!
- A “Floppy not found!” error message appears if there is no floppy disk in the drive. A “P5R8L.BIN 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 P5R8L.BIN.

5.1.2 Recovering the BIOS with CrashFree BIOS 2

The CrashFree BIOS 2 auto recovery tool allows you to restore BIOS from the motherboard support CD, or from a USB floppy disk or flash disk that contains the BIOS file, in case the current BIOS on the motherboard fails or gets corrupted.



- Prepare the **support CD** that came with the motherboard that contains the motherboard BIOS (P5R8L.BIN) before proceeding with the BIOS update process.
- If you have saved a copy of the original motherboard BIOS to a bootable USB floppy disk or USB flash disk, you may also use this disk to restore the BIOS.

To recover the BIOS from the support CD:



Make sure the optical drive is set as secondary master device when recovering the BIOS using the support CD.

1. Boot the system.
2. When a corrupted BIOS is detected, the following screen message appears.

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



The system automatically checks the optical drive.

3. Place the support CD in the optical drive. The support CD contains the original BIOS for this motherboard.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
CD-ROM found.
Reading file "P5R8L.BIN". Completed.
Start flashing...
```



DO NOT shutdown or reset the system while updating the BIOS! Doing so may cause system boot failure!

4. When the BIOS update process is complete, reboot the system.



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.

5.1.3 ASUS Update

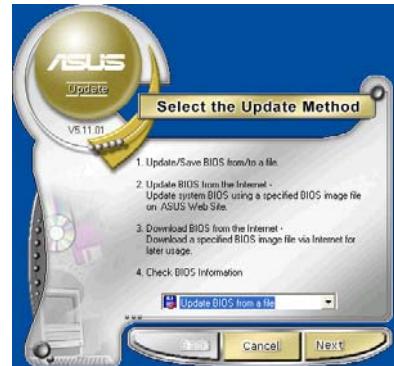
The ASUS Update is a utility that allows you to update the motherboard BIOS in Windows® environment. This utility is available in the support CD that comes with the motherboard package. ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

To install ASUS Update:

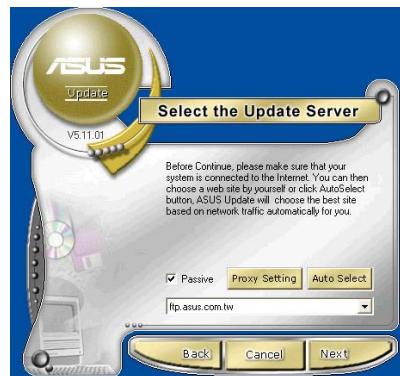
1. Place the support CD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update VX.XX.XX**. See page 48 for the **Utilities** screen menu.
3. The ASUS Update utility is copied into your system.

To update the BIOS using the ASUS Update:

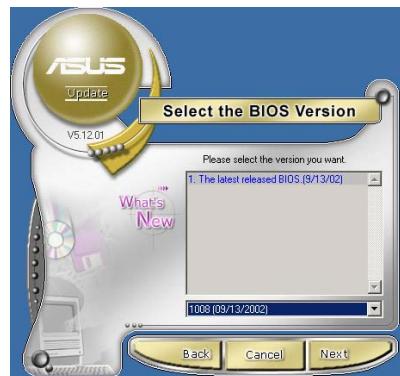
1. Launch the utility from the Windows desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update initial screen appears.
2. Select your desired update method, then click **Next**.



- If you selected updating/downloading from the Internet, select the ASUS FTP site nearest you to avoid network traffic, or choose **Auto Select**. Click **Next**.



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



If you selected the option to update the BIOS from a file, a window pops up prompting you to locate the file. Select the file, click **Save**, then follow the screen instructions to complete the update process.



5.2 BIOS Setup program

This motherboard supports a programmable Firmware Hub (FWH) that you can update using the provided utility described in section ‘5.1 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 may want to change the configuration of your computer in the future. For example, you may want to enable the security password feature or make changes to 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 stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Delete> during the Power-On Self Test (POST) to enter the Setup utility, otherwise, POST continues with its test routines.

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

The Setup program is designed to make it as easy to use as possible. It is a menu-driven program, which means you can scroll through the various sub-menus and make your selections among the predetermined choices.



Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purposes only, and may not exactly match what you see on your screen.

5.2.1 BIOS menu bar

The top of the screen has a menu bar with the following selections:

MAIN	Use this menu to make changes to the basic system configuration.
ADVANCED	Use this menu to enable and make changes to the advanced features.
POWER	Use this menu to configure and enable Power Management features.
BOOT	Use this menu to configure the default system device used to locate and load the Operating System.
EXIT	Use this menu to exit the current menu or to exit the Setup program.

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

5.2.2 Legend bar

At the bottom of the Setup screen is a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding functions.

Navigation Key(s)	Function Description
<F1> or <Alt + H>	Displays the General Help screen from anywhere in the BIOS Setup
<Esc>	Jumps to the Exit menu or returns to the main menu from a sub-menu
Left or Right arrow	Selects the menu item to the left or right
Up or Down arrow	Moves the highlight up or down between fields
- (minus key)	Scrolls backward through the values for the highlighted field
+ (plus key) or spacebar	Scrolls forward through the values for the highlighted field
<Enter>	Brings up a selection menu for the highlighted field
<Home> or <PgUp>	Moves the cursor to the first field
<End> or <PgDn>	Moves the cursor to the last field
<F5>	Resets the current screen to its Setup Defaults
<F10>	Saves changes and exits Setup

General help

In addition to the Item Specific Help window, the BIOS setup program also provides a General Help screen. You may launch this screen from any menu by simply pressing <F1>. The General Help screen lists the legend keys and their corresponding functions.

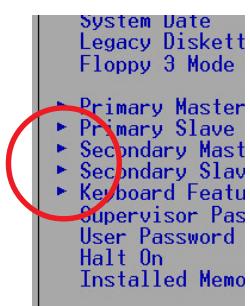
Saving changes and exiting the Setup program

See “*5.7 Exit Menu*” for detailed information on saving changes and exiting the setup program.

Scroll bar

When a scroll bar appears to the right of a help window, it indicates that there is more information to be displayed that will not fit in the window. Use <PgUp> and <PgDn> or the up and down arrow keys to scroll through the entire help document. Press <Home> to display the first page, press <End> to go to the last page. To exit the help window, press <Enter> or <Esc>.

Sub-menu

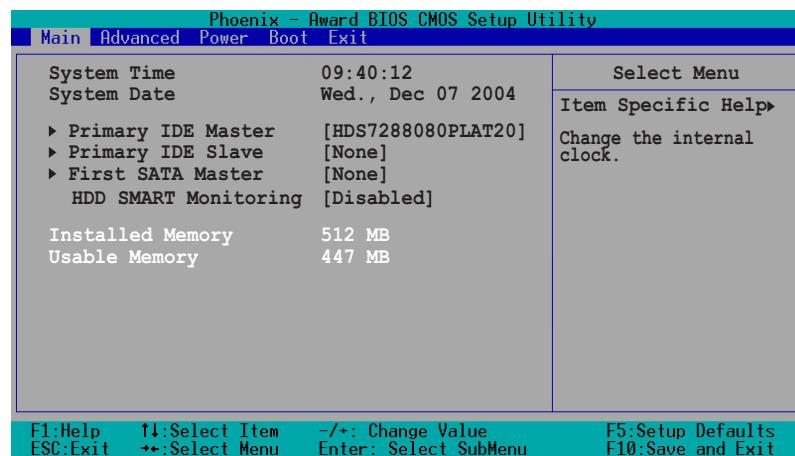


Note that a right pointer symbol (as shown on the left) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. The sub-menu appears. Use the legend keys to enter values and move from field to field within a sub-menu as you would within a menu. Use the <Esc> key to return to the main menu.

Take some time to familiarize yourself with the legend keys and their corresponding functions. Practice navigating through the various menus and sub-menus. If you accidentally make unwanted changes to any of the fields, use the set default hot key <F5> to load the Setup default values. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

5.3 Main Menu

When you enter the Setup program, the following screen appears.



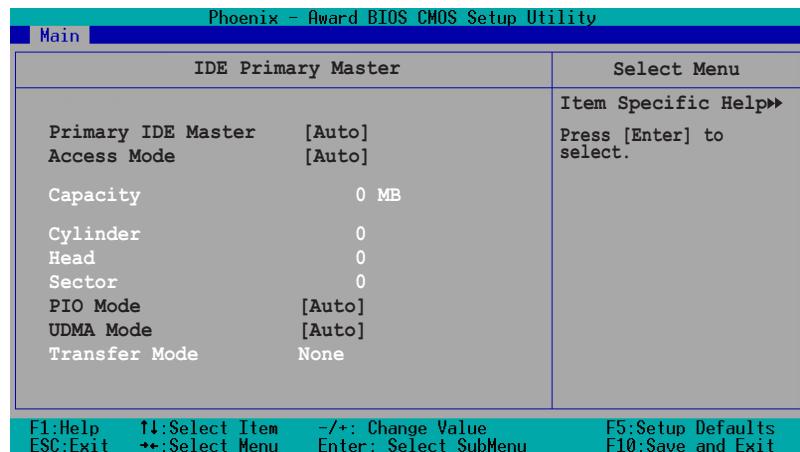
5.3.1 System Time [xx:xx:xx]

Sets the system to the time that you specify (usually the current time). The format is hour, minute, second. Valid values for hour, minute and second are Hour: (00 to 23), Minute: (00 to 59), Second: (00 to 59). Use the <Tab> key to move between the hour, minute, and second fields.

5.3.2 System Date [xx/xx/yyyy]

Sets the system to the date that you specify (usually the current date). The format is month, day, year. Valid values for month, day, and year are Month: (1 to 12), Day: (1 to 31), Year: (up to 2084). Use the <Tab> key to move between the month, day, and year fields.

5.3.3 Primary IDE Master/Slave ; First SATA Master



Primary IDE Master [Auto]

Select [Auto] to automatically detect an IDE hard disk drive. If automatic detection is successful, Setup automatically fills in the correct values for the remaining fields on this sub-menu. If automatic detection fails, this may be because the hard disk drive is too old or too new. If the hard disk was already formatted on an older system, Setup may detect incorrect parameters. In these cases, select [Manual] to manually enter the IDE hard disk drive parameters. Refer to the next section for details.



Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

Access Mode [Auto]

This item allows the user to select the sector addressing mode. Configuration options: [CHS] [LBA] [Large] [Auto]

PIO Mode [Auto]

This option lets you set a PIO (Programmed Input/Output) mode for the IDE device. Modes 0 through 4 provide successive increase in performance. Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

UDMA Mode [Auto]

Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability.

5.3.4 HDD SMART Monitoring [Disable]

This option allows you to enable or disable the HDD SMART Monitoring function. Configuration options: [Disabled] [Enabled]

5.3.5 Installed Memory [xxx MB]

This field automatically displays the amount of conventional memory detected by the system during the boot process.

5.3.6 Usable Memory [xxx MB]

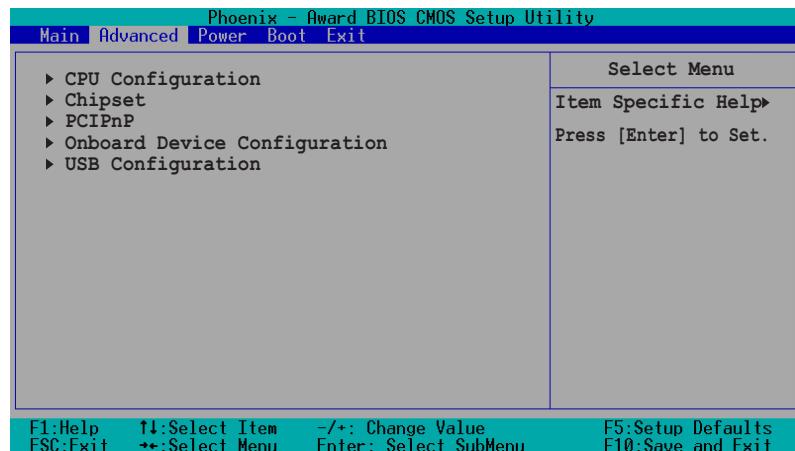
This field automatically displays the Usable Memory detected by the system during the boot process.

5.4 Advanced Menu

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

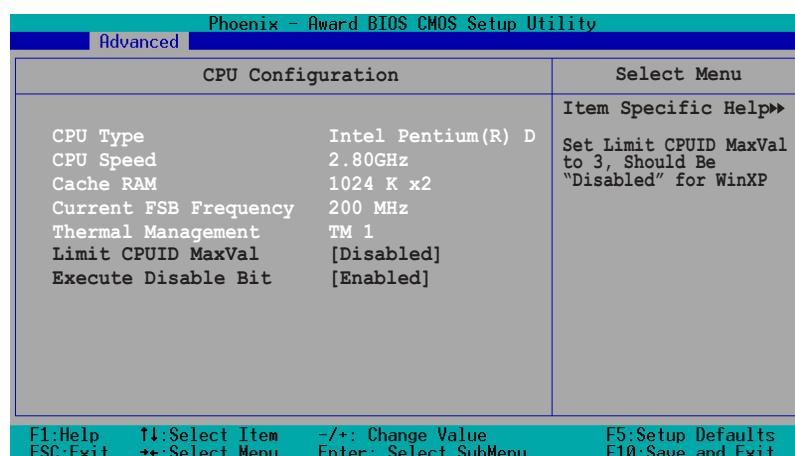


Take caution when changing the settings of the Advanced menu items. Incorrect field values may cause the system to malfunction.



5.4.1 CPU configuration

The items in this menu show the CPU-related information auto-detected by the BIOS.



Limit CPUID MaxVal [Disable]

This option allows you to enable or disable the Limit CPUID MaxVal.
Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enable]

This option allows you to enable or disable the Execute Disable Bit.
Configuration options: [Disabled] [Enabled]

5.4.2 Chipset configuration

The items in this menu show the chipset configuration settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility		
Advanced		
Chipset		Select Menu
Current MRC Version	6.1	Item Specific Help»
Current DRAM Frequency	533 MHz	
Onboard Video Memory Size	[64MB]	
Video Display Devices	[Auto]	
TV Standard	[NTSC]	
Memory Hole	[Disabled]	
System BIOS Cacheable	[Disabled]	

Onboard Video Memory Size [64MB]

This option allows you to select the size of the onboard graphics controller memory use. Configuration options: [32MB] [64MB] [128MB] [256MB]

Video Display Device [Auto]

This parameter allows you to select the type of video display device you intend to use. Configuration options: [Auto] [CRT Force] [TV Force] [TV Only] [CRT and DFP]

TV Standard [NTSC]

Select the TV standard according to your location.
Configuration options: [NTSC] [PAL]

Memory Hole [Disable]

This option allows you to enable or disable the Memory Hole.

Configuration options: [Disabled] [Enabled]

System BIOS Cacheable [Disable]

This option allows you to enable or disable the System BIOS Cacheable function. Configuration options: [Disabled] [Enabled]

5.4.3 PCI PnP

The items in this menu show the PCI PnP configuration settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility		
Advanced		
PCI PnP		Select Menu
Plug & Play O/S	[No]	Item Specific Help»
PCI Latency Timer(CLK)	[64]	

F1:Help F4:Select Item F5:Setup Defaults
ESC:Exit F2:Select Menu Enter: Select SubMenu F10:Save and Exit

Plug & Play O/S [No]

Select [Yes] if you are using a Plug and Play capable operating system.

Select [No] if you need the BIOS to configure non-boot devices.

Configuration options: [No] [Yes]

PCI Latency Timer(CLK) [64]

Allows you to enter the value in units of PCI clocks for the PCI device latency timer register. Min is 0 , Max is 255.

5.4.4 Onboard device configuration

The items in this menu show the onboard device configuration settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility		
Advanced		Onboard Device Configuration
		Select Menu
Onboard IEEE 1394	[Enabled]	Item Specific Help»
Onboard LAN	[Enabled]	
► South OnChip IDE Device		
► South OnChip PCI Device		
Primary Display Adapter	[PCI]	
Onboard LAN Boot ROM	[Disabled]	
Serial Port1 Address	[3F8/IRQ4]	
Parallel Port Address	[378/IRQ7]	
Parallel Port Mode	[ECP+EPP]	
ECP Mode Use DMA	[3]	

F1:Help ↑↓:Select Item -/+: Change Value F5:Setup Defaults
ESC:Exit ++:Select Menu Enter: Select SubMenu F10:Save and Exit

Onboard IEEE 1394 [Enabled]

Allows you to enable or disable the onboard IEEE 1394 controller.
Configuration options: [Enabled] [Disabled]

Onboard LAN [Enabled]

Allows you to enable or disable the onboard LAN controller. Keep the default enabled if you wish to use the onboard LAN feature. Set to [Disabled] if you installed a PCI LAN card.
Configuration options: [Disabled] [Enabled]

South OnChip IDE Device

Phoenix - Award BIOS CMOS Setup Utility		
Advanced		South OnChip IDE Device
		Select Menu
IDE DMA transfer access	[Enabled]	Item Specific Help»

IDE DMA transfer access [Enabled]

Allows you to enable or disable the IDE DMA transfer access function.
Configuration options: [Disabled] [Enabled]

South OnChip PCI Device

Phoenix - Award BIOS CMOS Setup Utility		
Advanced		
South OnChip PCI Device		Select Menu
Onboard AC97 Audio	[Auto]	Item Specific Help▶
Onboard Chip SATA	[IDE Controller]	

Onboard AC97 Audio [Auto]

Setting to [Auto] allows the BIOS to detect whether you are using any audio device. If an audio device is detected, the onboard audio controller is enabled. If no audio device is detected, the controller is disabled. If there are conflicts with the onboard audio controller, set the appropriate field to [Disabled]. Configuration options: [Auto] [Disabled]

Onboard Chip SATA [IDE Controller]

Allows you to enable or disable the Onboard Chip SATA. Configuration options: [SATA Disabled] [IDE Controller]]

Primary Display Adapter [PCI]

Allows you to set which graphics controller to use as the primary boot device. Configuration options: [PCI]

Onboard LAN Boot ROM [Disabled]

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

Serial Port1 Address [3F8/IRQ4]

Allows you to set the addresses for the onboard serial port connector. Configuration options: [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3] [Disabled]

Parallel Port Address [378/IRQ7]

Allows you to set the base address of the onboard parallel port connector. If you disable this field, the Parallel Port Mode and ECP DMA Select configurations are not available. Configuration options: [Disabled] [378/IRQ7] [278/IRQ5] [3BC/IRQ7]

Parallel Port Mode [ECP+EPP]

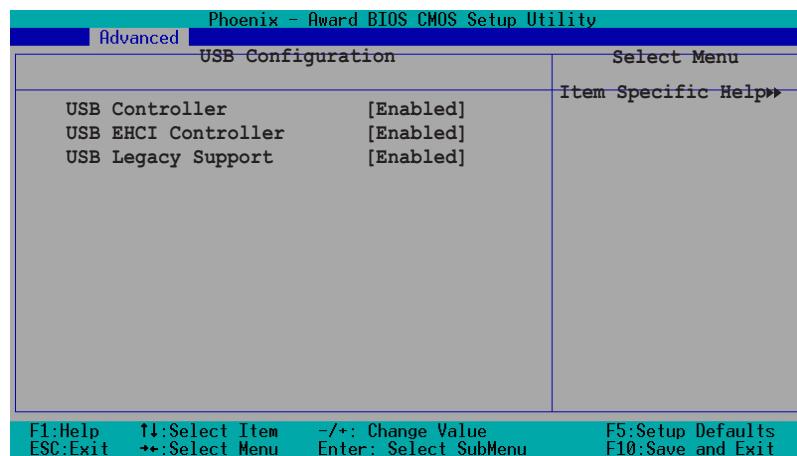
Allows you to set the operation mode of the parallel port. Configuration options: [SPP] [EPP] [ECP] [ECP+EPP]

ECP Mode Use DMA [3]

Allows you to select the ECP Mode. This item becomes configurable only if the **Parallel Port Mode** is set to [ECP] or [ECP+EPP]. Configuration options: [1] [3]

5.4.5 USB configuration

The items in this menu show the USB configuration settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.



USB Controller [Enabled]

Allows you to enable or disable the USB controller.

Configuration options: [Enabled] Disabled

USB EHCI Controller [Enabled]

Allows you to enable or disable the EHCI controller. Setting this item to [Enabled] allows the built-in high speed USB support in the BIOS to turn on automatically when you install high speed USB devices.

Configuration options: [Enabled] Disabled

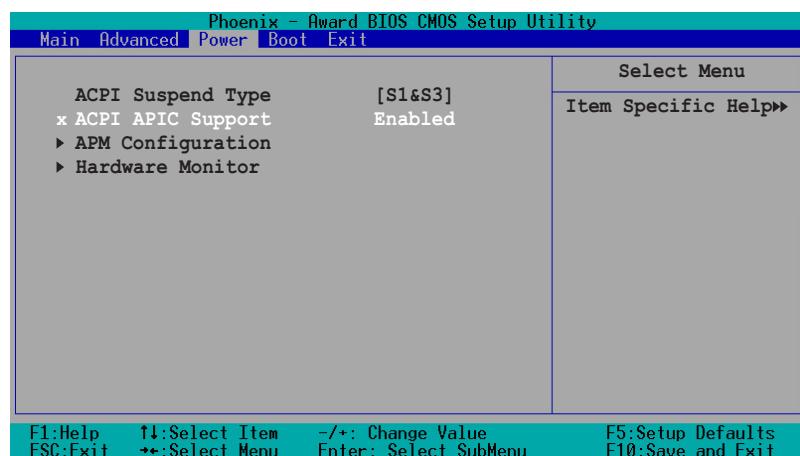
USB Legacy Support [Enabled]

Allows you to enable or disable support for legacy USB devices.

Configuration options: [Enabled] Disabled

5.5 Power menu

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



ACPI Suspend Type [S1 & S3]

Allows you to select the ACPI state used for system suspend.
Configuration options: [S1(POS)] [S3(STR)] [S1&S3]

ACPI APIC Support [Enabled]

Allows you enable or disable the ACPI feature on the operating system.
Configuration options: [Enabled] [Disabled]

5.5.1 APM configuration

This menu shows the Advanced Power Management (APM) configuration settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility	
Power	
APM Configuration	Select Menu
Power Up By External Modem [Disabled]	Item Specific Help»
Power Up By PS/2 Mouse [Disabled]	
Power Up By PS/2 Keyboard [Disabled]	
Restore on AC Power Loss [Power Off]	
x Power On By Button Enabled	
Video Off Option [Suspend -> Off]	
PWR Button <4 secs [Instant-Off]	
Power On by PCI Devices [Disabled]	
Power On by RTC Alarm [Disabled]	
x Date (of Month) Alarm 0	
x Time (hh:mm:ss) Alarm 0:0:0	

F1:Help 11:Select Item -/+: Change Value F5:Setup Defaults
ESC:Exit ++:Select Menu Enter: Select SubMenu F10:Save and Exit

Power Up By External Modem [Disabled]

Allows you to enable or disable system power up when the external modem receives a call while the computer is in soft-off mode.

Configuration options: [Disabled] [Enabled]

Power Up By PS/2 Mouse [Disabled]

Allows you to enable or disable system power up by PS/2 Mouse.

Configuration options: [Disabled] [Enabled]

Power Up By PS/2 Keyboard [Disabled]

Allows you to enable or disable system power up by PS/2 Keyboard.

Configuration options: [Disabled] [Space Bar] [Ctrl-ESC] [Power Key]

Restore on AC Power Loss [Power Off]

Allows you to set whether or not to reboot the system after power interruptions. [Power Off] leaves your system off, [Power On] reboots the system, and [Last State] sets the system back to the state it was before the power interruption. Configuration options: [Power Off] [Power On] [Last State]

Power On By Button [Enabled]

This item appear only when the **Power Up By PS/2 Keyboard** item is set to Enabled. Configuration options: [Disabled] [Enabled]

Video Off Option [Suspend -> Off]

This item determines when to activate the video off feature to monitor power management. Configuration options: [Suspend -> Off] [Always On]

PWR Button < 4 secs [Instant-Off]

When set to [Instant-Off], the system goes to soft-off when you press the power button for **less** than 4 seconds. When set to [Suspend], press the power button for **more** than 4 seconds to power off the system.

Configuration options: [Suspend] [Instant-Off]

Power Up On PCI Devices [Disabled]

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

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate an event. When this item is enabled, you can set the date and time of alarm using the two following items. Configuration options: [Disabled] [Enabled]

Date (of Month) Alarm [0]

To set the date of alarm, highlight this item and press <Enter> to display a pop-up menu. Key-in a value within the specified range then press <Enter>. Configuration options: [Min=0] [Max=31]

Time (hh:mm:ss) Alarm [0 : 0 : 0]

To set the time of alarm:

1. Highlight this item and press <Enter> to display a pop-up menu for the hour field.
2. Key-in a value (Min=0, Max=23), then press <Enter>.
3. Press tab to move to the minutes field, then press <Enter>.
4. Key-in a minute value (Min=0, Max=59), then press <Enter>.
5. Press tab to move to the seconds field, then press <Enter>.
6. Key-in a value (Min=0, Max=59), then press <Enter>.

5.5.2 Hardware Monitor

Phoenix - Award BIOS CMOS Setup Utility		
Power		
Hardware Monitor		Select Menu
Q-FAN Controller	[Enabled]	Item Specific Help»
Vcore Voltage	[1.23V]	System will shut
3.3V Voltage	3.26V	down when CPU
5V Voltage	5.02V	temperature is too
12V Voltage	12.28V	high.
CPU Temperature	54°C	
M/B Temperature	38°C	
CPU Fan Speed	7273 RPM	

Q-Fan Controller [Enabled]

Allows you to enable or disable the ASUS Q-Fan feature that smartly adjusts the CPU or chassis fan speed for more efficient system operation. Configuration options: [Disabled] [Enabled]

VCORE Voltage

3.3V Voltage

5V Voltage

12V Voltage

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

CPU Temperature [xxxC/xxxF]

M/B Temperature [xxxC/xxxF]

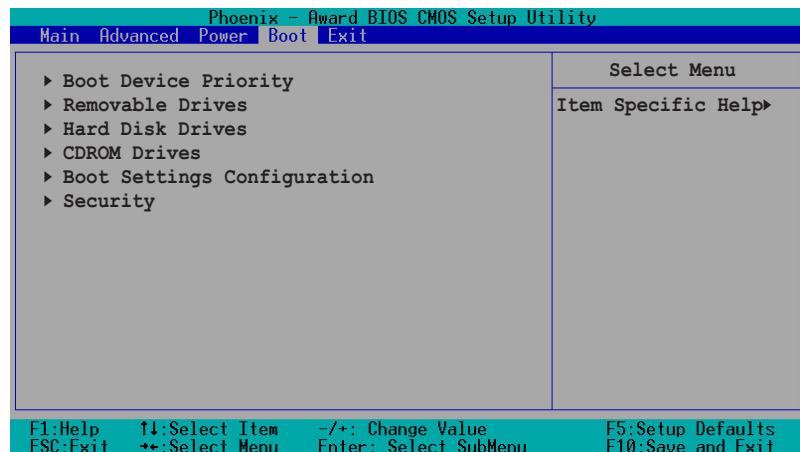
The onboard hardware monitor automatically detects and display the power supply and CPU temperatures in these fields.

CPU Fan Speed [xxxxRPM]

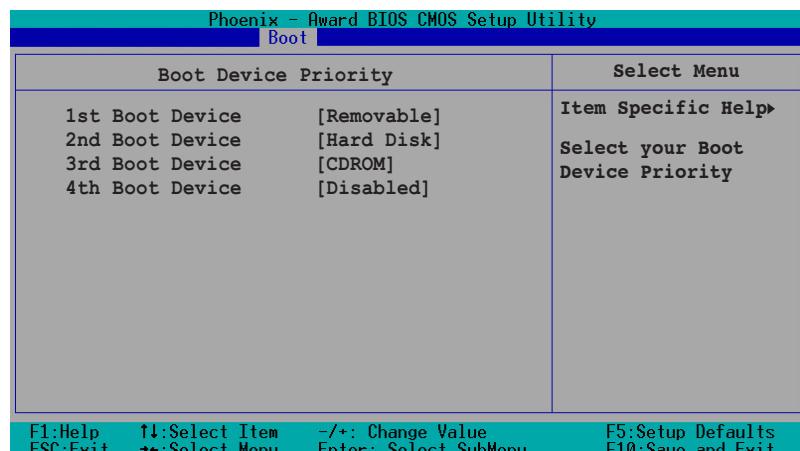
The onboard hardware monitor automatically detects the CPU fan speeds in rotations per minute (RPM).

5.6 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.



5.6.1 Boot device priority



1st Boot Device [Removable]

2nd Boot Device [Hard Disk]

3rd Boot Device [CDROM]

4th Boot Device [Disabled]

These items allow you to select your boot device priority.

Configuration options: [Removable] [Hard Disk] [CDROM] [Disabled]

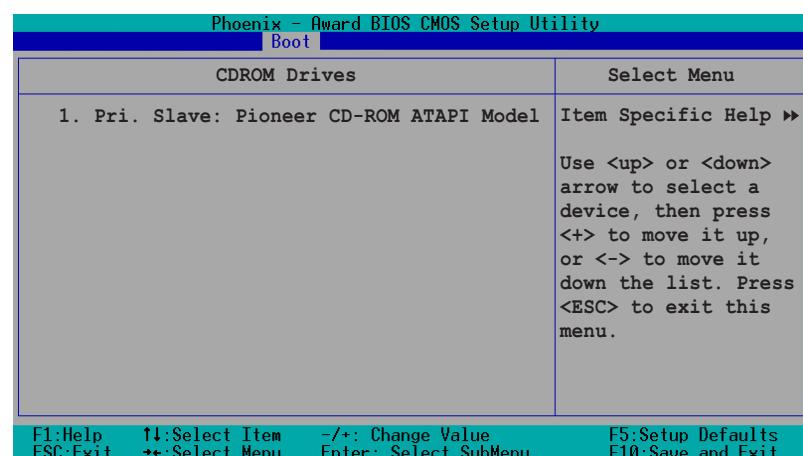
5.6.2 Removable drives

Phoenix - Award BIOS CMOS Setup Utility	
Boot	
Removable Drives	Select Menu
1. Ai-Flash	<p>Item Specific Help ►►</p> <p>Use <up> or <down> arrow to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.</p>
<p>F1:Help F11:Select Item F5:Setup Defaults ESC:Exit +*:Select Menu Enter: Select SubMenu F10:Save and Exit</p>	

5.6.3 Hard disk drives

Phoenix - Award BIOS CMOS Setup Utility	
Boot	
Hard Disk Drives	Select Menu
1. Bootable Add-in Cards	<p>Item Specific Help ►►</p> <p>Use <up> or <down> arrow to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.</p>
<p>F1:Help F11:Select Item F5:Setup Defaults ESC:Exit +*:Select Menu Enter: Select SubMenu F10:Save and Exit</p>	

5.6.4 CD-ROM drives



5.6.5 Boot Settings Configuration

Phoenix - Award BIOS CMOS Setup Utility	
Boot	
Boot Settings Configuration	Select Menu
Quick Boot [Enabled]	Item Specific Help >>
Boot Num-Lock [On]	Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.
TypeMatic Rate Setting [Disabled]	
x TypeMatic Rate (Chars/Sec) 6	
x TypeMatic Delay (Msec) 250	
Full Screen LOGO [Enabled]	
Halt On [All,But Keyboard]	

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: [Enabled] [Disabled]

Bootup Num-Lock [On]

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

Configuration options: [On] [Off]

TypeMatic Rate Setting [Disabled]

Allows you to enable or disable the keyboard typematic rate setting. Set to [Enabled] to configure the Type Rate and Type Delay items. Configuration options: [Disabled] [Enabled]



The items **TypeMatic Rate (Chars/Sec)** and **TypeMatic Delay** become configurable only when the item TypeMatic Setting is enabled.

TypeMatic Rate (Chars/Sec) [6]

Allows you to select the rate at which character repeats when you hold a key. Configuration options: [6] [8] [10] [12] [15] [20] [24] [30]

TypeMatic Delay (Msec) [250]

Allows you to set the delay before key strokes begin to repeat.

Configuration options: [250] [500] [750] [1000]



Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature.
Configuration options: [Enabled] [Disabled]



Make sure that the Full Screen Logo item is set to [Enabled] if you wish to use the ASUS MyLogo2™ feature.

Halt On [All Errors]

Sets the system to halt on errors according to the system functions specified in each option. Configuration options: [All Errors] [No Errors] [All, But Keyboard] [All , But Diskette] [All, But Disk/Key]

5.6.6 Security

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

Security		Select Menu
Supervisor Password	Clear	Item Specific Help ▶
User Password	Clear	
Password Check	[Setup]	Supervisor password controls full access, <Enter> to change password.



Supervisor Password [Clear] User Password [Clear]

These fields allow you to set passwords.

To set a password:

1. Highlight an item then press <Enter>.
2. Type in a password using eight (8) alphanumeric characters, then press <Enter>.
3. When prompted, confirm the password by typing the exact characters again, then press <Enter>. The password field setting is changed to [Set].

To clear the password:

1. Highlight the password field, and press <Enter> twice. The following message appears:
“PASSWORD DISABLED!!! Press any key to continue...”
2. Press any key to return to the menu.

A note about passwords

The Supervisor password is required to enter the BIOS Setup program preventing unauthorized access. The User password is required to boot the system preventing unauthorized use.

Forgot the password?

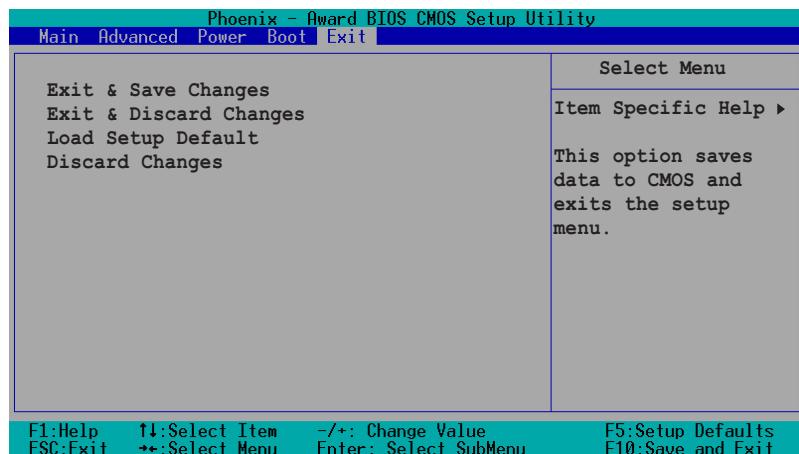
If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, refer to section “4.3 Jumpers” for instructions.

Password Check [Setup]

This field requires you to enter the password before entering the BIOS setup or the system. Select [Setup] to require the password before entering the BIOS Setup. Select [System] to require the password before entering the system. Configuration options: [Setup] [System]

5.7 Exit menu

The Exit menu items allow you to load the BIOS setup default settings, save or discard any changes you made, or exit the Setup utility.



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. The CMOS RAM is sustained by an onboard backup battery and stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select [Yes] 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. Pressing <Enter> saves 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.

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 [Yes] to load the default values. Select **Exit Saving Changes** or make other changes before saving the values to the non-volatile RAM.

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 [Yes] to discard any changes and load the previously saved values.