Vintage-PE2

Barebone System

E2039

First Edition V1
April 2005

Table of contents

Table of contents

Chapter 3: Starting up

Chapter 4: Motherboard info

Chapter 5: BIOS setup

Table of contents

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 manufacturerís instructions.

VORSICHT: Explosionsgetahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnljchen 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 Vintage-PE2 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 Vintage-PE2. The chapter lists the system features including introduction on the front and rear panel, 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: Instructions 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.

Chapter 1

This chapter gives a general description of the ASUS Vintage-PE2 barebone system. It includes introduction on the front and rear panel features, and the internal features.

System introduction

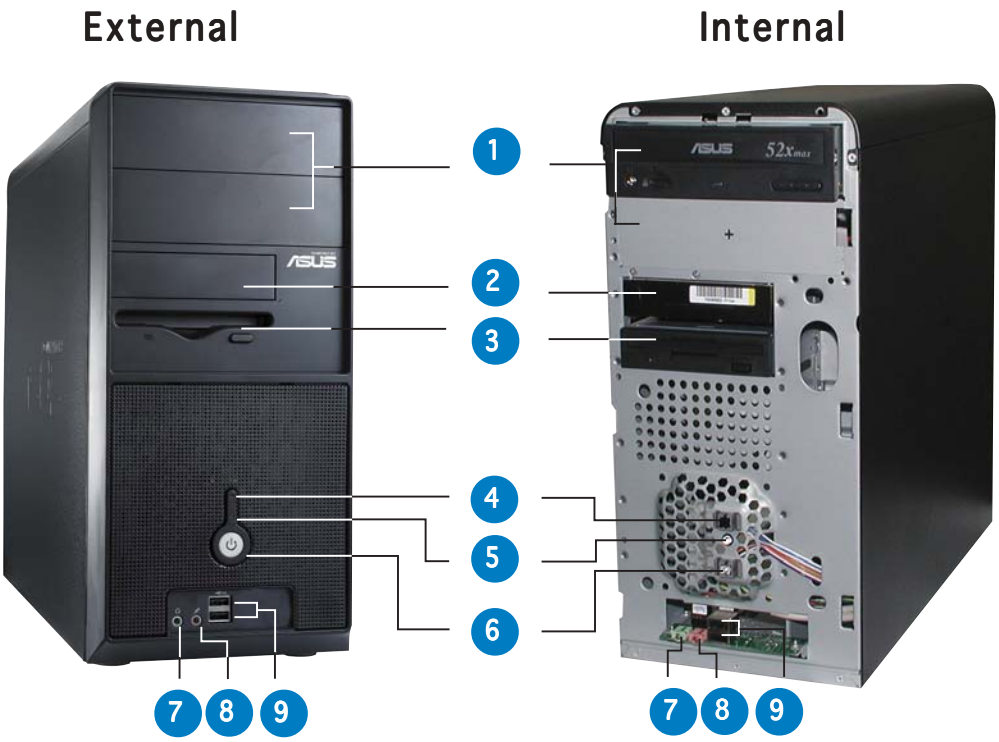
1.1 Welcome!

Thank you for choosing the ASUS Vintage-PE2!

The ASUS Vintage-PE2 is an all-in-one barebone system with a versatile home entertainment feature. The system comes in a stylish casing and is powered by the ASUS motherboard that supports Intel® Pentium® 4 processors in the 775-land package.

1.2 Front panel

This section describes the front external and internal features of the ASUS Vintage-PE2 barebone system.

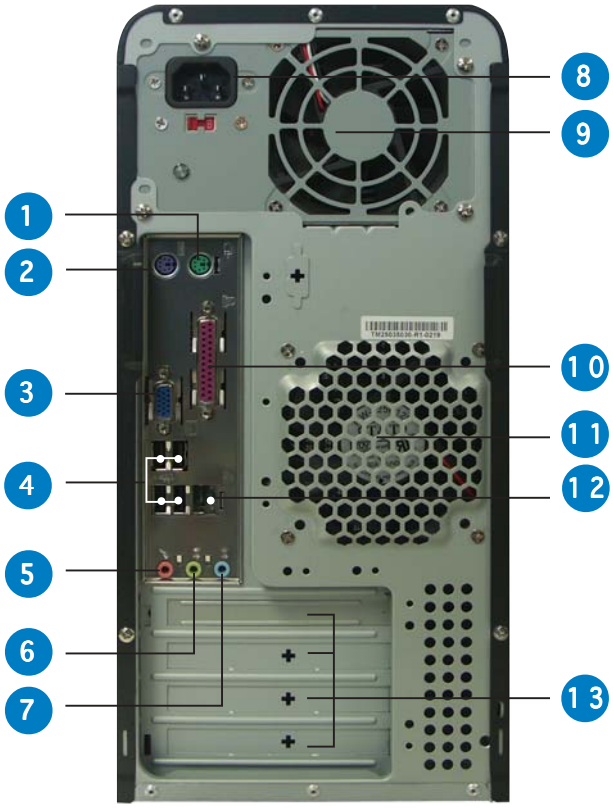


1. **Optical drive bays (drive in photo not included).** These bays are for 5.25-inch IDE optical drives.
2. **Hard disk drive bay.** This is for an IDE or Serial ATA hard disk drive.
3. **Floppy disk drive.** This drive is for a 1.44 MB, 3.5-inch floppy disk.
4. **Reset button.** Press this button to reset the system.

5. **HDD LED.** This LED lights up when data is being read from or written to the hard disk drive.
6. **Power button.** Press this button to turn the system on or off.
7. **Headphone port.** This port connects a headphone with a stereo mini-plug.
8. **Microphone port.** This Mic (pink) port connects a microphone.
9. **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.

1.3 Rear panel

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



1. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.
2. **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.
3. **VGA port.** This port connects a VGA monitor.
4. **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.
5. **Microphone port.** This Microphone (pink) port connects a microphone. In 4/6-channel mode, the function of this port becomes Surround Speaker.
6. **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.
7. **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.

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

Audio ports function variation

Port	Headphone/2-Channel	4-Channel	6-Channel
Light 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**

8. **Power socket.** This socket connects the power cable and plug.
9. **Power supply unit fan vent.** This vent is for the PSU fan that provides ventilation inside the power supply unit.
10. **Parallel port.** This 25-pin port connects a printer, scanner, or other devices.
11. **Chassis fan vent.** This vent is for the fan that provides ventilation inside the system chassis.
12. **LAN (RJ-45) port.** This port allows connection to a Local Area Network (LAN) through a network hub.
13. **Expansion slots.** You can insert expansion boards into these slots to add memory and graphics capabilities to the system.

Voltage Selector

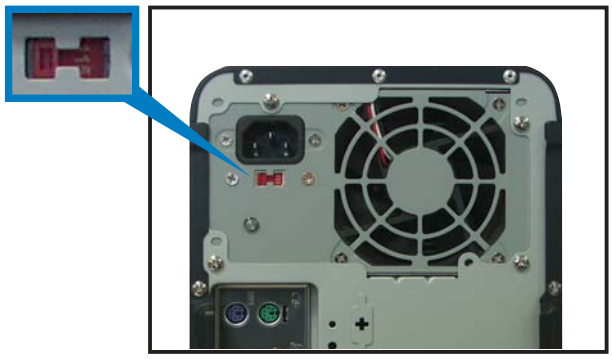
The switching power supply that came with the system has a voltage selector switch below the power socket. Use this switch to select the appropriate voltage according to the voltage supply in your area.

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

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

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

115 V/230 V Voltage selector



1.4 Internal components

The figure below shows the internal view of the system when you remove the side plate. The standard components already installed in the system and the locations of the available drive bays are pointed out.

1. PFC power supply
2. Motherboard
3. Optical drive bays
4. Hard disk drive bay
5. 3.5” Floppy drive bay
6. Hard disk drive bays

Chapter 2

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

Basic installation

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 Dual Inline Memory Module (DIMM)
3. Expansion card(s)
4. Hard disk drive (s)
5. Optical drive(s)
6. Floppy disk drive

Tool

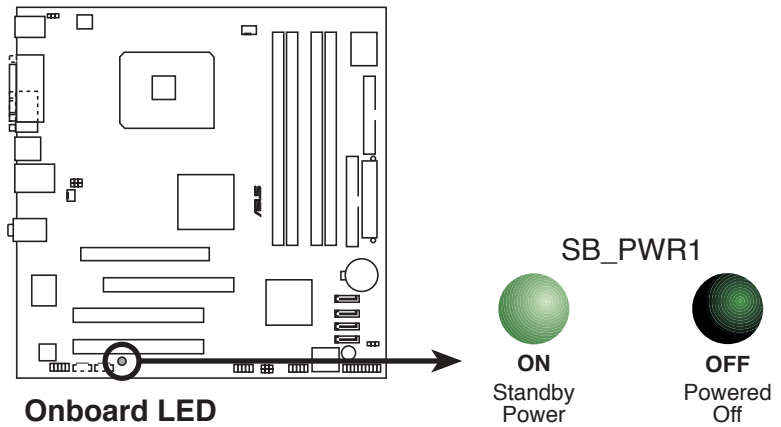
Phillips (cross) screw driver

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 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. This LED lights up to indicate 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.

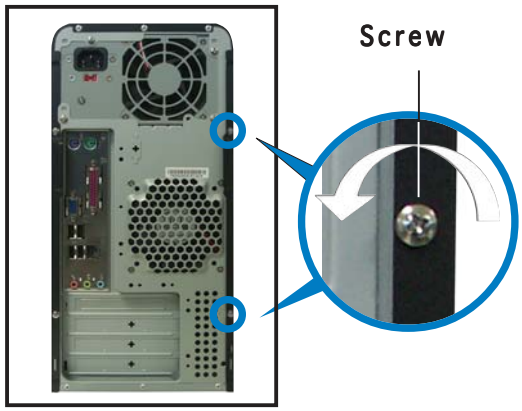


2.3 Removing the side plates and front cover

The system has two chassis side plates, each one secured by two screws located on the rear panel.

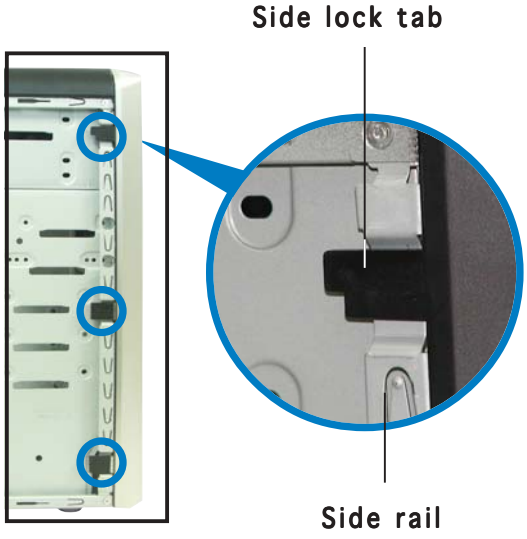
To remove the chassis side plate:

1. Locate two screws on the side plate. Turn each screw counterclockwise to release the side cover. Set the screws aside.

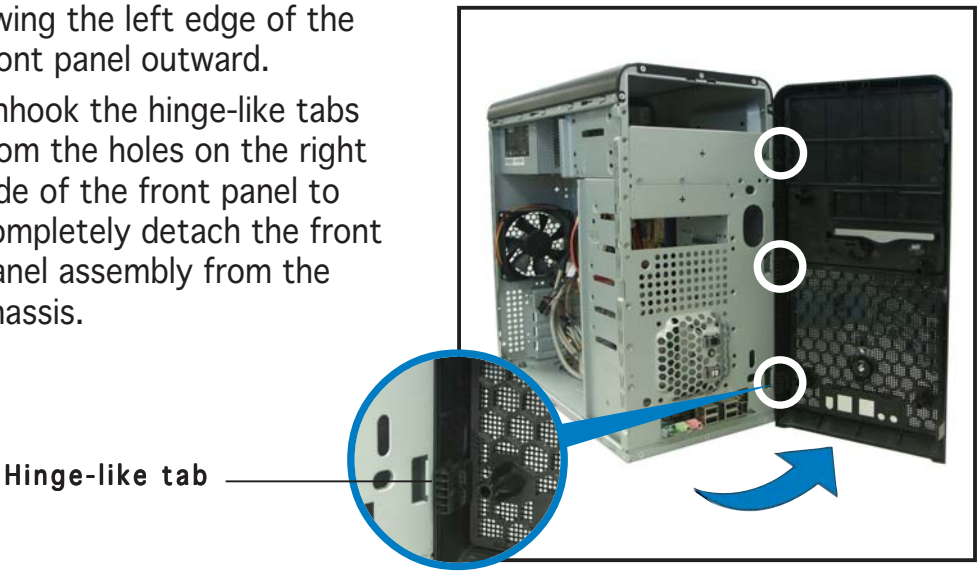


2. Slide the side panel for about half an inch toward the rear until it disengages from the chassis.
3. Repeat steps 1 and 2 to remove the other side plate.

4. Release the side lock tabs from the side rail.



5. Swing the left edge of the front panel outward.
6. Unhook the hinge-like tabs from the holes on the right side of the front panel to completely detach the front panel assembly from the chassis.



2.4 Installing a CPU

The motherboard comes with a surface mount LGA775 socket designed for the Intel® Pentium® 4 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.

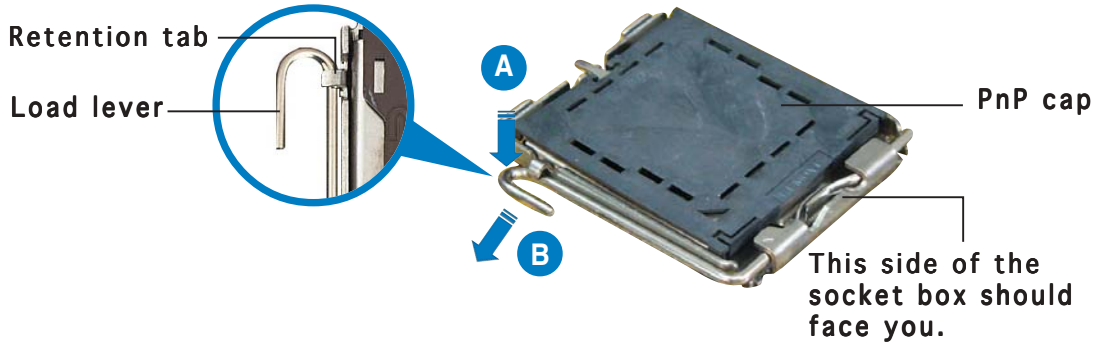
2.4.1 Installing the CPU

To install a CPU:

1. Locate the CPU socket on the motherboard.

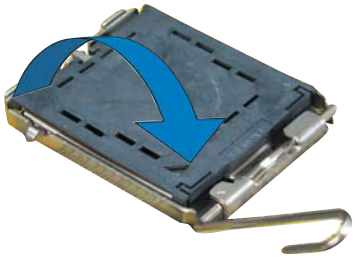
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

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

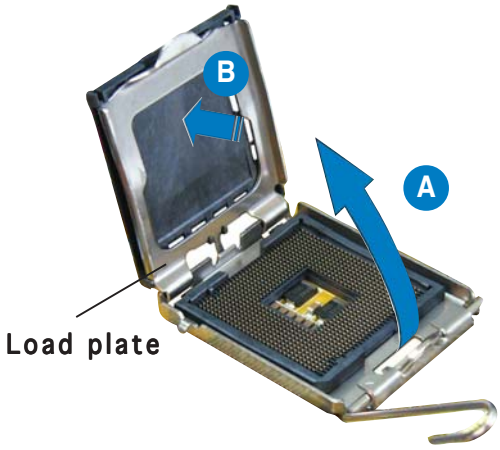


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

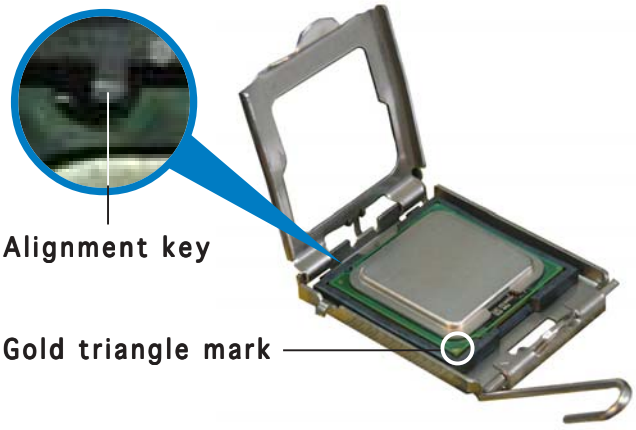
3. Lift the load lever in the direction of the arrow to a 135° angle.



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).

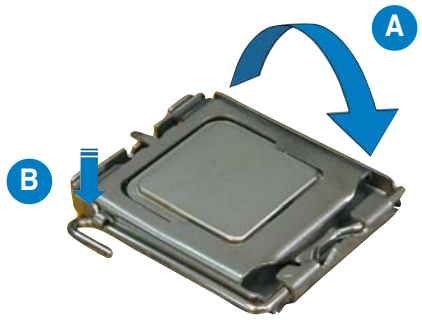


5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch.



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!

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



Notes on Intel® Hyper-Threading Technology

- This motherboard supports Intel® Pentium® 4 CPUs in the 775-land package with Hyper-Threading Technology.
- Hyper-Threading Technology is supported under Windows® XP 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 5: BIOS setup). Under the Advanced Menu, make sure that the item Hyper-Threading Technology is set to Enabled. The item appears only if you installed a CPU that supports Hyper-Threading Technology.
3. Reboot the computer.

2.4.2 Installing the CPU fan and heatsink

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

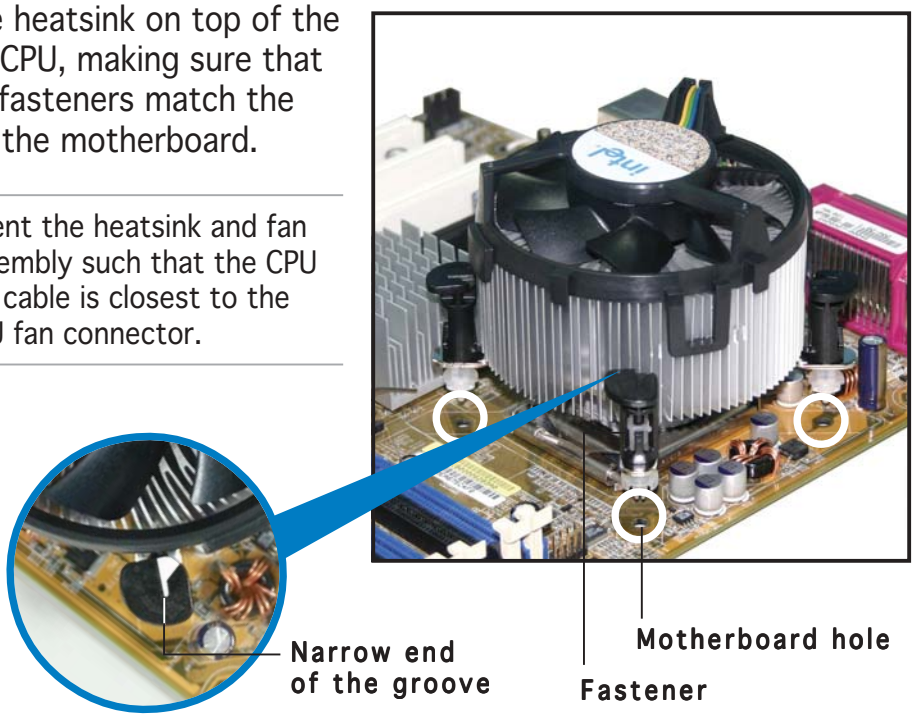
- When you buy a boxed Intel® Pentium® 4 processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
- Your Intel® Pentium® 4 LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install.

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

To install the CPU fan and heatsink assembly:

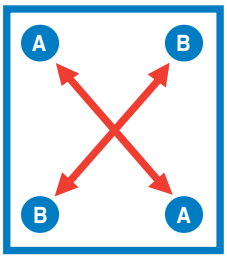
1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

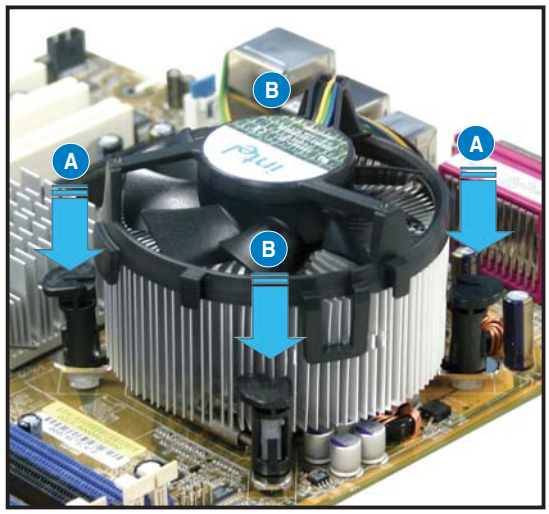
Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.



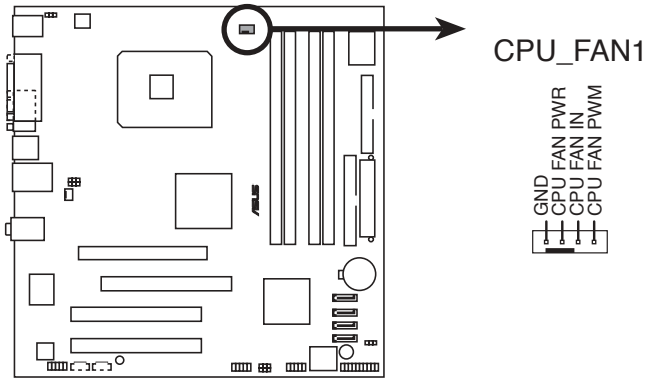
Make sure to orient each fastener with the narrow end of the groove pointing outward. (The photo shows the groove shaded for emphasis.)

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_FAN1.



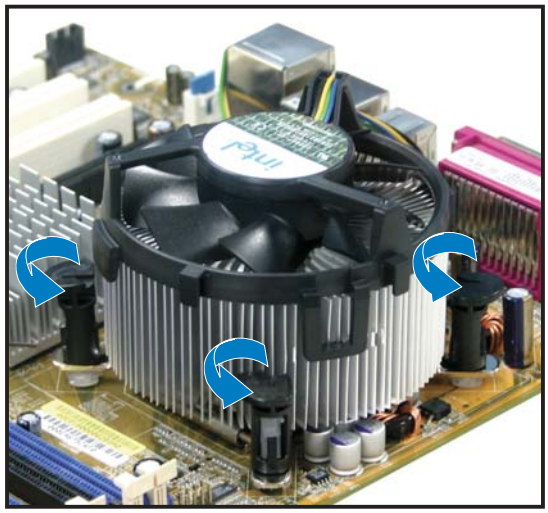
CPU fan connector

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

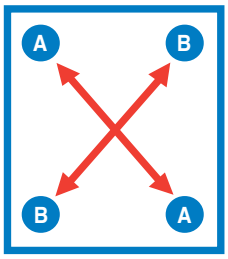
2.4.3 Uninstalling the CPU fan and heatsink

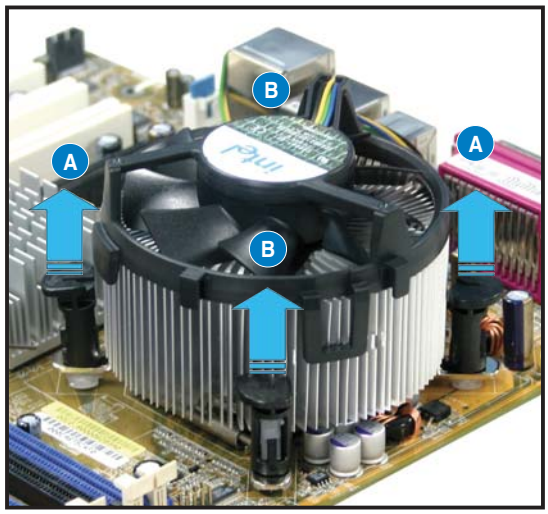
To uninstall the CPU heatsink and fan:

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

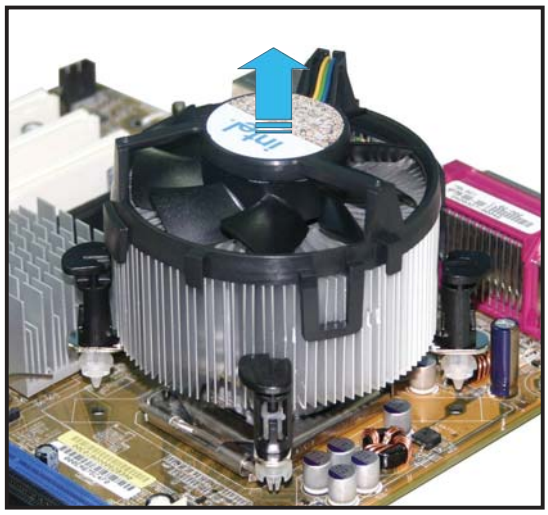


3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.

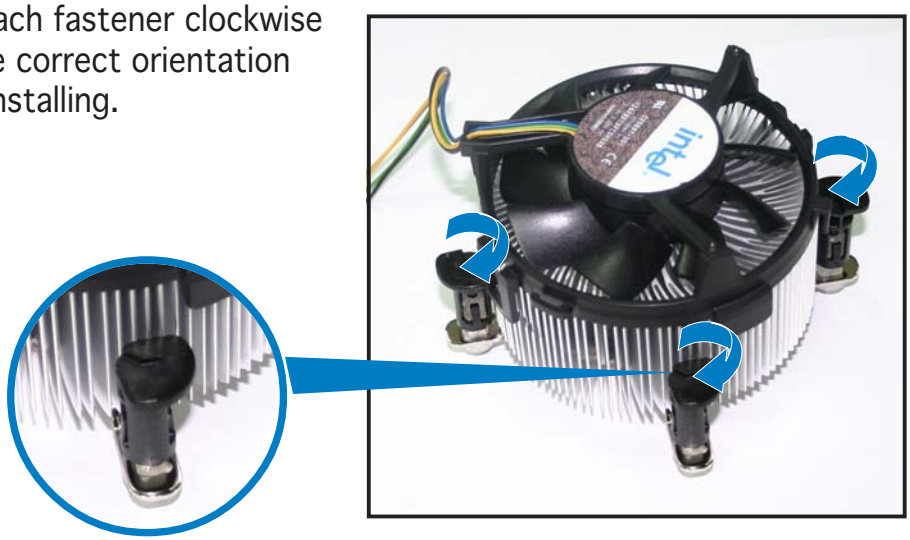




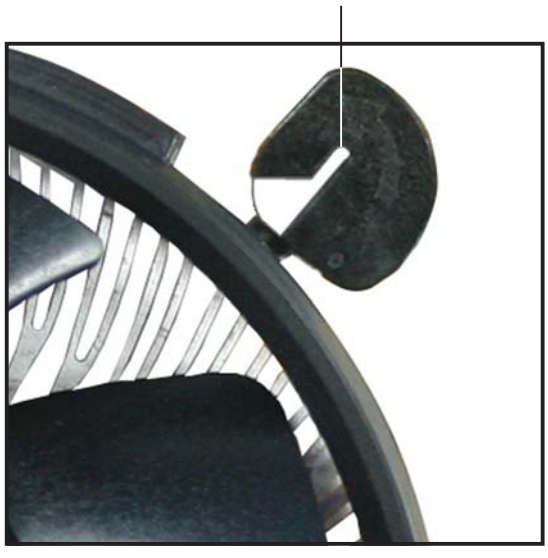
4. Carefully remove the heatsink and fan assembly from the motherboard.



5. Rotate each fastener clockwise to ensure correct orientation when reinstalling.



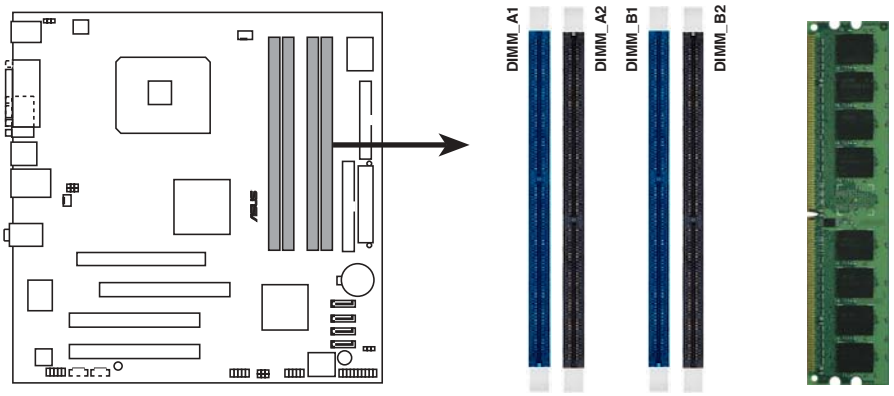
Narrow end of the groove



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

2.5 Installing system memory

The system may come with four Double Data Rate (DDR) Dual Inline Memory Module(s) (DIMM) sockets. These sockets support up to 4 GB system memory using unbuffered ECC or non-ECC PC2700/1600/2100 DIMMs.



184-pin DDR DIMM sockets

Make sure to use only identical, ASUS-certified memory modules. Visit www.asus.com for the latest Qualified Vendors List.

2.5.1 Memory configurations

You may install up to 4 GB system memory using 256 MB, 512 MB, and 1 GB DDR DIMMs.

- Installing DDR DIMMS other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations in the table on the next page.
- For dual-channel configuration, the total size of memory module(s) installed per channel must be the same (DIMM_A1 + DIMM_B1 = DIMM_A2 + DIMM_B2).
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. Refer to the DDR Qualified Vendors List on the next page for details.
- Due to chipset resource allocation, the system may detect less than 4 GB system memory when you installed four 1 GB DDR memory modules.
- This motherboard does not support memory modules made up of 128 Mb chips or double sided x16 memory modules.

Recommended memory configurations

Channel	Sockets	Color
Channel A	DIMM_A1 and DIMM_B1	Blue
Channel B	DIMM_A2 and DIMM_B2	Black

DDR (333 MHz) Qualified Vendors List

							DIMM support		
Size	Vendor	Model	Brand	Side(s)	Component	CL	A	B	C
512 MB	SAMSUNG	M368L6423ETN-CB3	SAMSUNG	DS	K4H560838E-TCB3	2.5	•	•	•
256 MB	MICRON	MT8VDDT3264AG-335CA	MICRON	SS	MT46V32M8TG-6TC	2.5	•	•	•
512 MB	MICRON	MT16VDDT6464AG-335CA	MICRON	DS	MT46V32M8TG-6TC	2.5	•	•	•
256 MB	CORSAIR	VS256MB333	VALUE seLecT	SS	VS32M8-6	2.5	•	•	•
512 MB	CORSAIR	VS512MB333	VALUE seLecT	DS	VS32M8-6	N/A	•	•	•
256 MB	KINGSTON	KVR333X64C25/256	KINGSTON	SS	D3208DH1T-6	2.5	•	•	•
512 MB	KINGSTON	KVR333X64C25/512	KINGSTON	DS	D3208DH1T-6	2.5	•	•	•
256 MB	Transcend	TS32MLD64V3F5	SAMSUNG	SS	K4H560838F-TCCC	N/A	•	•	•
512 MB	TwinMOS	M2G5J16AJATT5F081AA4T	TwinMOS	DS	TMD7608F8E60D	2.5	•		
256 MB	elixir	M2U25664DS88C3G-6K	elixir	SS	N2DS25680CT-6K	2.5	•	•	•
512 MB	elixir	M2U51264DS8HC1G-6K	elixir	DS	N2DS25680CT-6K	2.5	•	•	•
256 MB	Veritech	VT333FMV/2561103	VT	SS	VT56DD32M8PC-6	2.5	•	•	
512 MB	Veritech	VT333FMV/5121103	VT	DS	VT56DD32M8PC-6	2.5	•	•	•
256 MB	NANYA	NT256D64S88C0G-6K	HANYA	SS	NT5DS32M8CT-6K	2.5	•	•	•
512 MB	NANYA	NT512D64S8HC0G-6K	HANYA	DS	NT5DS32M8CT-6K	2.5	•	•	•
256 MB	NANYA	NT256D64SH4B0G-6K	HANYA	SS	NT5DS32M16BT-6K	2.5	•	•	•
512 MB	NANYA	NT512D64S88B0G-6K	HANYA	SS	NT5DS64M8BT-6K	2.5	•	•	•
256 MB	Aeneon	AED560UD00-600C88X	Aeneon	SS	AED83T600	2.5	•	•	•

SS - Single-sided **DS** - Double-sided **CL**- CAS Latency

DIMM support:

A - supports one module inserted into either slot, in a 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.

C - supports four modules inserted into the blue and black slots as two pairs of Dual-channel memory configuration.

Visit the ASUS website (www.asus.com) for the latest DDR Qualified Vendors List.

DDR (400 MHz) Qualified Vendors List

						DIMM support			
Size	Vendor	Model	Brand	Side(s)	Component	CL	A	B	C
256MB	KINGSTON	KVR400X64C3A/256	Hynix	SS	HY5DU56822BT-D43	-	•	•	•
512MB	KINGSTON	KVR400X64C3A/512	Hynix	DS	HY5DU56822BT-D43	-	•	•	•
256MB	KINGSTON	KVR400X64C3A/256	Infineon	SS	HYB25D256800BT-5B	-	•	•	•
512MB	KINGSTON	KVR400X64C3A/512	Infineon	DS	HYB25D256809BT-5B	-	•	•	•
256MB	KINGSTON	KVR400X64C3A/256	KINGSTON	SS	D3208DL2T-5	-	•	•	•
512MB	KINGSTON	KHX3200A/512	-	DS	-	3	•	•	•
1024MB	KINGSTON	KVR400X64C3A/1G	-	DS	HYB25D512800BE-5B	3	•	•	•
256MB	SAMSUNG	M368L3223ETM-CCC	SAMSUNG	SS	K4H560838E-TCCC	-	•	•	•
512MB	SAMSUNG	M368L6423FTN-CCC	SAMSUNG	DS	K4H560838F-TCCC	4	•	•	•
256MB	MICRON	MT8VDDT3264AG-40BCB	MICRON	SS	MT46V32M8TG-5BC	-	•	•	•
512MB	MICRON	MT16VDDT6464AG-40BCB	MICRON	DS	MT46V32M8TG-5BC	-	•	•	•
256MB	Infineon	HYS64D32300HU-5-C	Infineon	SS	HYB25D256800CE-5C	3	•	•	•
512MB	Infineon	HYS64D64320HU-5-C	Infineon	DS	HYB25D256800CE-5C	-	•	•	•
256MB	Infineon	HYS64D32301HU-5-C	Infineon	SS	HYB25D512160CE-5C	3	•	•	•
512MB	Infineon	HYS64D64300HU-5-C	Infineon	SS	HYB25D512800CE-5C	3	•	•	•
1024MB	Infineon	HYS64D128320HU-5-C	Infineon	DS	HYB25D512800CE-5B	3	•	•	•
256MB	CORSAIR	CMX256A-3200C2PT	Winbond	SS	W942508BH-5	2	•	•	•
512MB	CORSAIR	VS512MB400	VALUE seLecT	DS	VS32M8-5	2.5	•	•	•
1024MB	CORSAIR	TWINX2048-3200C2	-	DS	-	-	•	•	•
256MB	Hynix	HYMD232645D8J-D43	Hynix	SS	HY5DU56822DT-D43	3	•	•	•
512MB	Hynix	HYMD264646D8J-D43	Hynix	DS	HY5DU56822DT-D43	3	•	•	•
256MB	TwinMOS	M2G9I08AIATT9F081AADT	TwinMOS	SS	TMD7608F8E50D	2.5	•	•	•
512MB	TwinMOS	M2G9J16AJATT9F081AADT	TwinMOS	DS	TMD7608F8E50D	2.5	•	•	•
256MB	TwinMOS	M2G9I08A8ATT9F081AADT	TwinMOS	SS	TMD7608F8E50D	2.5	•	•	•
512MB	TwinMOS	M2G9J16A8ATT9F081AADT	TwinMOS	DS	TMD7608F8E50D	2.5	•	•	
256MB	Transcend	TS32MLD64V4F3	SAMSUNG	SS	K4H560838F-TCCC	3	•	•	•
512MB	Transcend	TS64MLD64V4F3	SAMSUNG	DS	K4H560838F-TCCC	3	•	•	•
1024MB	Transcend	TS128MLD64V4J	SAMSUNG	DS	K4H510838B-TCCC	3	•	•	•
256MB	Apacer	77.10636.33G	Infineon	SS	HYB25D256800CE-5C	3	•	•	•
512MB	Apacer	77.10736.33G	Infineon	DS	HYB25D256800CE-5C	3	•	•	•
256MB	Apacer	77.10639.60G	ProMOS	SS	V58C2256804SCT5B	2.5	•	•	•
512MB	Apacer	77.10739.60G	ProMOS	DS	V58C2256804SCT5B	2.5	•	•	•
256MB	A DATA	MDOSS6F3G31Y0K1E0Z	SAMSUNG	SS	K4H560838E-TCCC	3	•	•	
512MB	A DATA	MDOSS6F3H41Y0N1E0Z	SAMSUNG	DS	K4H560838F-TCCC	3	•	•	•
256MB	A DATA	MDOHY6F3G31Y0N1E0Z	Hynix	SS	HY5DU56822CT-D43	3	•	•	•
512MB	A DATA	MDOHY6F3H41Y0N1E0Z	Hynix	DS	HY5DU56822CT-D43	3	•	•	•
256MB	A DATA	MDOAD5F3G31Y0D1E02	-	SS	ADD8608A8A-5B	2.5	•	•	•
512MB	A DATA	MDOAD5F3H41Y0D1E02	-	DS	ADD8608A8A-5B	2.5	•	•	•
256MB	Winbond	W9425GCDB-5	Winbond	SS	W942508CH-5	3	•	•	
512MB	Winbond	W9451GCDB-5	Winbond	DS	W942508CH-5	-	•	•	•
256MB	PSC	AL5D8B53T-5B1K	PSC	SS	A2S56D30BTP	2.5	•	•	•
512MB	PSC	AL6D8B53T-5B1K	PSC	DS	A2S56D30BTP	2.5	•	•	•
256MB	KINGMAX	MPXB62D-38KT3R	-	SS	KDL388P4LA-50	-	•	•	

(Continued on the next page)

DDR (400 MHz) Qualified Vendors List

							DIMM support		
Size	Vendor	Model	Brand	Side(s)	Component	CL	A	B	C
512MB	KINGMAX	MPXC22D-38KT3R	-	DS	KDL388P4LA-50	-	•	•	•
256MB	NANYA	NT256D64S88C0G-5T	-	SS	NT5DS32M8CT-5T	3	•	•	•
512MB	NANYA	NT512D64S8HC0G-5T	-	DS	NT5DS32M8CT-5T	3	•	•	•
256MB	NANYA	NT256D64SH4B0G-5T	-	SS	NT5DS32M16BT-5T	3	•	•	•
512MB	NANYA	NT512D64S88B0G-5T	-	DS	NT5DS64M8BT-5T	3	•	•	•
256MB	BRAIN POWER	B6U808-256M-SAM-400	SAMSUNG	SS	K4H560838D-TCC4	-	•	•	•
512MB	BRAIN POWER	B6U808-512M-SAM-400	SAMSUNG	DS	K4H560838D-TCC4	-	•	•	•
256MB	CENTURY	DXV6S8SSCCE3K27E	SAMSUNG	SS	K4H560838E-TCCC	-	•	•	•
512MB	CENTURY	DXV2S8SSCCE3K27E	SAMSUNG	DS	K4H560838E-TCCC	-	•	•	•
256MB	CENTURY	DXV6S8EL5BM3T27C	-	SS	DD2508AMTA	-	•	•	•
512MB	CENTURY	DXV2S8EL5BM3T27C	-	DS	DD2508AMTA	-	•	•	•
256MB	elixir	M2U25664DS88C3G-5T	-	SS	N2DS25680CT-5T	-	•	•	•
512MB	elixir	M2U51264DS8HC1G-5T	-	DS	N2DS25680CT-5T	-	•	•	•
256MB	Kreton	-	VT	SS	VT3225804T-5	-	•	•	•
512MB	Kreton	-	VT	DS	VT3225804T-5	-	•	•	•
256MB	Veritech	VT400FMV/2561103	VT	SS	VT56DD32M8PC-5	3	•	•	•
512MB	Veritech	VT400FMV/5121003	VT	DS	VT56DD32M8PC-5	3	•	•	•
256MB	Pmi	MD44256VIT3208GMHA01	MOSEL	SS	V58C2256804SAT5B	2.5	•	•	•
512MB	Pmi	MD44512VIT3208GATA03	MOSEL	DS	V58C2256804SAT5B	2.5	•	•	•
256MB	ProMOS	V826632K24SCTG-D0	-	SS	V58C2256804SCT5B	2.5	•	•	•
512MB	ProMOS	V826664K24SCTG-D0	-	DS	V58C2256804SCT5B	2.5	•	•	•
256MB	Deutron	AL5D8C53T-5B1T	PSC	SS	A2S56D30CTP	2.5	•		•
512MB	Deutron	AL6D8C53T-5B1T	PSC	DS	A2S56D30CTP	2.5	•	•	•
256MB	GEIL	GL5123200DC	-	SS	GL3LC32G88TG-35	-	•	•	•
512MB	GEIL	GL1GB3200DC	-	DS	GL3LC32G88TG-35	-	•	•	•
256MB	GEIL	GLX2563200UP	-	SS	GL3LC32G88TG-5A	-	•	•	•
256MB	GEIL	GD3200-512DC	-	SS	WLCSP Package	-	•	•	•
256MB	crucial	BL3264Z402.8TG	Ballistix	SS	-	2			
512MB	crucial	BL6464Z402.16TG	Ballistix	DS	-	2	•		
256MB	Novax	96M425653CE-40TB6	CEON	SS	C2S56D30TP-5	2.5	•	•	•
512MB	Novax	96M451253CE-40TB6	CEON	DS	C2S56D30TP-5	2.5	•		
256MB	Aeneon	AED560UD00-500C88X	Aeneon	SS	AED83T500	3	•	•	•

SS - Single-sided **DS** - Double-sided **CL**- CAS Latency

DIMM support:

A - supports one module inserted into either slot, in a 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.

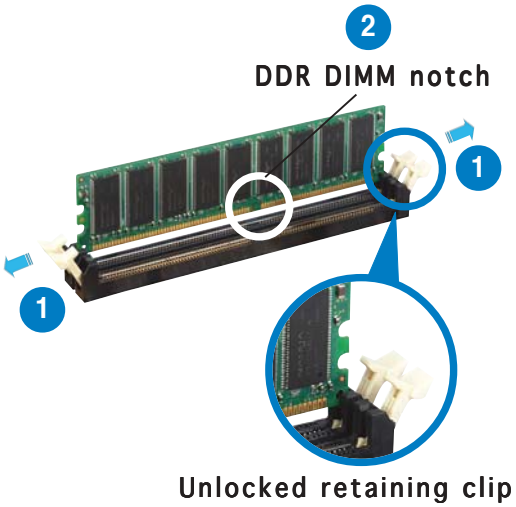
C - supports four modules inserted into the blue and black slots as two pairs of Dual-channel memory configuration.

Visit the ASUS website (www.asus.com) for the latest DDR Qualified Vendors List.

2.5.2 Installing a DIMM

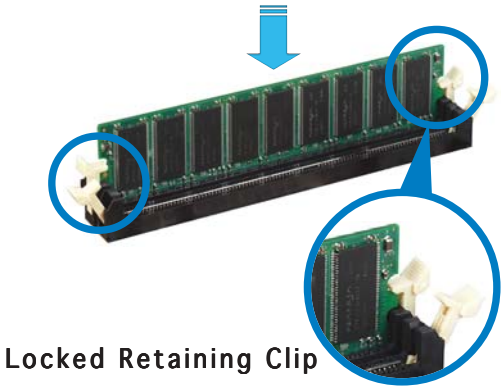
Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.



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.

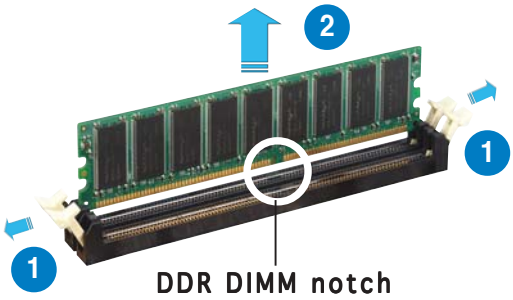
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



2.5.3 Removing a DIMM

To remove a DIMM:

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



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

2. Remove the DIMM from the socket.

2.6 Installing an expansion card

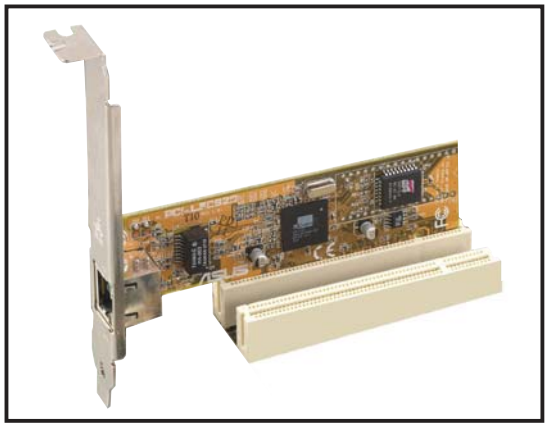
In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

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.

2.6.1 Expansion slots

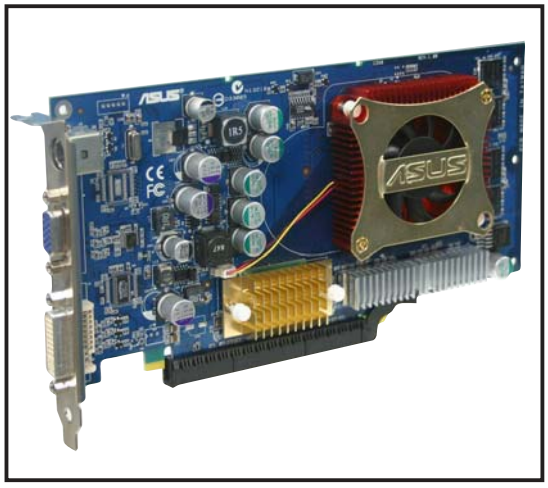
PCI slots

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.



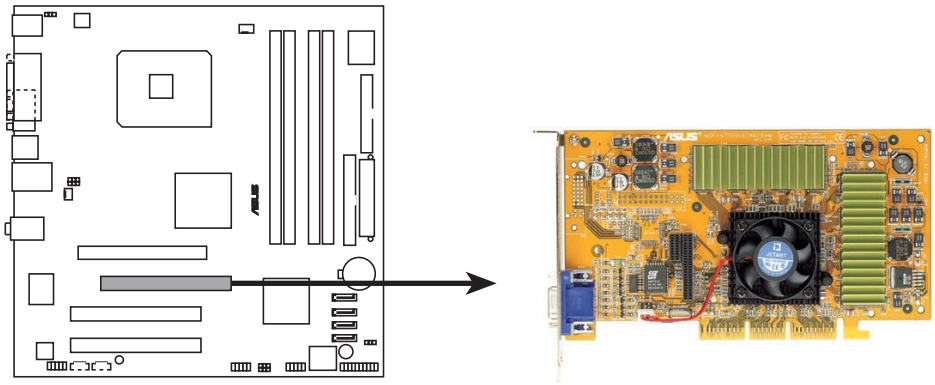
PCI Express x16 slot

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.



AGP slot

The AGP slot supports AGP 8x cards. When you buy an AGP card, make sure that you ask for one with 1.5 V specification.



Accelerated Graphics Port (AGP)

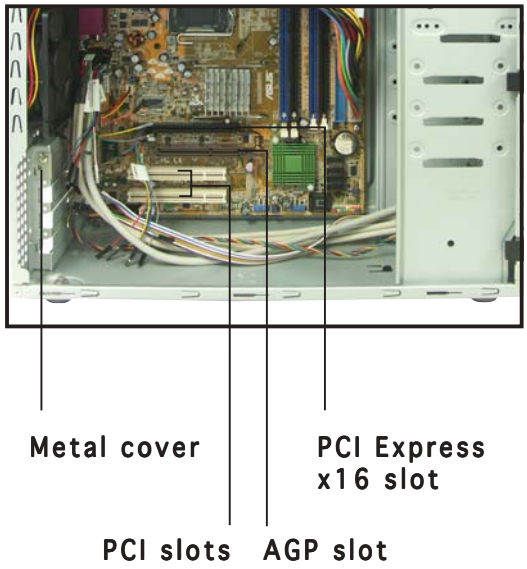
Install only +1. 5V AGP cards. The motherboard does not support 3.3 V AGP cards.

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

2.6.2 Expansion card installation

To install an expansion card:

1. Lay the chassis on a stable surface.
2. Remove the metal cover opposite the slot that you wish to use.
3. Align the card golden fingers to the slot and its metal bracket to the slot opening on the chassis.
4. Press the card firmly until it is properly seated on the slot.
5. Secure the card to the chassis with a bracket screw.



2.6.3 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 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
4	8	Intel® 82801 FB/FBM SMBus Controller - 266A
6	9	Floppy Disk Controller
7	10	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	Microsoft® ACPI-Compliant System
12	5	PS/2 Compatible Mouse Port*
13	6	Numeric Data Processor
14	7	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	—	—	—	—	—	—	used	—
PCI Express x16 slot	shared	—	—	—	—	—	—	—
PCI Express x1 slot1	—	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 Azalia Audio	shared	—	—	—	—	—	—	—
Onboard IDE Controller	—	—	shared	—	—	—	—	—
Onboard SATA Controller	—	—	—	shared	—	—	—	—
Onboard LAN	—	—	—	—	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.

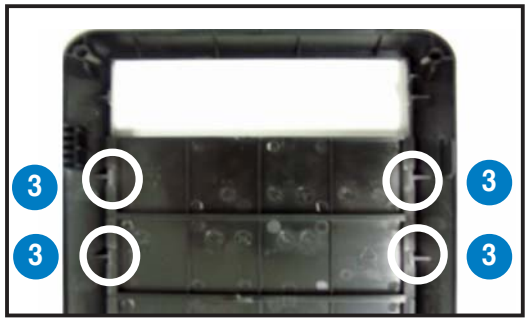
2.7 Installing an optical drive

Refer to the instructions in this section to install an optical drive(s) or 5.25-inch storage devices.

- You can install an additional optical drive only if you use Serial ATA hard disk drives.
- You cannot use the optical drive if you install two IDE hard disk drives.

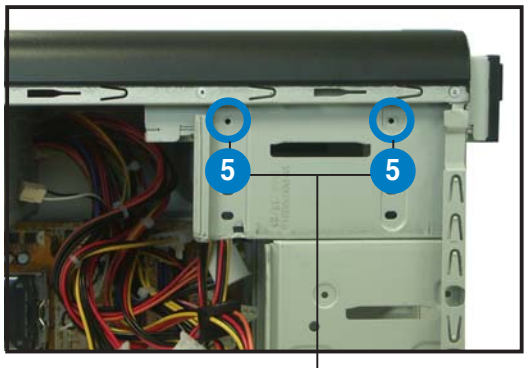
To install an optical drive:

1. Place the chassis upright.
2. Remove the side plate and front cover. Refer to section 2.3 for details.
3. Remove the drive bay plate covers by releasing the lock tabs.



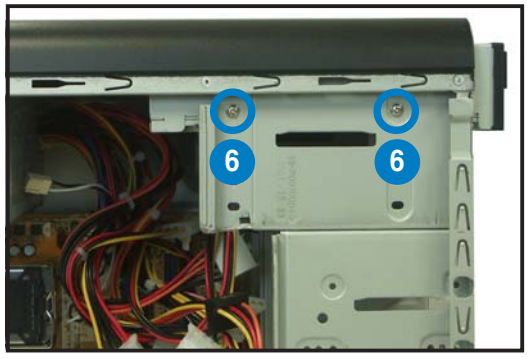
4. Insert the optical drive into the upper 5.25-inch drive bay.

5. Carefully push the optical drive into the bay until its screw holes align with the holes on the bay as shown.

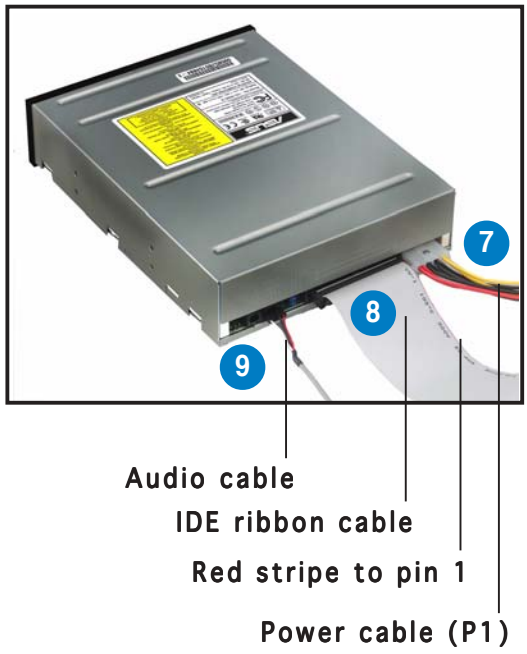


Optical drive screw holes

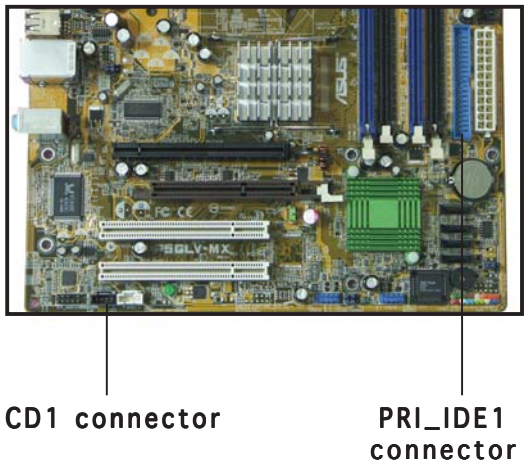
6. Secure the optical drive with two screws on each side of the bay.



7. Connect a power cable from the power supply to the power connector at the back of the optical drive.
8. Connect the black interface of the IDE ribbon cable to the IDE interface at the back of the optical drive, matching the red stripe on the cable with Pin 1 on the IDE interface.
9. Connect one end of the audio cable to the 4-pin connector at the back of the optical drive.

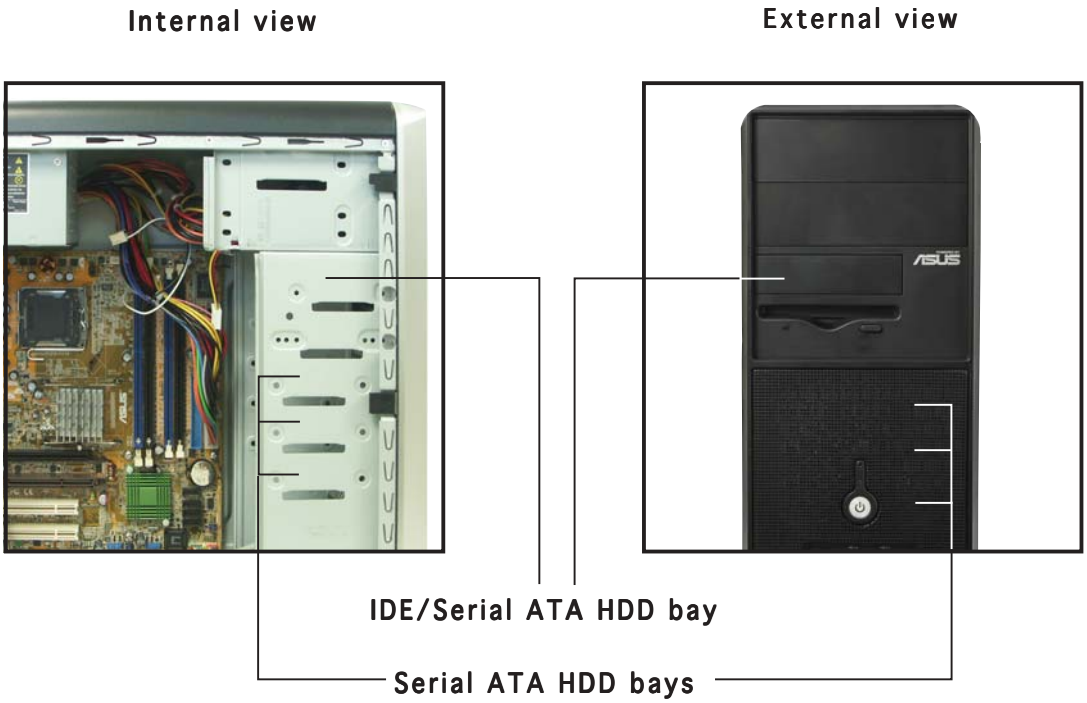


10. Connect the blue interface of the IDE ribbon cable to the primary IDE connector (blue connector labeled PRI_IDE1) on the motherboard.
11. Connect the other end of the audio cable to the black 4-pin connector labeled CD1 on the motherboard.



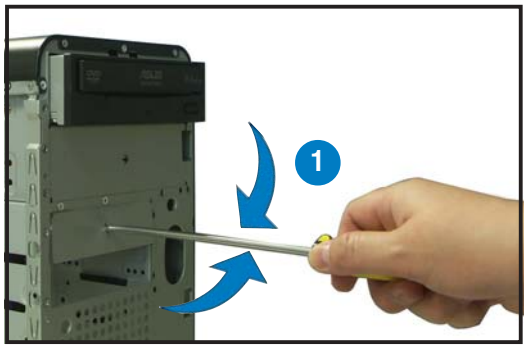
2.8 Installing a hard disk drive

Refer to this section for instructions on how to install up to four Serial ATA hard disk drives and/or one 3.5-inch IDE hard disk drive (HDD). One 3.5-inch bay is right under the 5.25-inch bay. The following figures show the internal and external views of the HDD bay location. Three Serial ATA hard disk bays are located under the floppy disk drive bay.



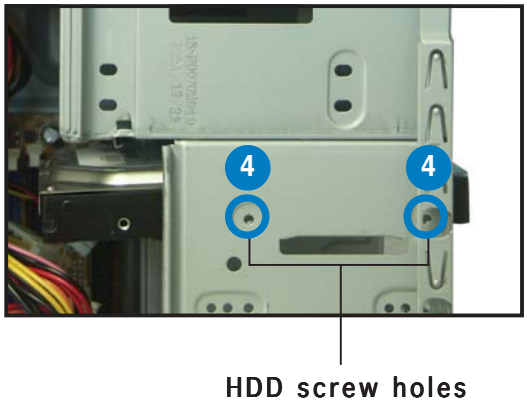
To install a Serial ATA hard disk drive:

1. Remove the knock-down plate cover using a Phillips screw driver.

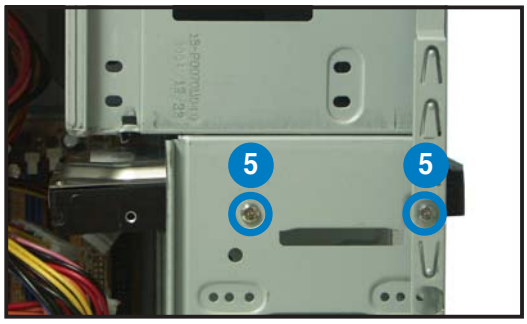


2. Place the chassis upright.
3. With the HDD label side up, carefully insert the drive into the 3.5-inch bay.

4. Push the drive into the bay until its screw holes align with the holes on the bay.



5. Secure the drive with two screws on each side of the bay.



6. Connect one end of the Serial ATA cable to the SATA connector at the back of the drive.

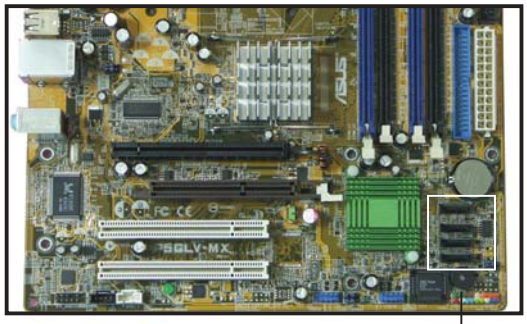
7. Connect a 15-pin Serial ATA power plug from the power supply unit to the power connector at the back of the drive.

- OR -

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

If your Serial ATA HDD has both 4-pin and 15-pin connectors at the back, use either the 15-pin SATA power adapter plug **OR** the legacy 4-pin power connector. **DO NOT** use both to prevent damage to components and to keep the system from becoming unstable.

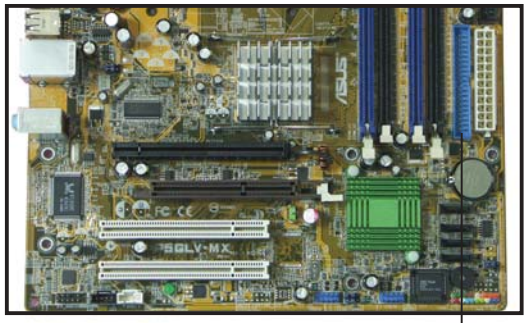
8. Connect the other end of the Serial ATA cable to a Serial ATA connector on the motherboard.



Serial ATA connectors

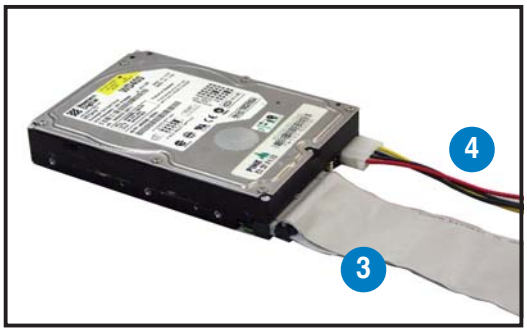
To install an IDE hard disk drive:

1. Follow steps 1-5 of the previous section.
2. Connect the blue interface of the IDE ribbon cable to the primary IDE connector (blue connector labeled PRI_IDE1) on the motherboard.



PRI_IDE1 connector

3. Connect the gray interface of the IDE ribbon cable to the IDE connector on the drive.
4. Connect a 4-pin power plug from the power supply unit to the power connector at the back of the drive.



2.9 Installing a floppy disk drive

The barebone system comes with one 3.25-inch drive bay for a floppy disk drive.

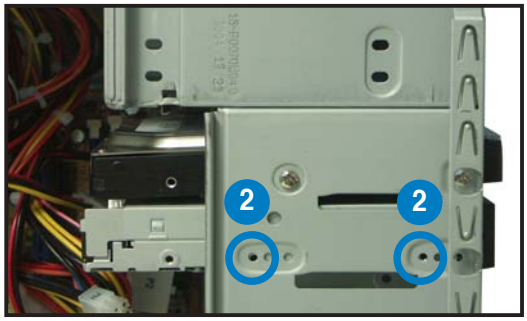
To install a floppy disk drive:

1. Remove the front panel cover.

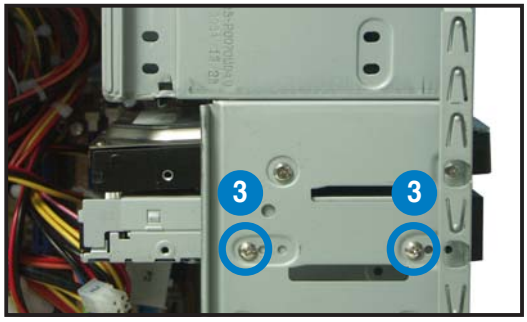
For instructions on how to remove the front panel cover, refer to section "2.3 Removing the side plates and front panel cover" on page 2-3 for details.

2. Carefully insert the floppy disk drive into the floppy drive bay.

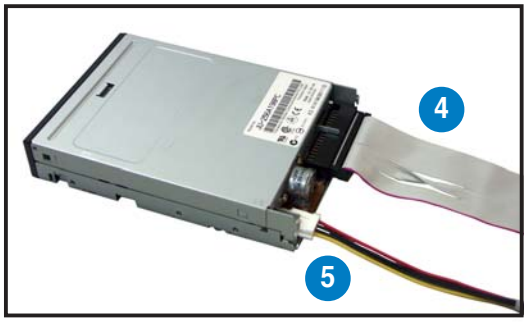
3. Push the optical drive into the bay until its screw holes align with the holes on the bay as shown.



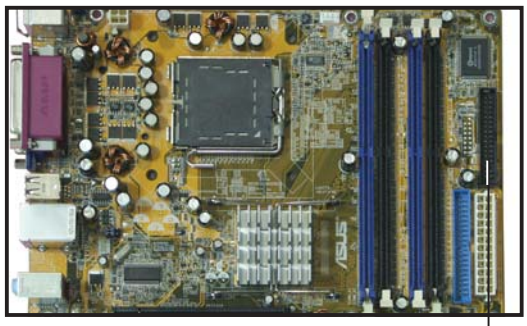
3. Secure the floppy disk drive with two screws.



4. Connect the floppy disk drive signal cable to the signal connector at the back of the drive.
5. Connect a power cable from the power supply unit to the power connector at the back of the floppy disk drive.



6. Connect the other end of the signal cable to the floppy disk drive connector (FLOPPY1) on the motherboard.

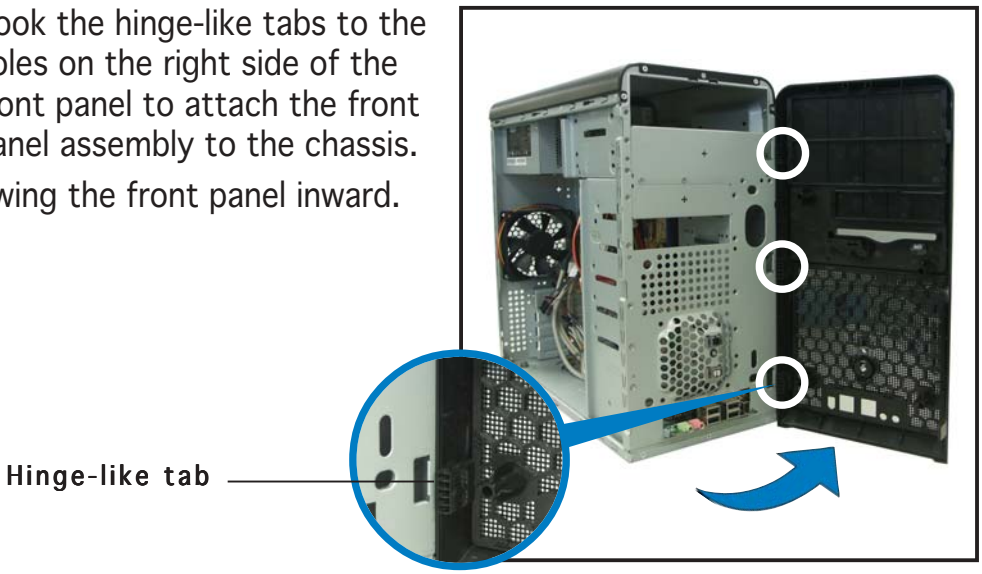


FLOPPY1 connector

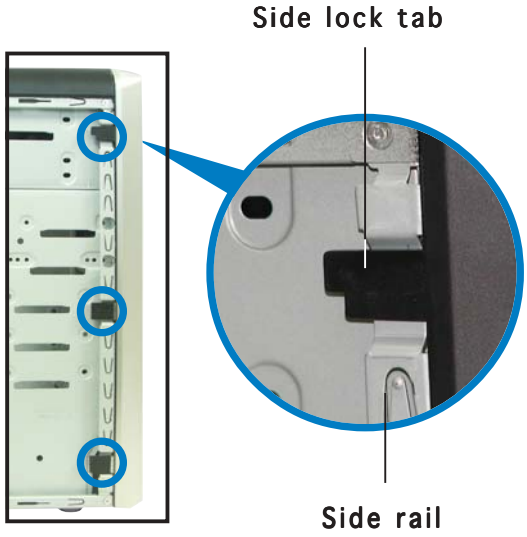
2.10 Replacing the side plates and front cover

After you have installed all the internal components and you have connected all the necessary cables, you are now ready to put the system back together.

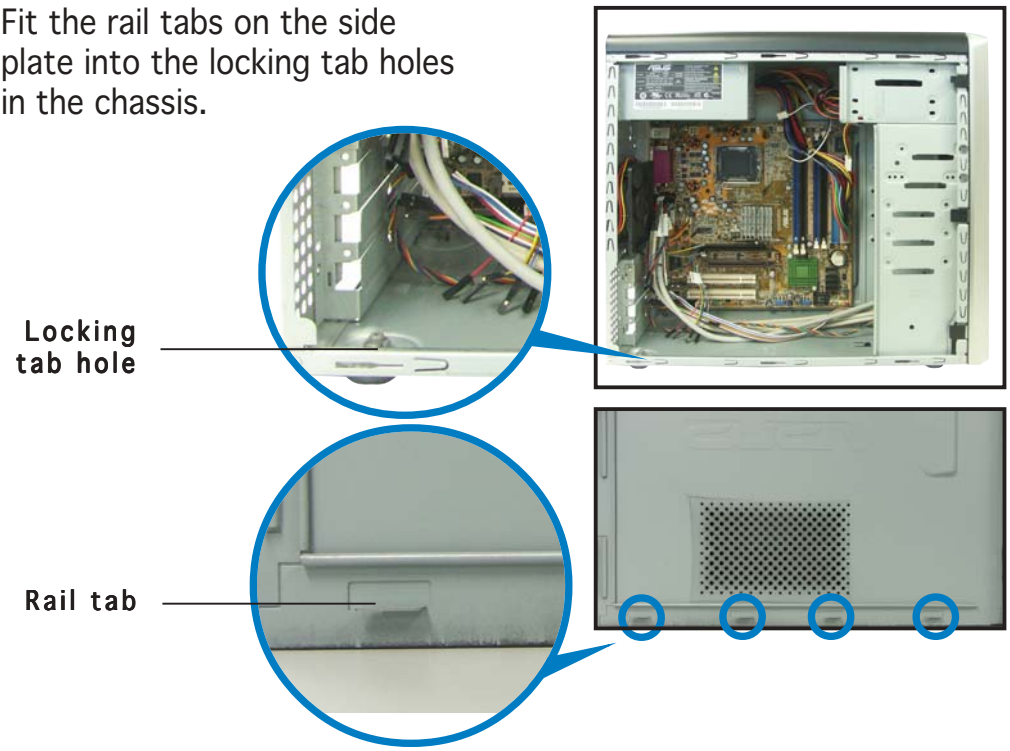
1. Hook the hinge-like tabs to the holes on the right side of the front panel to attach the front panel assembly to the chassis.
2. Swing the front panel inward.



3. Snap the side lock tabs to the metal railing.



4. Fit the rail tabs on the side plate into the locking tab holes in the chassis.

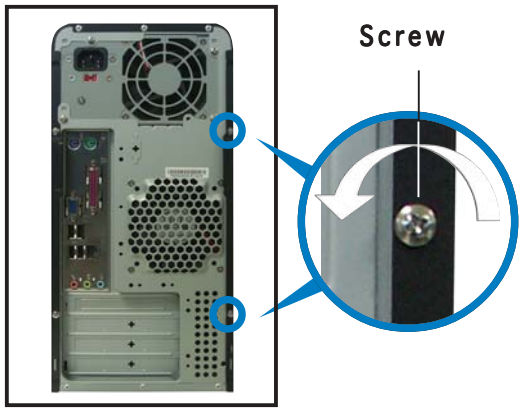


5. Firmly push the side plate from the rear until it fits the chassis completely.

   The locking tabs snap into the hole on the chassis to indicate that the side plate is in place.

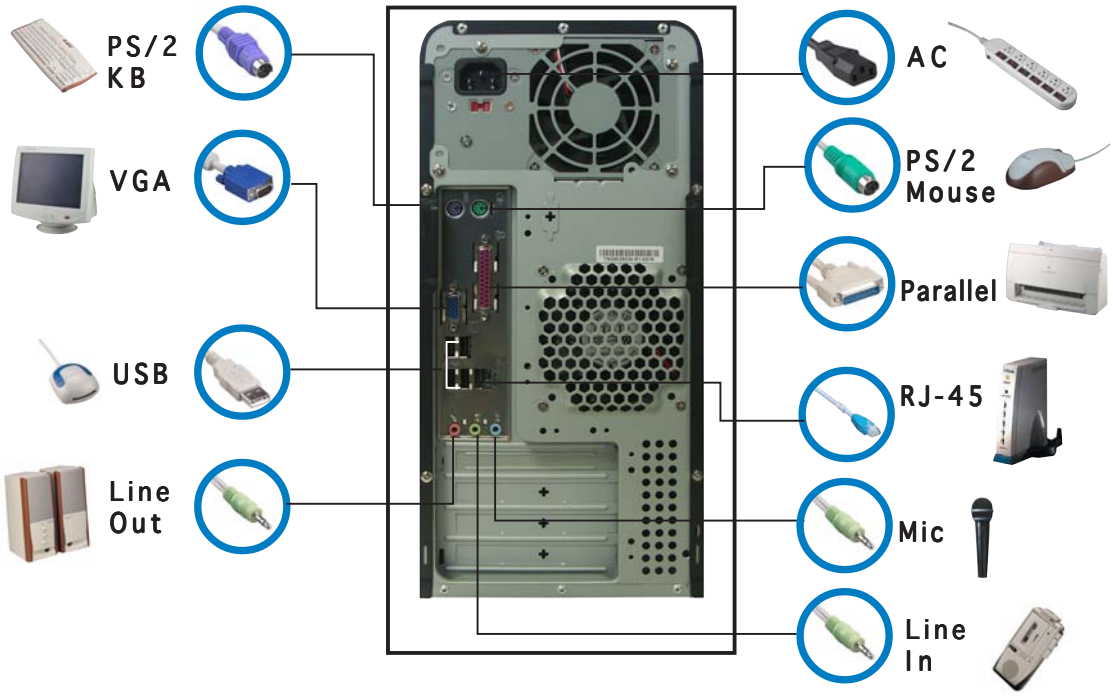
6. Lock the side plate with the screws on the rear panel.

   Repeat steps 4 ~ 6 to replace the other side plate.



2.11 Connecting external devices

The figure below shows the specific connectors and devices that you can connect to the rear panel ports.



Chapter 3

This chapter helps you power up your system and install drivers and utilities that came with the support CD.

Starting up

3.1 Installing an operating system

This motherboard supports Windows® 2000/XP operating system (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.

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 more information.

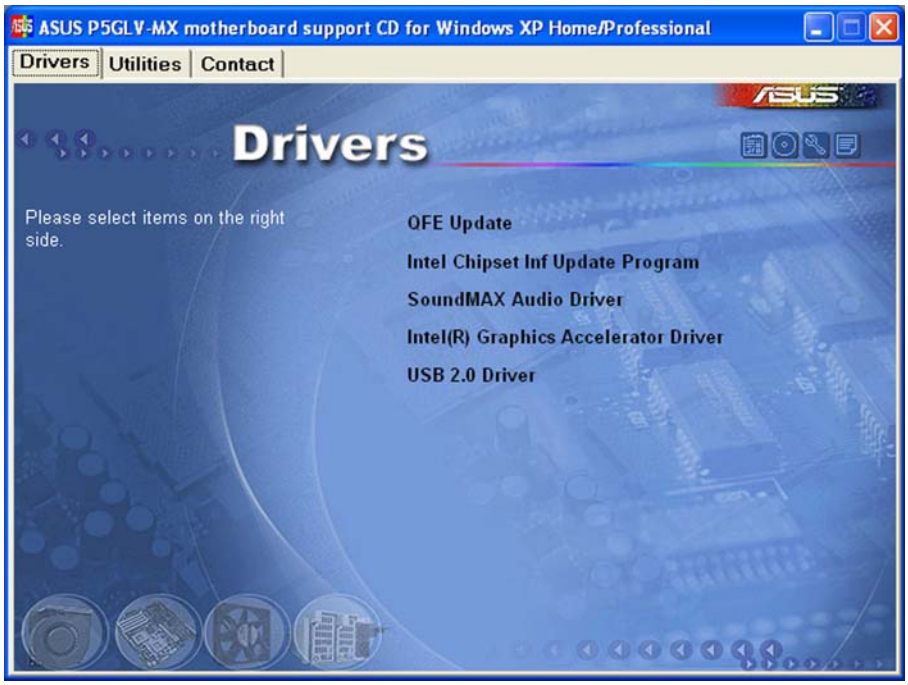
3.2 Support CD information

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

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

3.2.1 Running the support CD

To begin using the support CD, simply insert the CD into your CD-ROM drive. The CD automatically displays the **Drivers** menu if Autorun is enabled in your computer. Click on 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.

QFE Update

Installs the Quick Fix Engineering (QFE) driver updates.

Intel Chipset Inf Update Program

This item installs the Intel® Chipset INF Update Program. This driver enables Plug-n-Play INF support for the Intel® chipset components on the motherboard. When installed to the target system, this driver provides the method for configuring the chipset components.

You can install this utility using three different modes: interactive, silent, or unattended preload. Installing the driver in interactive mode requires user input during installation. User input is not required when installing the driver in silent or unattended preload modes. Refer to the online help or readme file that came with the utility for details.

SoundMAX Audio Driver

Executes the wizard to install the SoundMAC® audio driver and application. When the phone jacks of the High Definition Audio panel are configured as output, use the master volume to adjust the sound.

Intel(R) Graphics Accelerator Driver

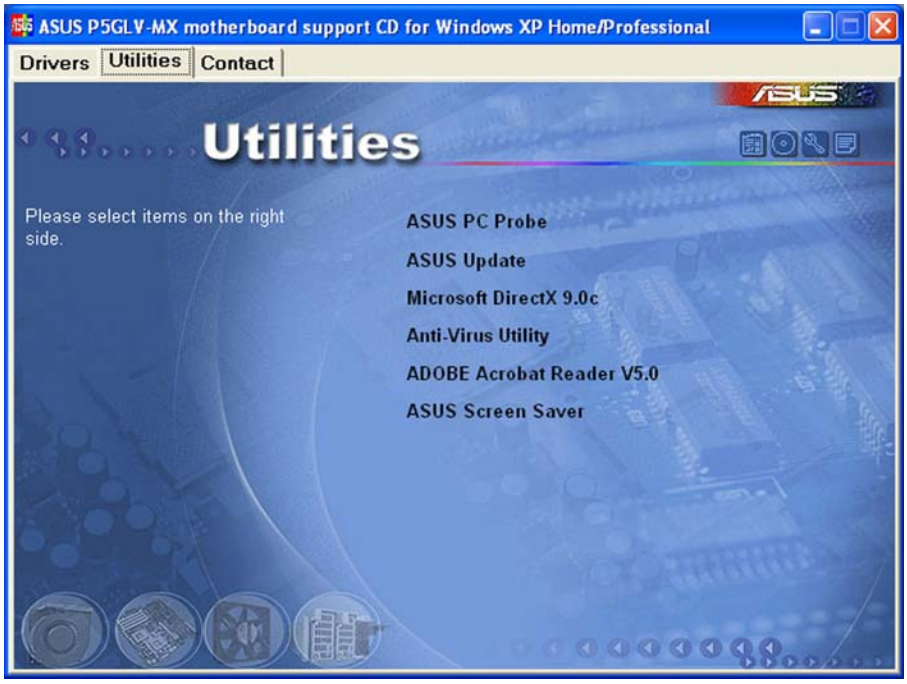
Installs the Intel® Graphics Accelerator driver.

USB 2.0 Driver

Installs the USB 2.0 driver.

3.2.3 Utilities menu

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



ASUS PC Probe

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

ASUS Update

This program allows you to download the latest version of the BIOS from the ASUS website. Before using the ASUS Update, make sure that you have an Internet connection so you can connect to the ASUS website.

Microsoft DirectX 9.0c

Microsoft® DirectX® 9.0c is a multimedia technology that enhances computer graphics and sounds. DirectX® improves the multimedia features of your computer so you can enjoy watching movies, capturing videos, or playing games on your computer.

Anti-virus Utility

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

Adobe Acrobat Reader V5.0

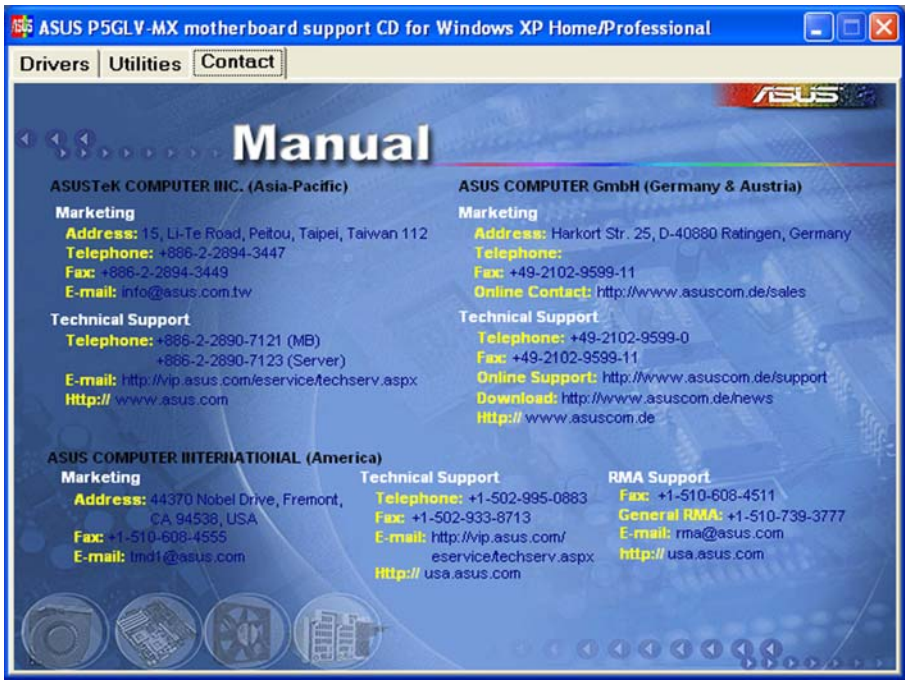
The Adobe® Acrobat® Reader V5.0 is for opening, viewing, and printing documents in Portable Document Format (PDF).

ASUS Screen Saver

Installs the ASUS screen saver.

3.2.4 ASUS contact information

Click the Contact tab to display the ASUS contact information.



Screen display and utilities option may not be the same for other operating system version.

Chapter 4

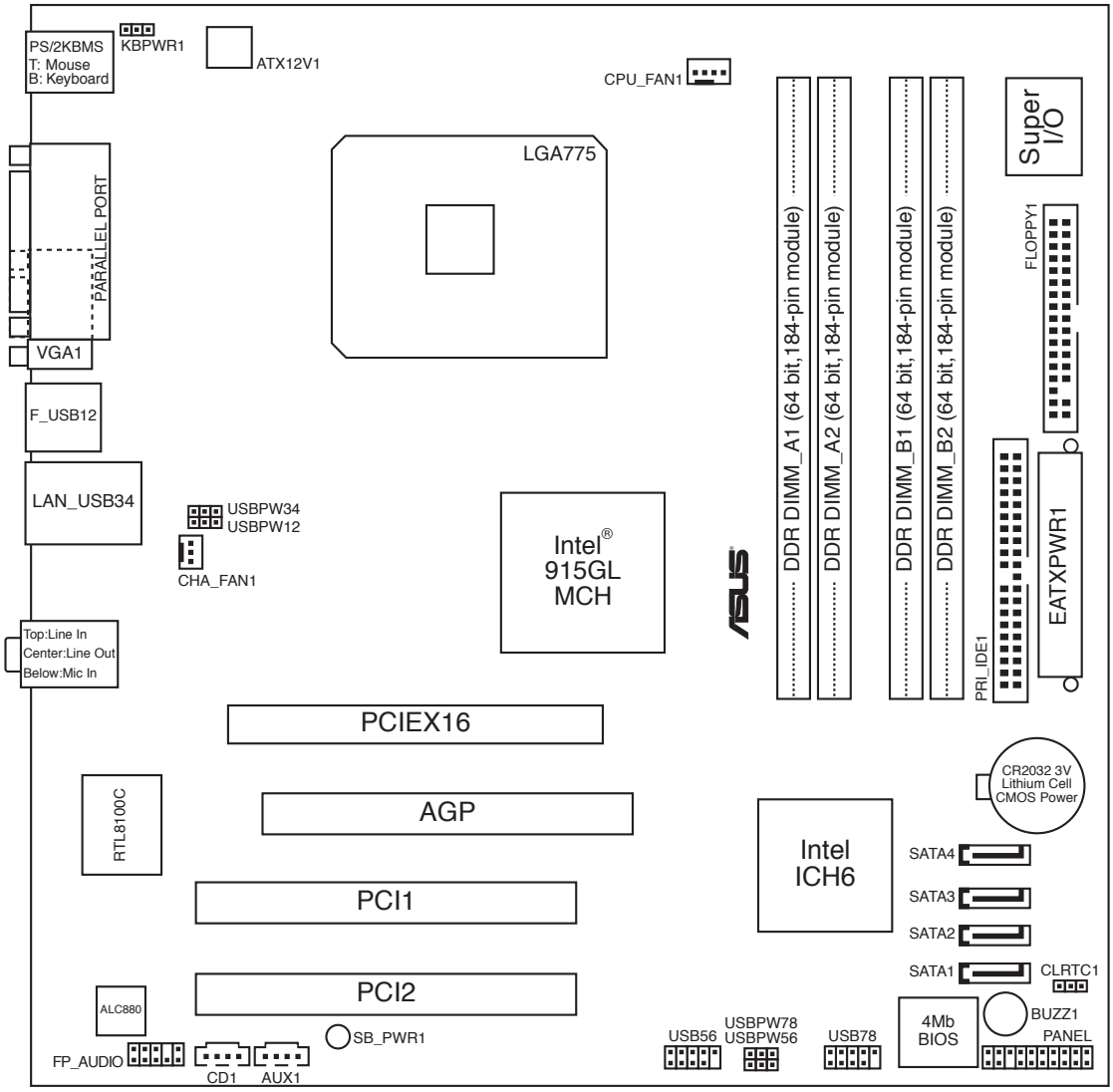
This chapter gives information about the motherboard that came with the system.This chapter includes the motherboard layout, jumper settings, and connector locations.

Motherboard info

4.1 Introduction

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

4.2 Motherboard layout



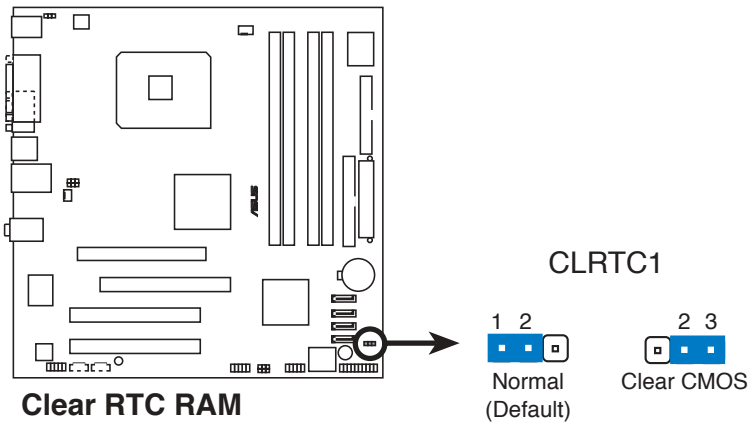
4.3 Jumpers

1. Clear RTC RAM (CLRTC1)

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. Reinstall the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

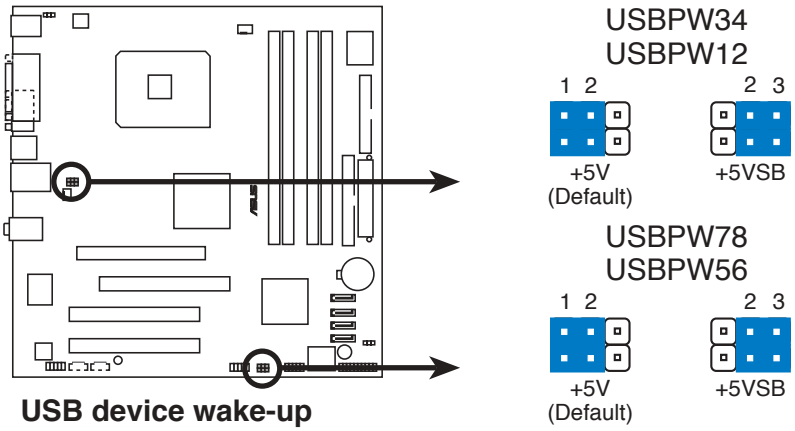


Clear RTC RAM

Except when clearing the RTC RAM, never remove the cap on the CLRTC1 jumper default position. Removing the cap will cause system boot failure.

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).

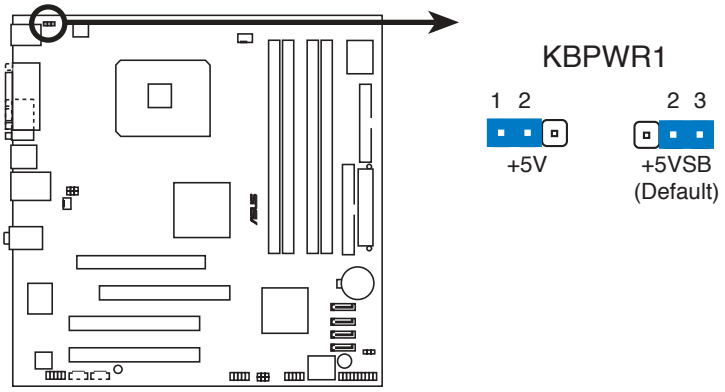


USB device wake-up

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

3. Keyboard power (3-pin KBPWR1)

This jumper allows you to enable or disable the keyboard wake-up feature. Default setting is 2-3. Set this jumper to pins 1-2 (+5V) if you do not want to wake up the computer when you press a key on the keyboard. This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS.



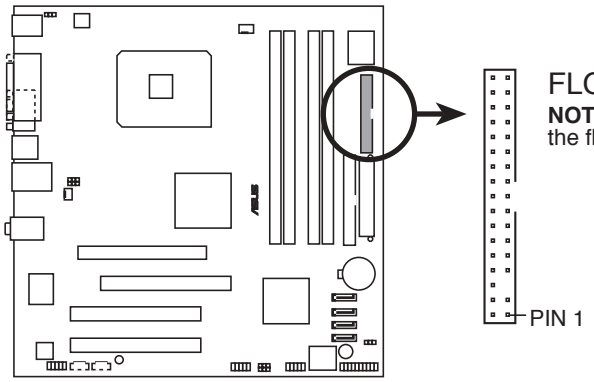
Keyboard power setting

4.4 Connectors

1. Floppy disk drive connector (34-1 pin FLOPPY1)

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.

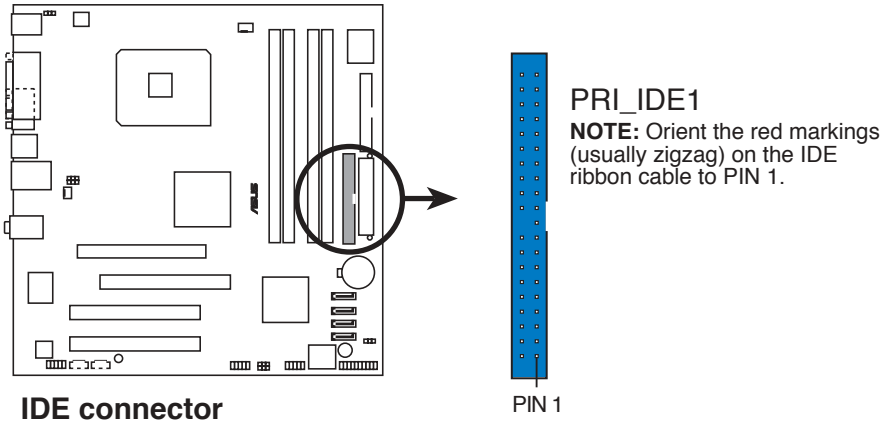


Floppy disk drive connector

2. Primary IDE connector (40-1 pin PRI_IDE1)

This connector is for an Ultra DMA 100/66 signal cable. The Ultra DMA 100/66 signal cable has three connectors: a blue connector for the primary IDE connector on the motherboard, a black connector for an Ultra DMA 100/66 IDE slave device (optical drive/hard disk drive), and a gray connector for an Ultra DMA 100/66 IDE master device (hard disk drive). If you install two hard disk drives, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings.

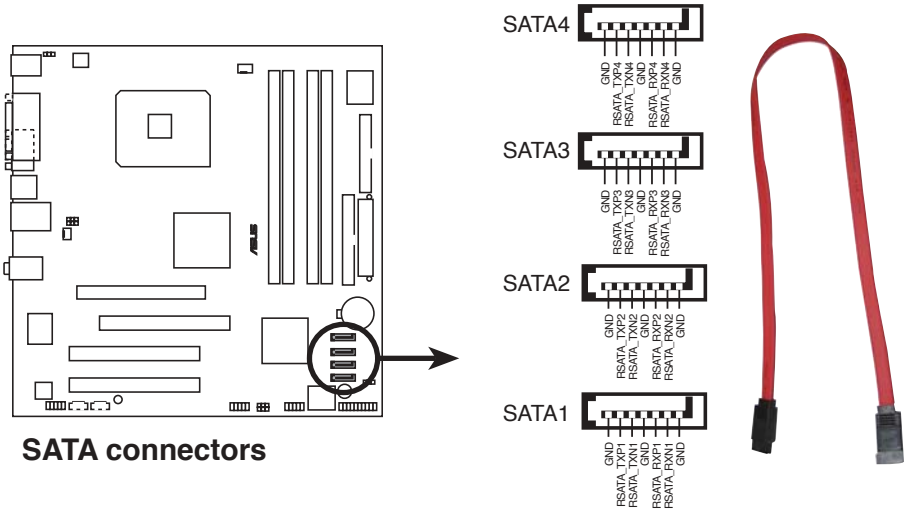
- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 100/66 IDE devices.



IDE connector

3. Serial ATA connectors (7-pin SATA1, SATA2, SATA3, SATA4)

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



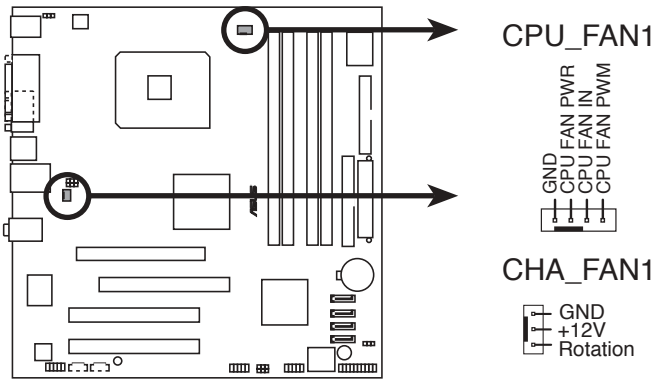
SATA connectors

You must install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA hard disk drives.

4. CPU and Chassis Fan connectors (4-pin CPU_FAN1, 3-pin CHA_FAN1)

The fan connectors support cooling fans of 350 mA~740 mA (8.88 W max.) or a total of 1 A~2.22 A (26.64 W 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.

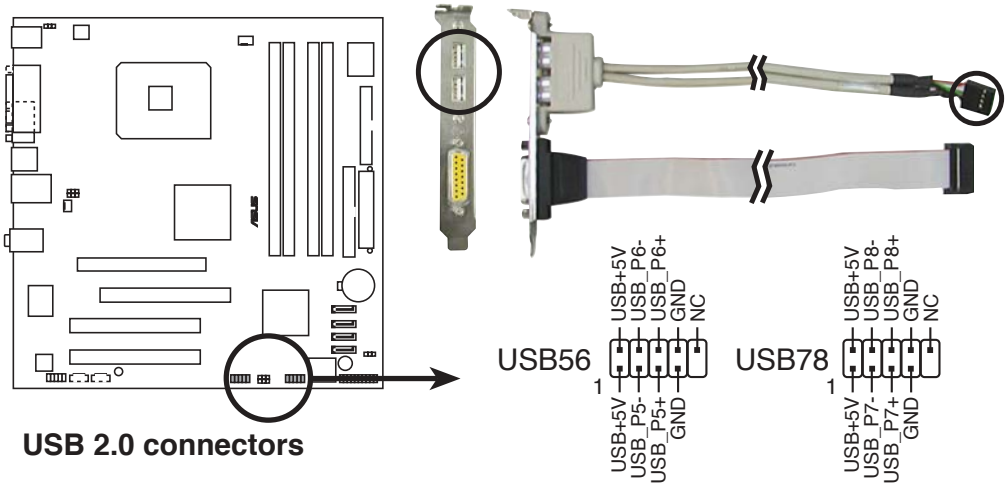
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



Fan connectors

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

These connectors are for USB 2.0 ports. Connect the USB/GAME 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.



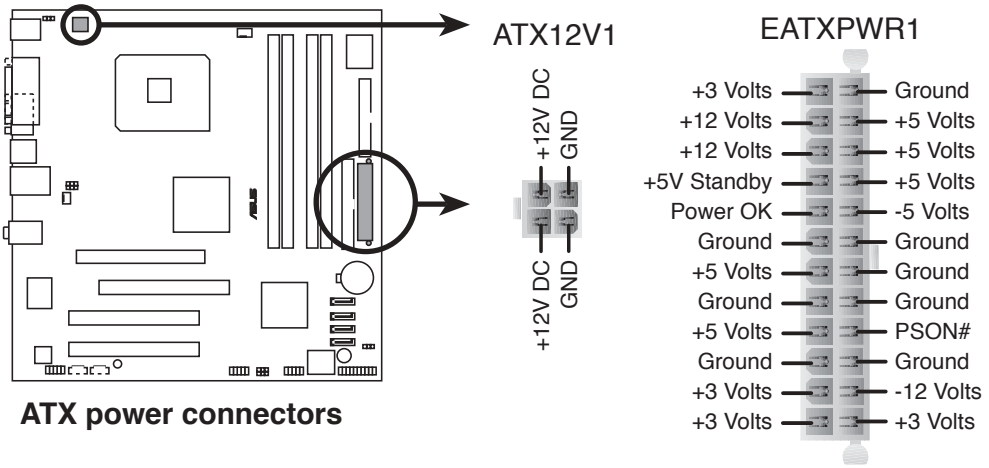
USB 2.0 connectors

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

The USB module is purchased separately.

6. ATX power connectors (24-pin EATXPWR1, 4-pin ATX12V1)

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.



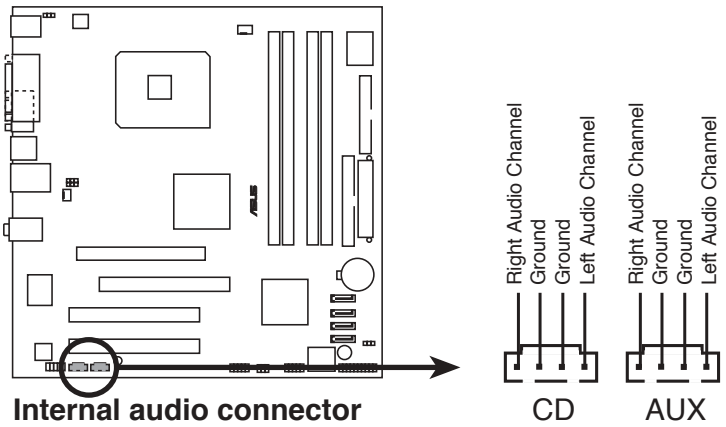
ATX power connectors

Important notes on the motherboard power requirements

- Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot up.
- To power the motherboard, it is recommended that you use an ATX 12 V Specification 2.0 power supply unit (PSU) with a minimum 350 W power rating. This PSU type has a 24-pin and 4-pin ATX power plugs.
- If you intend to use a PSU with a 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12 V and that the PSU has a minimum power rating of 350 W. The system may become unstable or may not boot up if the power is inadequate. We do not, however, recommend the use of a 20-pin PSU.
- You must install a PSU with a higher power rating if you intend to install additional devices.

7. Internal audio connectors (4-pin AUX1, CD1)

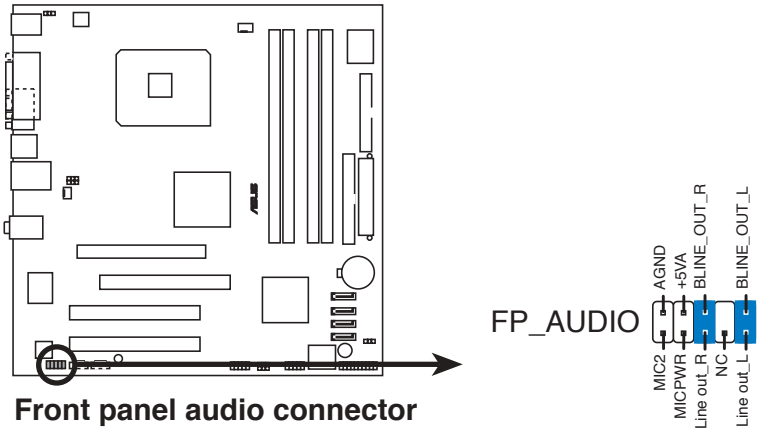
These connectors allow you to receive stereo audio input from sound sources such as an optical drive, TV tuner, or MPEG card.



Enable the CD-IN function in the audio utility when using this connector.

8. Front panel audio connector (10-1 pin AAFP1)

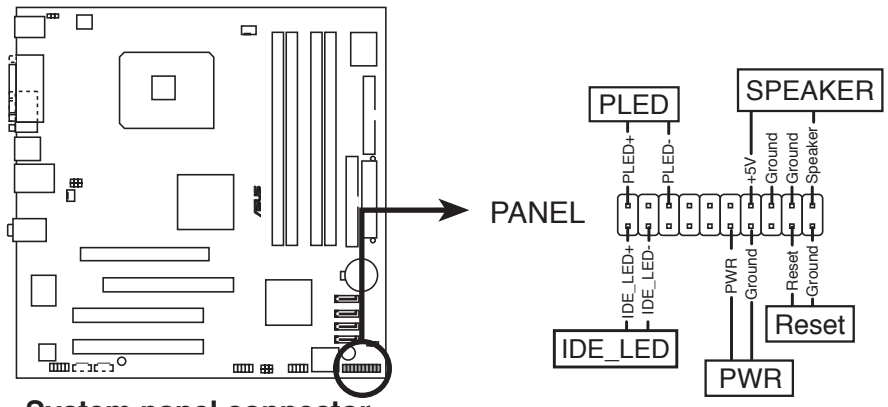
This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard.



We recommend that you connect a high-definition front panel audio module to this connector to use the high-definition audio features of the motherboard.

9. System panel connector (20-pin PANEL)

This connector supports several chassis-mounted functions.



System panel connector

- **Power LED Lead (2-pin PLED)**

  This 2-pin connector is for the system power LED. Connect the 2-pin power LED cable from the system chassis to this connector. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **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.

- **Hard disk drive activity LED (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.

- **Reset button (2-pin RESET)**

  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

- **ATX power button/soft-off button (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.

Chapter 5

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

ASUS Vintage-PE2

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 floppy disk during POST.)
2. **ASUS AFUDOS** (Updates the BIOS in DOS mode using a bootable floppy disk.)
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.

5.1.1 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.

5.1.2 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 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 **P5GLV-MX.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 "P5GLV-MX.ROM". Completed.
Start erasing.......|
Start programming...|
Flashed successfully. Rebooting.
```

- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!
- A "Floppy not found!" error message appears if there is no floppy disk in the drive. A "P5GLV-MX.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 P5GLV-MX.ROM.

5.1.3 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.

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 /iP5GLV-MX.ROM
```

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

```
A:\>afudos /iP5GLV-MX.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2003 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ..... done
    Reading flash .... done
    Search bootblock version
    Advance Check.........
    Erasing flash .... done
    Writing flash .... 0x0008CC00 (9%)
```

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

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

```
A:\>afudos /iP5GLV-MX.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2003 American Megatrends, Inc. All rights reserved.

    WARNING!! Do not turn off power during flash BIOS
    Reading file ..... done
    Reading flash .... done
    Search bootblock version
    Advance Check.........
    Erasing flash ..... done
    Writing flash ..... done
    Verifying flash ... done

    Please restart your computer

A:\>
```

5.1.4 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 **P5GLV-MX.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 "P5GLV-MX.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 "P5GLV-MX.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.

5.1.5 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:

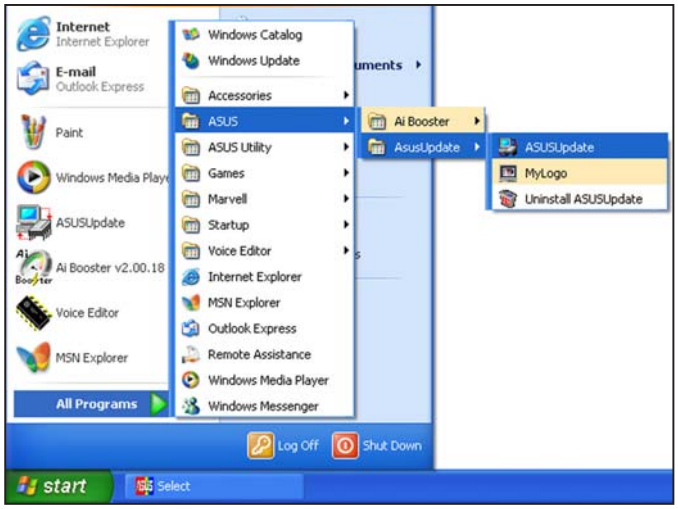
1. Place the support CD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update VX.XX.XX**. See page 3-4 for the **Utilities** screen menu.
3. The ASUS Update utility is copied to your system.

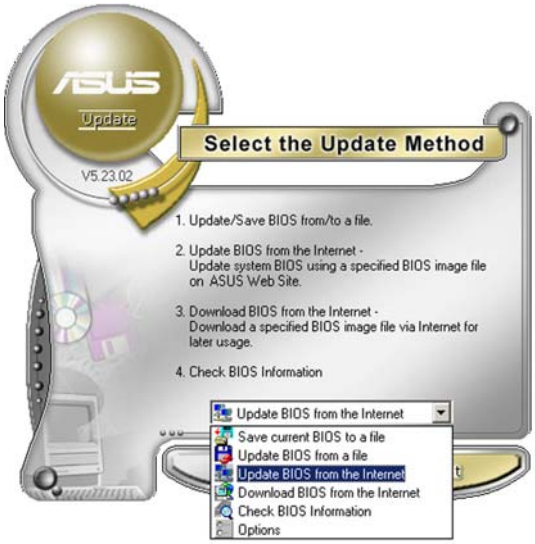
Quit all Windows® applications before you update the BIOS using this utility.

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.

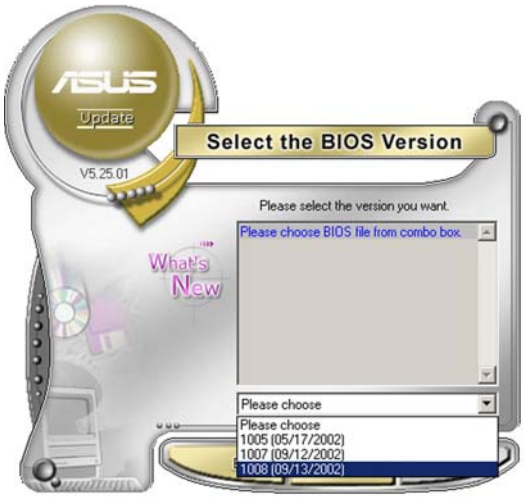




2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.

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

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

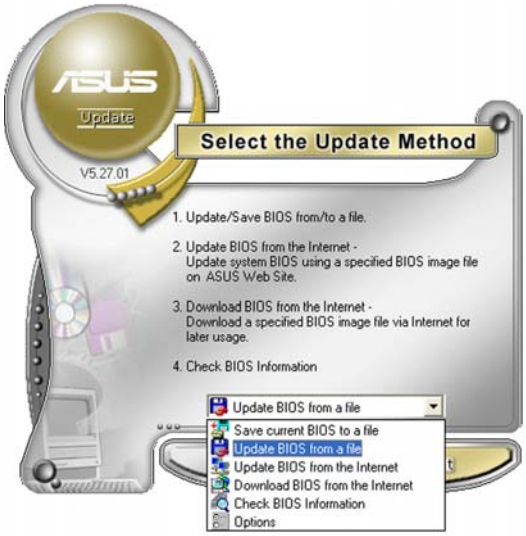


The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

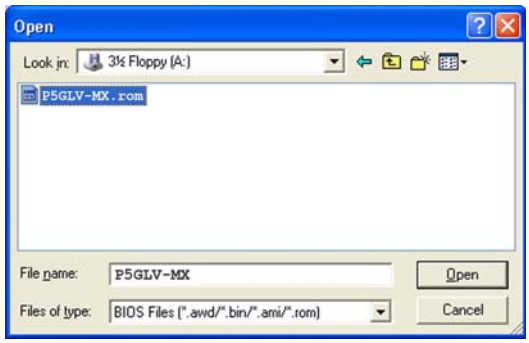
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

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 a file** option from the drop-down menu, then click **Next**.



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



5.2 BIOS setup program

This motherboard supports a programmable firmware chip 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 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.

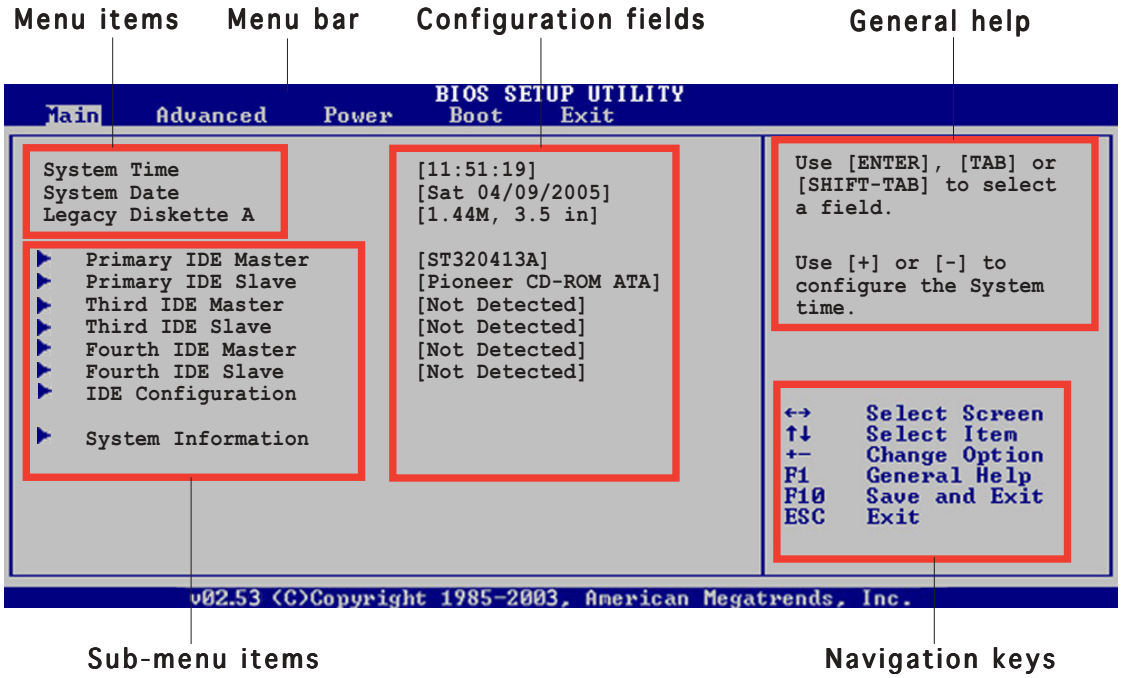
The firmware hub on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On-Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

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

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

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Default Settings** item under the Exit Menu. See section "5.7 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.

5.2.1 BIOS menu screen



5.2.2 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.

5.2.3 Navigation keys

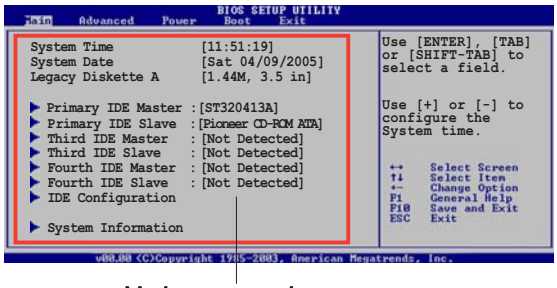
At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

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

5.2.4 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

5.2.5 Sub-menu items

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

5.2.6 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.

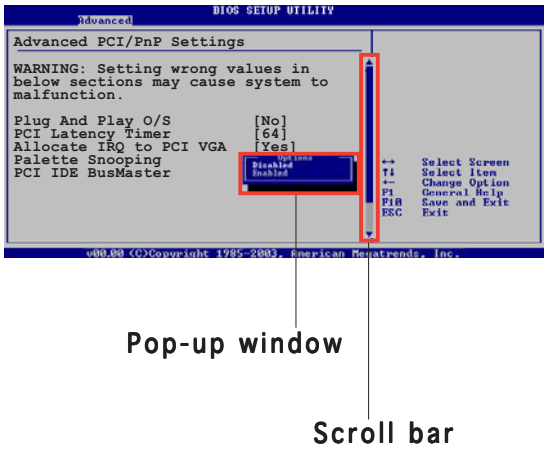
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "5.2.7 Pop-up window."

5.2.7 Pop-up window

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

5.2.8 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

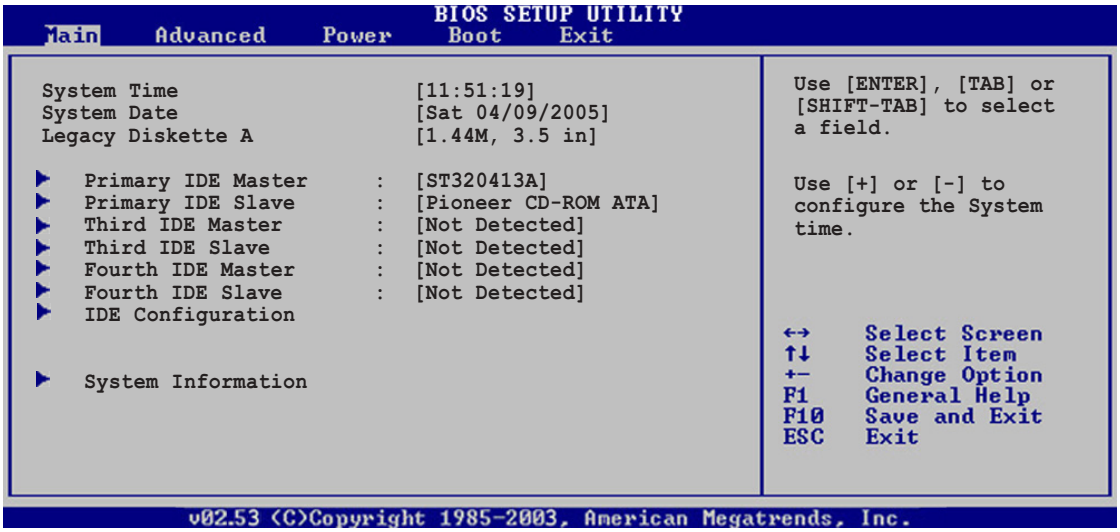
5.2.9 General help

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

5.3 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 "5.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.



5.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

5.3.2 System Date [Day xx/xx/xxxx]

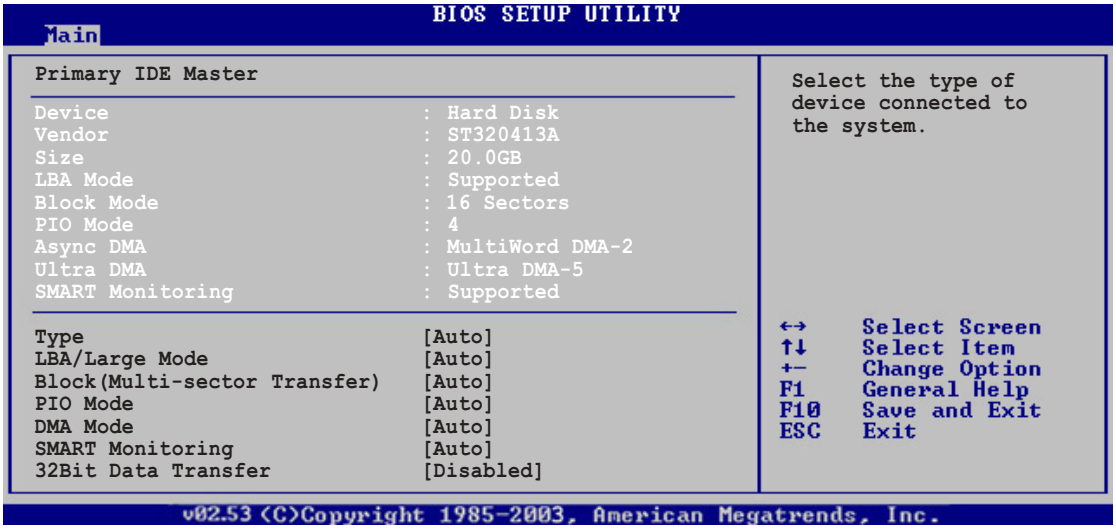
Allows you to set the system date.

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

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

5.3.4 Primary, Third, and Fourth IDE Master/Slave

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]

SMART Monitoring [Auto]

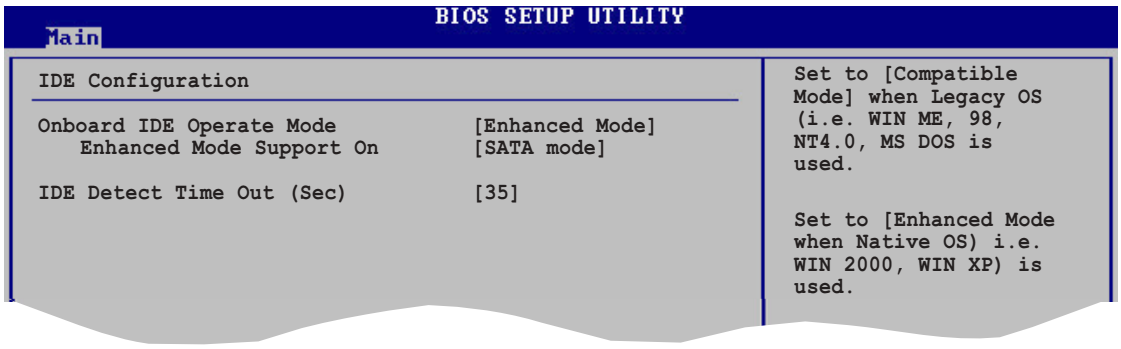
Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Disabled]

Enables or disables 32-bit data transfer.
Configuration options: [Disabled] [Enabled]

5.3.5 IDE Configuration

The items in this menu allow you to set or change the configurations for the IDE devices installed in the system. Select an item then press <Enter> if you want to configure the item.



Onboard IDE Operate Mode [Enhanced Mode]

Allows selection of the IDE operation mode depending on the operating system (OS) that you installed. Set to Enhanced Mode if you are using native OS, such as Windows® 2000/XP.
Configuration options: [Disabled] [Compatible Mode] [Enhanced Mode]

Enhanced Mode Support On [SATA mode]
The default setting SATA allows you to use native OS on Serial ATA and Parallel ATA ports. We recommend that you do not change the default setting for better OS compatibility. In this setting, you may use legacy OS on the Parallel ATA ports **only if** you did not install any Serial ATA device.

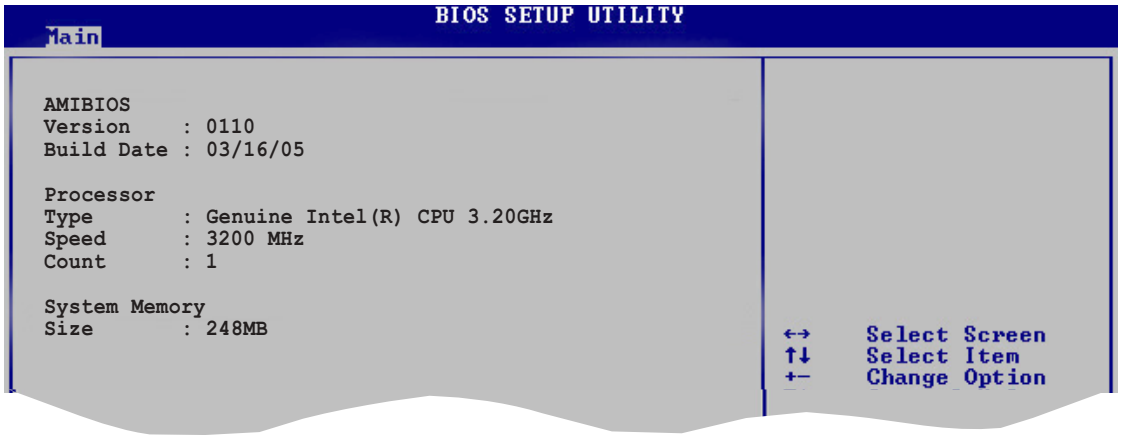
The P-ATA+S-ATA and P-ATA options are for advanced users only. If you set to any of these options and encounter problems, revert to the default setting **SATA**. Configuration options: [S-ATA+P-ATA] [SATA mode] [P-ATA]

IDE Detect Time Out [35]

Selects the time out value for detecting ATA/ATAPI devices.
Configuration options: [0] [5] [10] [15] [20] [25] [30] [35]

5.3.6 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.

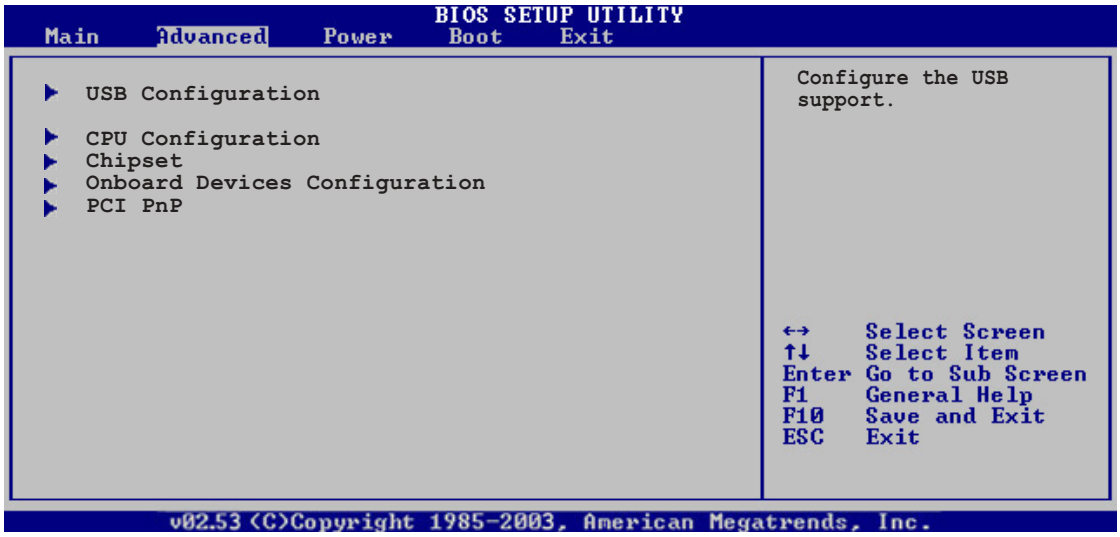
System Memory

Displays the auto-detected system memory.

5.4 Advanced menu

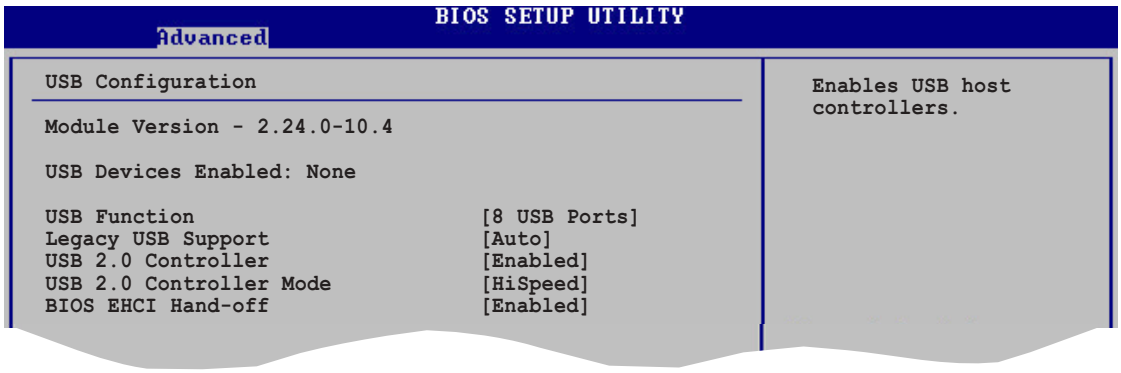
The Advanced menu items allow you to change the settings for the CPU and other system devices.

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



5.4.1 USB Configuration

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



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

USB Function [Enabled]

Allows you to enable or disable the USB function.
Configuration options: [Disabled] [Enabled]

Legacy USB Support [Auto]

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 [Enabled]

Allows you to enable or disable the USB 2.0 controller.
Configuration options: [Disabled] [Enabled]

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: [HiSpeed] [Full Speed]

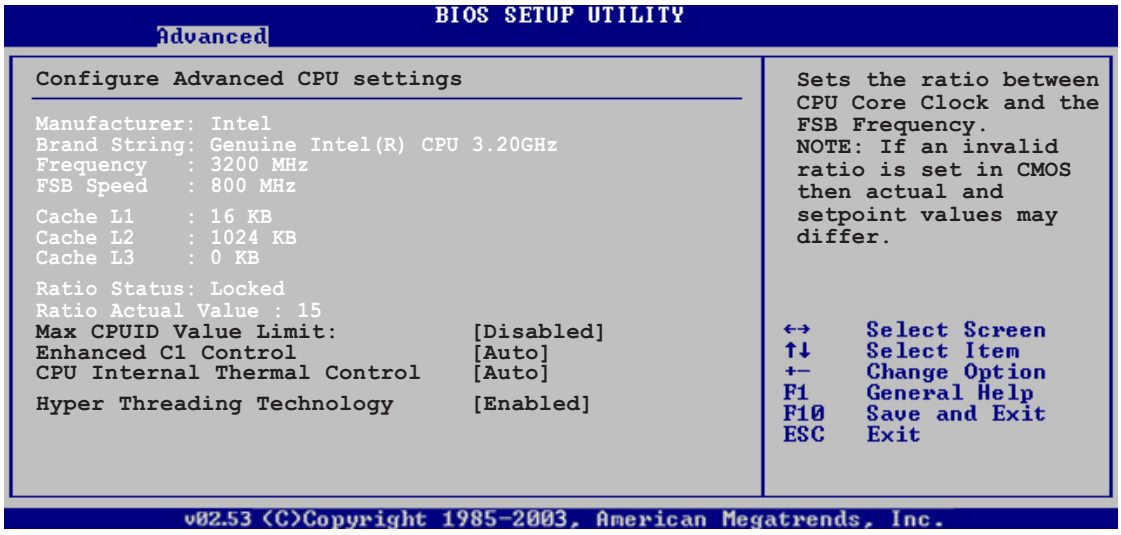
The **USB 2.0 Controller Mode** item appears only when the **USB 2.0 Controller** is set to [Enabled].

BIOS EHCI Hand-off [Enabled]

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

5.4.2 CPU Configuration

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



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]

Enhanced C1 Control [Auto]

When set to [Auto], the BIOS will automatically check the CPU's capability to enable the C1E support. In C1E mode, the CPU power consumption is lower when idle. Configuration options: [Auto] [Disabled]

CPU Internal Thermal Control [Auto]

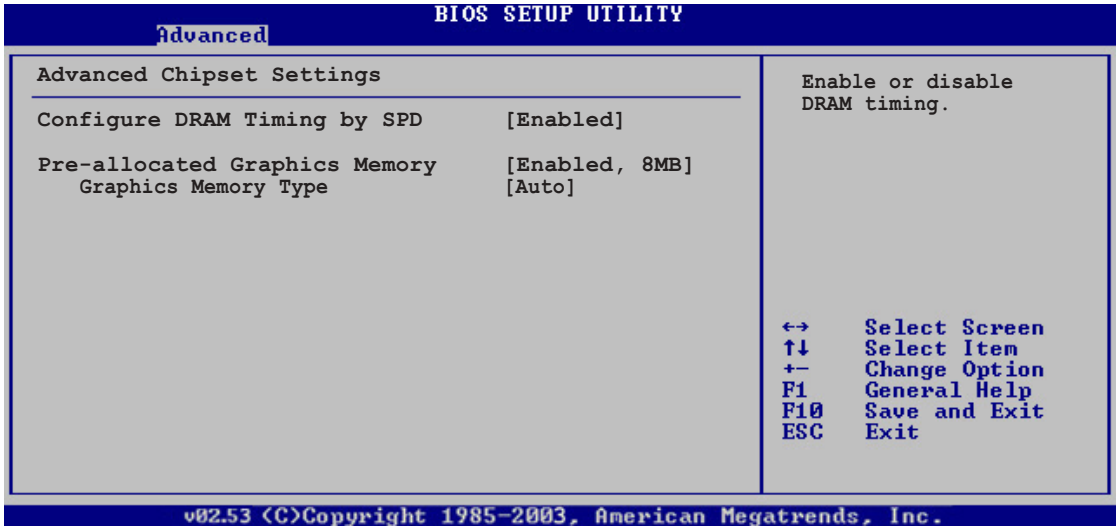
Disables or sets the CPU internal thermal control.
Configuration options: [Auto] [Disabled]

Hyper Threading Technology [Enabled]

Enables or disables the processor Hyper-Threading technology.
Configuration options: [Disabled] [Enabled]

5.4.3 Chipset

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



Configure DRAM Timing by SPD [Enabled]

When this item is enabled, the DRAM timing parameters are set according to the DRAM SPD (Serial Presence Detect). When disabled, you can manually set the DRAM timing parameters through the DRAM sub-items. The following sub-items appear when this item is Disabled. Configuration options: [Disabled] [Enabled]

DRAM CAS# Latency [3 Clocks]
Controls the latency between the SDRAM read command and the time the data actually becomes available.
Configuration options: [3 Clocks] [2.5 Clocks] [2 Clocks]

DRAM RAS# Precharge [4 Clocks]
Controls the idle clocks after issuing a precharge command to the DDR SDRAM. Configuration options: [2 Clocks] [3 Clocks] [4 Clocks] [5 Clocks]

DRAM RAS# to CAS# Delay [4 Clocks]
Controls the latency between the DDR SDRAM active command and the read/write command. Configuration options: [2 Clocks] [3 Clocks] [4 Clocks] [5 Clocks]

DRAM RAS# Activate to Precharge Delay [15 Clocks]
Configuration options: [4 Clocks] [5 Clocks] ~ [15 Clocks]

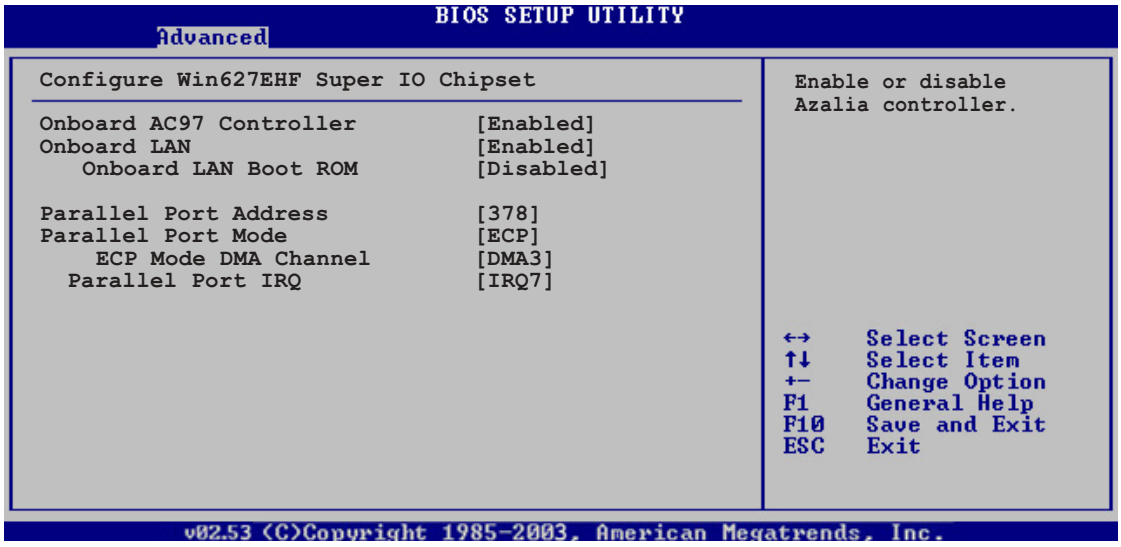
DRAM Burst Length [8]
Sets the DRAM Burst Length. Configuration options: [4] [8]

Pre-allocated Graphics Memory [Enabled, 8MB]

Allows user to select the amount of system memory pre-allocated by the internal graphics device. Configuration options: [Enabled, 1MB] [Enabled, 8MB]

Graphics Memory Type [Auto]
Selects the size of graphic memory.
Configuration options: [Auto] [DVMT] [FIX] [DVMT+FIX]

5.4.4 Onboard Devices Configuration



Onboard AC97 Controller [Enabled]

Enables or disables the onboard AC97 controller.
Configuration options: [Enabled] [Disabled]

OnBoard LAN [Enabled]

Enables or disables the onboard LAN controller.
Configuration options: [Disabled] [Enabled]

Onboard LAN Boot ROM [Disabled]
Allows you to enable or disable the LAN Boot ROM in the onboard LAN controller. Configuration options: [Disabled] [Enabled]

Parallel Port Address [378]

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

Parallel Port Mode [ECP]

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

ECP Mode DMA Channel [DMA3]

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

EPP Version [1.9]

Allows selection of the Parallel Port EPP version. This item appears only when the **Parallel Port Mode** is set to **EPP**.
Configuration options: [1.9] [1.7]

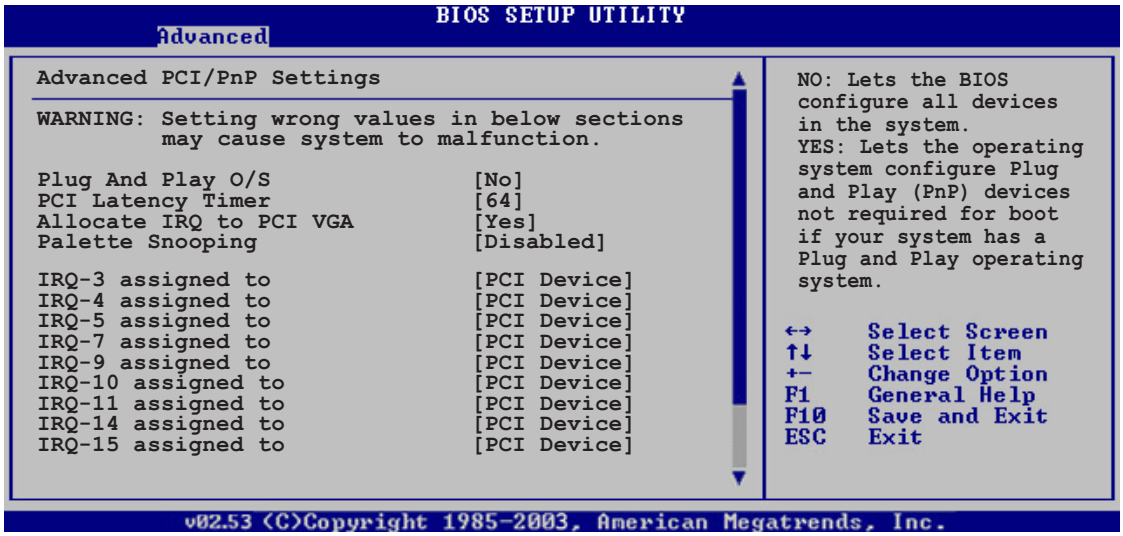
Parallel Port IRQ [IRQ7]

Allows selection of the Parallel Port IRQ.
Configuration options: [IRQ5] [IRQ7]

5.4.5 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]

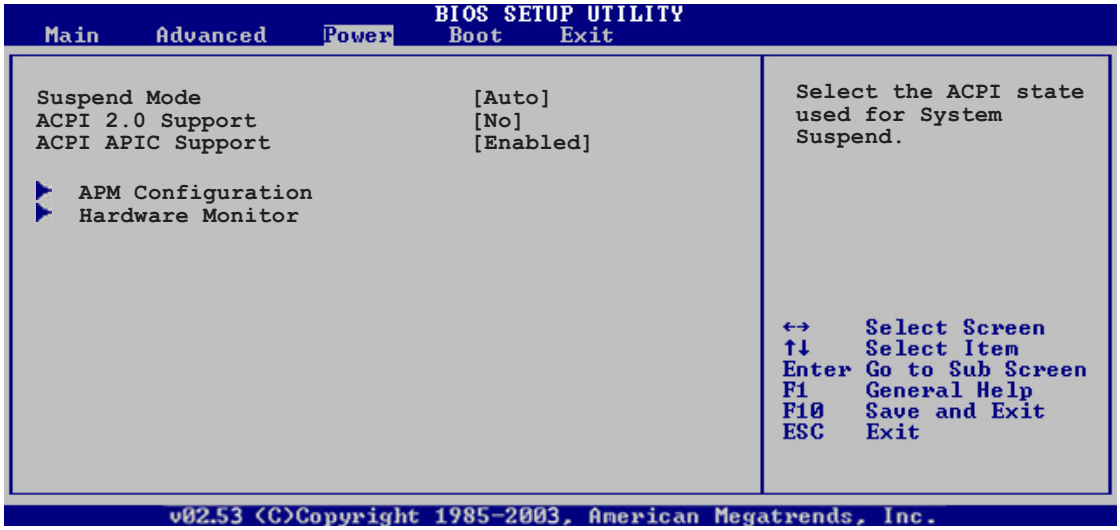
When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

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

5.5 Power menu

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



5.5.1 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]

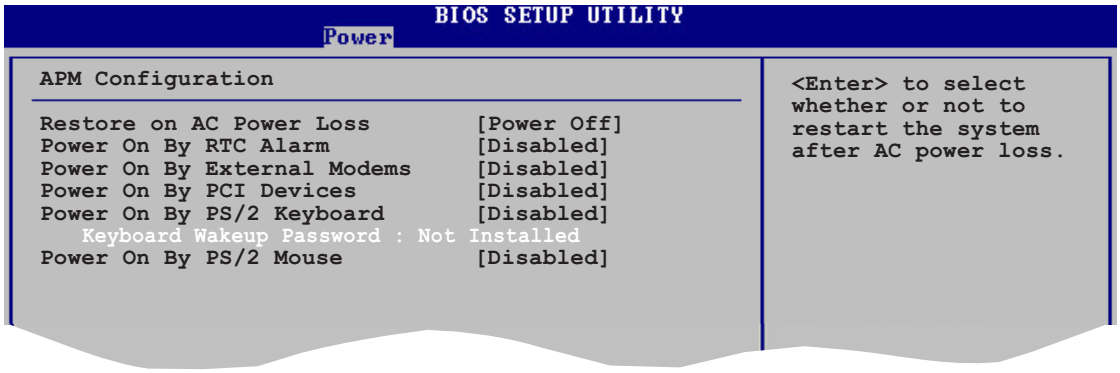
5.5.2 ACPI 2.0 Support [No]

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

5.5.3 ACPI APIC Support [Enabled]

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

5.5.4 APM Configuration



Restore on AC Power Loss [Power Off]

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

Power On By 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, RTC Alarm Hour, RTC Alarm Minute, and RTC Alarm Second appear with set values. Configuration options: [Disabled] [Enabled]

Power On By External Modems [Disabled]

This allows either settings of [Enabled] or [Disabled] for powering up the computer when the external modem receives a call while the computer is in Soft-off mode. Configuration options: [Disabled] [Enabled]

The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that turns the system power on.

Power On By PCI Devices [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]

Power On By PS/2 Keyboard [Disabled]

Allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

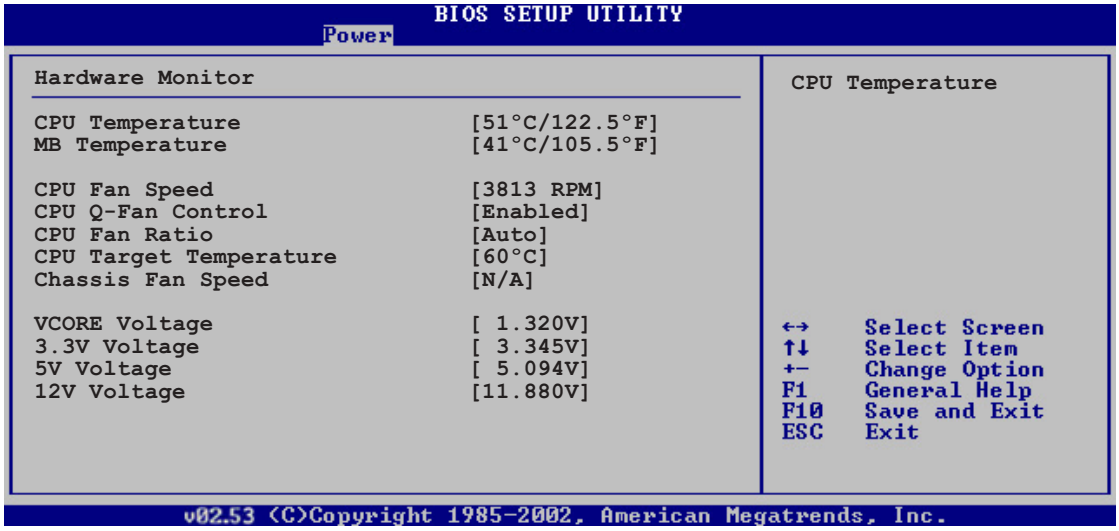
Keyboard Wakeup Password

This item appears only when the Power On By PS/2 Keyboard is set to Enabled. Select this item to set or change the keyboard wakeup password. The **Keyboard Wakeup Password** item that appears below shows the default **Not Installed**. After you have set a password, this item shows **Installed**.

Power On By PS/2 Mouse [Disabled]

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

5.5.5 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 Disabled if you do not wish to display the detected temperatures.

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.

CPU Q-Fan Control [Enabled]

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

When the **CPU Q-Fan Control** is set to [Enabled], the **CPU Fan Ratio** and **CPU Target Temperature** items appear to allow selection of the appropriate fan speed ratio.

CPU Fan Ratio [Auto]

Allows you to select the appropriate CPU fan speed ratio for the system. The default [Auto] automatically selects the fan speed ratio when operating a low CPU temperature. Select a higher ratio if you installed additional devices and the system requires more ventilation.
Configuration options: [Auto] [90%] [80%] [70%] [60%]

CPU Target Temperature [xxx°C]

Allows you to set the CPU temperature threshold when the CPU fan speed is increased to lower the CPU temperature. Configuration options: [Auto] [53°C] [56°C] [59°C] [62°C] [65°C] [68°C] [71°C] [74°C] [77°C] [80°C] [83°C]

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

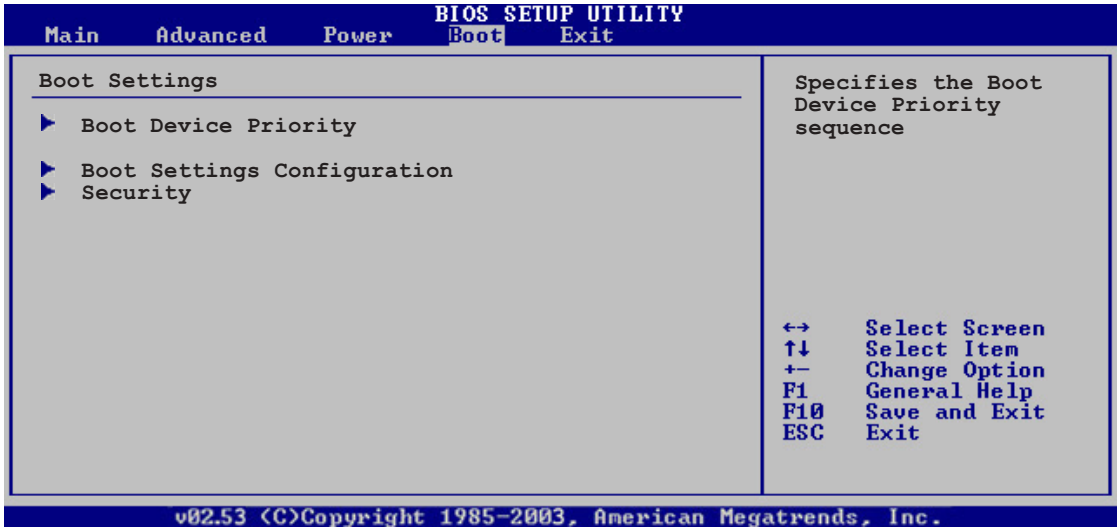
The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A.

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

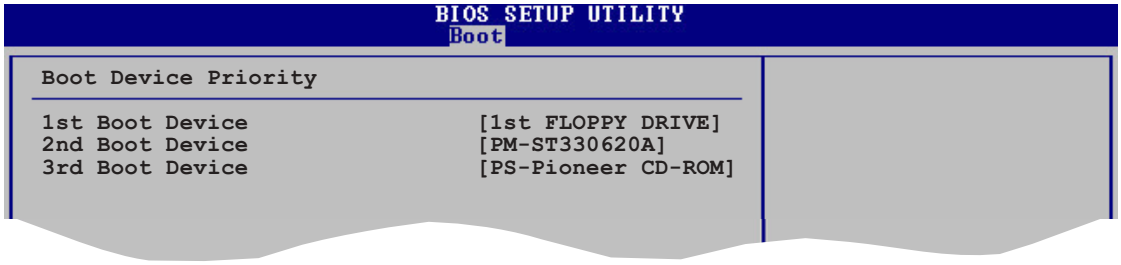
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

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.



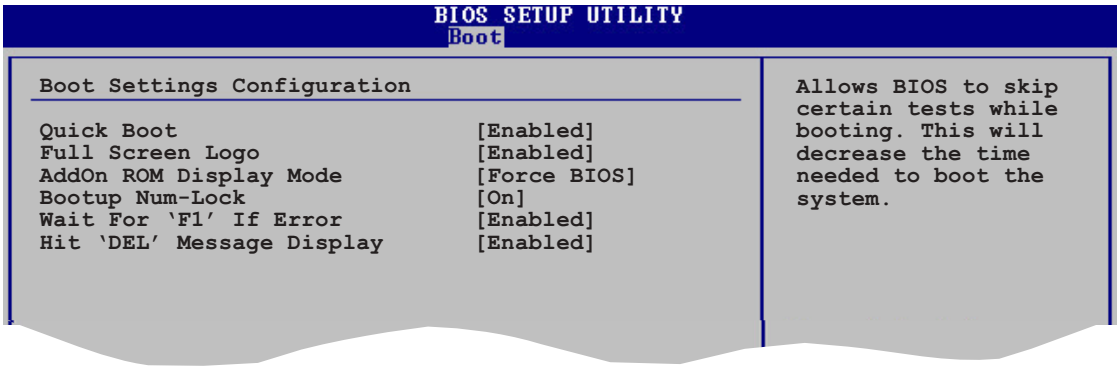
5.6.1 Boot Device Priority



1st ~ 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]

5.6.2 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]

Wait for 'F1' If Error [Enabled]

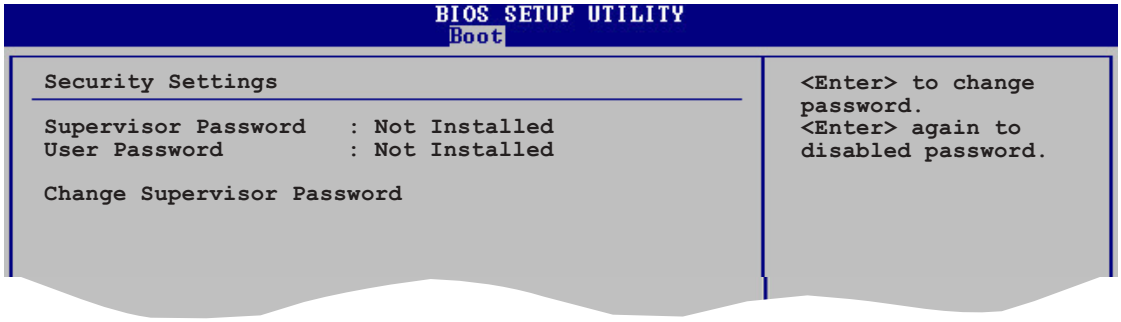
When set to Enabled, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

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]

5.6.3 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 clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "4.3 Jumpers" for information on how to erase the RTC RAM.

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

User Access Level (Full Access]

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

No Access prevents user access to the Setup utility.

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

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

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

Change User Password

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

To set a User Password:

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

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

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

Clear User Password

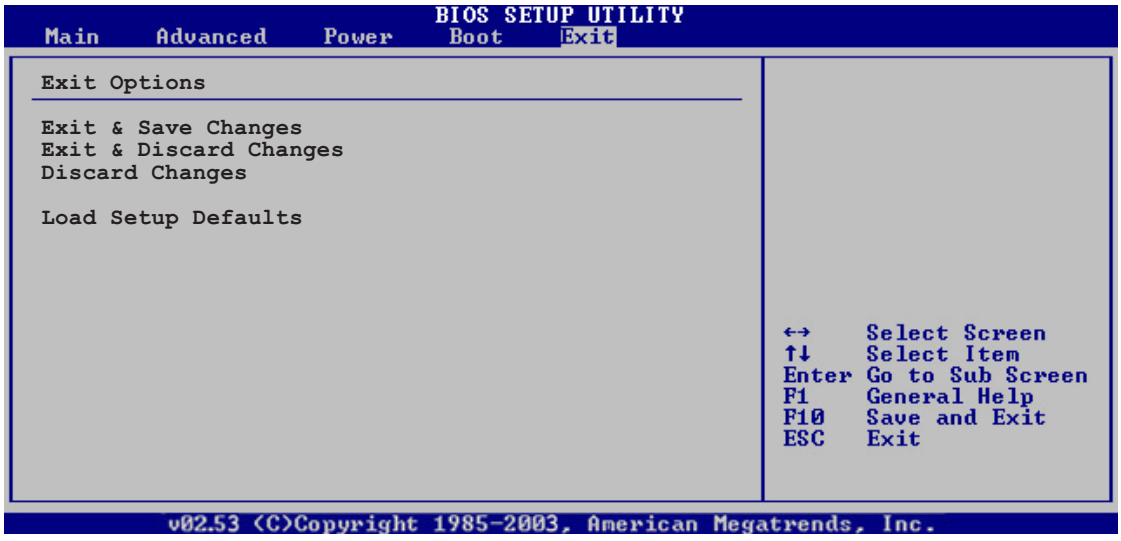
Select this item to clear the user password.

Password Check [Setup]

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

5.7 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 **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. 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 **Yes** 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 **Yes** to load default values. Select **Exit & Save Changes** or make other changes before saving the values to the non-volatile RAM.