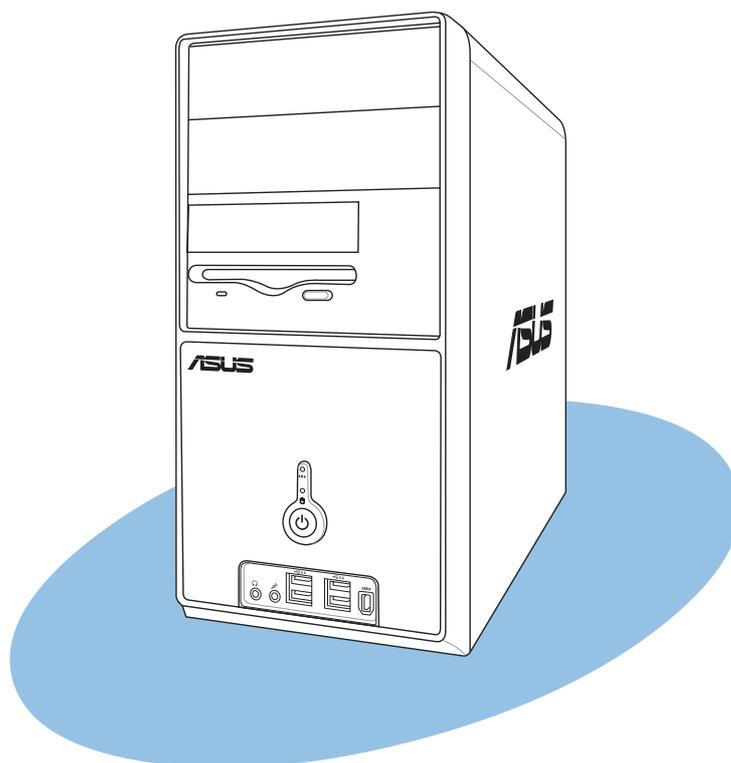


ASUS[®]
Vintage-AH1
Barebone System



E2139

**First Edition
August 2005**

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Notices

Federal Communications Commission Statement

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

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

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

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



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

Canadian Department of Communications Statement

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

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

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

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

Lithium-Ion Battery Warning

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

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

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

About this guide

Audience

This guide provides general information and installation instructions about the ASUS Vintage-AH1 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-AH1. 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 information

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.

System package contents

Check your Vintage-AH1 system package for the following items.

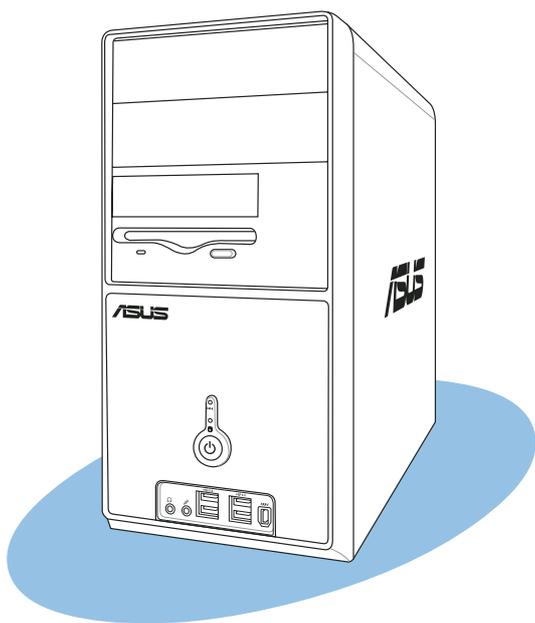


If any of the items is damaged or missing, contact your retailer immediately.

Item description
1. ASUS Vintage-AH1 barebone system with
• ASUS motherboard
• 300 W PFC power supply unit
• ASUS chassis
2. Cable
• AC power cable
3. Support CD
4. User guide

Chapter 1

This chapter gives a general description of the ASUS Vintage-AH1. The chapter lists the system features including introduction on the front and rear panel, and internal components.



ASUS Vintage-AH1

1.1 Welcome!

Thank you for choosing the ASUS Vintage-AH1!

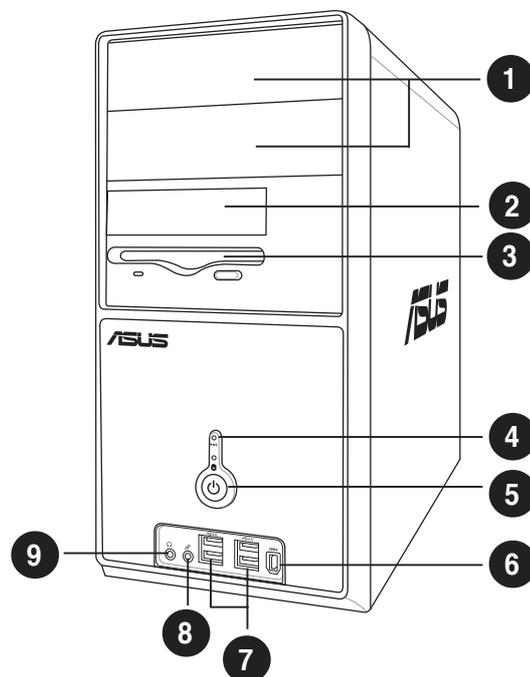
The ASUS Vintage-AH1 is an all-in-one barebone system with a versatile home entertainment feature.

The system comes in a stylish mini-tower casing and powered by the ASUS motherboard that supports the AMD Athlon™ 64 and Athlon™ 64FX desktop processors.

The system supports up to 4 GB of system memory using DDR400/333 DIMMs, high-resolution graphics via integrated graphics controller or PCI Express x16 slot, Serial ATA, USB 2.0, and 8-channel audio features the system takes you ahead in the world of power computing.

1.2 Front panel

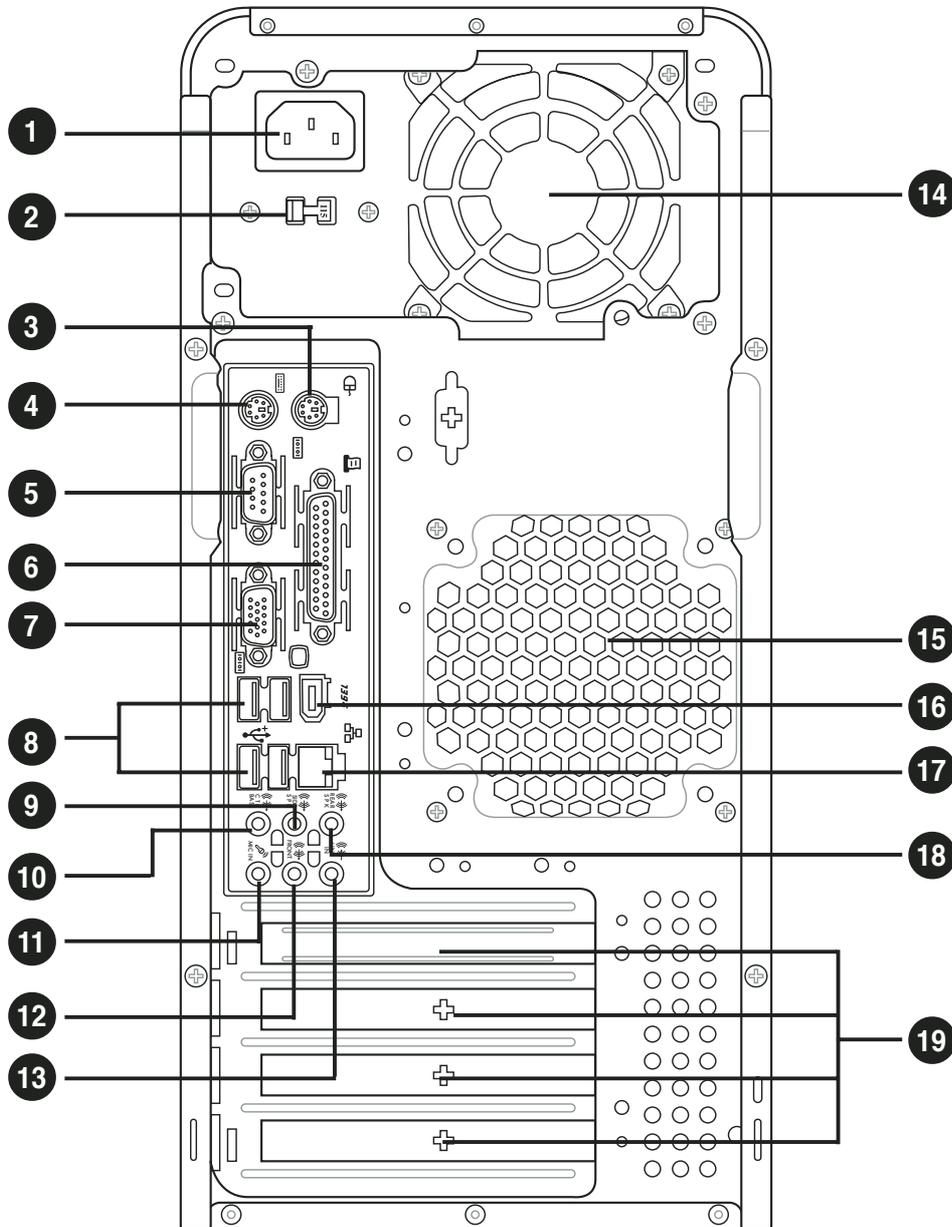
The front panel includes the optical drive bays, floppy disk drive slot, power button, and several I/O ports are located at the front panel.



1. **Two empty 5.25-inch bays.** These bays are for IDE optical drives.
2. **Hard disk drive bay.** This door covers a hard disk drive.
3. **Floppy drive slot.** This slot is for the 3.5-inch floppy disk drive. (The floppy disk drive is included in the package.)
4. **Reset button.** Press this button to reboot the system without turning off the power.
5. **Power button.** Press this button to turn the system on.
6. **IEEE 1394 port.** This 6-pin IEEE 1394a port provides high-speed connectivity for audio/video devices, storage peripherals, PCs, or portable devices.
7. **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.
8. **Microphone port.** This Mic (pink) port connects a microphone.
9. **Headphone port.** This Line In (green) port connects a headphone with a stereo mini-plug.

1.3 Rear panel

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



1. **Power connector.** This connector is for the power cable and plug.
2. **Voltage selector.** This switch allows you to adjust the system input voltage according to the voltage supply in your area. See the “Voltage selector” section on page 1-6 before adjusting this switch.
3. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.
4. **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.
5. **Serial port .** This port connects a mouse, modem, or other devices that conforms with serial specification.

6. **Parallel port.** This 25-pin port connects a printer, scanner, or other devices.
7. **VGA port.** This port connects a VGA monitor.
8. **USB 2.0 ports 1, 2, 3 and 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
9. **Side Speaker Out port (black).** This port connects the side speakers in an 8-channel audio configuration.
10. **Rear Speaker Out port (orange).** This port connects the rear speakers on a 4-channel, 6-channel, or 8-channel audio configuration.
11. **Microphone port (pink).** This port connects a microphone.
12. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
13. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.
14. **Power supply unit fan vent.** This vent is for the PSU fan that provides ventilation inside the power supply unit.
15. **Chassis fan vent.** This vent is for the fan that provides ventilation inside the system chassis.
16. **IEEE 1394a port.** This 6-pin IEEE 1394 port provides high-speed connectivity for audio/video devices, storage peripherals, PCs, or portable devices.
17. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.
18. **Center/Subwoofer port (gray).** This port connects the center/subwoofer speakers.
19. **Expansion slot covers.** Remove these cover when installing expansion cards.



Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, or 8-channel configuration

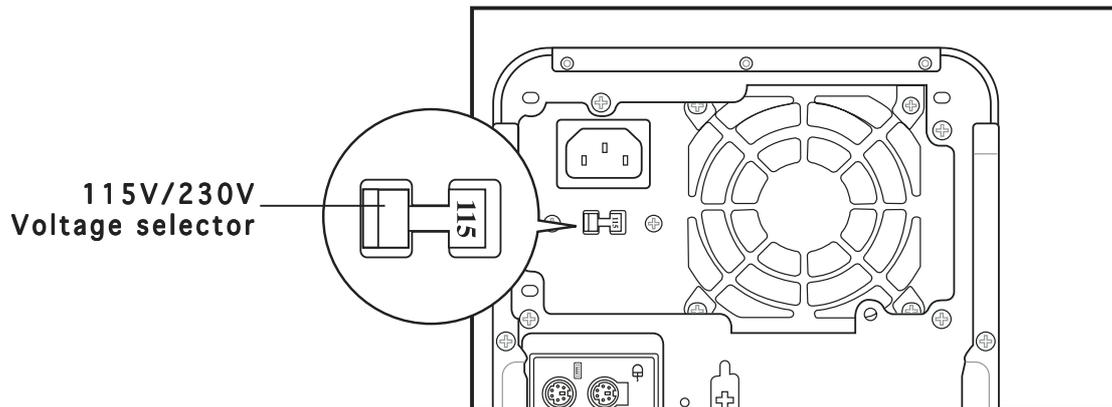
Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	•	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Black	•	•	•	Side Speaker Out
Gray	•	•	Center/Subwoofer	Center/Subwoofer

Voltage selector

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

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

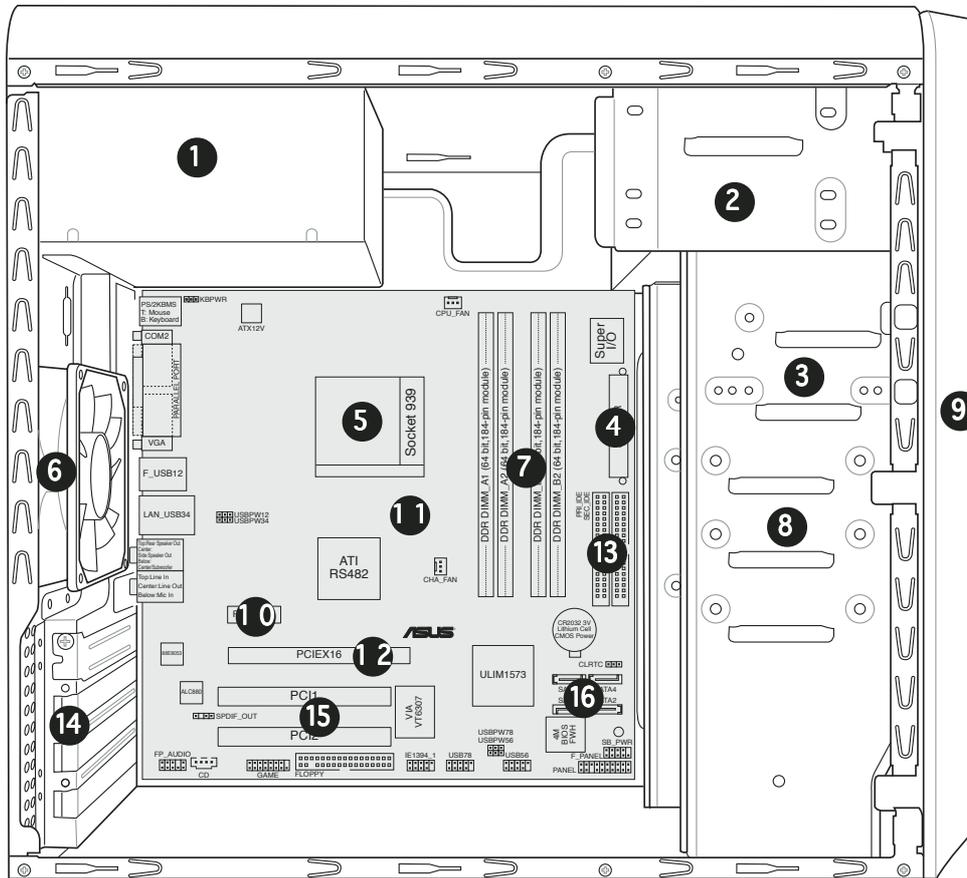
If the voltage supply in your area is 200-240 V, set this switch to 230 V.



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

1.4 Internal components

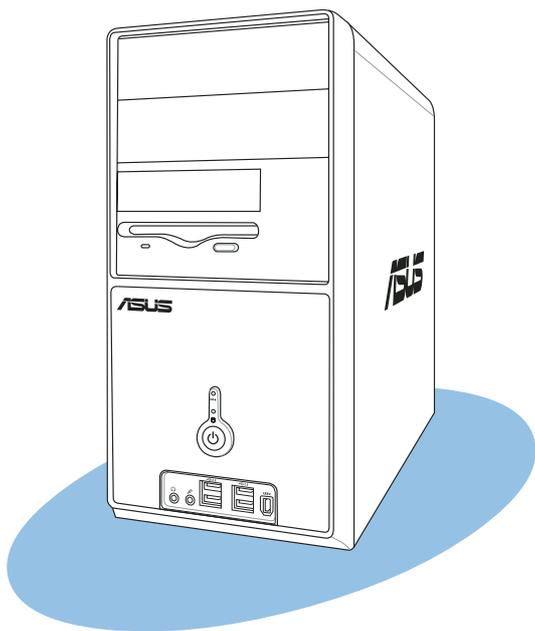
The illustration below is the internal view of the system when you remove the top cover and the power supply unit. The installed components are labeled for your reference. Proceed to Chapter 2 for instructions on installing additional system components.



- | | |
|--|---------------------------|
| 1. Power supply unit | 9. Front panel cover |
| 2. 5.25-inch drive bay | 10. PCI Express x1 slot |
| 3. Floppy disk drive bay | 11. ASUS motherboard |
| 4. ATX power supply connector | 12. PCI Express x16 slot |
| 5. Socket 939 for AMD Athlon™ 64/AMD Athlon™ 64FX CPUs | 13. IDE connectors |
| 6. Chassis fan | 14. Expansion card slots |
| 7. DIMM sockets | 15. PCI slots |
| 8. Hard disk drive bays | 16. Serial ATA connectors |

Chapter 2

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



ASUS Vintage-AH1

Basic installation

2.1 Preparation

Before you proceed, make sure that you have all the components 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
5. Optical drive
6. Floppy disk drive

Tool

Phillips (cross) screw driver

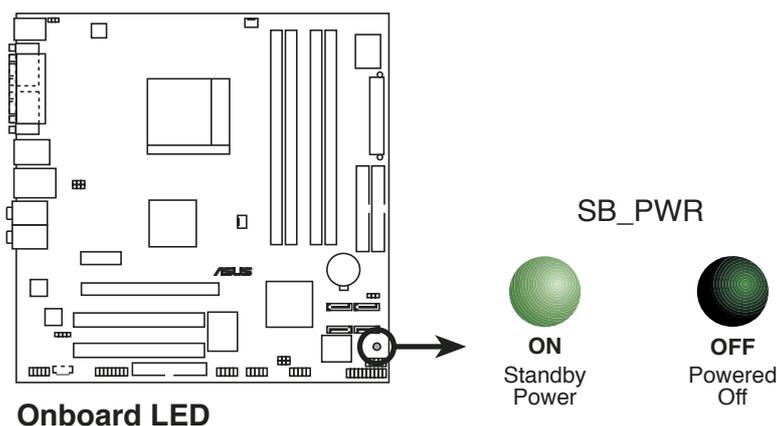
2.2 Before you proceed

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.

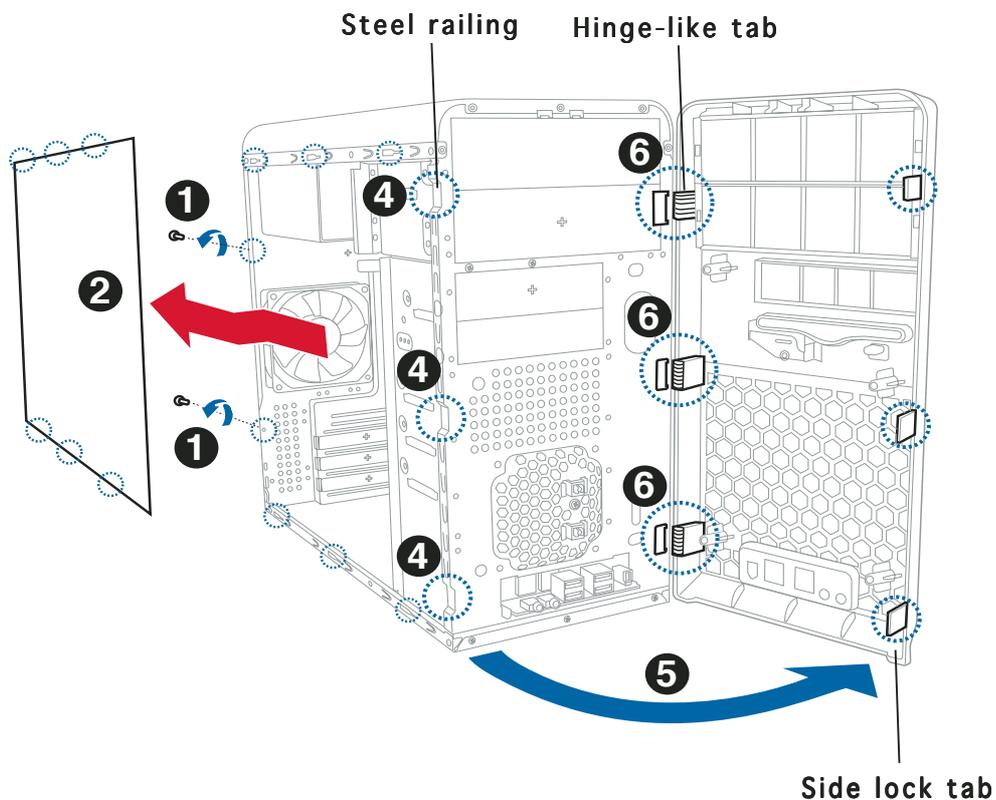


2.3 Removing the side plates and front cover

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. 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 cover.
4. Release the side lock tabs from the steel railing.
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.

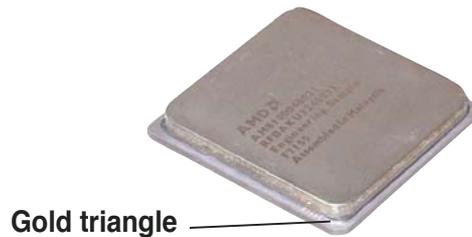
2.4 Central Processing Unit (CPU)

2.4.1 Overview

The motherboard comes with a surface mount 939-pin Zero Insertion Force (ZIF) socket designed for the AMD Athlon™ 64FX or AMD Athlon™ 64 processor.

The 128-bit-wide data paths of these processors can run applications faster than processors with only 32-bit or 64-bit wide data paths.

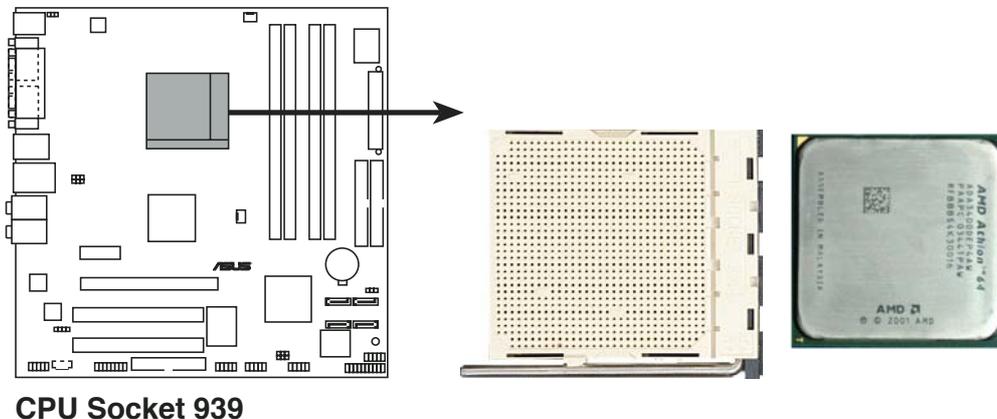
Take note of the marked corner (with gold triangle) on the CPU. This mark should match a specific corner on the socket to ensure correct installation.



2.4.2 Installing the CPU

To install a CPU:

1. Locate the CPU socket on the motherboard.

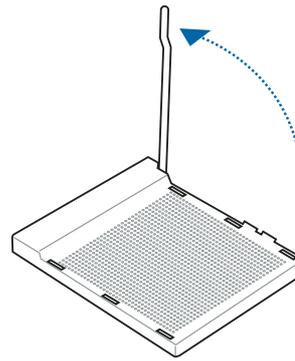


Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

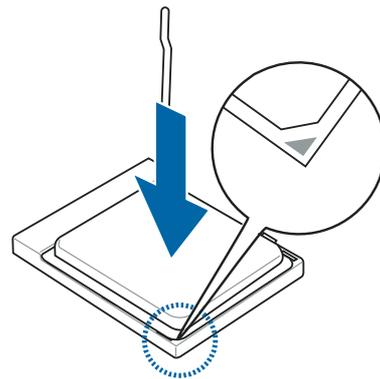
2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle.



Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely.

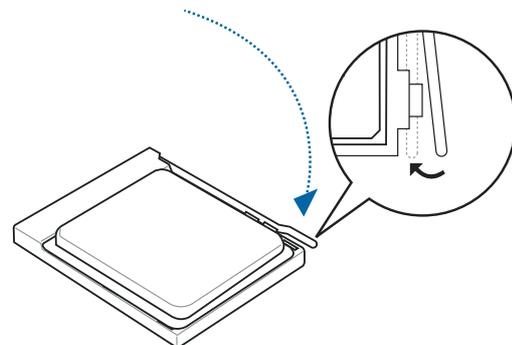


3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.
4. Carefully insert the CPU into the socket until it fits in place.



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

5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.



2.4.3 Installing the heatsink and fan

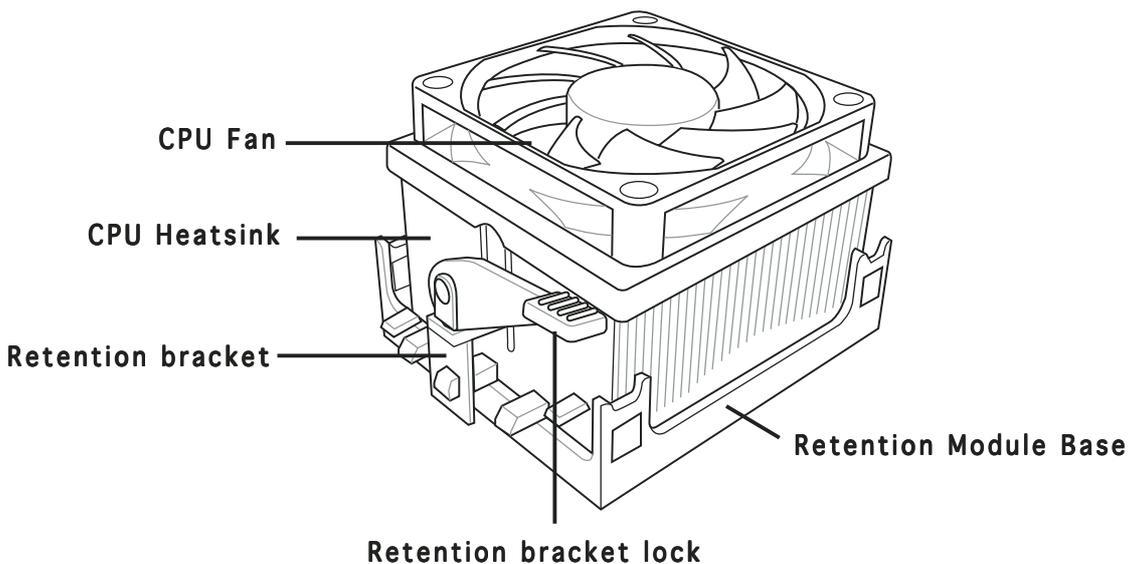
The AMD Athlon™ 64FX or AMD Athlon 64™ processor require a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

Follow these steps to install the CPU heatsink and fan.

1. Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.

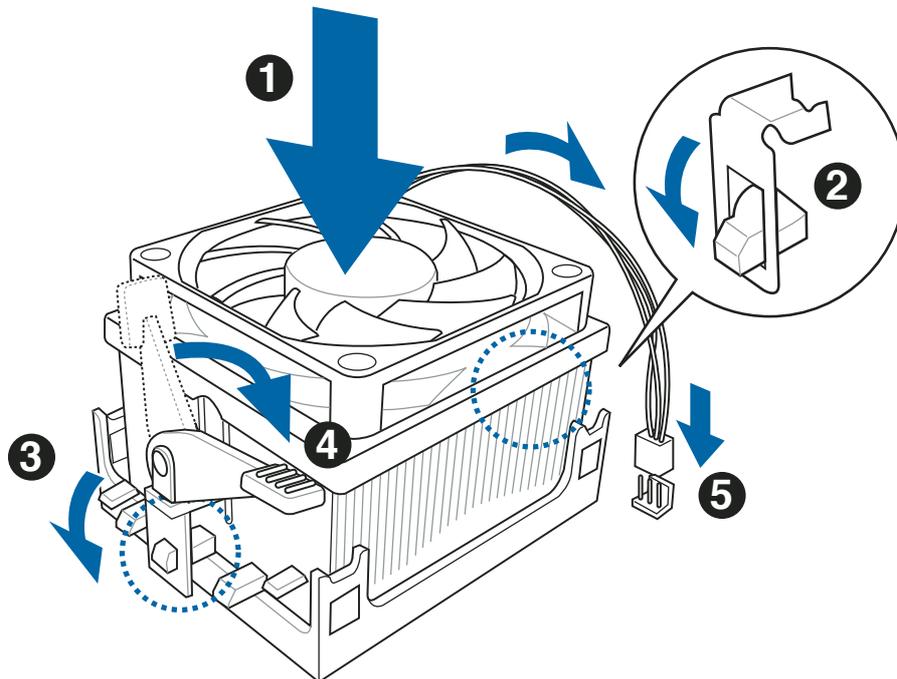


-
- The retention module base is already installed on the motherboard upon purchase.
 - You do not have to remove the retention module base when installing the CPU or installing other motherboard components.
 - If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.
-



Your boxed CPU heatsink and fan assembly 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.

2. Attach one end of the retention bracket to the retention module base.

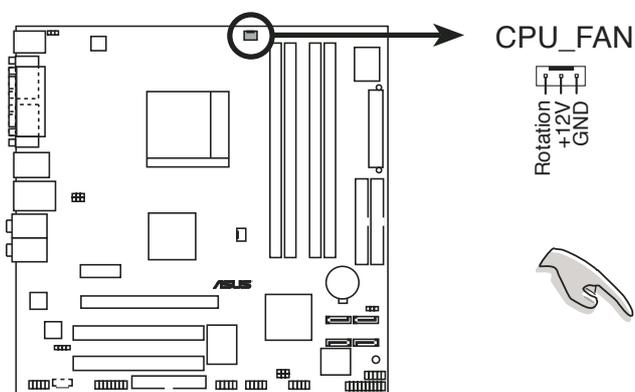


3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.



Make sure that the fan and heatsink assembly perfectly fits the retention mechanism module base, otherwise you cannot snap the retention bracket in place.

4. Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.
5. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.



CPU fan connector

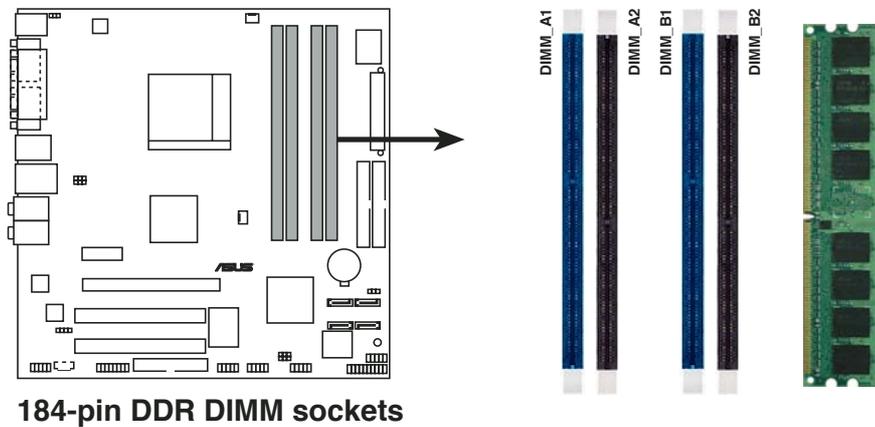


Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

2.5 Installing a DIMM

The system motherboard comes with two Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets.

The following figure illustrates the location of the sockets:



184-pin DDR DIMM sockets

2.5.1 Memory configurations

You may install up to 4 GB system memory using 128 MB, 256 MB, 512 MB, and 1 GB DDR DIMMs.



- Install only **identical** (the same type and size) DDR memory modules.
- Install only ASUS-certified memory modules. Visit the ASUS website (www.asus.com) for the latest memory Qualified Vendors List.
- Always install DIMMs with the same CAS latency. For optimum compatibility, we recommend that you obtain memory modules from the same vendor.

DDR400 Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Component	DIMM support			
						CL	A	B	C
256MB	Kingston	KVR333X64C25/256	Kingston	SS	D3208DH1T-6	-	•	•	•
256MB	Kingston	KVR333X64C25/256	Hynix	DS	HY5DU56822BT-D43	-	•	•	•
512MB	Kingston	KVR333X64C25/512	Kingston	DS	D3208DH1T-6	-	•	•	•
512MB	Kingston	KVR400X64C3A/512	Hynix	DS	HY5DU56822BT-D43	-	•	•	•
512MB	Kingston	KVR400X64C3A/512	Kingston	DS	D3208DH1T-5	-	•	•	•
512MB	Kingston	KVR400X64C3A/512	Kingston	SS	HY5DU12822BT-D43	-	•	•	•
256MB	Kingston	KVR400X64C3A/256	Hynix	SS	HY5DU56822BT-D43	-	•	•	•
256MB	Kingston	KVR400X64C3A/256	Kingston	SS	D3208DL3T-5A	-	•	•	•
256MB	Kingston	KVR400X64C3A/256	PSC	SS	A2S56D30BTP	-	•	•	•
1G	Kingston	KVR400X64C3A/1G	Infineon	DS	HYB25D512800BE-5B	-	•	•	•
256MB	Infineon	HYS64D32300GU-5-C	Infineon	SS	HYB25D256800CE-5C	3	•	•	•
512MB	Infineon	HYS64D64320GU-5-C	Infineon	DS	HYB25D256800CE-5C	3	•	•	•
256MB	Infineon	HYS64D32300GU-5-C	Infineon	SS	HYB25D256800CE-5C	-	•	•	•
512MB	Infineon	HYS64D64320GU-6-C	Infineon	DS	HYB25D256800CE-6C	-	•	•	•
256MB	HY	HYMD232646D8J-D43	Hynix	SS	HY5DU56822BT-D43	-	•	•	•
512MB	HY	HYMD264646D8J-D43	Hynix	DS	HY5DU56822BT-D43	-	•	•	•
256MB	HY	HYMD232646B8J-J	Hynix	SS	HY5DU56822BT-J	-	•	•	•
512MB	HY	HYMD264646B8J-J	Hynix	DS	HY5DU56822BT-J	-	•	•	•
256MB	Corsair	VS256MB400	Value select	SS	VS32M8-5 2B0409	-	•	•	•
256MB	Corsair	XMS3202v3.1	Infineon	SS	HYB25D256807BT-5B	2	•	•	•
512MB	Corsair	XMS3205v1.2	Winbond	DS	W942508CH-5	-	•	•	•
512MB	Corsair	VS512MB400	Value select	DS	VS32M8-5 2B0402	-	•	•	•
256MB	Corsair	VS256MB333	Samsung	SS	K4H5608380-TCB3	-	•	•	•
512MB	Corsair	VS512MB333	Value select	SS	VS32M8-6 2B0412	-	•	•	•
512MB	Corsair	XMS2702v3.1	Mosel	DS	V58C2256804SAT6	2	•	•	•
512MB	Micron	MT16VDDT6464AG-335GB	Micron	DS	MT46V32M8TG-6TG	-	•	•	•
256MB	Micron	MT8VDDT3264AG-335GB	Micron	SS	MT46V32M8TG-6TG	2.5	•	•	•
256MB	Micron	MT8VDDT3264AG-40BGB	Micron	SS	MT46V32M8TG-5BG	3	•	•	•
512MB	Micron	MT16VDDT6464AG-40BCB	Micron	DS	MT46V32M8TG-5BC	3	•	•	•
256MB	Samsung	M368L3223FTN-CCC	Samsung	SS	K4H560838F-TCCC	3	•	•	•
512MB	Samsung	M368L6423FTN-CCC	Samsung	DS	K4H560838F-TCCC	3	•	•	•
256MB	Samsung	M368L3223FTN-CB3	Samsung	SS	K4H560838F-TCB3	2.5	•	•	•
512MB	Samsung	M368L6423FTN-CB3	Samsung	DS	K4H560838F-TCB3	2.5	•	•	•
256MB	Winbond	U24256ADWBG6H20	Winbond	SS	W942508CH-5	-	•	•	•
256MB	Winbond	U24256AAWBG6H20	Winbond	SS	W942508CH-6	-	•	•	•
512MB	Winbond	DDR333-512	Winbond	DS	W942508BH-6	-	•	•	•
512MB	Winbond	U24512ADWBG6H20	Winbond	DS	W942508CH-5	-	•	•	•
256MB	Elpida	U24256ADEPG6H20	Elpida	SS	DD2508AKTA-5C	-	•	•	•
512MB	Elpida	U24512ADEPG6H20	Elpida	DS	DD2508AMTA	-	•	•	•
256MB	Transcend	DDR400-256	Samsung	SS	K4H560838F-TCCC	-	•	•	•
256MB	Transcend	DDR400-256	Mosel	SS	V58C2256804SAT5B	-	•	•	•
512MB	Transcend	102709-0001	PSC	DS	A2S56D30ATP	2.5	•	•	•
512MB	Transcend	DDR400-512	Mosel	DS	V58C2256804SAT5B	-	•	•	•
512MB	Transcend	DDR400-512	Samsung	DS	K4H560838F-TCCC	-	•	•	•
256MB	Transcend	111448-0214	PSC	SS	A2S56D30BTP	2.5	•	•	•
512MB	Transcend	DDR333-512	Hynix	DS	HY5DU56822CT-J	-	•	•	•
256MB	Pmi	3208GATA07-04A7	Pmi	SS	PM4D328D50406EU	-	•	•	•
512MB	Pmi	3208GATA01-04A4	Pmi	DS	PM4D328S50403DU	-	•	•	•

(Continued on the next page)

Size	Vendor	Model	Brand	Side(s)	Component	DIMM support			
						CL	A	B	C
256MB	Kingmax	MPMB62D-38LT3R	Mosel	SS	V58C2256804SAT6	-	•	•	•
512MB	Kingmax	MPMC22D-38HT3R	Hynix	DS	HY5DU56822BT-J	-	•	•	•
256MB	Kingmax	MPXB62D-38KT3R	Kingmax	SS	KDL388P4LA-50	-	•	•	•
512MB	Kingmax	MPXC22D-38KT3R	Kingmax	DS	KDL388P4EA-50	-	•	•	•
256MB	Mosel	V826632K24SATG-D3	Mosel	SS	V58C2256804SAT5	3	•	•	•
512MB	Mosel	V826664K24SATG-D3	Mosel	DS	V58C2256804SAT5	3	•	•	•
256MB	Nanya	NT256D64S88B1G-5T	Nanya	SS	NT5DS32M8BT-5T	3	•	•	•
512MB	Apacer	77.90728.U1G	Apacer	DS	AM3A568AJT-6B	2.5	•	•	•
256MB	Apacer	77.10636.46G	Samsung	SS	K4H560838E-TCCC	3	-	-	•
256MB	Apacer	77.10636.56G	Mosel	SS	V58C2256804SAT5B	3	•	•	•
512MB	Apacer	77.10736.11G	Infineon	DS	HYB25D256800BT-5B	3	•	•	•
256MB	Smart	U24256ADSRG6H20	Smart	SS	D32M8XS50H3X4AMV	-	•	•	•
256MB	Smart	U24256ADSRG6H20	Smart	SS	D32M8XS60HBX4AMV	-	•	•	•
512MB	Smart	U24512ADSRG6H20	Smart	DS	D32M8XS50H3X4AMV	-	•	•	•
512MB	Smart	U24512ADSRG6H20	Smart	DS	D32M8XS60HBX4AMV	-	•	•	•
256MB	Twinmos	DDR333-256	Twinmos	SS	TMD7608F8E60B	2.5	•	•	•
256MB	Twinmos	M2G9108A-TT	Twinmos	SS	TMD7608F8E501	2.5	•	•	•
256MB	Promos	V826632K24SCTG-D0	Promos	SS	V58C2256804SCT5B	2.5	•	•	•
512MB	Promos	V826664K24SCTG-D0	Promos	DS	V58C2256804SCT5B	2.5	•	•	•
512MB	BiaoXing	BXXC22D-38KT3B	BiaoXing	DS	VM256D328BT-5	-	•	•	•
256MB	Vdata	MDYVD6F4G2880B1E0H	Vdata	SS	VDD9616A8A-5C	-	•	•	•

Side(s): SS - Single-Sided

DS - Double-Sided

DIMM Support:

- A** - supports one module inserted into either the blue slots, in a Single-channel memory configuration.
- B** - supports on pair of modules inserted into either the blue slots or the black slots as one pair of Dual-channel memory configuration.
- C** - support for 4 modules inserted into the blue and black slots as two pairs of Dual-channel memory configuration.



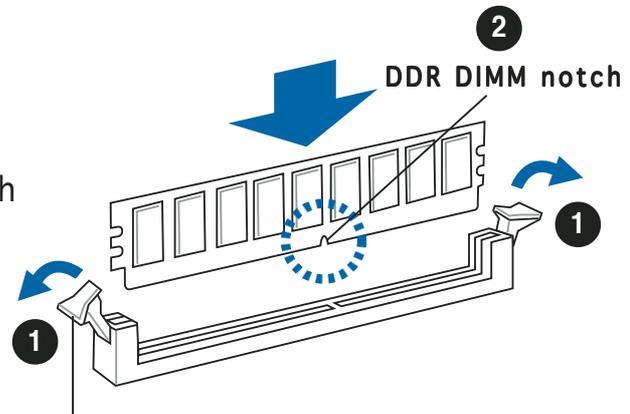
Visit the ASUS website (www.asus.com) for the latest DDR 400 Qualified Vendors List.

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.

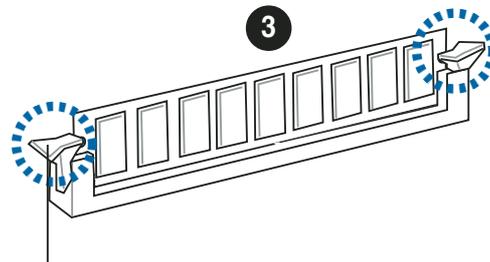


Unlocked retaining clip



A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

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

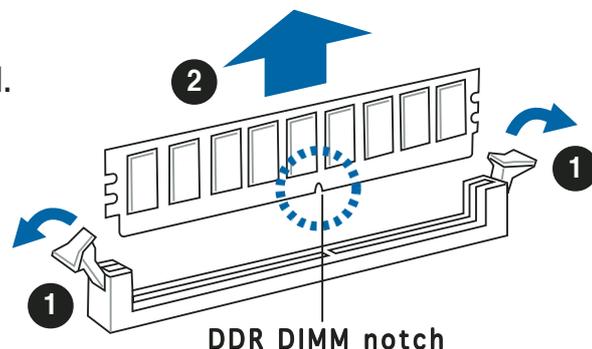


Locked Retaining Clip

2.5.3 Removing a DIMM

Follow these steps to remove a DIMM.

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



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

2. Remove the DIMM from the socket.

2.6 Expansion slots

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



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

2.6.1 Installing an expansion card

To install an expansion card:

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

2.6.2 Configuring an expansion card

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

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

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	-	Programmable interrupt
3	11	Communications Port (COM2)*
4	12	-
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	IRQ holder for PCI steering*
10	5	MIDI port*
11	6	IRQ holder for PCI steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

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

IRQ assignments for this motherboard

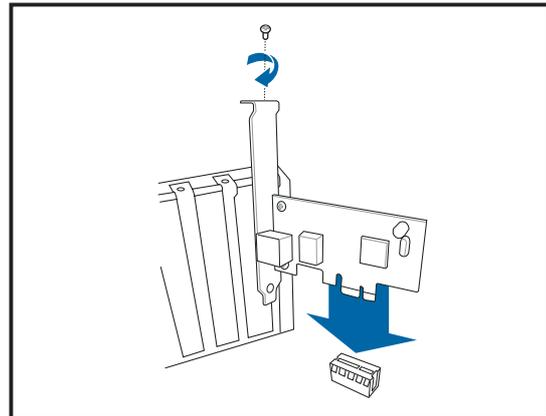
	A	B	C	D	E	F	G	H
PCI slot 1	—	shared	—	—	—	—	—	—
PCI slot 2	—	—	shared	—	—	—	—	—
PCI Express x16 slot	—	—	shared	—	—	—	—	—
PCI Express x1 slot	—	—	—	shared	—	—	—	—
Onboard USB controller 0	—	shared	—	—	—	—	—	—
Onboard USB controller 1	—	—	shared	—	—	—	—	—
Onboard USB controller 2	—	—	—	shared	—	—	—	—
Onboard EHCI controller	—	—	—	—	—	—	—	used
Onboard SATA Controller	—	—	—	—	—	used	—	—
Onboard Audio Controller	—	—	—	—	—	—	used	—
Onboard VGA	—	shared	—	—	—	—	—	—
Onboard IEEE1394	used	—	—	—	—	—	—	—
Onboard Gigabit 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.

2.6.3 PCI Express x1 slot

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

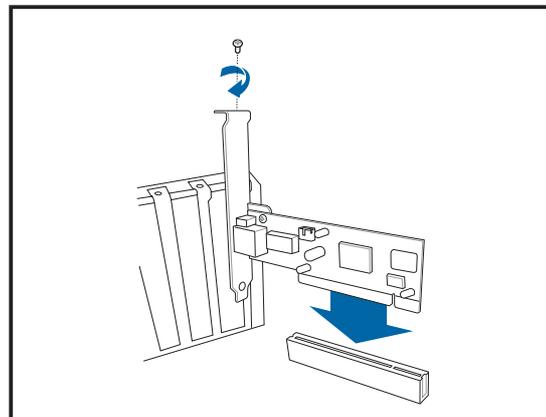


2.6.4 PCI slots

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

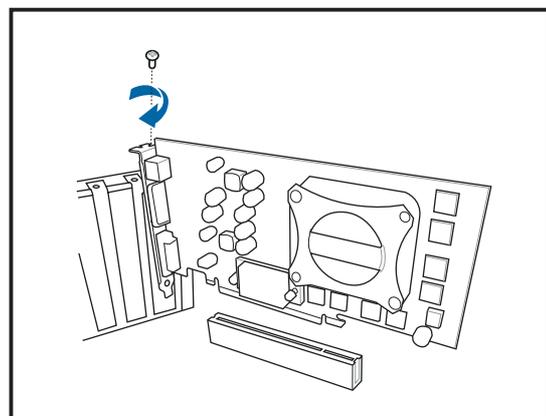


Before using a PCI VGA card, make sure to set the Graphics Adapter Priority to PCI/Int-VGA in the BIOS. See section “5.4.3 Chipset->AGP Configuration” for details.



2.6.5 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.

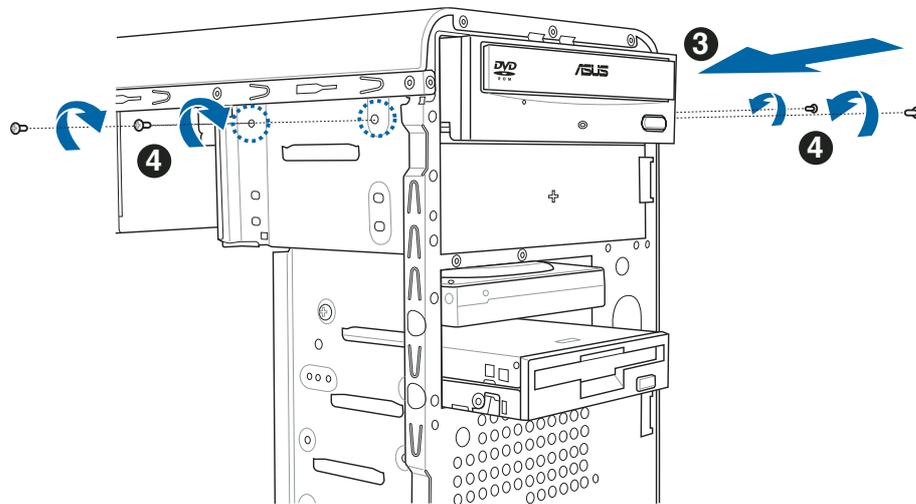


2.7 Installing an optical drive

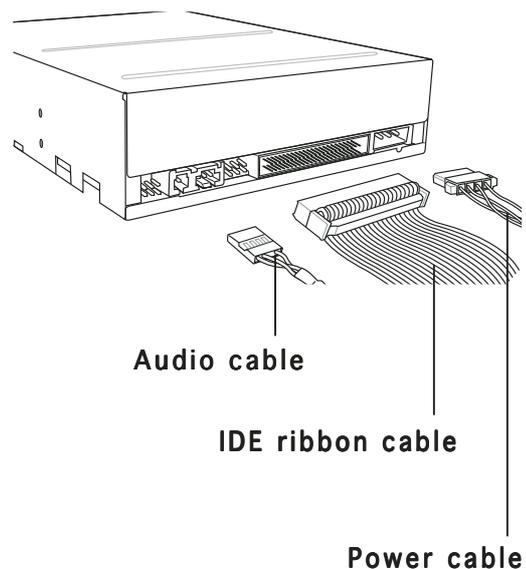
Refer to the instructions in this section if you wish to install a new optical drive.

Follow these steps to install an optical drive.

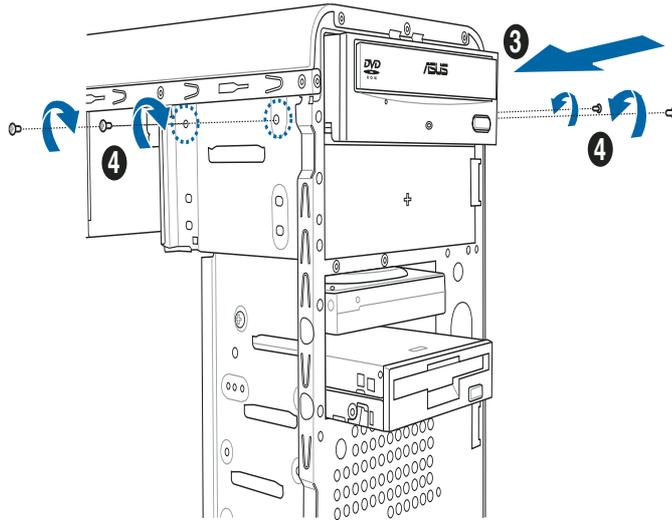
1. Place the chassis upright.
2. Remove the drive slot metal plate cover.
3. Insert the optical drive into the upper 5.25-inch drive bay and carefully push the optical drive into the bay until its screw holes align with the holes on the bay as shown.
4. Secure the optical drive with two screws on both sides of the bay.



5. Connect a power cable from the power supply to the power connector at the back of the optical drive.
6. Connect one end 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.
7. Connect one end of the audio cable to the 4-pin connector at the back of the optical drive.



8. Connect the other end of the IDE ribbon cable to the secondary IDE connector (labeled SEC_IDE) on the motherboard. See page 4-6 for the location of this connector.
9. Connect the other end of the audio cable to the black 4-pin connector labeled CD on the motherboard. See page 4-9 for the location of this connector.
10. Remove the dummy drive slot cover from the front panel.



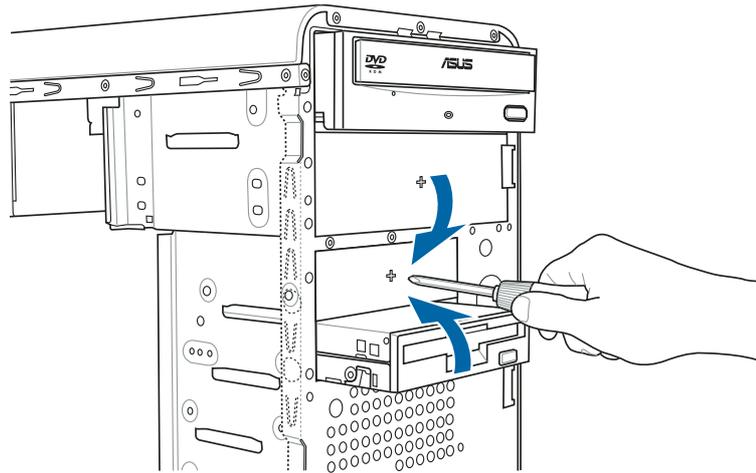
10. Replace the front panel. Refer to section “2.11 Replacing the side plates and front cover” on page 2-20 for details.

2.8 Installing a hard disk drive

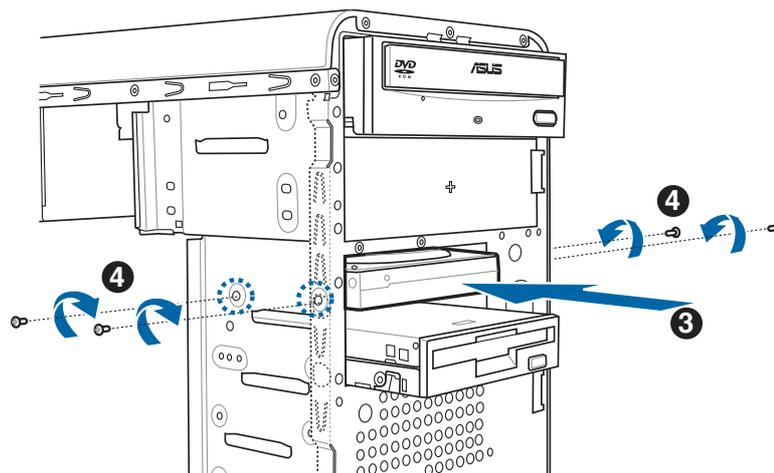
The system may have one pre-installed 3.5-inch Serial ATA or IDE hard disk drive. Refer to this section to install additional Serial ATA or IDE hard disk drive(s).

To install a Serial ATA hard disk drive:

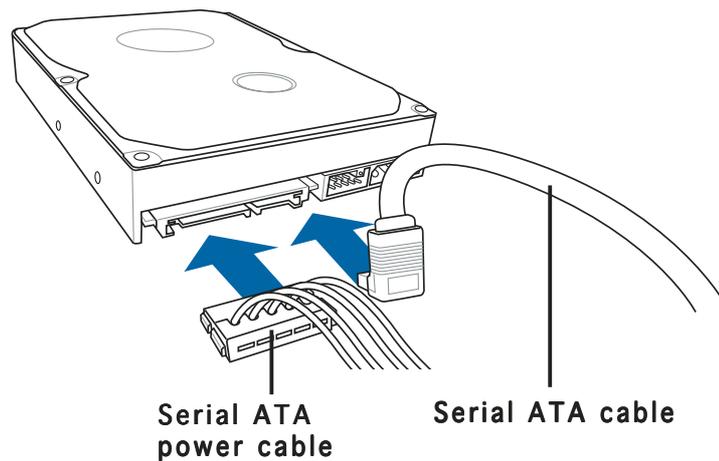
1. Place the chassis upright.
2. Use a screw driver to remove the HDD drive slot metal plate cover.



3. With the HDD label side up, carefully insert the drive into the 3.5-inch bay and push the drive into the bay until its screw holes align with the holes on the drive bay.



4. Secure the drive with two screws on both sides.



5. Connect one end of the Serial ATA cable to the SATA connector at the back of the drive, then connect the other end to a Serial ATA connector on the motherboard. See page 4-6 for the location of the Serial ATA connectors.
6. Connect a 15-pin Serial ATA power plug from the power supply unit to the power connector at the back of the drive.

- OR -

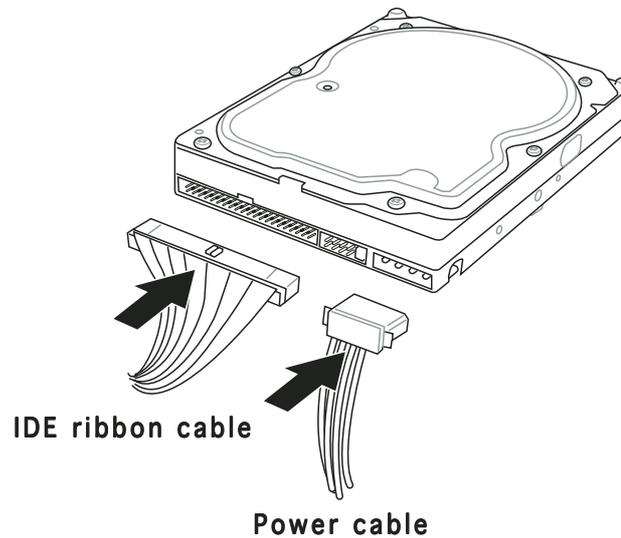
Connect a 4-pin (female) power plug from the power supply unit to the 4-pin (male) power connector at the back of the drive.



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.

To install an IDE hard disk drive:

1. Follow steps 1-4 of the previous section.
2. Connect the blue interface of the IDE ribbon cable to the primary IDE connector (blue connector labeled PRI_IDE) on the motherboard. See page 4-6 for the location of the PRI_IDE connector.



-
- If you will install only one hard disk drive, make sure to configure your hard disk drive as Master device before connecting the IDE cable and power plug. Refer to the HDD documentation on how to set the drive as a Master device.
 - If you will install two IDE hard disk drives, configure the other device as Slave.
-

3. Connect the gray interface of the IDE ribbon cable to the IDE connector on the drive.
4. If you install two IDE hard disk drives, connect the black interface of the IDE ribbon cable to the IDE connector on the second (Slave) IDE hard disk drive.
5. Connect a 4-pin power plug from the power supply unit to the power connector at the back of the drive(s).

2.9 Installing a floppy disk drive

The Vintage-AH1 system comes with one 3.25-inch drive bay for a floppy disk drive.

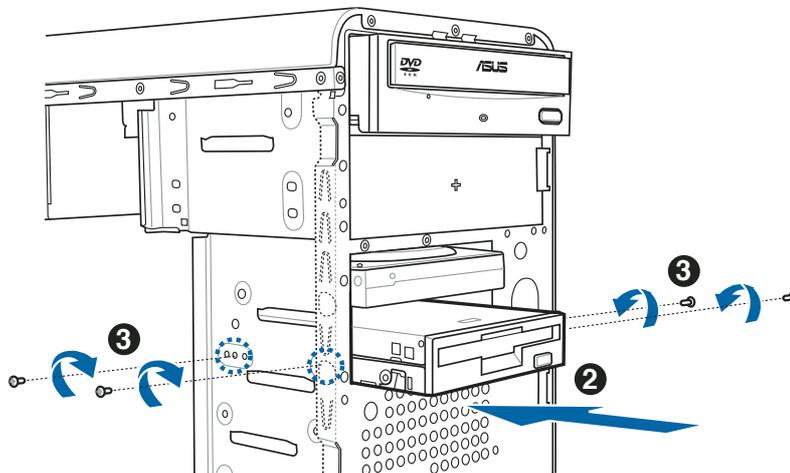
To install a floppy disk drive:

1. Remove the front panel cover.

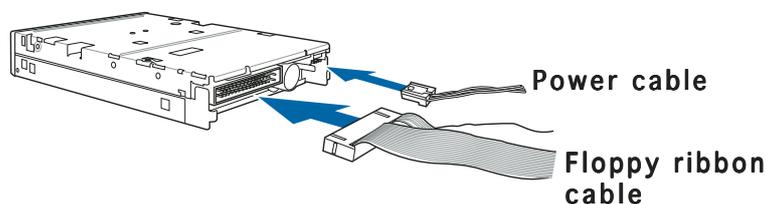


For instructions on how to remove the front panel cover, refer to page 2-3 of section “2.3 Removing the side plates and front cover”

2. Carefully insert the floppy disk drive into the floppy drive bay until the screw holes align with the holes on the bay.
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.

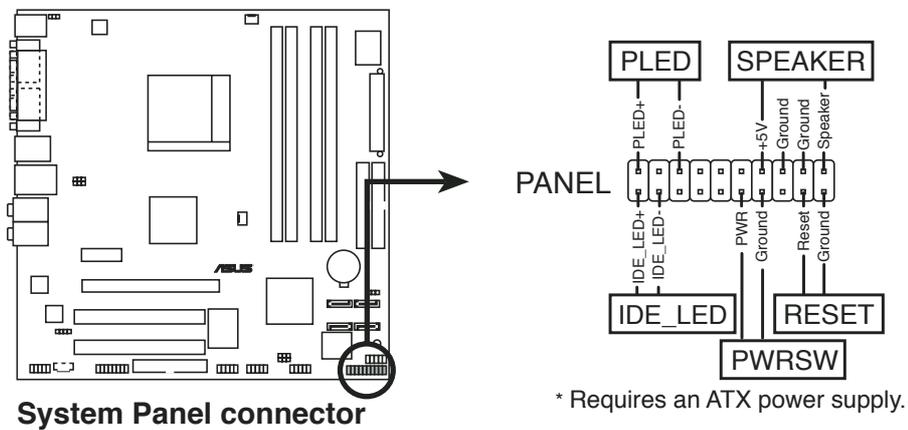
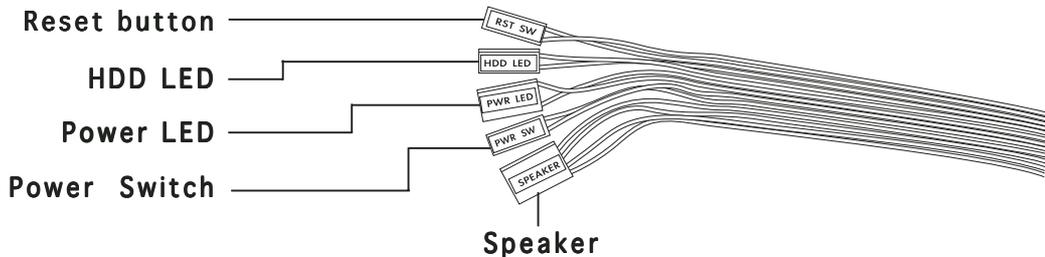


5. Connect the other end of the signal cable to the floppy disk drive connector on the motherboard.
6. Connect a power cable from the power supply unit to the power connector at the back of the floppy disk drive.

2.10 Re-connecting cables

You may have disconnected some cables when you were installing components. You must re-connect these cables before you replace the chassis cover.

LED cables

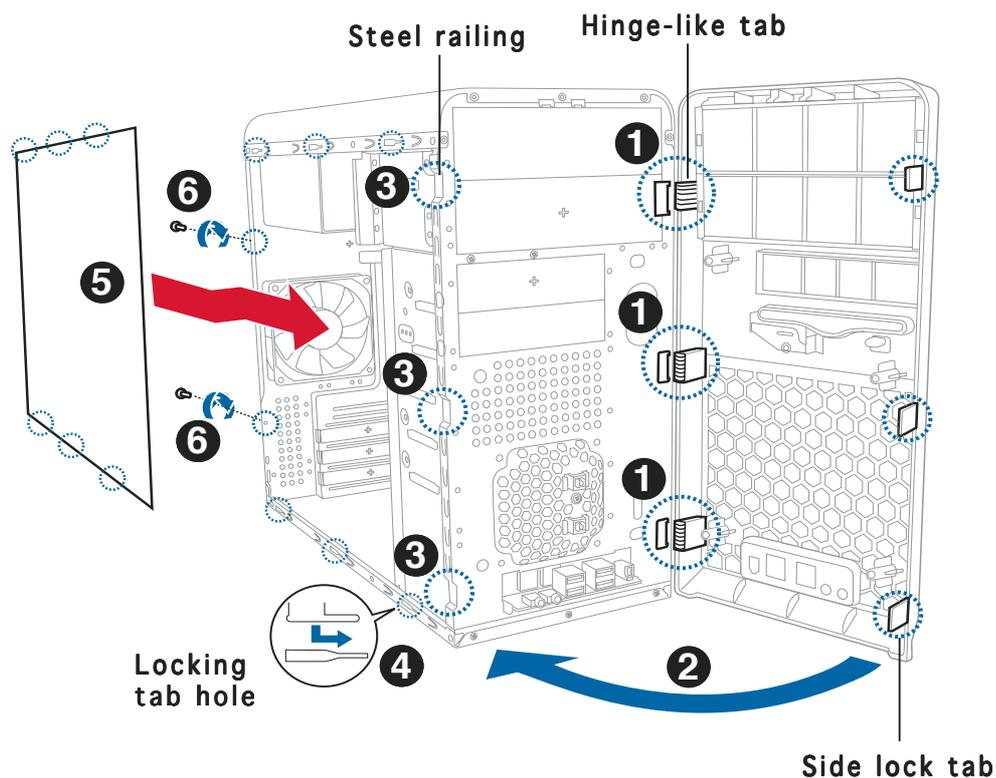


Connect the **reset button**, **power switch**, **power LED**, and **HDD LED** cables to their respective leads in the system panel connector on the motherboard. See page 4-12 for the system panel descriptions.

2.11 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 steel 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.
7. Repeat steps 4, 5, and 6 to replace the other side plate cover.

Chapter 3

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



ASUS Vintage-AH1

Starting up

3.1 Installing an operating system

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

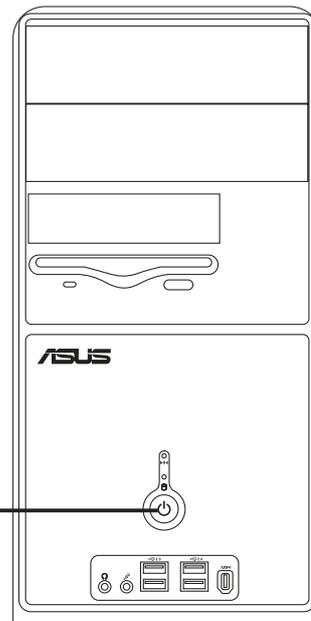


- Windows XP OS setup cannot recognize Serial ATA hard drives without the necessary drivers. Use the bundled floppy disk when installing Windows XP OS to a Serial ATA hard drive.
 - From the Windows XP setup screen, press F6 when prompted then follow succeeding screen instructions to install the SATA drivers.
-

3.2 Powering up

Press the system power button (⏻) to enter the OS.

Press to turn ON the system



3.3 Support CD information

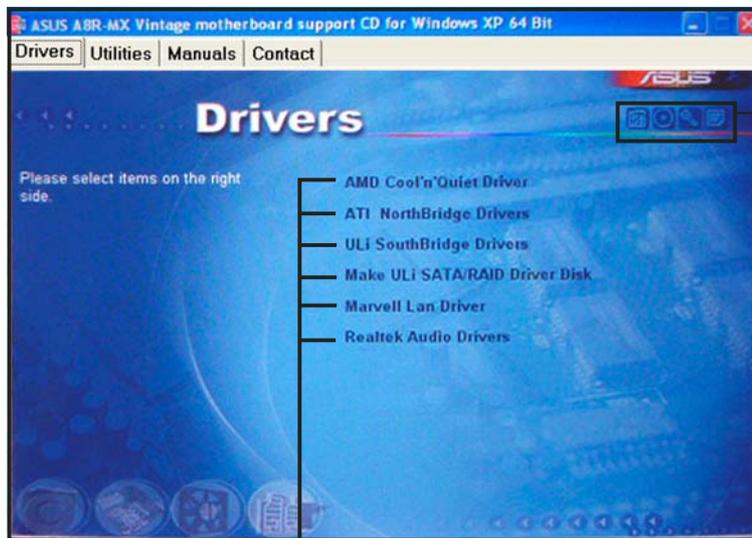
The support CD that came with the system contains useful software and several utility drivers that enhance the system features.



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

3.3.1 Running the support CD

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



Click an icon to display support CD/motherboard information

Click an item to install



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

AMD Cool 'n' Quiet driver

Installs the AMD Cool 'n' Quiet technology driver.

ATI Northbridge Drivers

Installs the ATI Northbridge drivers.

ULi Southbridge Drivers

Installs the ULi Southbridge drivers.

Make ULi SATA/RAID Driver Disk

Allows you to create a ULi SATA/RAID driver disk.

Marvell Lan Driver

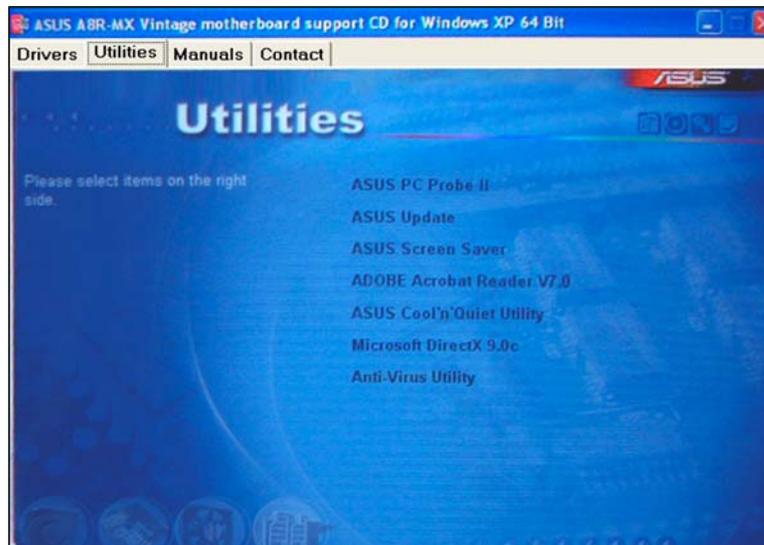
Installs the Marvell® LAN driver.

Realtek Audio Drivers

Installs the Realtek® audio drivers.

3.3.2 Utilities menu

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



ASUS PC Probe II

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

ASUS Update

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

ASUS Screen Saver

Installs the ASUS screen saver.

ADOBE Acrobat Reader V7.0

Installs the Adobe® Acrobat® Reader V7.0.

ASUS Cool 'n' Quiet Utility

Installs the ASUS Cool 'n' Quiet! software.

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX 9.0c driver.

Anti-Virus Utility

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

3.3.3 ASUS Contact information

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



3.4 Software information

Most of the applications in the support CD have wizards that will conveniently guide you through the installation. View the online help or readme file that came with the software for more information.

3.4.1 Cool 'n' Quiet!™ Technology

The motherboard supports the AMD Cool 'n' Quiet!™ Technology that dynamically and automatically change the CPU speed, voltage, and amount of power depending on the task the CPU performs.

Enabling Cool 'n' Quiet!™ Technology

To enable Cool 'n' Quiet!™ Technology:

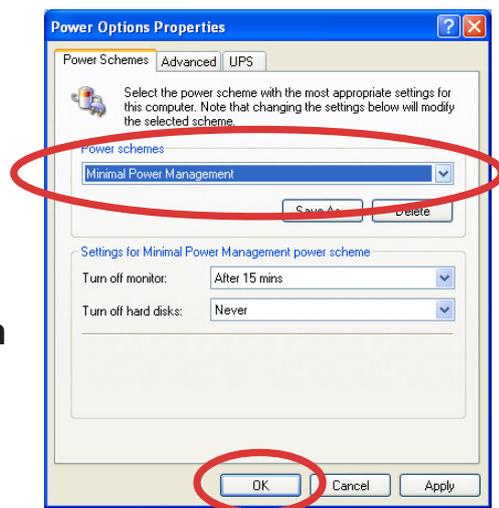
1. Turn on the system and enter BIOS by pressing the key during the Power On Self-Tests (POST).
2. Go to the **Advanced Menu -> CPU Configuration**, select the item **Cool 'n'Quiet** and set it to **Enabled**. See section “5.4.1 CPU Configuration.”
3. In the **Power** menu, select the item **ACPI 2.0 Support** and set it to **Yes**. See section “5.5 Power Menu.”
4. Save your changes and exit BIOS Setup.
5. Reboot your computer and set your Power Option Properties depending on your operating system.



The Cool 'n' Quiet!™ Technology item is set to [Enabled] by default in the BIOS.

Windows® 2000/XP

1. From the Windows® 2000/XP operating system, click the **Start** button. Select **Settings**, then **Control Panel**.
2. Make sure the Control Panel is set to Classic View.
3. Double-click the **Display** icon in the Control Panel then select the **Screen Saver** tab.
4. Click the **Power...** button. The following dialog box appears.
5. From the **Power schemes** combo list box, select **Minimal Power Management**.
6. Click **OK** to effect settings.





Make sure to install the Cool 'n' Quiet!™ driver and application before using this feature.

Launching the Cool 'n' Quiet!™ software

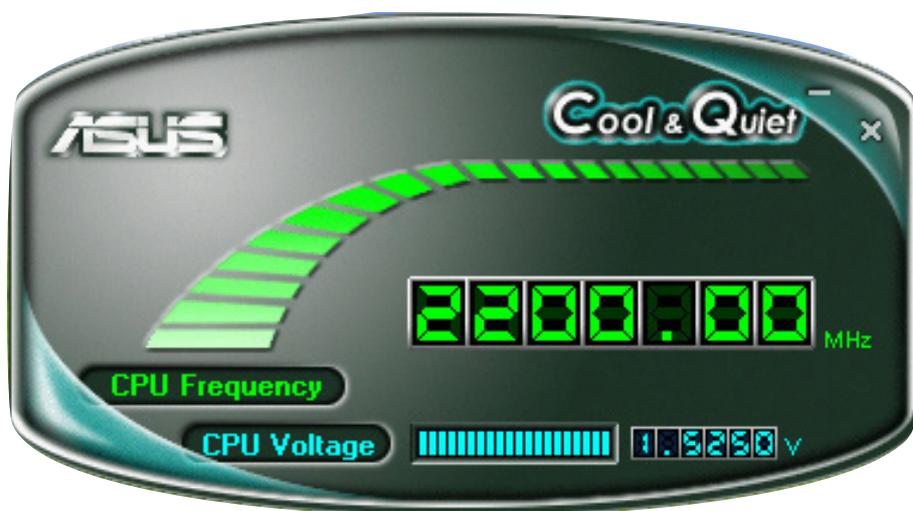
The motherboard support CD includes the Cool 'n' Quiet!™ software that enables you to view your system's real-time CPU Frequency and voltage.



Make sure to install the Cool 'n' Quiet!™ software from the motherboard support CD. Refer to section "3.3.3 Utilities menu" for details.

To launch the Cool 'n' Quiet!™ program:

1. If you are using Windows® 2000, click the **Start** button. Select **Programs-> ASUS -> Cool & Quiet -> Cool & Quiet.**
2. If you are using Windows® XP, click the **Start** button. Select **All Programs-> ASUS -> Cool & Quiet -> Cool & Quiet.**
3. The Cool 'n' Quiet!™ technology screen appears and displays the current CPU Frequency and CPU Voltage.



3.4.2 ASUS Update

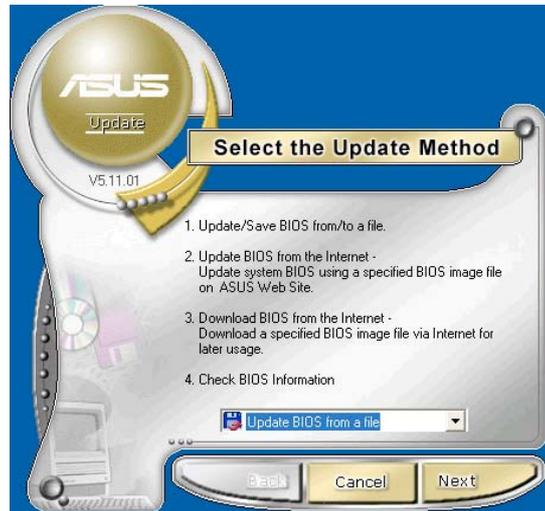
The ASUS Update is a utility that allows you to update the motherboard BIOS. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

Follow these steps to use the ASUS Update.

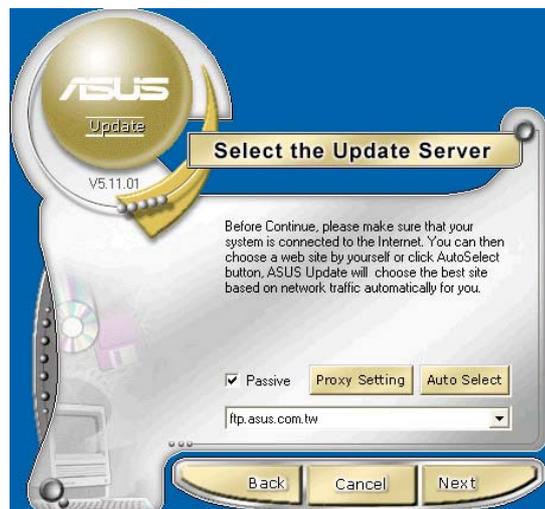
1. Launch the utility from your Windows Start menu:
Programs/AsusUpdate Vx.xx.xx/AsusUpdate

The ASUS Update initial screen appears.

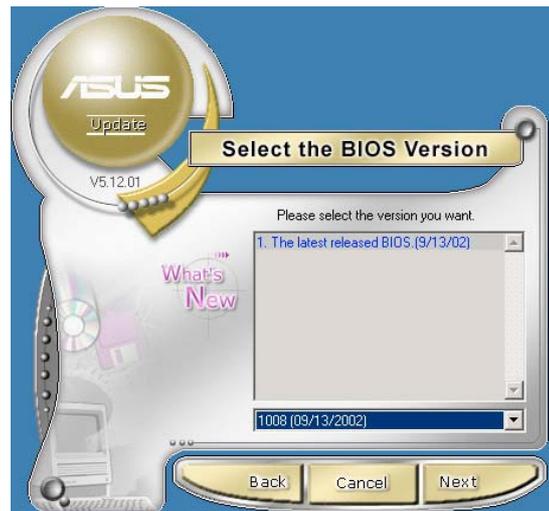
2. Select your desired update method, then click **Next**.



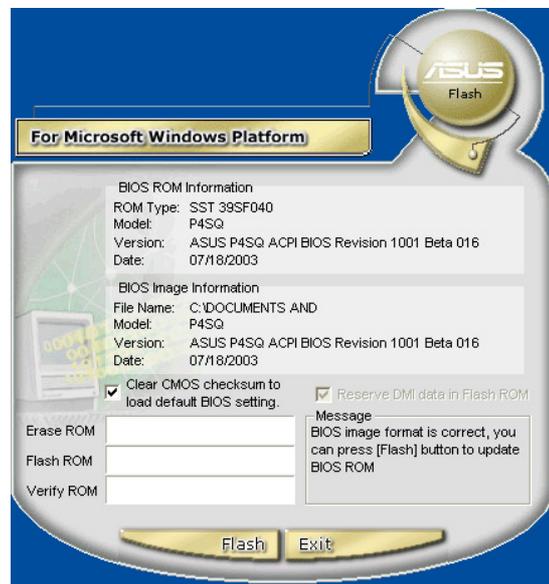
3. If you selected updating/downloading from the Internet, select the ASUS FTP site nearest you to avoid network traffic, or choose Auto Select. Click **Next**.



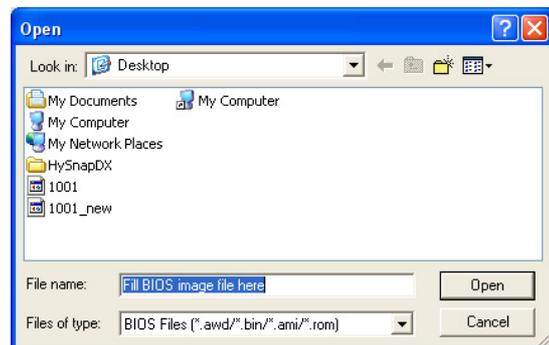
- From the FTP site, select the BIOS version that you wish to download. Click **Next**.



- The BIOS ROM information is displayed. Click Flash to update the BIOS.



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



3.4.3 ASUS PC Probe II

PC Probe II is a utility that monitors the computer's vital components, and detects and alerts you of any problem with these components. PC Probe II senses fan rotations, CPU temperature, and system voltages, among others. Because PC Probe II is software-based, you can start monitoring your computer the moment you turn it on. With this utility, you are assured that your computer is always at a healthy operating condition.

Installing PC Probe II

To install PC Probe II on your computer:

1. Place the support CD to the optical drive. The **Drivers** installation tab appears if your computer has an enabled Autorun feature.



If Autorun is not enabled in your computer, browse the contents of the support CD to locate the setup.exe file from the ASUS PC Probe II folder. Double-click the setup.exe file to start installation.

2. Click the **Utilities** tab, then click **ASUS PC Probe II**.
3. Follow the screen instructions to complete installation.

Launching PC Probe II

You can launch the PC Probe II right after installation or anytime from the Windows® desktop.

To launch the PC Probe II from the Windows® desktop, click **Start > All Programs > ASUS > PC Probe II**. The PC Probe II main window appears.

After launching the application, the PC Probe II icon appears in the Windows® taskbar. Click this icon to close or restore the application.

Using PC Probe II

Main window

The PC Probe II main window allows you to view the current status of your system and change the utility configuration. By default, the main window displays the **Preference** section. You can close or restore the **Preference** section by clicking on the triangle on the main window right handle.



Click to close the Preference panel

Button	Function
	Opens the Configuration window
	Opens the Report window
	Opens the Desktop Management Interface window
	Opens the Peripheral Component Interconnect window
	Opens the Windows Management Instrumentation window
	Opens the hard disk drive, memory, CPU usage window
	Shows/Hides the Preference section
	Minimizes the application
	Closes the application

Sensor alert

When a system sensor detects a problem, the main window right handle turns red, as the illustrations below show.



When displayed, the monitor panel for that sensor also turns red. Refer to the **Monitor panels** section for details.

Preferences

You can customize the application using the Preference section in the main window. Click the box before each preference to activate or deactivate.



Hardware monitor panels

The hardware monitor panels display the current value of a system sensor such as fan rotation, CPU temperature, and voltages.

The hardware monitor panels come in two display modes: hexagonal (large) and rectangular (small). When you check the **Enable Monitoring Panel** option from the **Preference** section, the monitor panels appear on your computer's desktop.



Large display



Small display

Changing the monitor panels position

To change the position of the monitor panels in the desktop, click the arrow down button of the **Scheme** options, then select another position from the list box. Click **OK** when finished.



Moving the monitor panels

All monitor panels move together using a magnetic effect. If you want to detach a monitor panel from the group, click the horseshoe magnet icon. You can now move or reposition the panel independently.



Adjusting the sensor threshold value

You can adjust the sensor threshold value in the monitor panel by clicking the  or  buttons. You can also adjust the threshold values using the **Config** window.

You cannot adjust the sensor threshold values in a small monitoring panel.

Click to
increase
value

Click to
decrease
value



Monitoring sensor alert

The monitor panel turns red when a component value exceeds or is lower than the threshold value. Refer to the illustrations below.



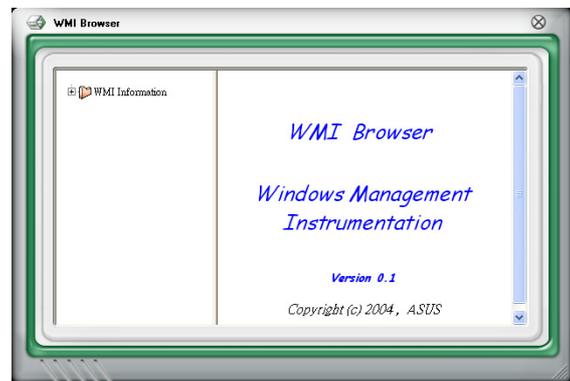
Large display



Small display

WMI browser

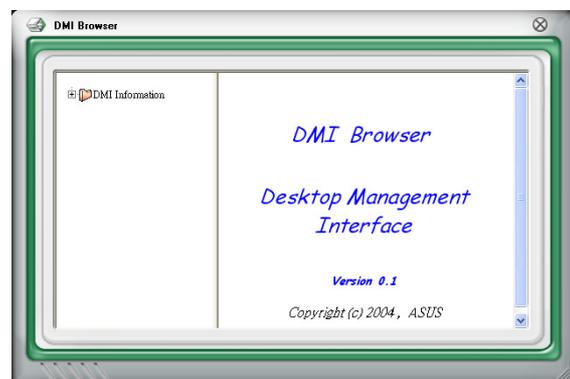
Click **WMI** to display the WMI (Windows Management Instrumentation) browser. This browser displays various Windows® management information. Click an item from the left panel to display on the right panel. Click the plus sign (+) before **WMI Information** to display the available information.



You can enlarge or reduce the browser size by dragging the bottom right corner of the browser.

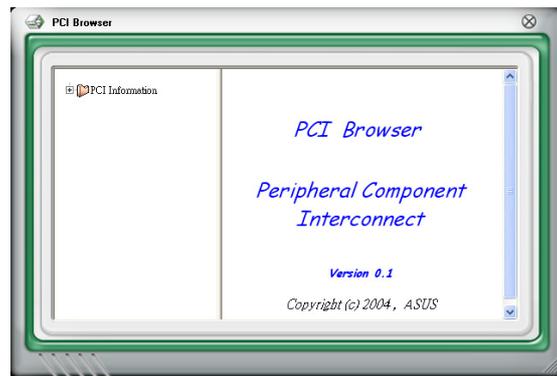
DMI browser

Click **DMI** to display the DMI (Desktop Management Interface) browser. This browser displays various desktop and system information. Click the plus sign (+) before **DMI Information** to display the available information.



PCI browser

Click **PCI** to display the PCI (Peripheral Component Interconnect) browser. This browser provides information on the PCI devices installed on your system. Click the plus sign (+) before the **PCI Information** item to display available information.

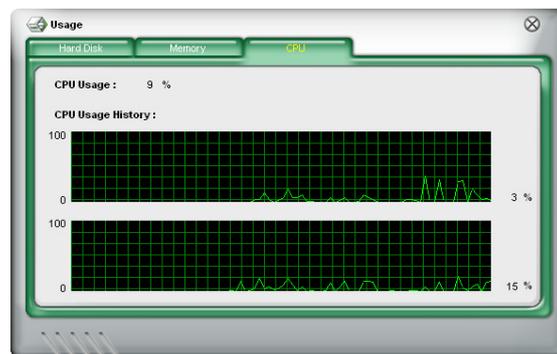


Usage

The **Usage** browser displays real-time information on the CPU, hard disk drive space, and memory usage. Click **USAGE** to display the Usage browser.

CPU usage

The **CPU** tab displays real-time CPU usage in line graph representation. If the CPU has an enabled Hyper-Threading, two separate line graphs display the operation of the two logical processors.



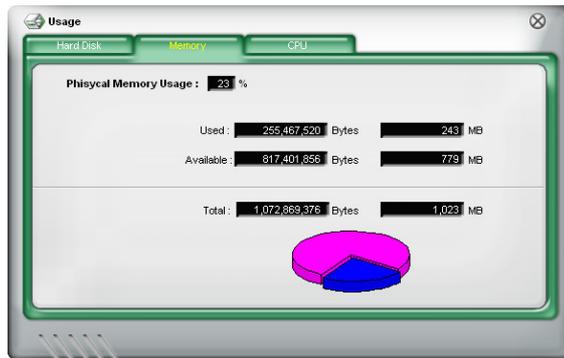
Hard disk drive space usage

The **Hard Disk** tab displays the used and available hard disk drive space. The left panel of the tab lists all logical drives. Click a hard disk drive to display the information on the right panel. The pie chart at the bottom of the window represents the used (blue) and the available HDD space.



Memory usage

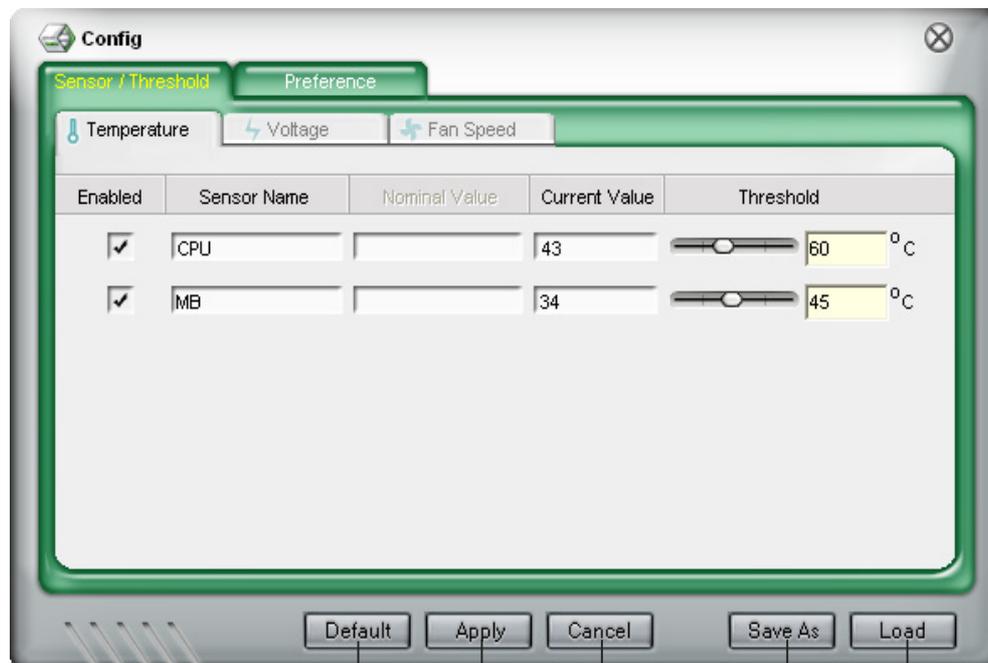
The Memory tab shows both used and available physical memory. The pie chart at the bottom of the window represents the used (blue) and the available physical memory.



Configuring PC Probe II

Click **CONFIG** to view and adjust the sensor threshold values.

The **Config** window has two tabs: **Sensor/Threshold** and **Preference**. The **Sensor/Threshold** tab enables you to activate the sensors or to adjust the sensor threshold values. The **Preference** tab allows you to customize sensor alerts, change temperature scale, or enable the Q-Fan feature.*



Loads the default threshold values for each sensor

Applies your changes

Cancel or ignores your changes

Loads your saved configuration
Saves your configuration

*Available on some motherboards only.

3.5 Installing the SATA controller driver

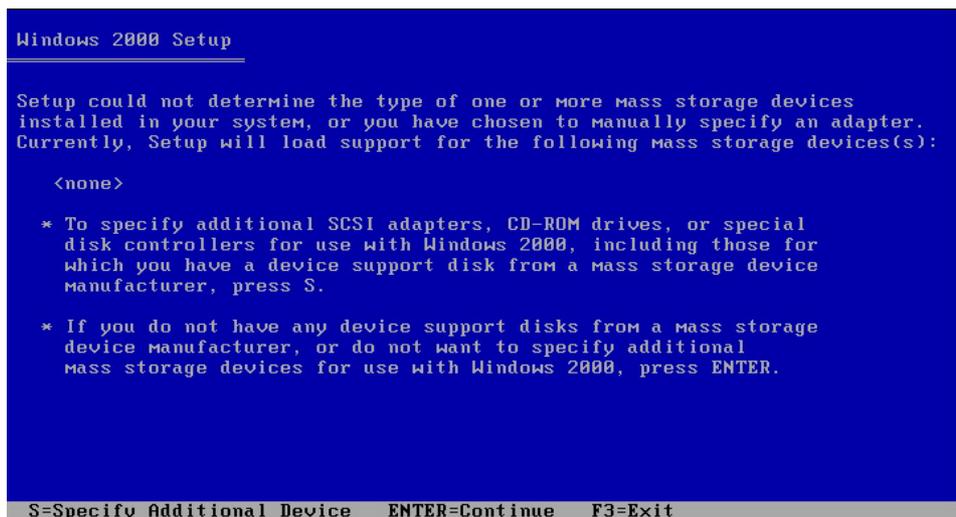
During Windows® 2000/Windows XP OS installation

To install the SATA driver when installing Windows® 2000/XP OS:

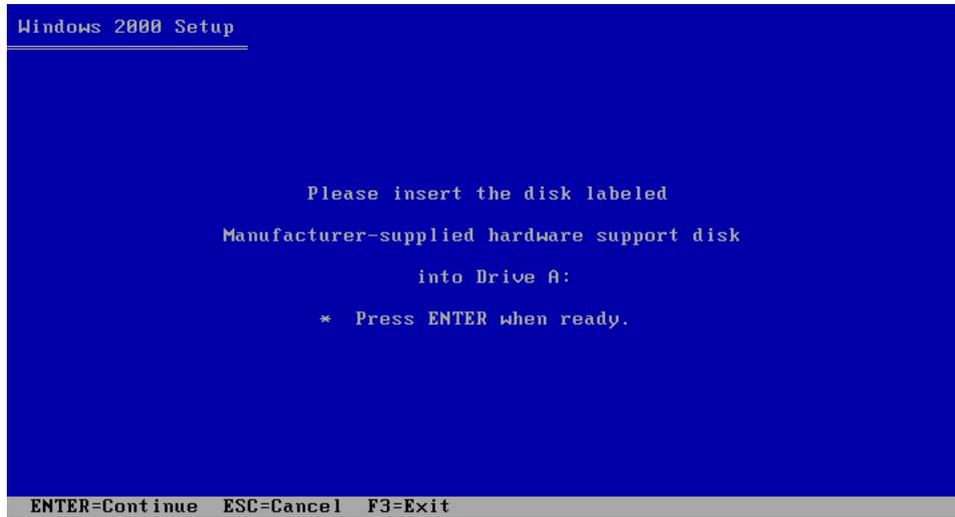
1. Boot the computer using the Windows® 2000/XP installation CD. The **Windows® 2000/XP Setup** starts.



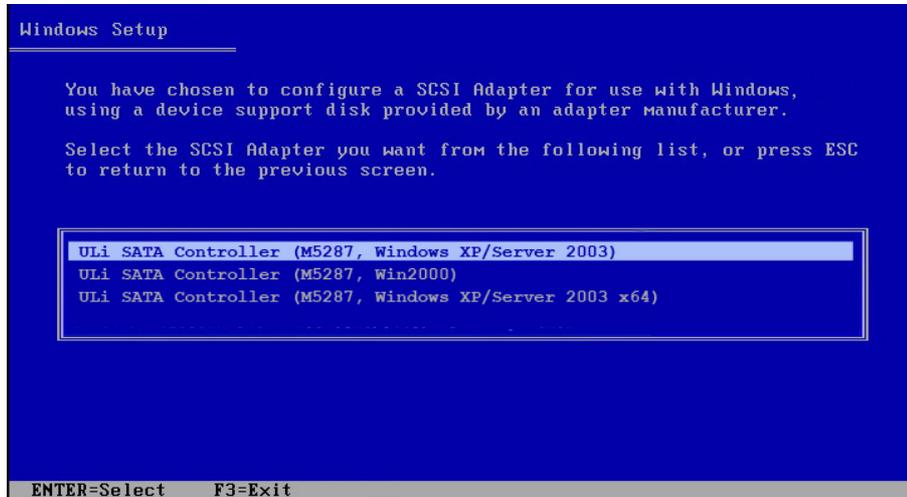
2. Press <F6> when the message **“Press F6 if you need to install a third party SCSI or RAID driver...”** appears at the bottom of the screen.
3. When prompted, press <S> to specify an additional device.



4. Insert the bundled floppy disk that came with your barebone system package, then press <Enter>.



6. The Windows® 2000/XP Setup loads the SATA controller drivers from the SATA driver disk. When prompted, press <Enter> to continue installation.



7. Setup then proceeds with the OS installation. Follow screen instructions to continue.

Chapter 4

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



ASUS Vintage-AH1

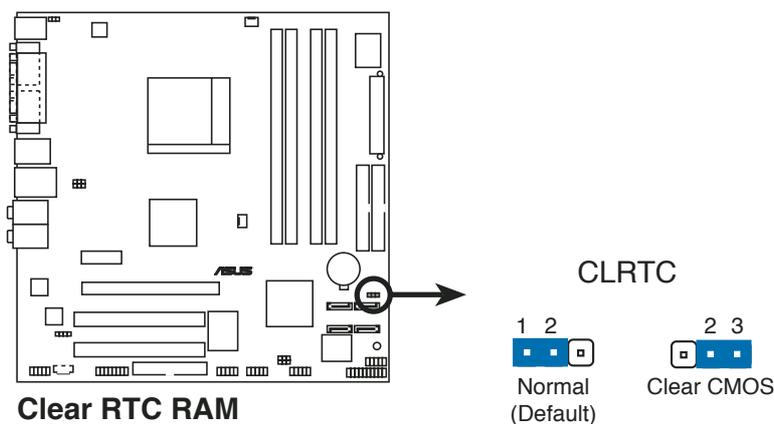
4.3 Jumpers

1. Clear RTC RAM (CLRTC)

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

To erase the RTC RAM:

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

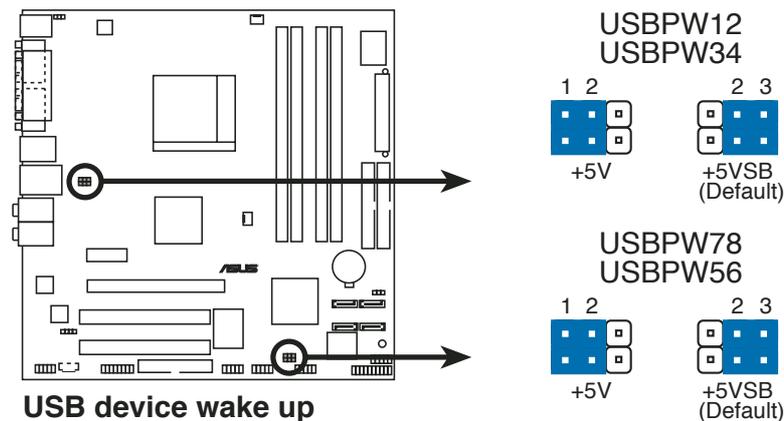


Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure.

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

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

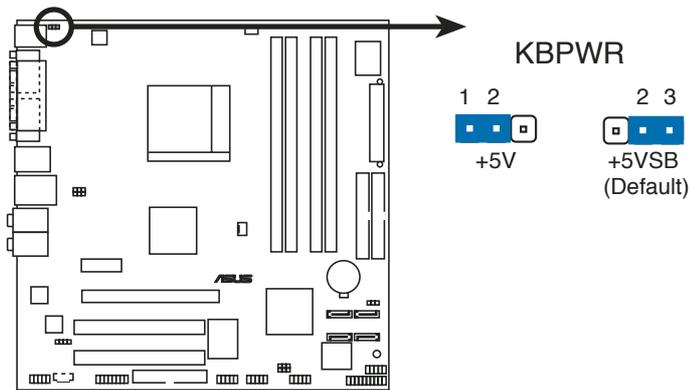
The USBPW12 and USBPW34 jumpers are for the rear USB ports. The USBPW56 and USBPW78 jumper is for the internal USB connectors that you can connect to additional USB ports.



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

3. Keyboard power (3-pin KBPWR)

This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default is the Space Bar). 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

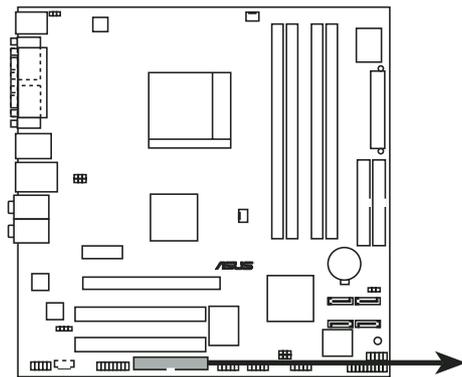
4.4 Connectors

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

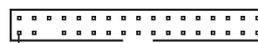
This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.



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



FLOPPY



PIN 1

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

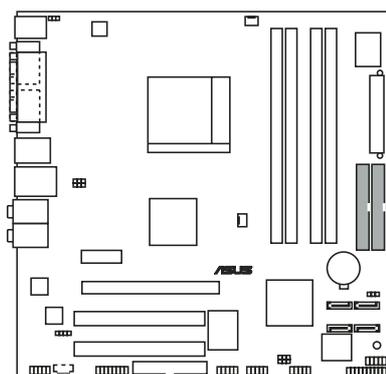
Floppy disk drive connector

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

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.



PRI_IDE

PIN 1

SEC_IDE

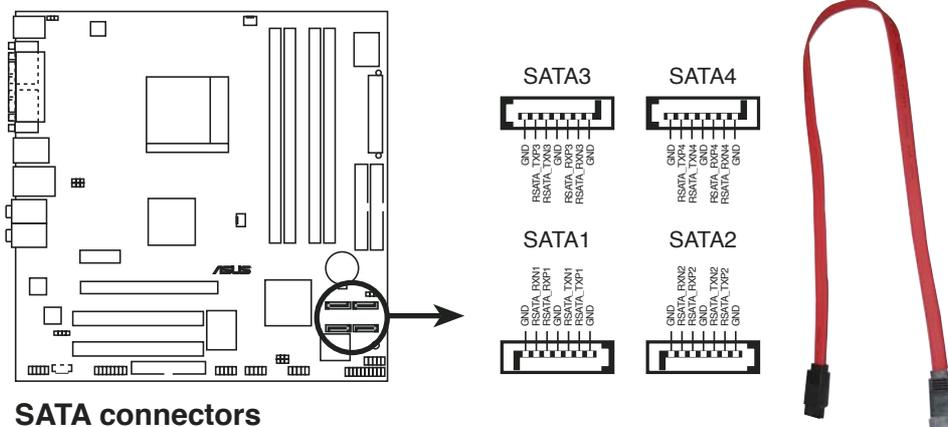
PIN 1

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

IDE connectors

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

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



SATA connectors



Important notes on Serial ATA

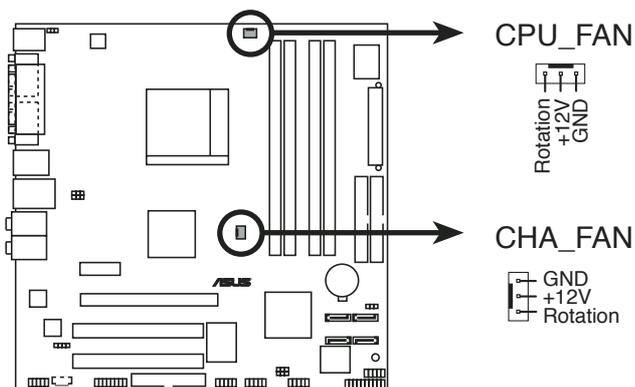
- You must install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA hard disk drives.
- When using the connectors in standard IDE mode, connect the primary (boot) hard disk drive to the SATA1 or SATA2 connector.

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

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.



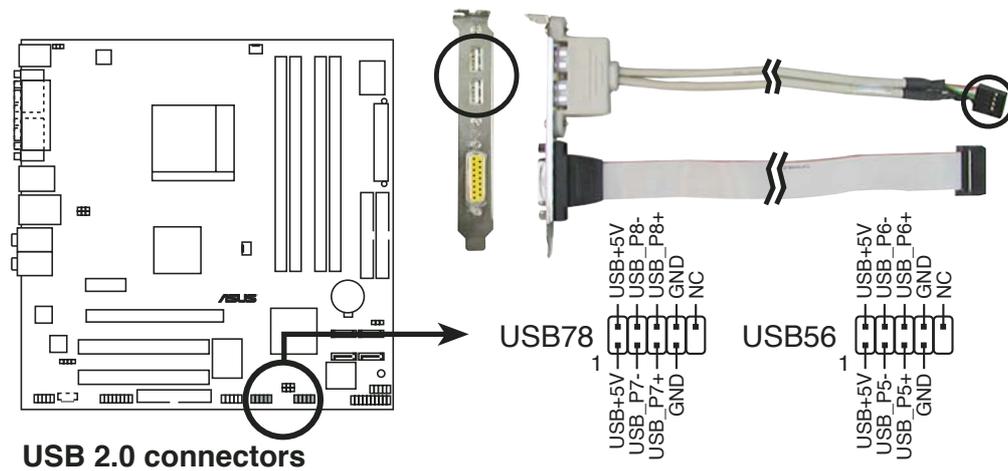
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



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.



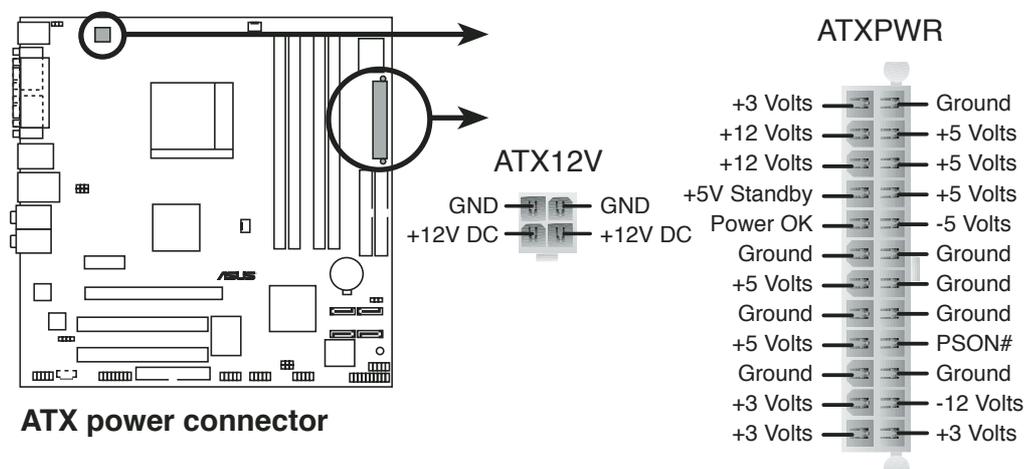
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



The USB module is purchased separately.

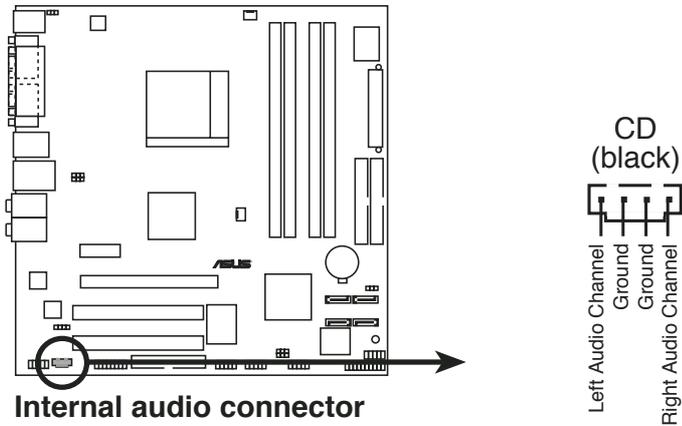
6. ATX power connectors (24-pin ATXPWR, 4-pin ATX12V)

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



7. Optical drive audio connector (4-pin CD)

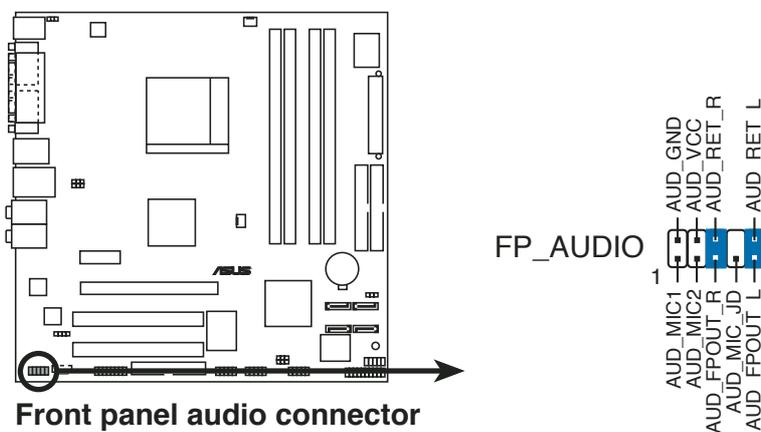
This connector is for the 4-pin audio cable that connects to the audio connector at the back of the optical drive.



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

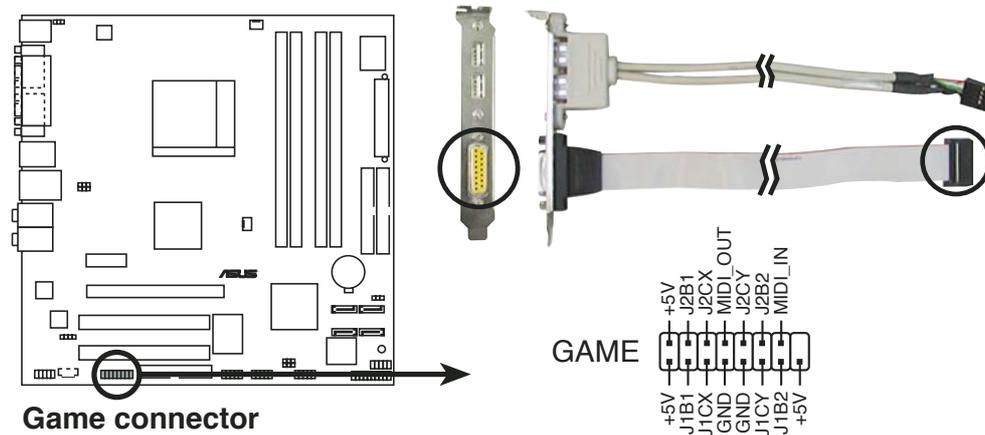
8. Front panel audio connector (10-1 pin FP_AUDIO)

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



10. GAME/MIDI port connector (16-1 pin GAME)

This connector is for a GAME/MIDI port. Connect the USB/GAME module cable to this connector, then install the module to a slot opening at the back of the system chassis. The GAME/MIDI port connects a joystick or game pad for playing games, and MIDI devices for playing or editing audio files.

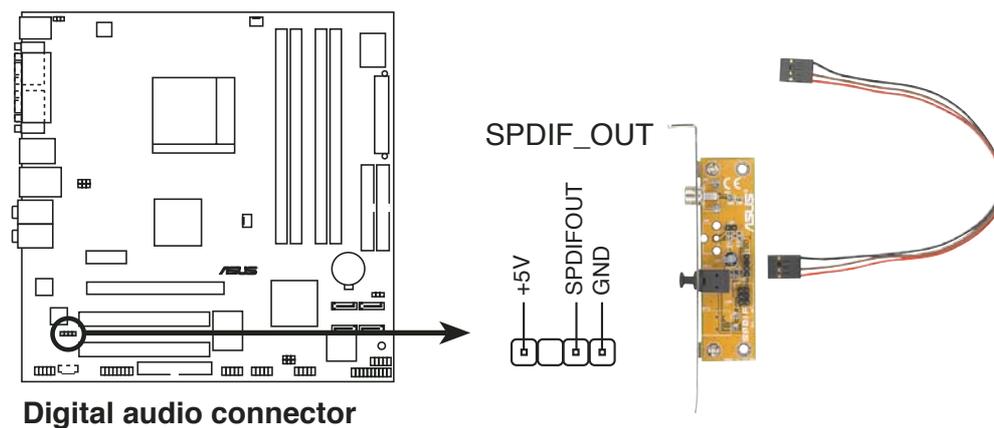


11. Digital audio connector (4-1 pin SPDIF_OUT)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF module cable to this connector, then install the module to a slot opening at the back of the system chassis.



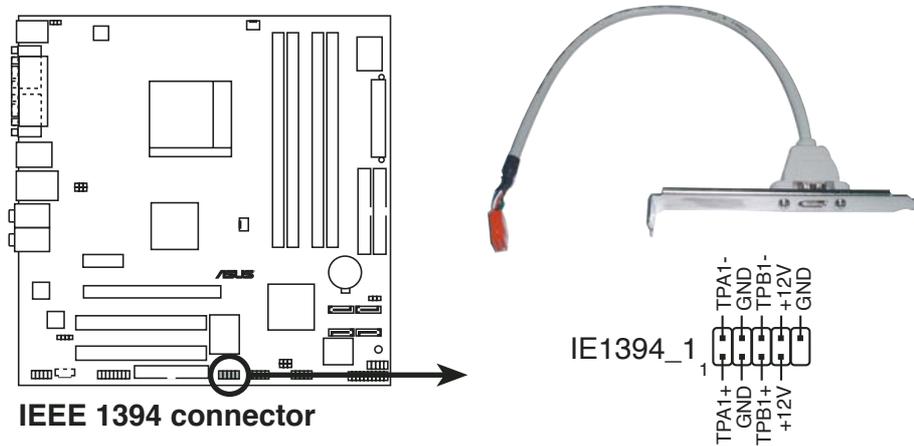
The S/PDIF module is purchased separately.



12. IEEE 1394 connectors

(10-1 pin IE1394B_1, IE1394B_2 [Purple])

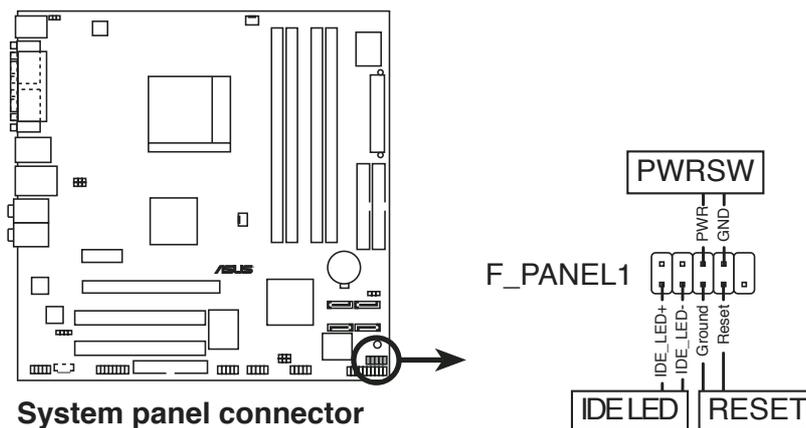
These connectors are for IEEE 1394b ports. Connect the IEEE 1394 module cable to this connector, then install the module to a slot opening at the back of the system chassis.



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

13. System front panel connector (10-1 pin F_PANEL1)

This connector supports several front panel chassis-mounted functions.



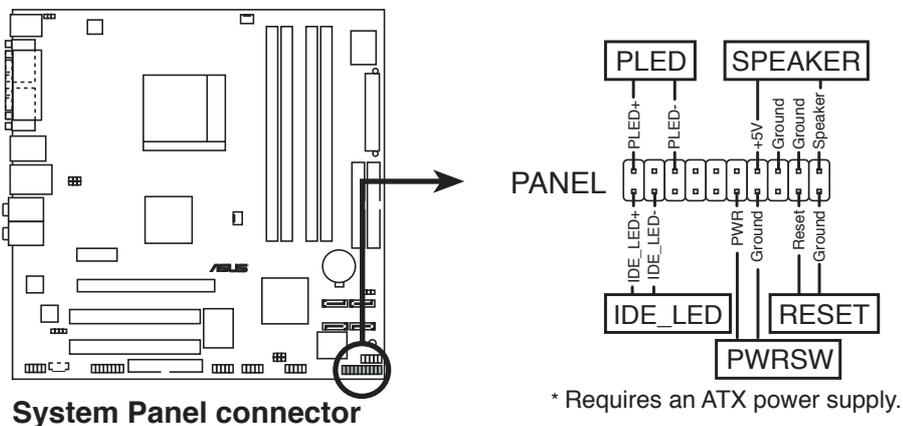
- **Hard disk drive activity LED (Red 2-pin IDELED)**

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.

- **ATX power button/soft-off button (Yellow 2-pin PWRSW)**
This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Reset button (Blue 2-pin RESET)**
This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

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

This connector supports several chassis-mounted functions.



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

- **Power LED (Green 3-pin PLED)**
This 3-pin connector is for the Power LED. Connect the 3-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 (Red 2-pin IDELED)**
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.

- **ATX power button/soft-off button (Yellow 2-pin PWRSW)**
This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Reset button (Blue 2-pin RESET)**
This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

Chapter 5

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



ASUS Vintage-AH1

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

Refer to the corresponding sections for details on these utilities.



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

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 **A8RMX.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 "A8RMX.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 “A8RMX.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 A8RMX.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.

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

Main filename Extension name

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

```
A:\>afudos /oOLDBIOS1.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
Reading flash ..... done
A:\>
```

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

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

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



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

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

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

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

```
A:\>afudos /iA8RMX.ROM
```

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

```
A:\>afudos /iA8RMX.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 /iA8RMX.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 **A8RMX.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 "A8RMX.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 "A8RMX.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.

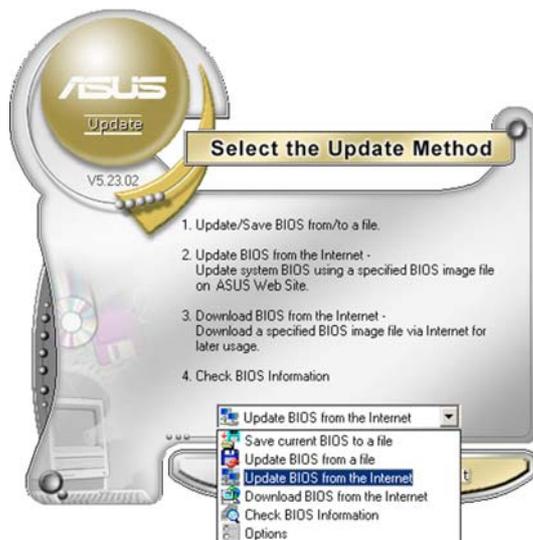
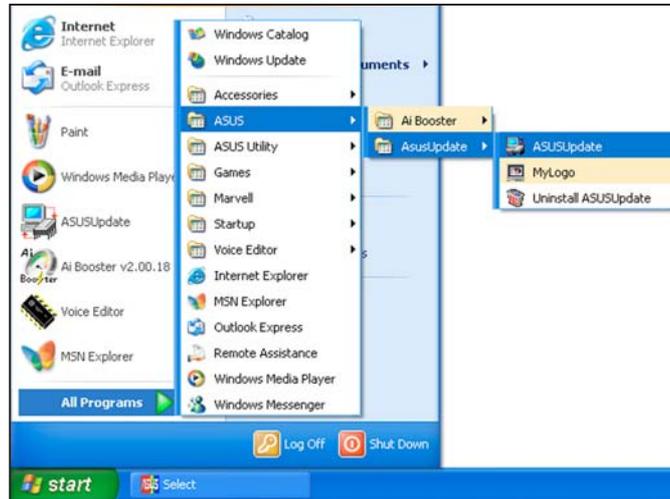


Quit all Windows® applications before you update the BIOS using this utility.

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**.

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



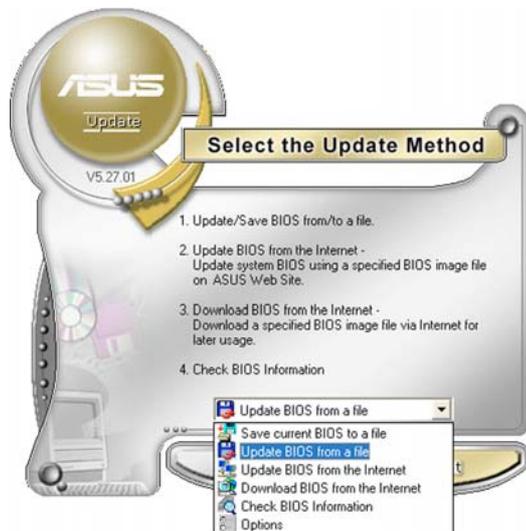
The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.



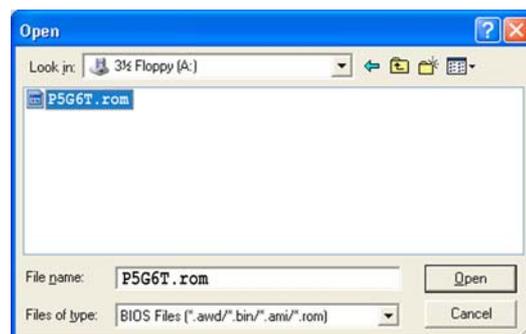
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

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



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



5.2 BIOS setup program

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

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

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

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

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+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 Setup Defaults** 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 and .
-

5.2.1 BIOS menu screen

Menu items Menu bar Configuration fields General help

The screenshot shows the BIOS Setup Utility menu. At the top is a blue menu bar with the title 'BIOS SETUP UTILITY' and five main items: 'Main', 'Advanced', 'Power', 'Boot', and 'Exit'. The 'Main' item is currently selected and highlighted. Below the menu bar, the screen is divided into three main sections. The left section, labeled 'Sub-menu items', lists 'System Time', 'System Date', and 'Legacy Diskette A' (all in a red box), followed by a list of IDE settings: 'Primary IDE Master', 'Primary IDE Slave', 'Secondary IDE Master', 'Secondary IDE Slave', and 'System Information' (all in a red box). The middle section, labeled 'Configuration fields', shows the current values for 'System Time' ([11:51:19]), 'System Date' ([Thu 10/07/2004]), and 'Legacy Diskette A' ([1.44M, 3.5 in]), along with IDE settings: 'Primary IDE Master' ([ST320413A]), 'Primary IDE Slave' ([ASUS CD-S360]), 'Secondary IDE Master' ([Not Detected]), and 'Secondary IDE Slave' ([Not Detected]). The right section, labeled 'General help', contains instructions: 'Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.' and 'Use [+] or [-] to configure system time.' Below this is a red box containing a list of navigation keys: '←→ Select Screen', '↑↓ Select Item', '+- Change Option', 'F1 General Help', 'F10 Save and Exit', and 'ESC Exit'. At the bottom of the screen, a blue bar contains the copyright notice: 'v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.'

Sub-menu items Navigation keys

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 item 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.

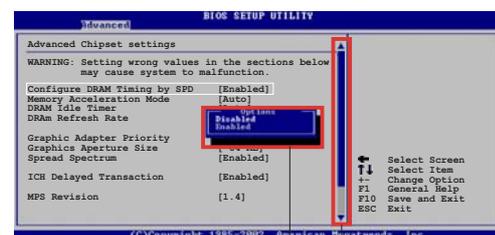
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to “5.2.7 Pop-up window.”

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.

```
BIOS SETUP UTILITY
Main  Advanced  Power  Boot  Exit

System Time           [11:51:19]
System Date           [Thu 10/07/2004]
Legacy Diskette A    [1.44M, 3.5 in]

▶ Primary IDE Master   : [ST320413A]
▶ Primary IDE Slave    : [ASUS CD-S360]
▶ Secondary IDE Master : [Not Detected]
▶ Secondary IDE Slave  : [Not Detected]
▶ System Information

◀→ Select Screen
↑↓ Select Item
+- Change Option
F1  General Help
F10 Save and Exit
ESC Exit

v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

5.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

5.3.2 System Date [Day xx/xx/xxxx]

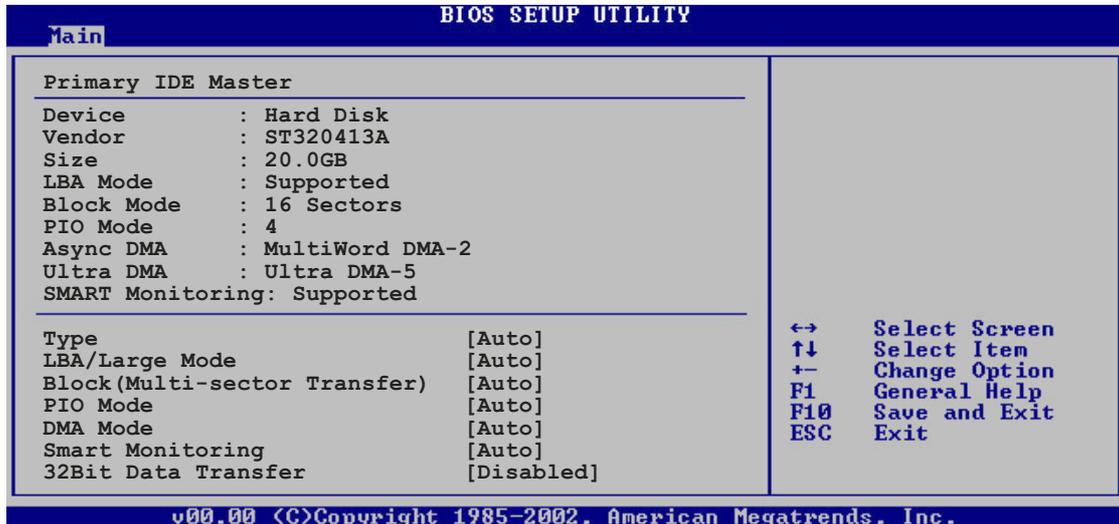
Allows you to set the system date.

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 and Secondary 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] [UDMA6]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology.

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

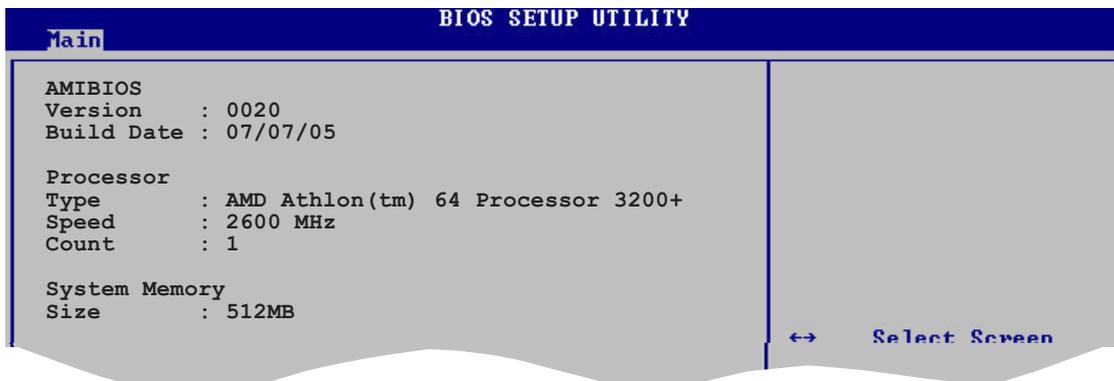
32Bit Data Transfer [Disabled]

Enables or disables 32-bit data transfer.

Configuration options: [Disabled] [Enabled]

5.3.5 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

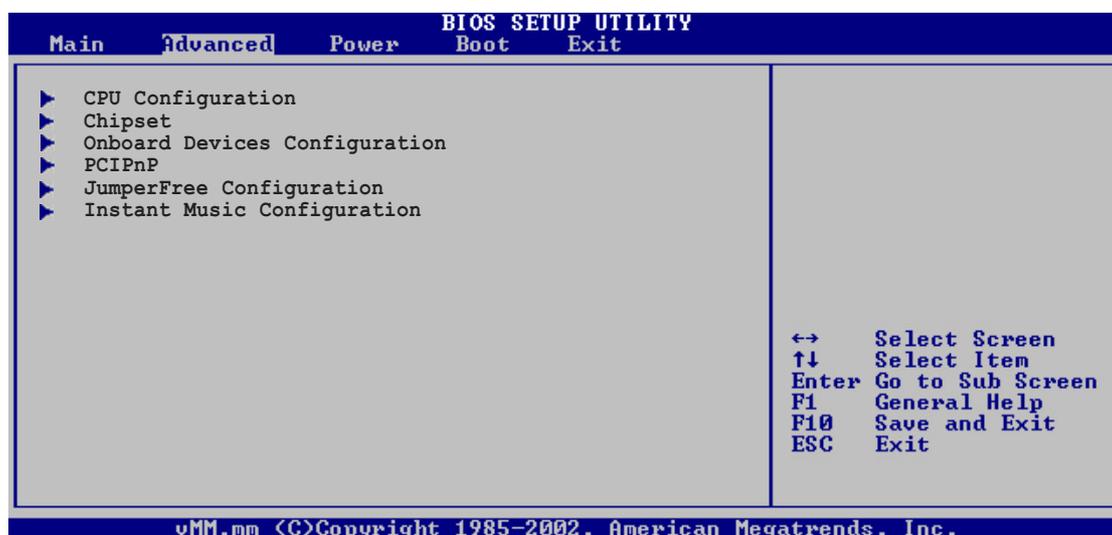
Displays the auto-detected system memory

5.4 Advanced menu

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

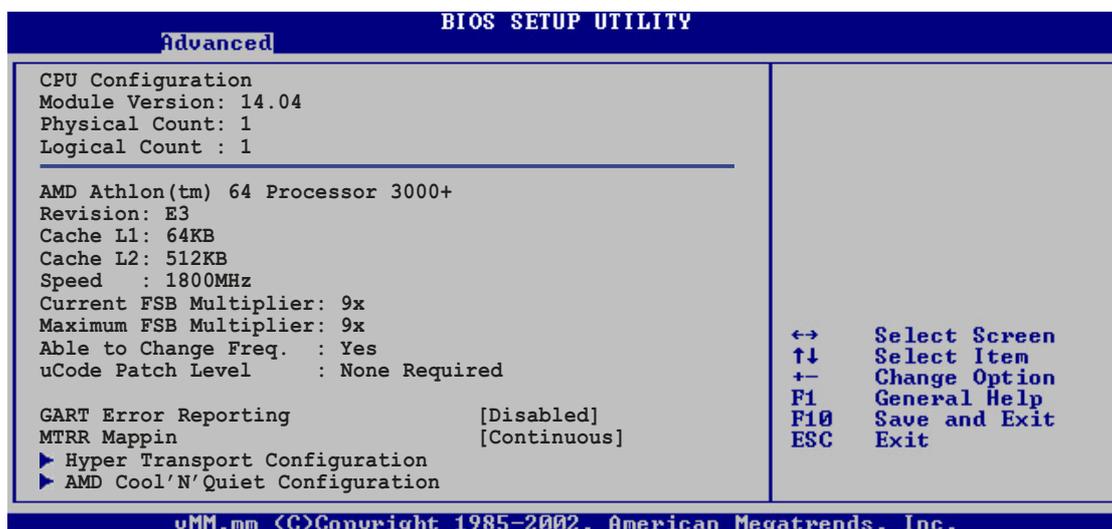


Take caution when changing the settings of the Advanced menu items. Incorrect field values may cause the system to malfunction.



5.4.1 CPU Configuration

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



The values displayed in this section vary depending on the type of processor installed.

GART Error Reporting [Disabled]

Enables or disables the GART error reporting feature.
Configuration options: [Disabled] [Enabled]

MTRR Mapping [Continuous]

Determines the method used for programming CPU MTRRs when using over 4G of system memory. Configuration options: [Continuous] [Discrete]

Hyper Transport Configuration

Advanced BIOS SETUP UTILITY	
Hyper Transport Configuration	
CPU: RS48X-NB HT Link Speed	[Auto]
CPU: RS48X-NB HT Link Width	[Auto]

CPU: RS48X-NB HT Link Speed [Auto]

Sets the processor to NorthBridge hypertransport link speed.
Configuration options: [Auto] [200 MHz] [400 MHz] [800 MHz] [1 GHz]

CPU: RS48X-NB HT Link Width [Auto]

Sets the processor to NorthBridge hypertransport link width.
Configuration options: [Auto] [2 Bit] [4 Bit] [8 Bit] [16 Bit]

AMD Cool'N'Quiet Configuration

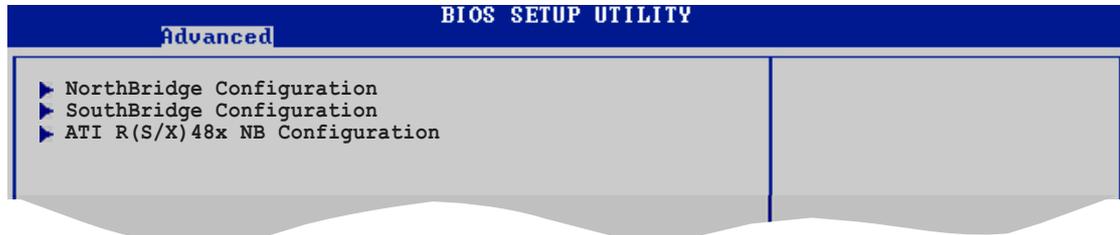
Advanced BIOS SETUP UTILITY	
AMD Cool'N'Quiet Configuration	
Cool'N'Quiet	[Enabled]

Cool 'N' Quiet [Enabled]

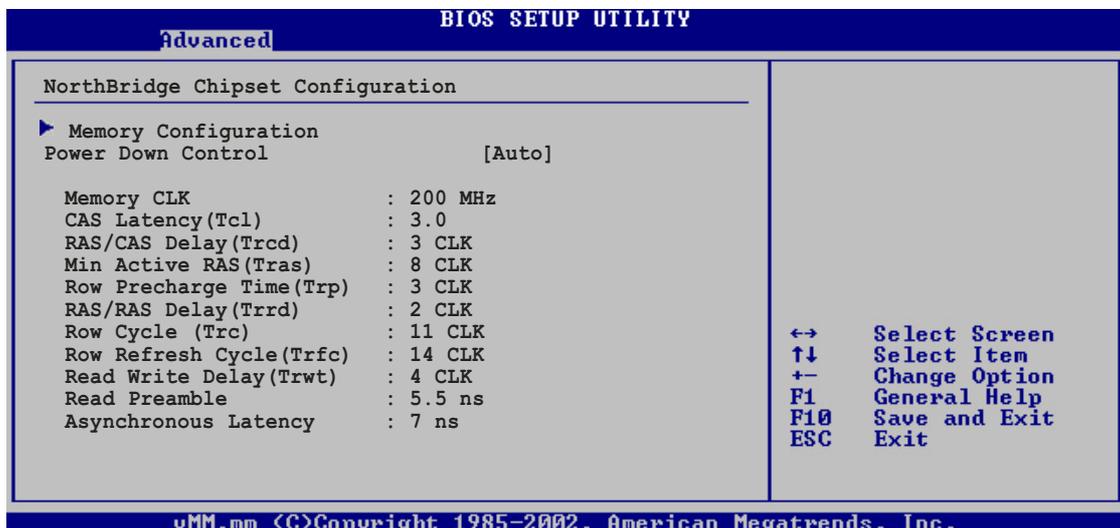
Enables or disables the ASUS AMD Cool 'n' Quiet! technology feature.
Configuration options: [Enabled] [Disabled]

5.4.2 Chipset

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

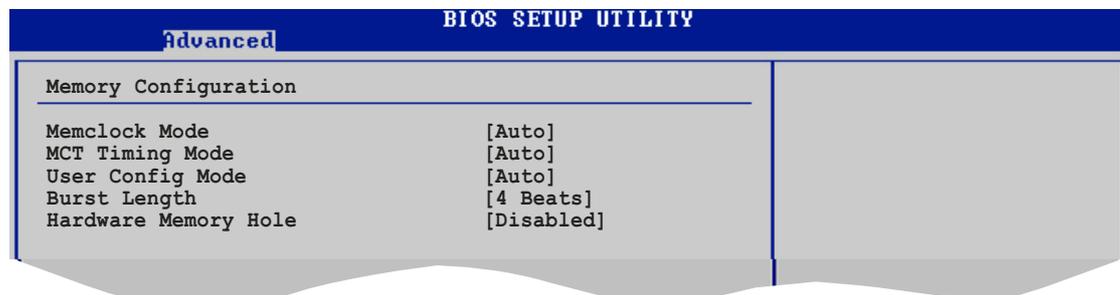


NorthBridge Configuration



Memory Configuration

Allows you to set memory parameters to enhance system performance.



Memclock Mode [Auto]

Sets the memory clock mode.
Configuration options: [Auto] [Limit]

Memclock Value [Auto]

Sets the memory clock value. This item appears only when the Memclock Mode item is set to [Limit]. Configuration options: [100MHz] [133MHz] [166MHz] [200 MHz] [216 MHz] [233 MHz] [250 MHz]

MCT Timing Mode [Auto]

Sets the MCT Timing mode.
Configuration options: [Auto] [Manual]

CAS Latency (CL) [Auto]

Sets the CAS latency.
Configuration options: [Auto] [2.0] [3.0] [2.5]

TRAS [Auto]

Sets the TRAS.
Configuration options: [Auto] [5 CLK] [6 CLK] [7 CLK] [8 CLK] [9 CLK] [10 CLK] [11 CLK] [12 CLK]

TRP [Auto]

Sets the TRP.
Configuration options: [Auto] [2 CLK] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRCD [Auto]

Sets the TRCD.
Configuration options: [Auto] [2 CLK] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRRD [Auto]

Sets the TRRD.
Configuration options: [Auto] [2T] [3T] [4T]

TRC [Auto]

Sets the TRC.
Configuration options: [Auto] [7T] [8T] [9T] [10T] [11T] [12T] [13T] [14T]

TRFC [Auto]

Sets the TRFC.
Configuration options: [Auto] [9T] [10T] [11T] [12T] [13T] [14T] [15T] [16T]

TRWT [Auto]

Sets the TRWT.
Configuration options: [Auto] [1 CLK] [2 CLK] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

User Config Mode [Auto]

Sets the user config mode.

Configuration options: [Auto] [Manual]

Read Preamble [9.5ns]

Sets the read preamble.

Configuration options: [2.0ns] [2.5ns] [3.0ns] [3.5ns] [4.0ns]
[4.5ns] [5.0ns] [5.5ns] [6.0ns] [6.5ns] [7.0ns] [7.5ns] [8.0ns]
[8.5ns] [9.0ns] [9.5ns]

Async Latency [11.0ns]

Sets the async latency.

Configuration options: [4.0ns] [5ns] [6ns] [7ns] [8ns] [9ns] [10ns]
[11ns]

CMD-ADDR Timing Mode [2T]

Sets the CMD-ADDR Timing Mode

Configuration options: [1T] [2T]

Burst Length [4 Beats]

Sets the operating burst length.

Configuration options: [8 Beats] [4 Beats] [2 Beats]

Hardware Memory Hole [Disabled]

Enables or disables the hardware memory hole.

Configuration options: [Disabled] [Enabled]

Power Down Control [Auto]

Disables or sets the power down control.

Configuration options: [Auto] [Disabled]

SouthBridge Configuration

Advanced		BIOS SETUP UTILITY	
Azalia Audio Controller	[Enabled]		
Serial ATA Controller	[Enabled]		
OnBoard SATA Boot ROM	[Enabled]		
▶ USB Configuration			

Azalia Audio Controller [Enabled]

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

Serial ATA Controller [Enabled]

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

OnBoard SATA Boot ROM [Enabled]

Enables or disables the onboard Serial ATA boot ROM. This item appears only when the Serial ATA controller is Enabled.
Configuration options: [Disabled] [Enabled]

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.

Advanced		BIOS SETUP UTILITY	
<u>USB Configuration</u>			
Module Version - 2.24.0-10.4			
USB Devices Enabled: None			
USB Controller	[USB OHCI + EHCI]		
Legacy USB Support	[Auto]		
USB 2.0 Controller Mode	[HiSpeed]		
BIOS EHCI Hand-Off	[Enabled]		



- The USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.
- Set the Onboard SISUSB1.1/2.0 DEVICE to [Disabled], if you are using a Windows® 98SE or Windows® ME OS.

USB Controller [USB OHCI + EHCI]

Disables or sets the onboard USB controller.

Configuration options: [Disabled] [USB OHCI] [USB OHCI + EHCI]

Legacy USB Support [Auto]

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

Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

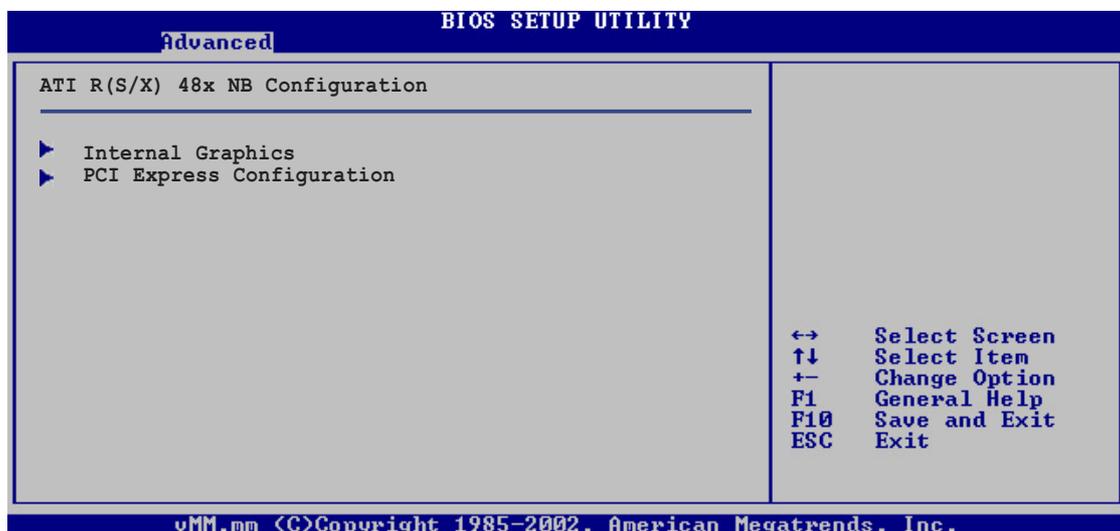
USB 2.0 Controller Mode [HiSpeed]

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

EHCI Hand-Off [Enabled]

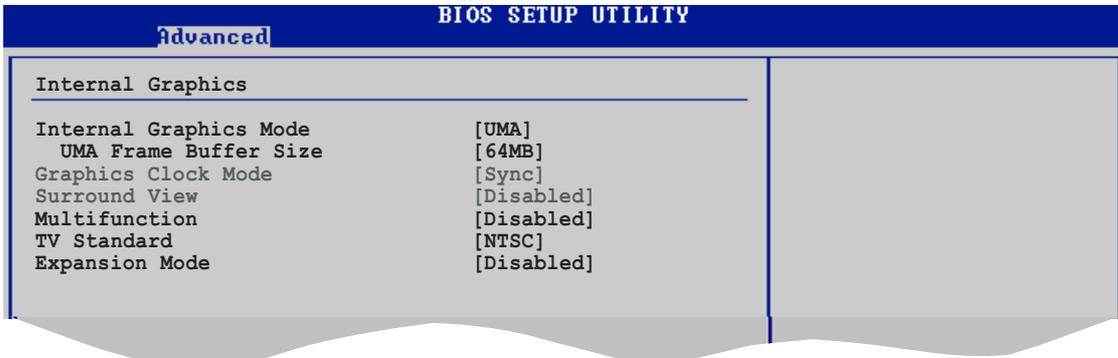
Allows you to enable or disable the feature to stop the EHCI host controller during the OHCI OS handover call. This is needed when installing operating systems that do not support EHCI host controllers. Configuration options: [Disabled] [Enabled]

ATI R(S/X)48x NB Configuration



Internal Graphics

This menu allows you to change the onboard graphics controller parameters and related features. Select an item then press Enter to display the configuration options.



Internal Graphics Mode [UMA]

Disables or sets the internal graphics controller mode.

Configuration options: [Disabled] [UMA]

UMA Frame Buffer Size [64 MB]

Sets the UMA frame buffer size. The UMA frame buffer size is based on total physical memory. If you set a value higher than the maximum UMA value, the BIOS will set it to the maximum UMA value. Refer to the table below when setting the UMA frame buffer size.

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

System Memory	Minimum UMA	Recommended UMA	Maximum UMA
32 MB	16 MB	16 MB	16 MB
128 MB	32 MB	32 MB	32 MB
256 MB	32 MB	32 MB	64 MB
384 MB	32 MB	64 MB	128 MB
512 MB	32 MB	64 MB	256 MB
1 GB and above	32/128 MB	128 MB	256 MB

Multifunction [Disabled]

Disables or enables the internal graphics controller multifunction feature. Configuration options: [Disabled] [Enabled]

TV Standard [NTSC]

Allows you to set the TV standard for your area.

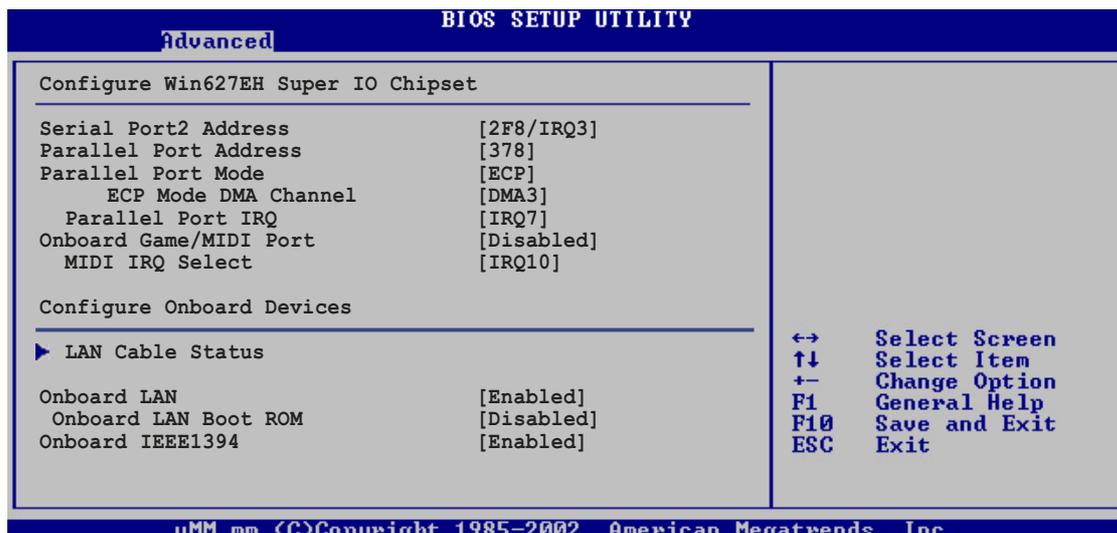
Configuration options: [NTSC] [PAL] [PAL-M] [PAL-60] [NTSC-JAP] [PAL-CN] [PAL-N] [SCART_RGB]

Expansion Mode [Disabled]

Enables or disables the expansion mode.

Configuration options: [Disabled] [Enabled]

5.4.3 Onboard Devices Configuration



Serial Port2 Address [2F8/IRQ3]

Allows you to select the Serial Port2 base address.

Configuration options: [Disabled] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

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. When the item **Parallel Port Address** is set to **3BC**, the Parallel Port Mode options are only Normal, Bi-directional, and ECP.

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

ECP Mode DMA Channel [DMA3]

Allows selection of the Parallel Port ECP DMA channel. This item appears only when the **Parallel Port Mode** is set to **ECP**.

Configuration options: [DMA0] [DMA1] [DMA3]

Parallel Port IRQ [IRQ7]

Allows you to select the Parallel Port IRQ.

Configuration options: [IRQ5] [IRQ7]

Onboard Game/MIDI Port [Disabled]

Allows you to set the onboard Game/MIDI port address or disable the port.

Configuration options: [Disabled] [200/300] [200/300] [208/300] [208/300]

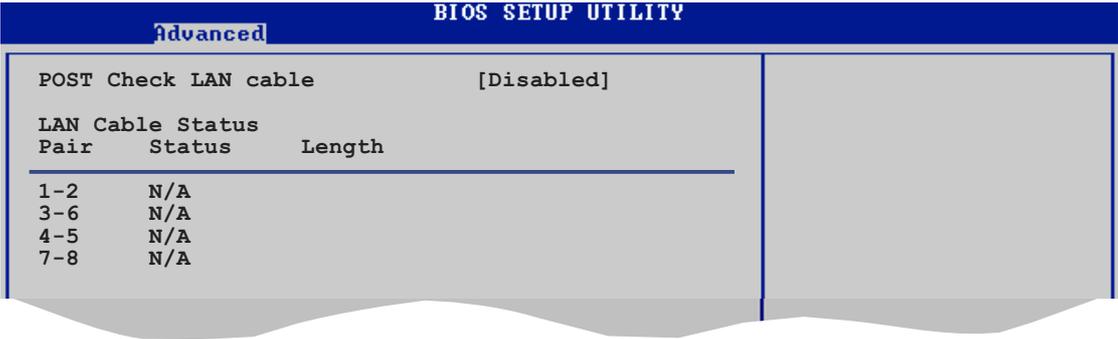
MIDI IRQ Select [IRQ10]

Allows you to select the MIDI IRQ.

Configuration options: [IRQ5] [IRQ9] [IRQ10] [IRQ11]

LAN Cable Status

The items in this menu displays the status of the Local Area Network (LAN) cable.



The screenshot shows the BIOS Setup Utility interface. At the top, there is a blue header bar with the text "Advanced" on the left and "BIOS SETUP UTILITY" in the center. Below the header, the main area is divided into two sections. The left section contains the following text:

POST Check LAN cable		[Disabled]
LAN Cable Status		
Pair	Status	Length
1-2	N/A	
3-6	N/A	
4-5	N/A	
7-8	N/A	

The right section of the main area is currently empty.

POST Check LAN cable [Disabled]

Enables or disables checking of the LAN cable during the Power-On Self-Test (POST). Configuration options: [Disabled] [Enabled]

Onboard LAN [Enabled]

This item enables or disables the onboard LAN device.

Configuration options: [Disabled] [Enabled]

Onboard LAN Boot ROM [Disabled]

Allows you to enable or disable the onboard LAN Boot ROM.

Configuration options: [Disabled] [Enabled]

Onboard IEEE1394 [Enabled]

This item enables or disables the onboard IEEE1394 device.

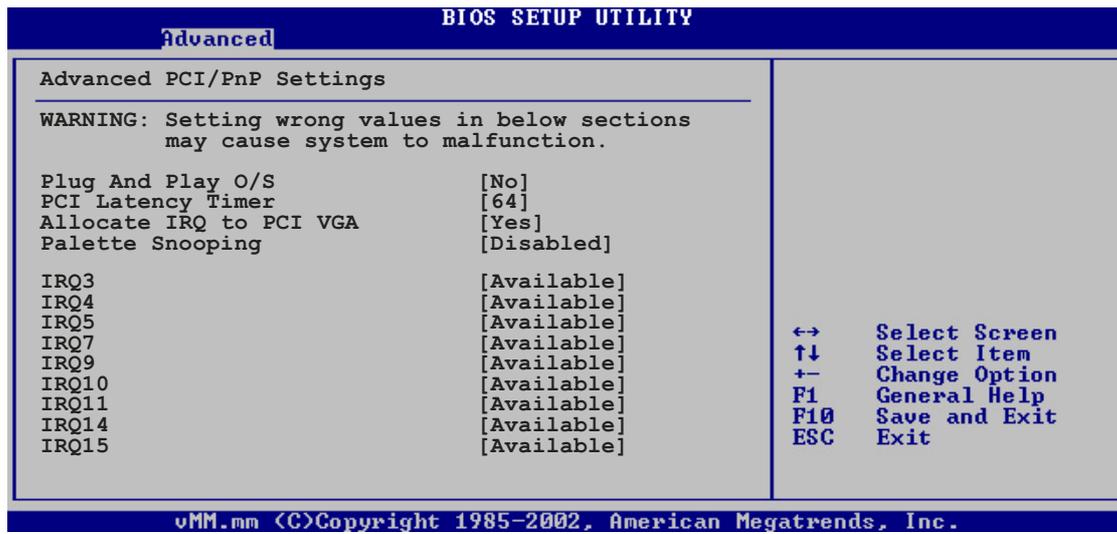
Configuration options: [Disabled] [Enabled]

5.4.4 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]

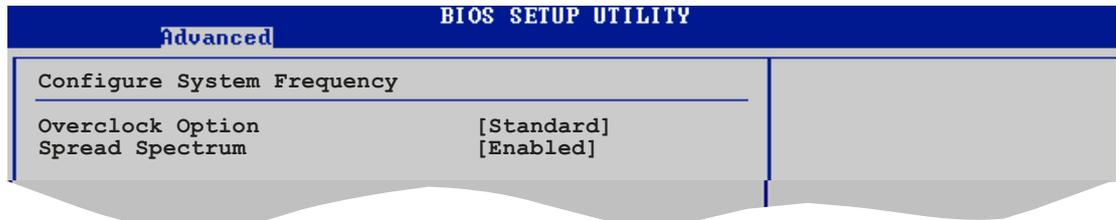
Palette Snooping [Disabled]

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 [Available], 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]

5.4.5 JumperFree Configuration



Overclock Option [Auto]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking configuration options:

Manual - allows you to individually set overclocking parameters.

Standard - loads the standard settings for the system.

CPU Frequency [XXX] (value is auto-detected)

Indicates the frequency sent by the clock generator to the system bus and PCI bus. The bus frequency (external frequency) multiplied by the bus multiple equals the CPU speed. The value of this item is auto-detected by BIOS. The values range from 100 to 250. Refer to the following table for the correct Front Side Bus and CPU External Frequency settings. Use the <+> and <-> keys to adjust the value.

Spread Spectrum [Enabled]

Enables or disables the generator spread spectrum. Configuration options: [Disabled] [Enabled]

5.4.6 Instant Music Configuration

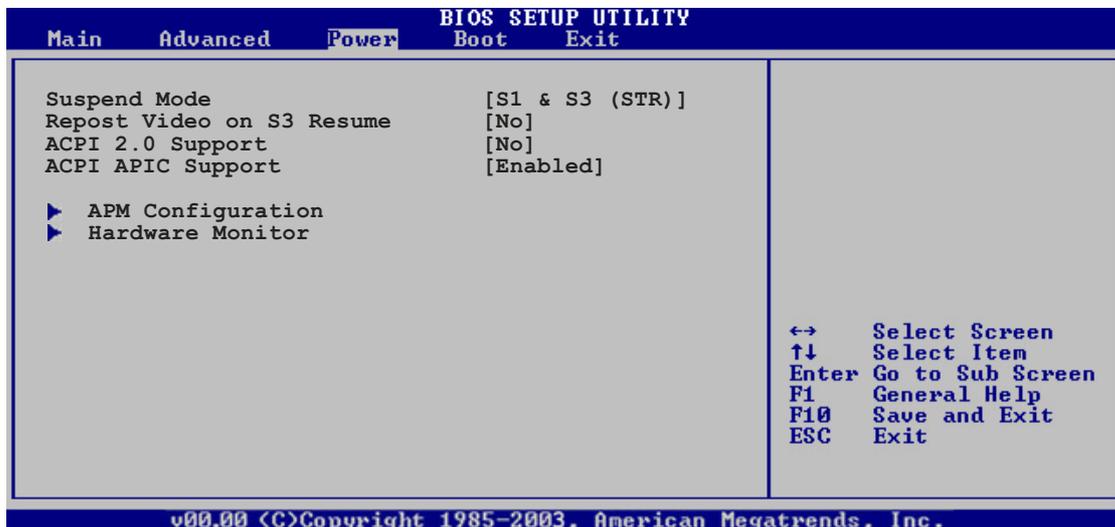


Instant Music [Disabled]

Allows you to enable or disable the ASUS Instant Music feature. Enabling Instant Music automatically disables the PS/2 keyboard power up feature. Configuration options: [Disabled] [Enabled]

5.5 Power menu

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



5.5.1 Suspend Mode [S1 & S3 (STR)]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend.

Configuration options: [S1 (POS) Only] [S1 & S3 (STR)] [S3 Only]

5.5.2 Repost Video on S3 Resume [No]

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

Configuration options: [No] [Yes]

5.5.3 ACPI 2.0 Support [No]

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

5.5.4 ACPI APIC Support [Enabled]

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

5.5.5 APM Configuration

BIOS SETUP UTILITY	
Power	
Power Button Mode	[On/Off]
Restore on AC Power Loss	[Always OFF]
Power On By PS2 Keyboard	[Disabled]
Power On By PS2 Mouse	[Disabled]
Power On By RTC Alarm	[Disabled]
Power On By External Modem	[Disabled]
Power On By PCI Devices	[Disabled]

Power Button Mode [On/Off]

Allows the system to go into On/Off mode or suspend mode when the power button is pressed. Configuration options: [On/Off] [Suspend]

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 Keyboard [Disabled]

Allows you to disable or enable the PS/2 Power-On by keyboard feature. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Resume On PS2 Mouse [Disabled]

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

Resume On RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items RTC Alarm Date, RTC Alarm Hour, RTC Alarm Minute, and RTC Alarm Second appear with set values. Configuration options: [Disabled] [Enabled]

Power On By External Modem [Disabled]

Enables or disables the feature to power 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 Up By PCI Devices [Disabled]

Enables or disables the feature 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]

5.5.6 Hardware Monitor

BIOS SETUP UTILITY	
Power	
Hardware Monitor	
CPU Temperature	[51°C/122.5°F]
MB Temperature	[41°C/105.5°F]
CPU Fan Speed	[3813 RPM]
CPU Q-Fan Control	[Enabled]
CPU Fan Ratio	[30%]
CPU Target Temperature	[53°C]
Chassis Fan Speed	[N/A]
Chassis Q-Fan Control	[Enabled]
Chassis Fan Ratio	[60%]
Chassis Target Temperature	[60%]
VCORE Voltage	[1.320V]
3.3V Voltage	[3.345V]
5V Voltage	[5.094V]
12V Voltage	[11.880V]

←→ Select Screen
↑↓ Select Item
+− Change Option
F1 General Help
F10 Save and Exit
ESC Exit

oMM.mm (C)Copyright 1985-2002, American Megatrends, Inc.

CPU Temperature [xxx°C/xxx°F]

MB Temperature [xxx°C/xxx°F]

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

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

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

The onboard hardware monitor automatically detects and displays the CPU and Chassis fan speeds in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select Ignored if you do not wish to display the detected fan speed.

CPU Q-Fan Control [Disabled]

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

Configuration options: [Disabled] [Enabled]



The **CPU Fan Ratio** and **CPU Target Temperature** items appear when you enable the **CPU Q-Fan Control** feature.

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. This item appears only when the CPU Q-Fan Control item is Enabled.

Configuration options: [Auto] [90%] [80%] [70%] [60%] [50%] [40%] [30%] [20%]

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. This item appears only when the CPU Q-Fan Control item is Enabled. The configuration options vary depending on the CPU installed.

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.

Chassis Q-Fan Control [Enabled]

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

Configuration options: [Disabled] [Enabled]

Chassis Fan Ratio [Auto]

Allows you to select the appropriate chassis fan speed ratio for the system. The default [Auto] automatically selects the fan speed ratio when operating a low chassis temperature. Select a higher ratio if you installed additional devices and the system requires more ventilation. This item appears only when the Chassis Q-Fan Control item is Enabled.

Configuration options: [Auto] [90%] [80%] [70%] [60%]

Chassis Target Temperature [xxx°C]

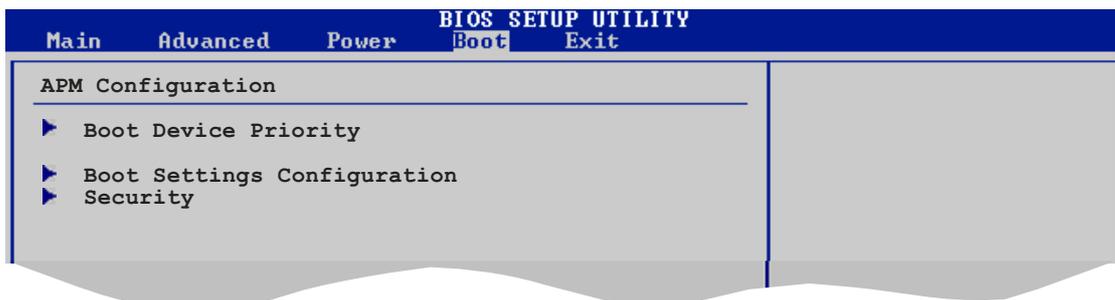
Allows you to set the CPU temperature threshold when the CPU fan speed is increased to lower the CPU temperature. This item appears only when the CPU Q-Fan Control item is Enabled. The configuration options vary depending on the CPU installed.

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

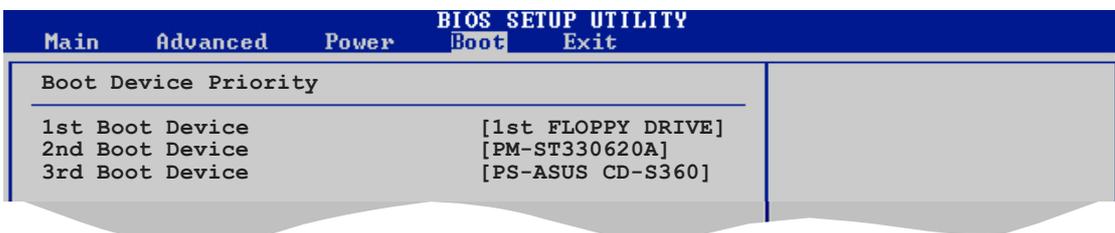
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

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

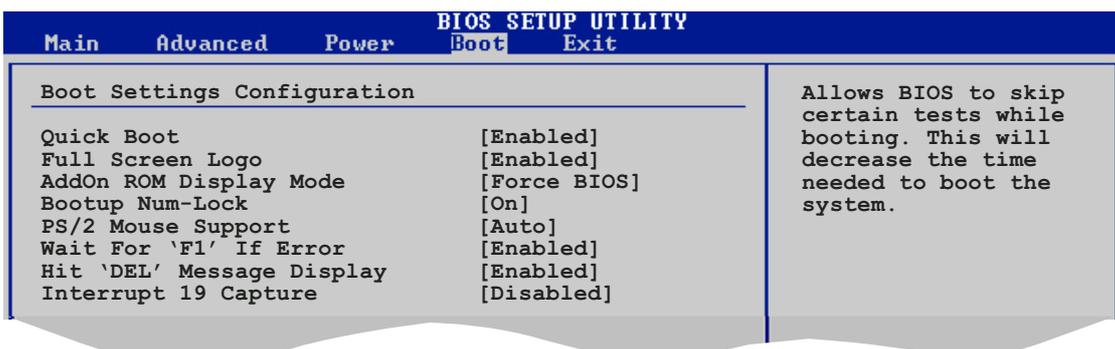


1st ~ xxth Boot Device [1st Floppy Drive]

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: [1st Floppy Drive] [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 MyLogo2™ feature.

Add On ROM Display Mode [Force BIOS]

Sets the display mode for option ROM.

Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

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

Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

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

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

Wait for 'F1' If Error [Enabled]

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

Hit 'DEL' Message Display [Enabled]

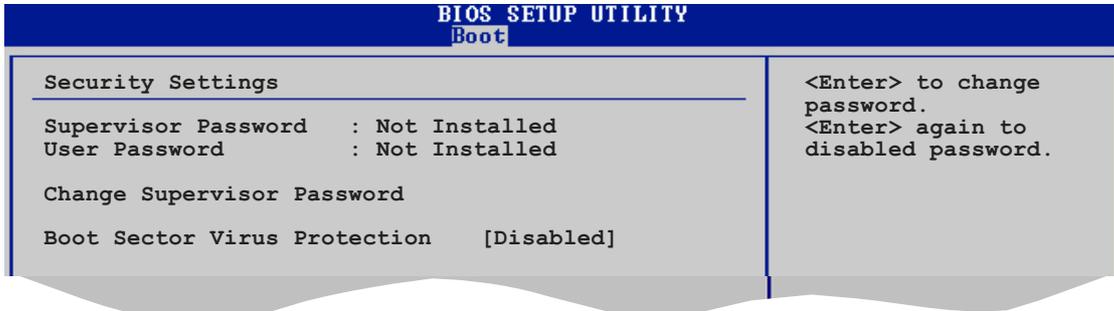
When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

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

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.

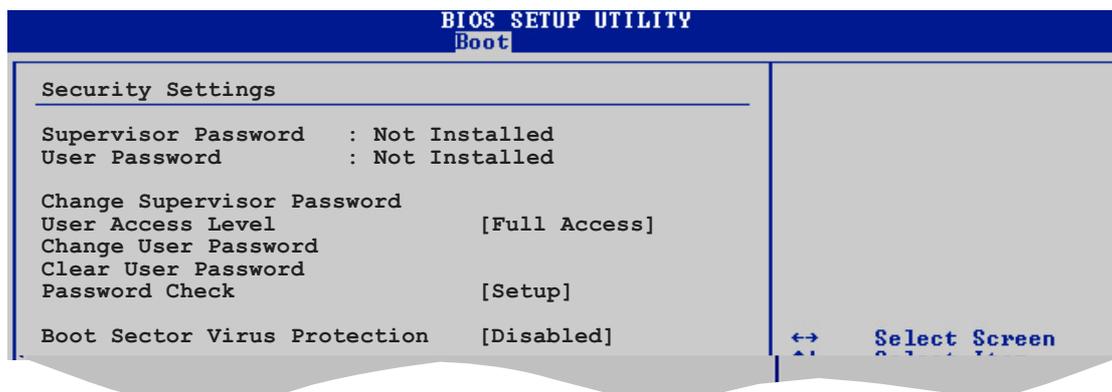
To change the supervisor password, follow the same steps as in setting a user password.

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 can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "1.9 Jumpers" for information on how to erase the RTC RAM.

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



User Access Level (Full Access)

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

No Access prevents user access to the Setup utility.

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

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

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

Change User Password

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

To set a User Password:

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

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

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

Clear User Password

Select this item to clear the user password.

Password Check [Setup]

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

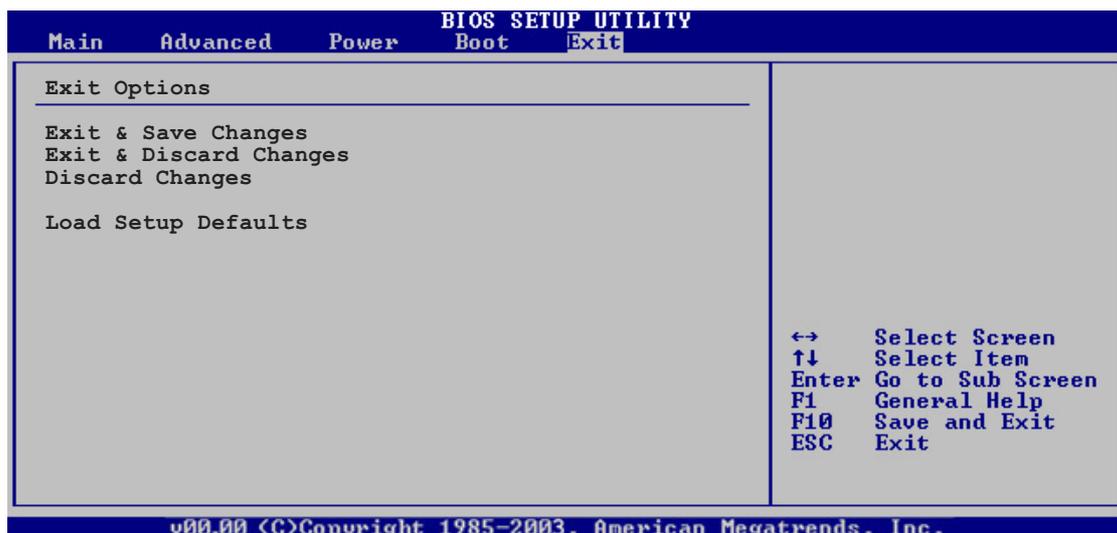
Configuration options: [Setup] [Always]

Boot Sector Virus Protection [Disabled]

Allows you to enable or disable the boot sector virus protection. Make sure to install Windows® XP Service Pack 2 or Windows® 2003 Service Pack 1 or later to use this feature. Configuration options: [Disabled] [Enabled]

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 **Ok** to save changes and exit.



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

Exit & Discard Changes

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

Discard Changes

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

Load Setup Defaults

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

