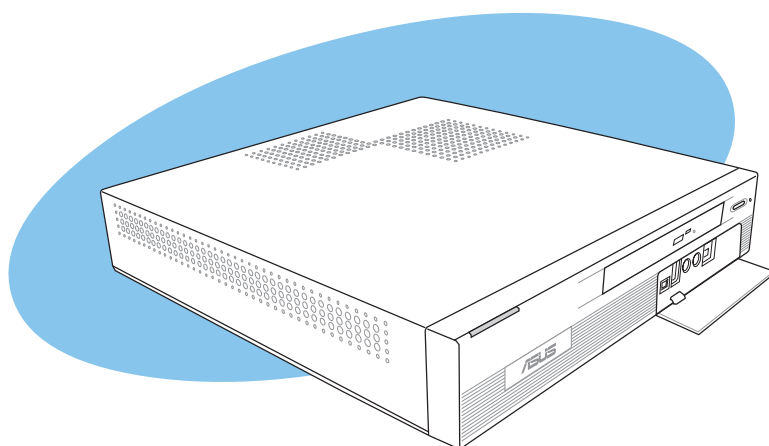


ASUS[®]

Pundit P2-AE2

Barebone System



E2077

First edition V1
June 2005

Copyright © 2005 ASUSTeK COMPUTER INC. All Rights Reserved.

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK COMPUTER INC. (“ASUS”).

Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification of alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

ASUS PROVIDES THIS MANUAL “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ASUS, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS AND THE LIKE), EVEN IF ASUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS MANUAL OR PRODUCT.

SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners’ benefit, without intent to infringe.

Table of contents

Notices	vi
Safety information	vii
About this guide	viii
System package contents	x

Chapter 1: System Introduction

1.1	Welcome!	1-2
1.2	Front panel (external)	1-2
1.3	Front panel (internal)	1-3
1.4	Rear panel	1-4
1.5	Internal components	1-5

Chapter 2: Basic Installation

2.1	Preparation	2-2
2.2	Before you proceed	2-2
2.3	Removing the top cover	2-3
2.4	Installing a hard disk drive (HDD)	2-4
2.5	Installing a CPU	2-6
2.5.1	Removing the CPU fan and heatsink assembly	2-6
2.5.2	CPU installation	2-7
2.5.3	Reinstalling the CPU fan and heatsink assembly	2-8
2.6	Installing a DIMM	2-9
2.7	Replacing the top cover	2-10
2.8	Connecting the power cable	2-11
2.9	Connecting external devices	2-12
2.9.1	To the front panel	2-12
2.9.2	To the rear panel	2-12

Chapter 3: Getting started

3.1	Installing an operating system	3-2
3.2	Support CD information	3-2
3.2.1	Running the support CD	3-2
3.2.2	Drivers menu	3-3
3.2.3	Utilities menu	3-4
3.2.4	ASUS contact information	3-5
3.2.5	Other information	3-5

Table of contents

3.3	Software information	3-6
3.3.1	SoundMAX® 4 XL software	3-6
3.3.2	ASUS PC Probe II.....	3-11
3.3.3	Cool 'n' Quiet!™ Technology	3-18

Chapter 4: Motherboard Info

4.1	Motherboard overview	4-2
4.2	Jumper	4-3
4.3	Connectors	4-4
4.3.1	Rear panel connectors	4-4
4.3.2	Internal connectors.....	4-4

Chapter 5: BIOS Information

5.1	Managing and updating your BIOS	5-2
5.1.1	ASUS EZ Flash utility	5-2
5.1.2	ASUS CrashFree BIOS utility	5-4
5.1.3	ASUS Update utility	5-5
5.2	BIOS setup program	5-8
5.2.1	BIOS menu screen.....	5-9
5.2.2	Menu bar	5-9
5.2.3	Navigation keys	5-9
5.2.4	Menu items	5-10
5.2.5	Sub-menu items	5-10
5.2.6	Configuration fields	5-10
5.2.7	Pop-up window	5-10
5.2.8	Scroll bar	5-10
5.2.9	General help	5-10
5.3	Main menu	5-11
5.3.1	System Time	5-11
5.3.2	System Date	5-11
5.3.3	Primary IDE Master/Slave	5-11
5.3.4	System Information	5-13
5.4	Advanced menu	5-14
5.4.1	CPU Configuration.....	5-14
5.4.2	Chipset	5-17

Table of contents

5.4.3	Onboard Devices Configuration	5-20
5.4.4	PCI PnP	5-21
5.5	Power menu	5-23
5.5.1	Suspend Mode	5-23
5.5.2	Repost Video on S3 Resume	5-23
5.5.3	ACPI 2.0 Support	5-23
5.5.4	ACPI APIC Support	5-23
5.5.5	APM Configuration	5-24
5.5.6	Hardware Monitor	5-27
5.6	Boot menu	5-28
5.6.1	Boot Device Priority	5-28
5.6.2	Boot Settings Configuration	5-29
5.6.3	Security	5-30
5.7	Exit menu	5-33

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 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 barebone system. 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: Getting started

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 Pundit P2-AE2 system package for the following items.



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

1. ASUS Pundit P2-AE2 barebone system with

- ASUS motherboard
- CPU fan and heatsink assembly
- IDE cable

2. Accessories

- AC adapter and power plug
- Screws
- DC IN power cable and plug
- SATA signal cable
- SATA power cable

3. Support CD

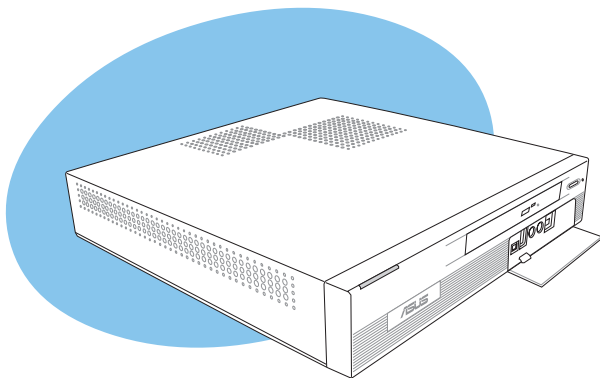
4. User guide

5. Optional items

- Slim optical disk drive (*DVD-ROM/Combo/DVD-RW*)

Chapter 1

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



ASUS Pundit P2-AE2

1.1 Welcome!

Thank you for choosing the **ASUS Pundit P2-AE2**!

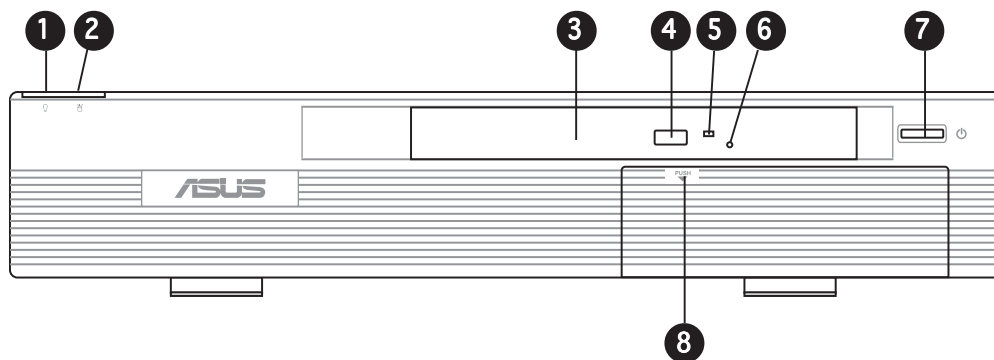
The Pundit P2-AE2 is a smart personal computer. Powered by an ASUS motherboard, the barebone system delivers the cutting edge technology for your computing needs.




The Pundit P2-AE2 system supports the latest AMD Athlon™ 64/Sempron™ processor with up to 3200+ MHz core speed. The system also supports 800 MHz Front Side Bus and up to 2 GB system memory. Providing the best connectivity for external devices and peripherals are USB 2.0 ports, IEEE 1394 ports, and 6-channel audio ports.

The Pundit P2-AE2 features the most silent system to give you pure acoustic enjoyment. With the Pundit P2-AE2, you don't need anything else!

1.2 Front panel (external)

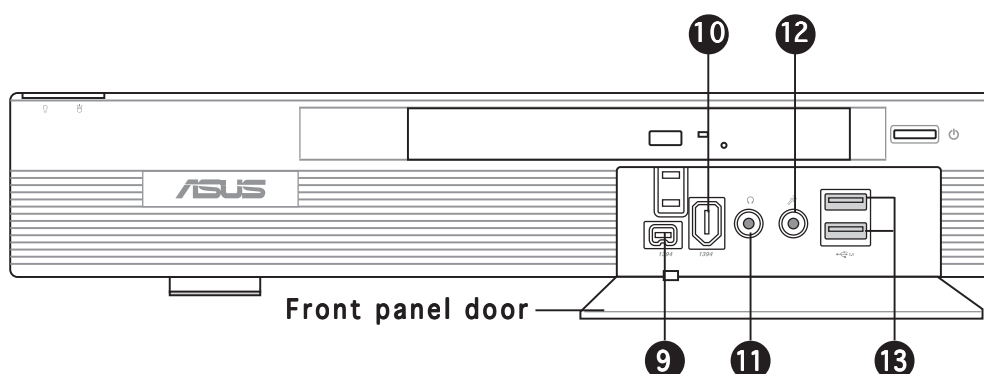
The front panel includes the power button, system LEDs, and the slim optical disk drive.








1. **Power LED** . This LED lights up to indicate that the system is ON.
2. **HDD LED** . This LED lights up when data is being read from or written to the hard disk drive.
3. **Optical drive**. This is a slim optical disk drive.
4. **STOP/EJECT button**. Press this button to eject the disc loading tray.
5. **Drive activity LED**. This LED lights up when you place a disc on the drive tray, and turns off when you remove the disc. The LED flashes when data is being read from or written to the disc.
6. **Emergency eject pinhole**. The emergency eject pinhole allows you to manually eject a disc when the STOP button does not work due to power failure or software problems. Insert the emergency eject pin or a paper clip into this hole to manually eject the tray and the disc.
7. **Power button** . Press this button to turn the system on.
8. **Front panel door lock**. Press this lock to show the front panel I/O ports.

1.3 Front panel (internal)

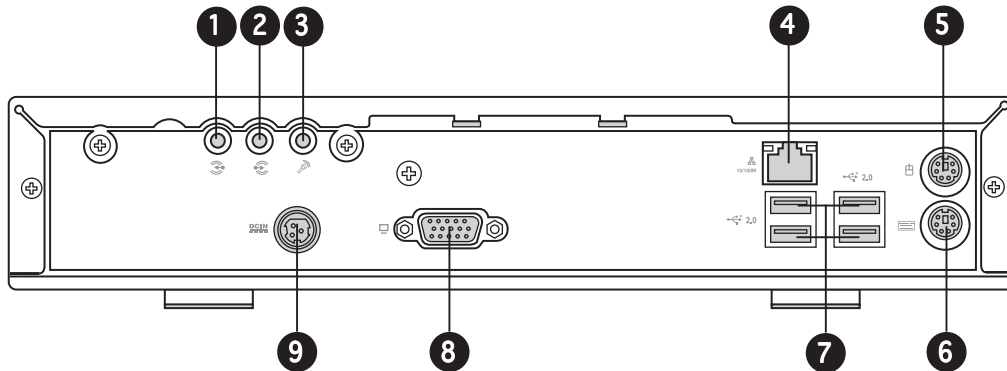
The data and audio I/O ports are located inside the front panel door. Press the front panel door lock to open.



9. **4-pin IEEE 1394 port** . This port provides high-speed connectivity for IEEE 1394-compliant audio/video devices, storage peripherals, and other PC devices.
10. **6-pin IEEE 1394 port** . This port provides high-speed connectivity for IEEE 1394-compliant audio/video devices, storage peripherals, and other PC devices.
11. **Headphone port** . This port connects a headphone with a stereo mini-plug.
12. **Microphone port** . This Mic (pink) port connects a microphone.
13. **USB 2.0 ports** . These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.

1.4 Rear panel

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



1. **Line In port** . This Line In (light blue) port connects a tape player or other audio sources. In 6-channel mode, the function of this port becomes Low Frequency Enhanced Output/Center.
2. **Line Out port** . This Line Out (lime) port connects a headphone or a speaker. In 4/6-channel mode, the function of this port becomes Front Speaker Out.
3. **Microphone port** . This Microphone (pink) port connects a microphone. In 4/6-channel mode, the function of this port becomes Surround Speaker.



The functions of the Line Out, Line In, and Microphone ports change when you select the 6-channel configuration. Refer to the table below for audio ports function variation.

Audio ports function variation

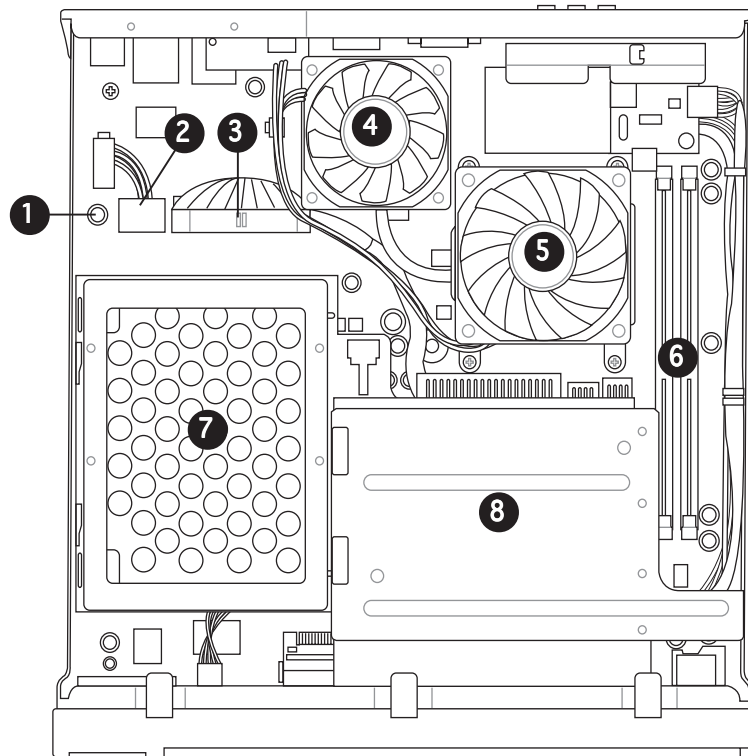
Port	Headphone/2-Channel	4-Channel	6-Channel
Light Blue	Line In	No function	LFE Output*/Center
Lime	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Surround	Surround

* Low Frequency Enhanced Output

4. **LAN (RJ-45) port** . This port allows Fast Ethernet connection to a Local Area Network (LAN) through a network hub.
5. **PS/2 mouse port** . This green 6-pin connector is for a PS/2 mouse.
6. **PS/2 keyboard port** . This purple 6-pin connector is for a PS/2 keyboard.
7. **USB 2.0 ports** . These Universal Serial Bus 2.0 ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
8. **VGA port** . Connects a VGA monitor.
9. **Power connector**. Connects the power plug is for the power cable and plug.

1.5 Internal components

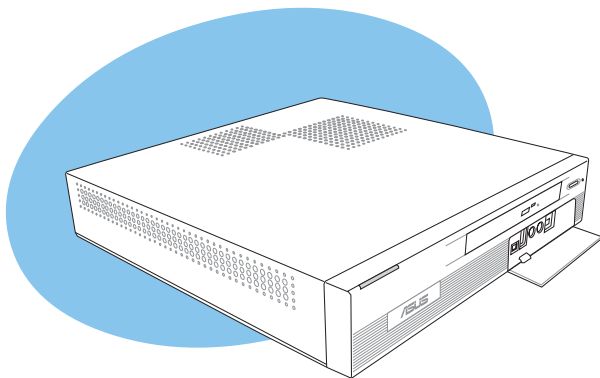
The illustration below is the internal view of the system when you remove the top cover. The installed components are labeled for your reference. Proceed to Chapter 2 for instructions on installing other system components.



1. Standby power LED
2. HDD power plug (to HDD power connector)
3. IDE cable (to HDD connector)
4. Chassis fan
5. CPU fan
6. DIMM sockets
7. HDD metal tray
8. Optical drive shield

Chapter 2

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



ASUS Pundit P2-AE2

Basic installation

2.1 Preparation

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

Basic components to install

1. Hard disk drive (HDD)
2. Central processing unit (CPU)
3. DDR Dual Inline Memory Module (DIMM)

Tool

Phillips (cross) screw driver

2.2 Before you proceed

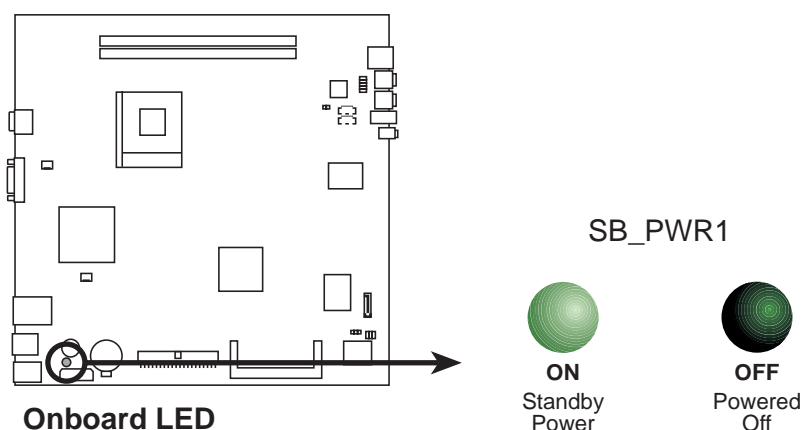
Take note of the following precautions before you install the system components.



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

Onboard LED

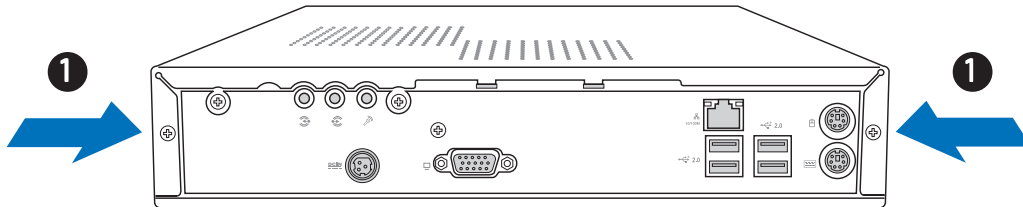
The system motherboard comes with a standby power LED. The green LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the AC adapter cable before removing or plugging in any system component. The illustration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



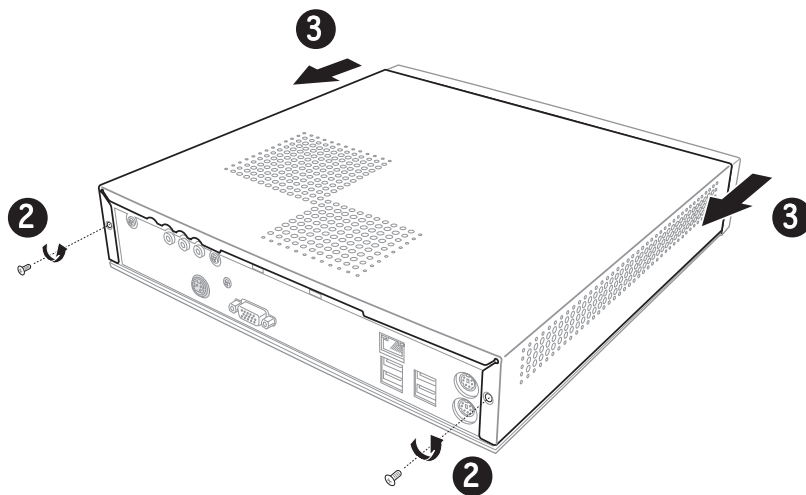
2.3 Removing the top cover

To remove the top cover:

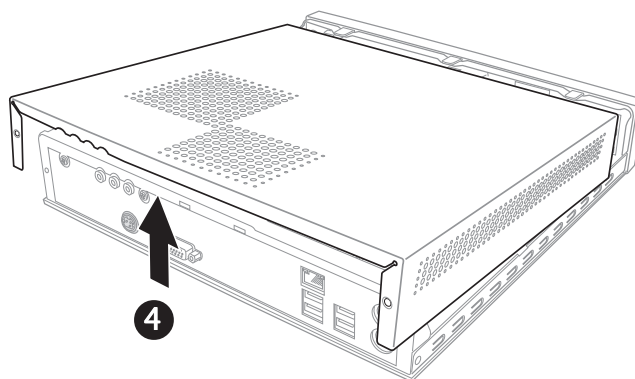
1. On the rear panel, locate the two screws that secure the top cover to the chassis.



2. Use a Phillips (cross) screw driver to remove the top cover screws. Keep the screws for later use.
3. Pull the top cover slightly toward the rear panel until the side tabs are disengaged from the chassis.



4. Hold the center edge of the top cover, then lift. Set the top cover aside.

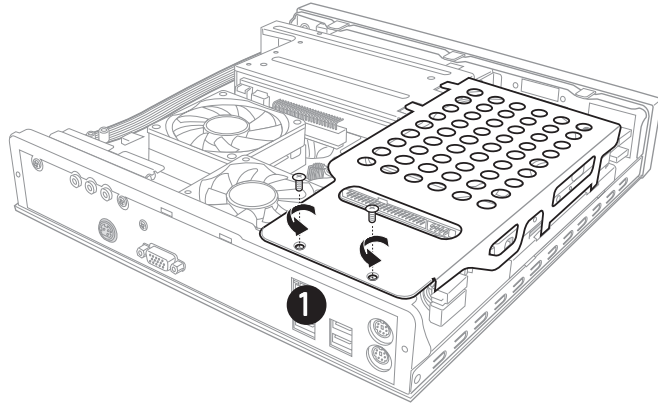


2.4 Installing a hard disk drive (HDD)

The system supports one UltraATA133 IDE hard disk drive (HDD).

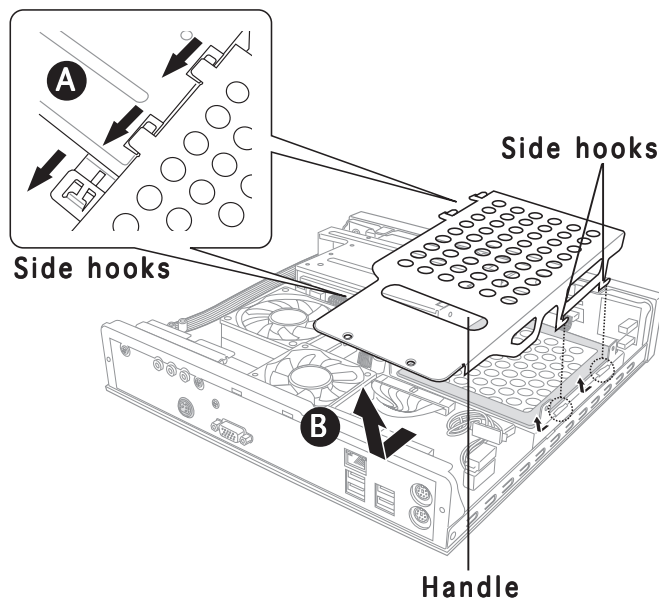
To install a hard disk drive:

1. Remove the two metal cover screws. Keep the screws for later use.



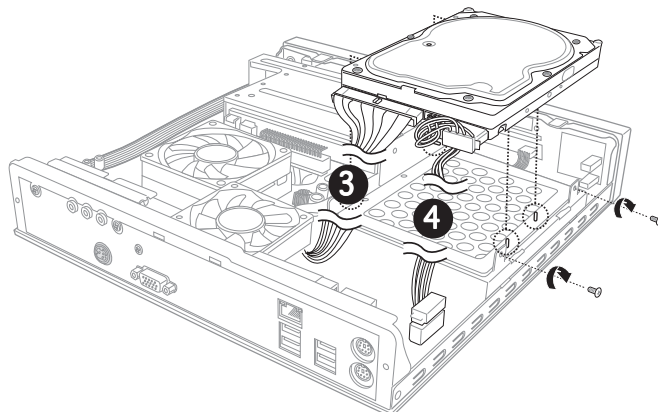
2. Use the metal cover handle to slide the cover toward the rear panel until the side hooks disengage from the HDD metal tray and optical drive shield tabs.

Lift the metal cover, then set aside.



Set 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 Master device.

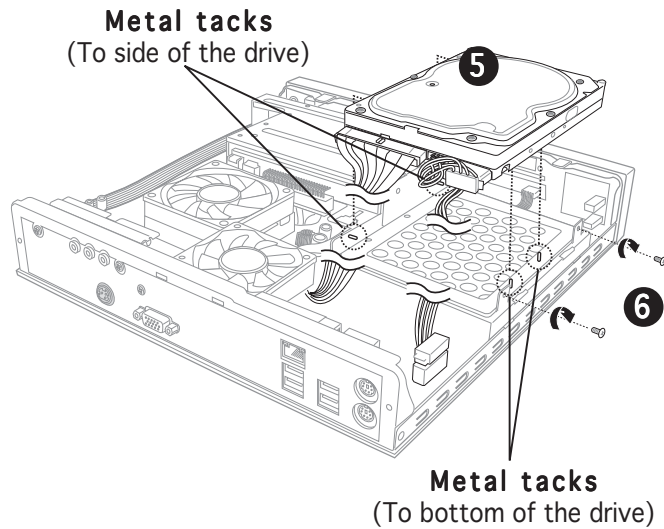
3. Connect the 40-pin IDE cable to the IDE connector on the drive.
4. Connect the 4-pin power plug to the HDD power connector.



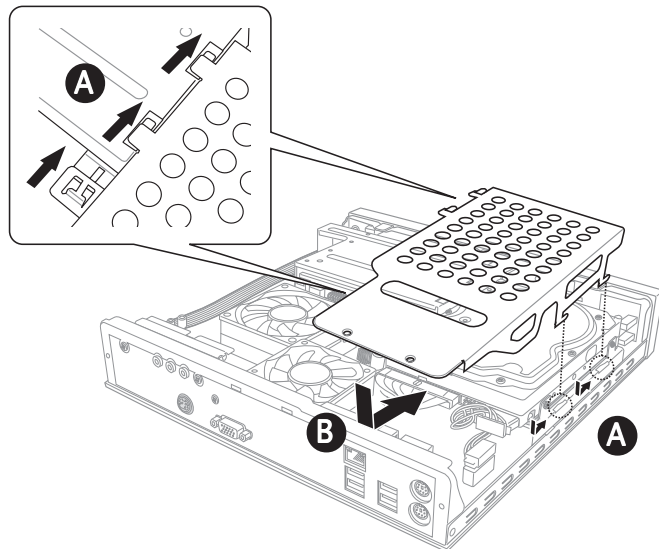
5. Place the drive on the tray. Insert the tray metal tacks into the drive screw holes (two at the side and two at the bottom).



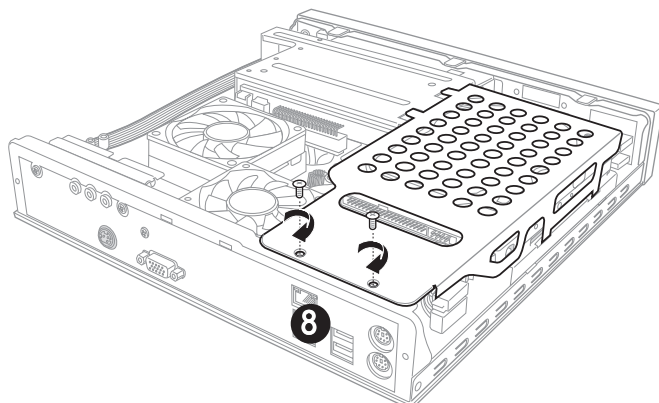
Insert the side metal tacks before inserting the bottom metal tacks.



6. Secure the drive with two side screws.
7. Align the metal cover side hooks with the HDD metal tray and optical drive shield tabs (A), then slide the metal cover toward the front panel until it fits in place (B).



8. Secure the metal cover with screws that you removed earlier.



2.5 Installing a CPU

The system motherboard has a surface mount 754-pin Zero Insertion Force (ZIF) socket. This socket is specifically designed for the AMD Athlon™ 64/ Athlon™ XP/Sempron™ processor in the 754-pin package.

2.5.1 Removing the CPU fan and heatsink assembly

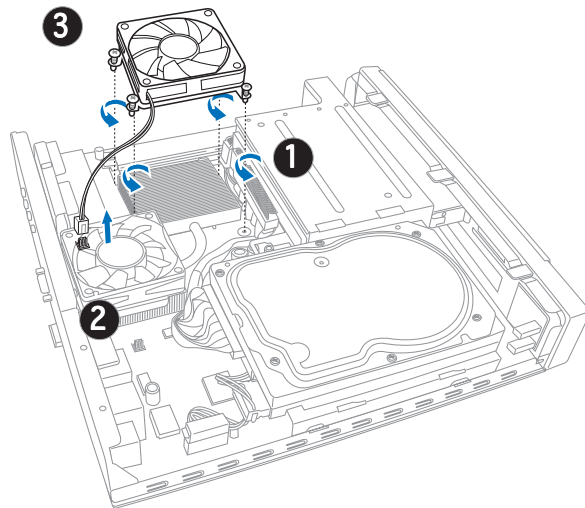
You must remove the CPU fan and heatsink assembly before you can install a CPU.



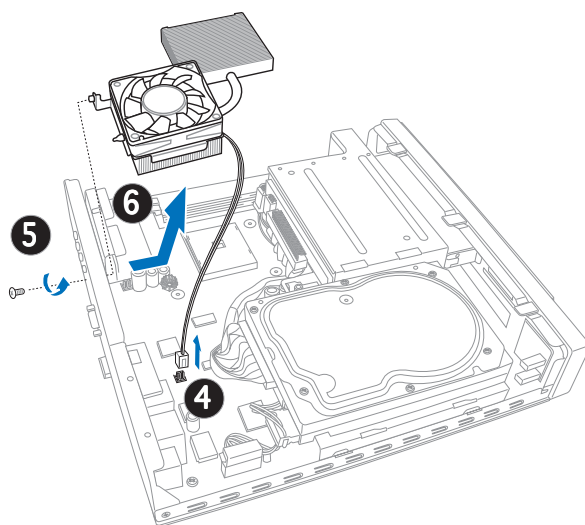
The system comes with a pre-installed proprietary CPU fan and heatsink assembly for optimum CPU thermal control and system ventilation. Do not replace the CPU fan with other models.

To remove the CPU fan and heatsink assembly:

1. Loosen the CPU fan screws.
2. Disconnect the CPU fan cable from the CPU fan connector on the motherboard.
3. Lift the CPU fan.



4. Disconnect the chassis fan cable from the chassis fan connector.
5. Remove the chassis fan and heatsink assembly screw from the rear panel.
6. Move the chassis fan and heatsink assembly toward the direction of the front panel, then lift.



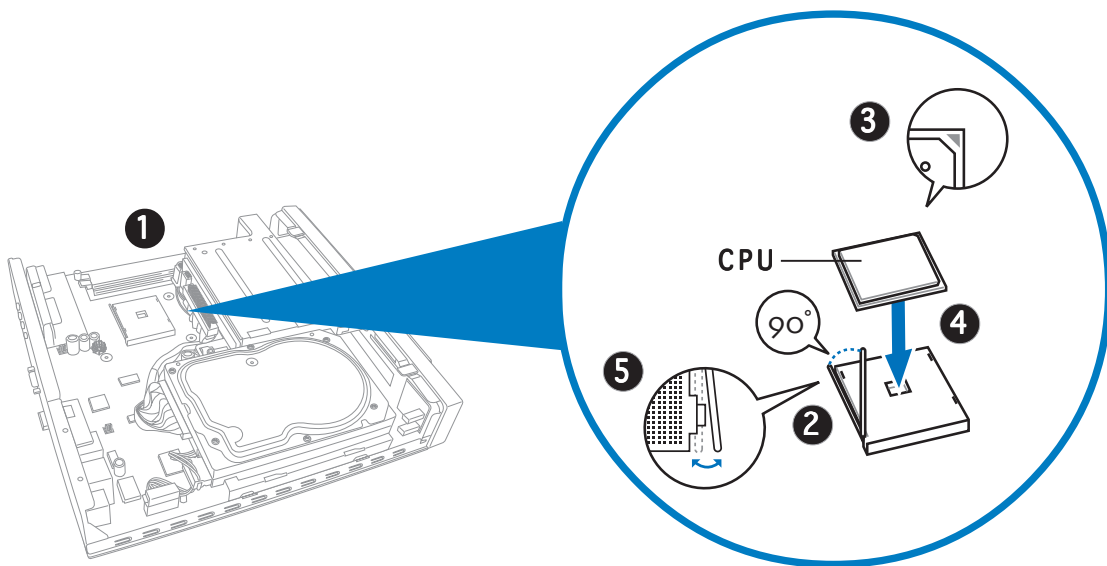
Set the chassis fan and heatsink assembly aside.

2.5.2 CPU installation

1. Locate the 754-pin CPU socket on the motherboard.
2. Unlock the socket by pressing the lever sideways then lifting it up to a 90° angle.
3. Position the CPU above the socket such that its marked corner (gold mark) matches the base of the socket lever.
4. Carefully insert the CPU to 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!

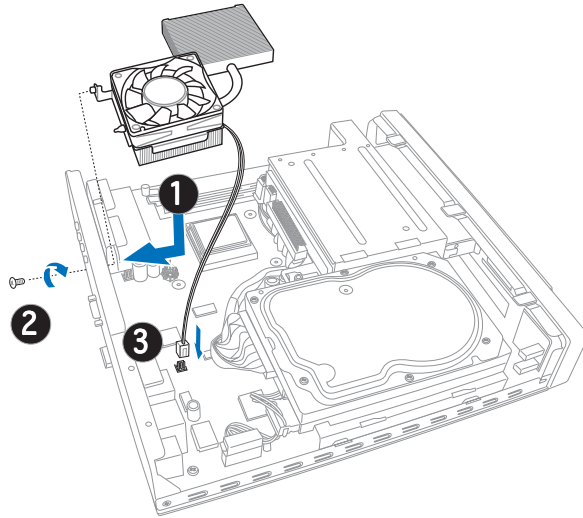


5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

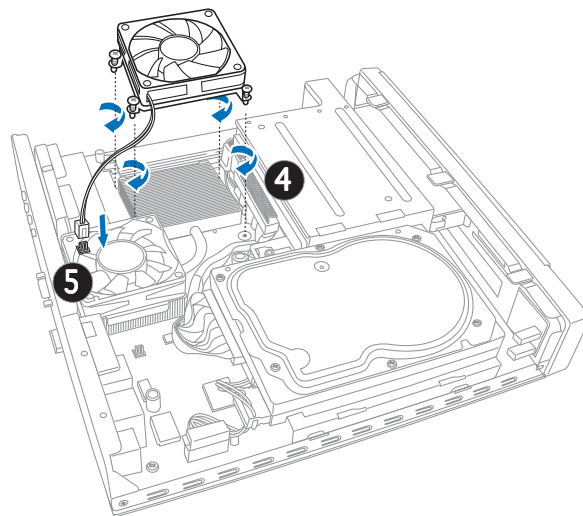
2.5.3 Reinstalling the CPU fan and heatsink assembly

To reinstall the CPU fan and heatsink assembly:

1. Place the chassis fan and heatsink assembly on top of the installed CPU. Make sure that the CPU heatsink sits properly on top of the CPU.
2. Secure the chassis fan and heatsink assembly with a screw from the rear panel.
3. Connect the chassis fan cable to the chassis fan connector. See Chapter 4 for the location of the chassis fan connector.



4. Place the CPU fan over the CPU heatsink, then fasten the CPU fan screws to the motherboard in a diagonal pattern starting from two opposite corners.



Do not overtighten the CPU fan screws! Doing so may damage the motherboard.

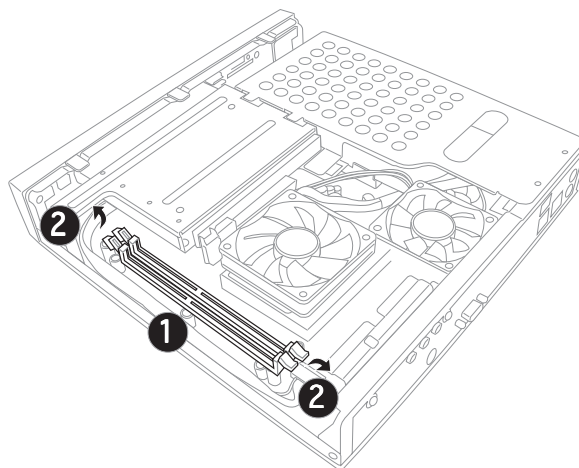
5. Connect the CPU fan cable to the CPU fan connector. See Chapter 4 for the location of the CPU fan connector.

2.6 Installing a DIMM

The system motherboard comes with two Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets. These sockets support up to 2 GB system memory using unbuffered non-ECC PC2700/2100/1600 DIMMs.

To install a DDR DIMM:

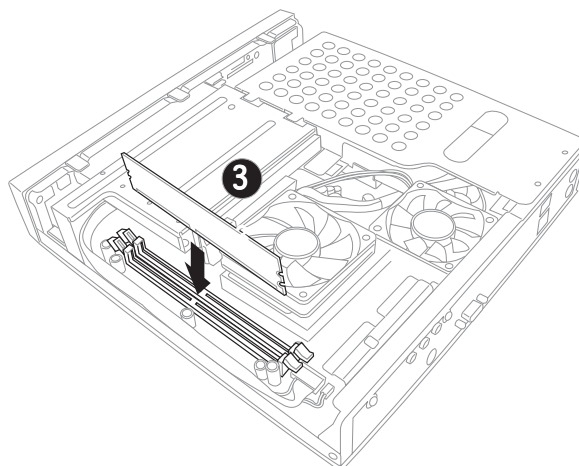
1. Locate the two DIMM sockets on the motherboard.
2. Unlock a socket by pressing the retaining clips outward.



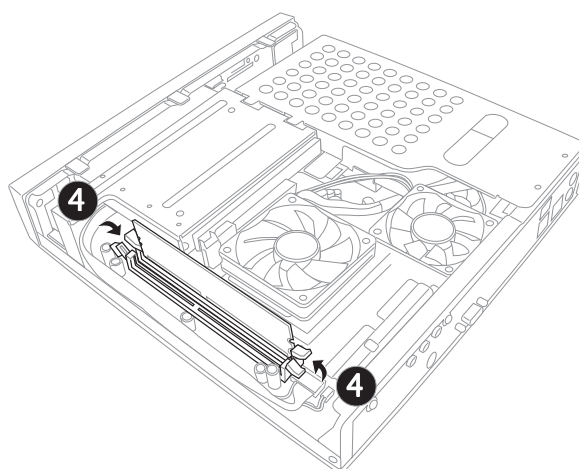
3. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.



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.



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

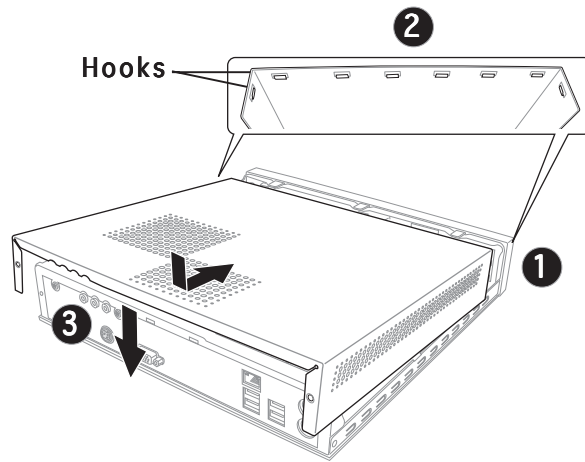


2.7 Replacing the top cover

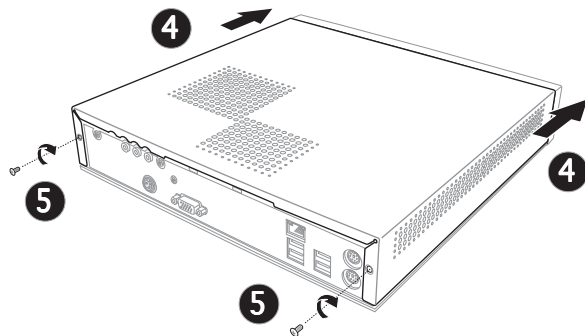
Replace the top cover after installing the components.

To replace the top cover:

1. Position the front edge of the top cover at least two inches from the front panel cover.
2. Fit the top cover hooks with the chassis side tabs and the front panel cover tabs.
3. Lower the rear edge of the top cover as shown.



4. Push the top cover slightly toward the front panel until it fits in place.
5. Secure the top cover with two screws that you removed earlier.

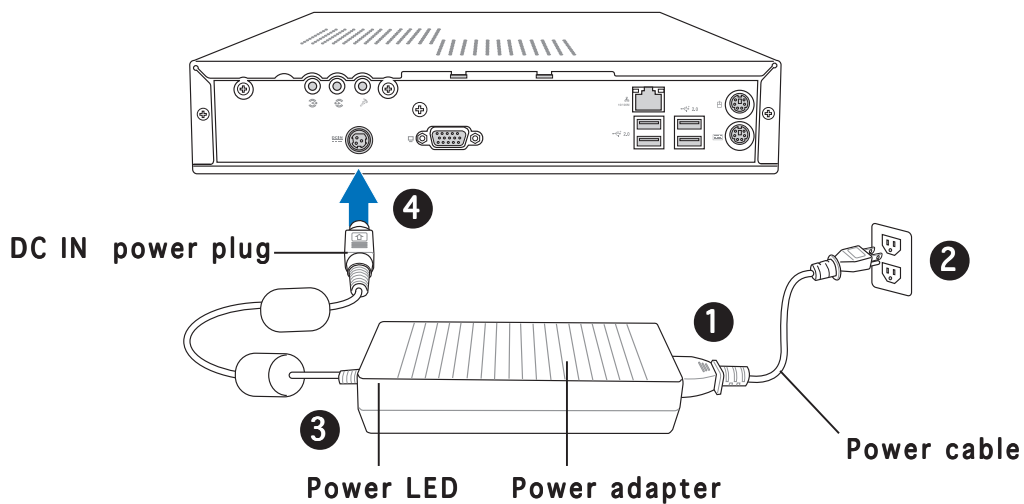


2.8 Connecting the power cable

The system package includes a universal AC power adapter (100V - 240V) with power cable and plug. The AC power adapter allows you to use your system in any location regardless of the voltage output.

To connect the AC power adapter to the system:

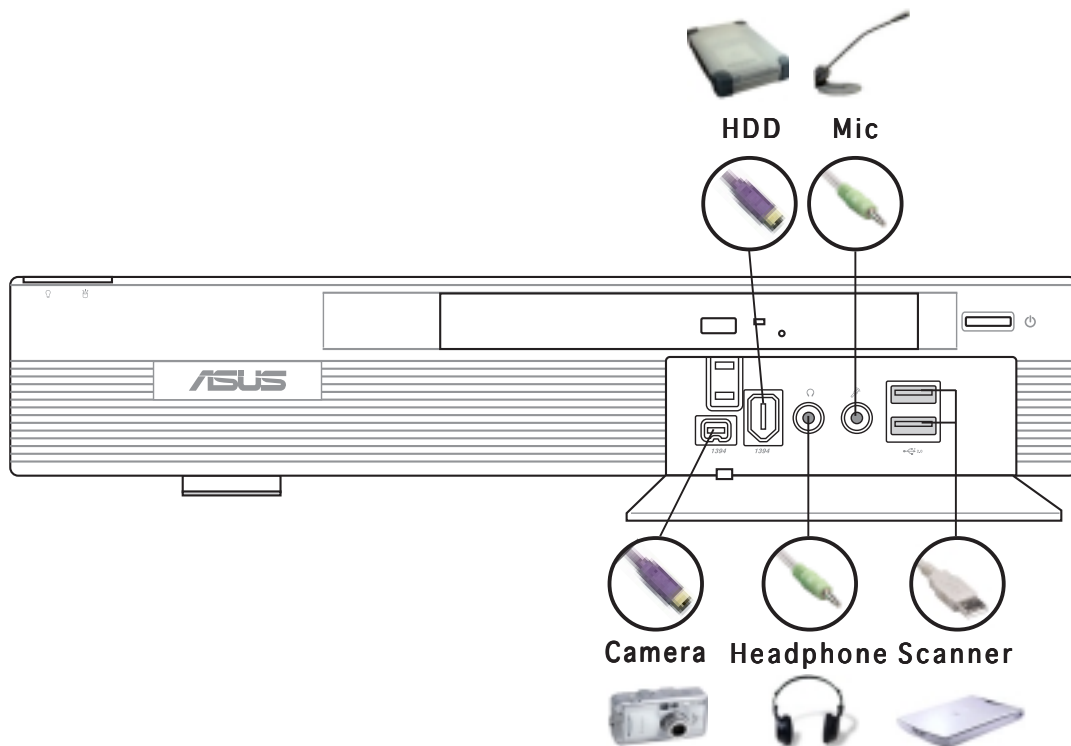
1. Connect the power cable (female plug) to the AC power adapter.
2. Connect the other end of the power cable (male plug) to a power outlet.
3. Check the AC power adapter LED. The LED lights up to indicate that the power from the source is within the operating range.
4. Connect the DC IN power plug to the system DC IN socket.



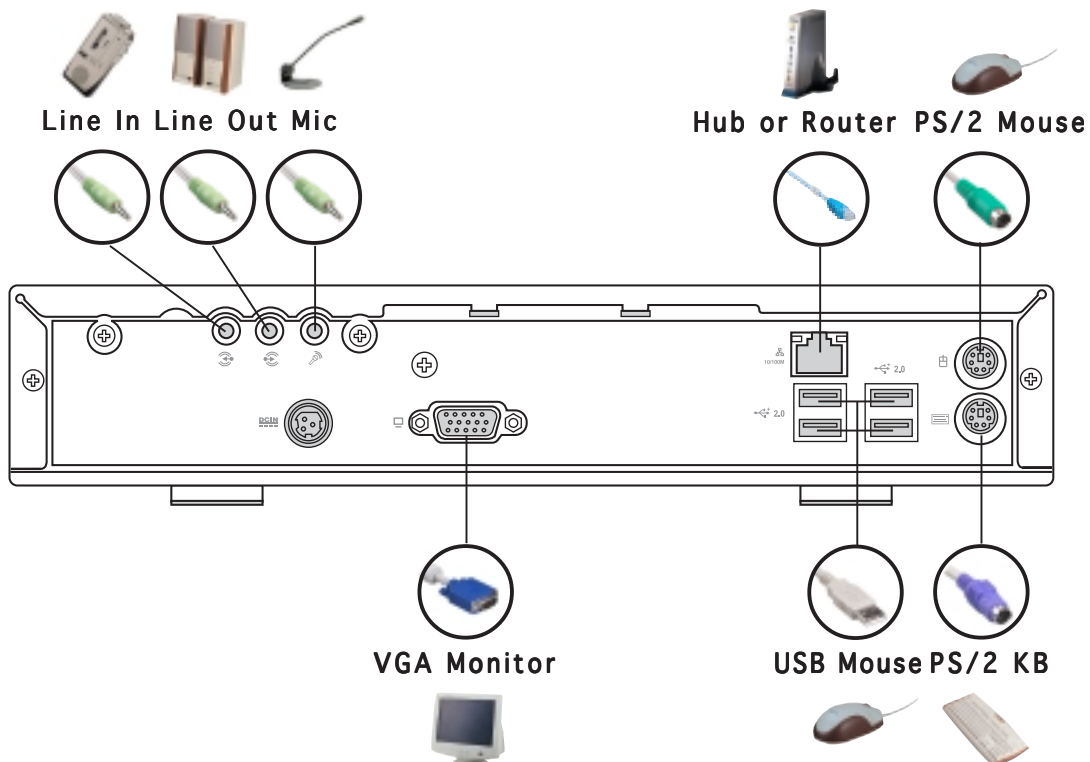
Use an outlet adapter if the power plug does not fit the power outlet in your area.

2.9 Connecting external devices

2.9.1 To the front panel

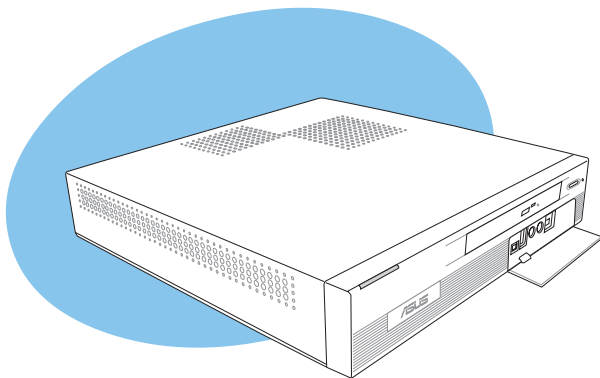


2.9.2 To the rear panel



Chapter 3

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



ASUS Pundit P2-AE2

Getting started

3.1 Installing an operating system

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



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

3.2 Support CD information

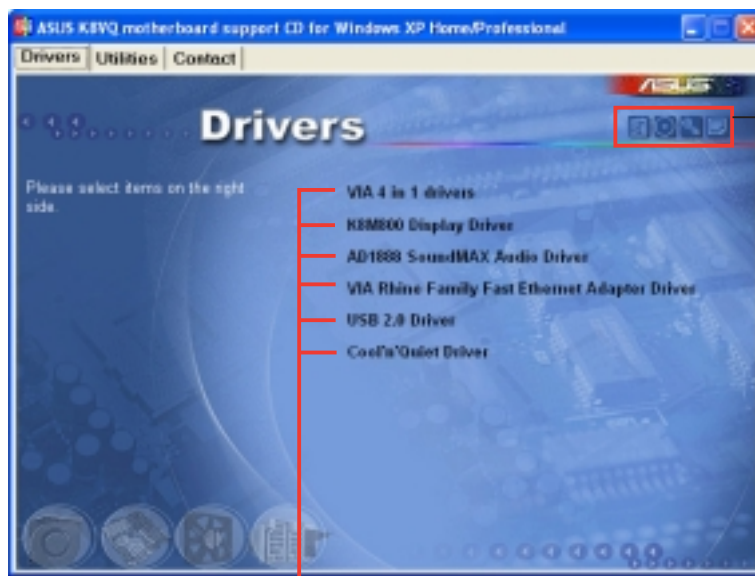
The support CD that came with the system package contains the drivers, software applications, and utilities that you can install to avail all system features.



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

3.2.1 Running the support CD

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



Click an icon to display support CD/motherboard information

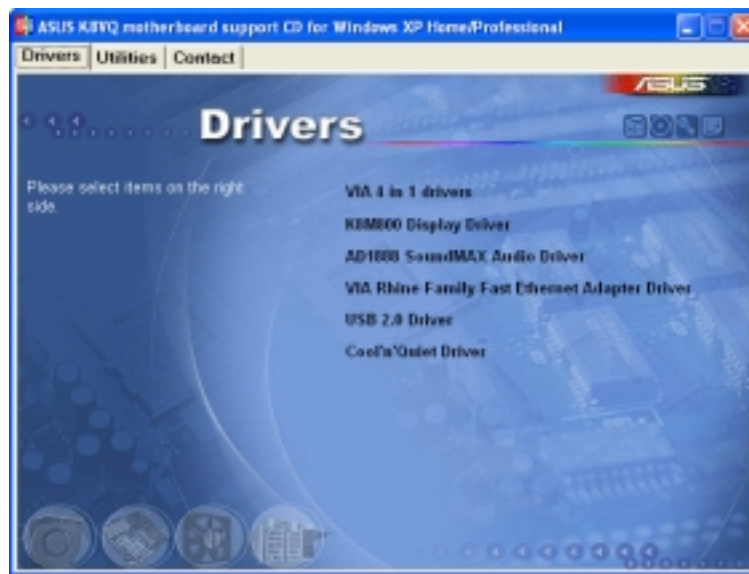
Click an item to install



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

3.2.2 Drivers menu

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



VIA 4 in 1 drivers

This item installs the following drivers:

- VIA Registry (INF) driver
- VIA AGP VxD driver
- VIA ATAPI vendor support driver
- VIA PCI IRQ Miniport driver.

K8M800 Display Driver

Installs the chipset display driver.

AD1888 SoundMAX Audio Driver

Installs the AD1888 audio driver and the SoundMAX® application. See page 3-6 for details.

VIA Rhine Family Fast Ethernet Adapter Driver

Installs the onboard LAN controller driver.

USB 2.0 Driver

Installs the USB 2.0 driver.

Cool 'n' Quiet Driver

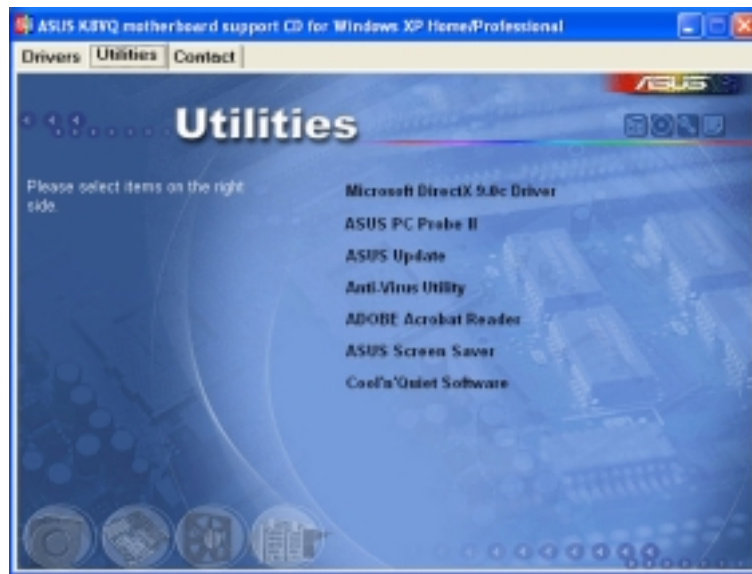
Installs the AMD Cool 'n' Quiet!™ Technology driver.



The screen display and drivers option may not be the same for different operating system versions.

3.2.3 Utilities menu

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



Microsoft DirectX 9.0c Driver

Installs the Microsoft® DirectX 9.0c driver.

ASUS PC Probe II

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

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP). See page 5-5 for details.

Anti-Virus Utility

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

ADOBE Acrobat Reader V7.0

Installs the Adobe® Acrobat® Reader V7.0.

ASUS Screen Saver

Installs the ASUS screen saver.

Cool 'n' Quiet Software

Installs the ASUS Cool 'n' Quiet software application. See page 3-13.

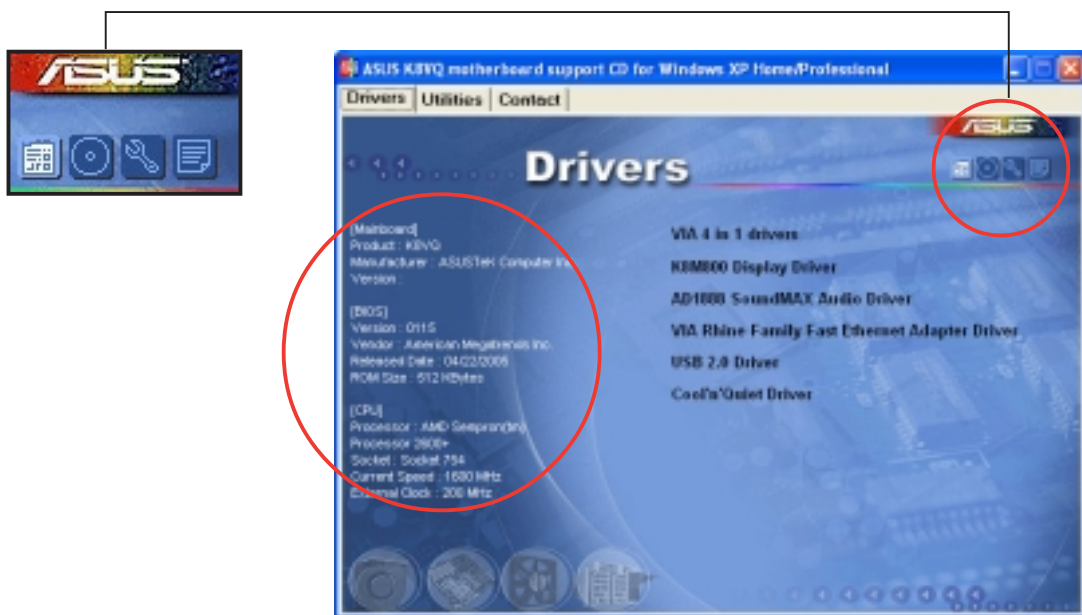
3.2.4 ASUS contact information

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



3.2.5 Other information

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



3.3 Software information

3.3.1 SoundMAX® 4 XL software

The ADI AD1888 AC '97 audio CODEC provides 6-channel audio capability through the SoundMAX® 4 XL with AudioESP™ software to deliver you the ultimate audio experience. The software implements high quality audio synthesis/rendering, 3D sound positioning, and advanced voice-input technologies.

Install the **SoundMAX® Audio Driver and Application** from the support CD that came with the system package to activate the 6-channel audio feature.



- You must use 4-channel or 6-channel speakers for this setup.
- SoundMAX® 4 XL requires Microsoft® Windows® 2000/ XP. Make sure that one of these operating systems is installed before installing SoundMAX®.

If the SoundMAX® 4 XL software is correctly installed, you will find the SoundMAX® 4 XL icon on the taskbar.



SoundMAX® 4 XL icon


From the taskbar, double-click on the **SoundMAX® 4 XL** icon to display the **SoundMAX® Control Panel**.



Using the Audio Wizard

The Audio Wizard helps you set up the speaker, microphone, and other audio settings for optimal audio performance.

To configure the speakers and microphone using the Audio Wizard:

1. Click the wizard icon  from the SoundMAX® control panel. The Audio Wizard initial window appears.

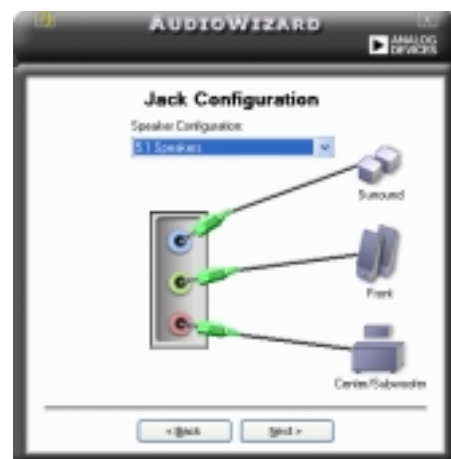


You can also launch the wizard by clicking the **Configuration** button when AudioESP detects and verifies a newly connected peripheral.

2. Click **Next**.
3. Select the speaker configuration from the drop-down list. Select **5.1 Speakers** if you have a 6-channel audio system.

The jack configuration illustration specifies the correct audio speakers connection.

4. Click **Next**.
5. Adjust a speaker volume, then click **Test** to listen to your configuration.
6. Click **Next** when finished.



7. Adjust the microphone volume, then click **Test** to listen to your configuration.



8. Click **Next** when finished.
9. After adjusting the audio settings, click **Finish** to exit the Audio Wizard.




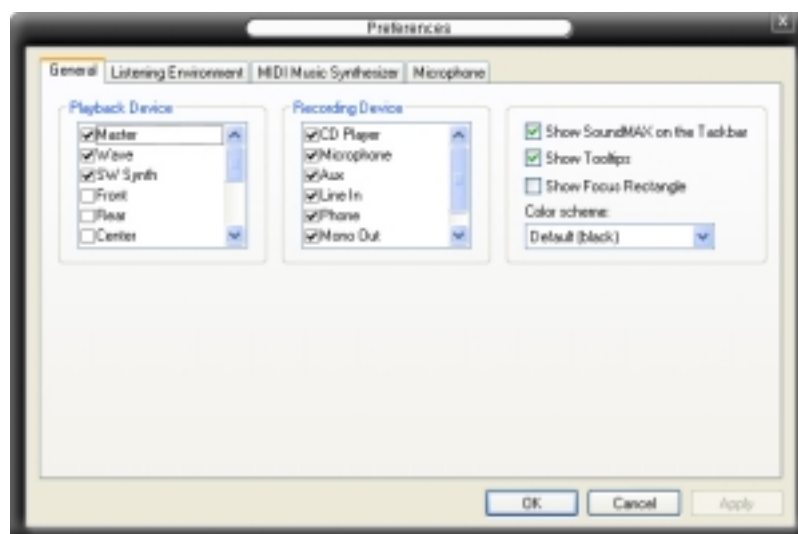
The microphone volume screen is disabled when you select a 5.1 speaker configuration.

Changing the audio settings

You can change the general audio, listening environment, synthesizer, and microphone settings using the Preferences window of the SoundMAX application.

To change the audio settings using the Preferences window:

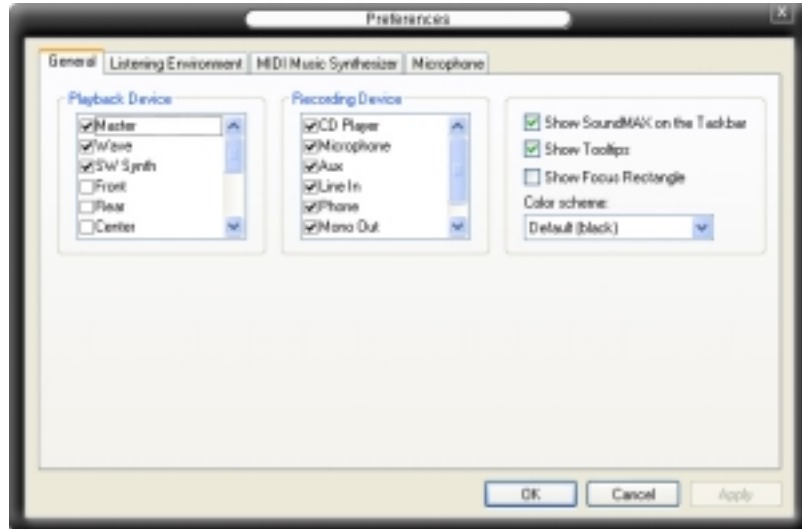
1. Click the Preferences icon  from the SoundMAX® control panel. The Preferences window appears.



2. Click a tab (General, Listening environment, MIDI Music Synthesizer, Microphone) to display the audio settings and preferences.

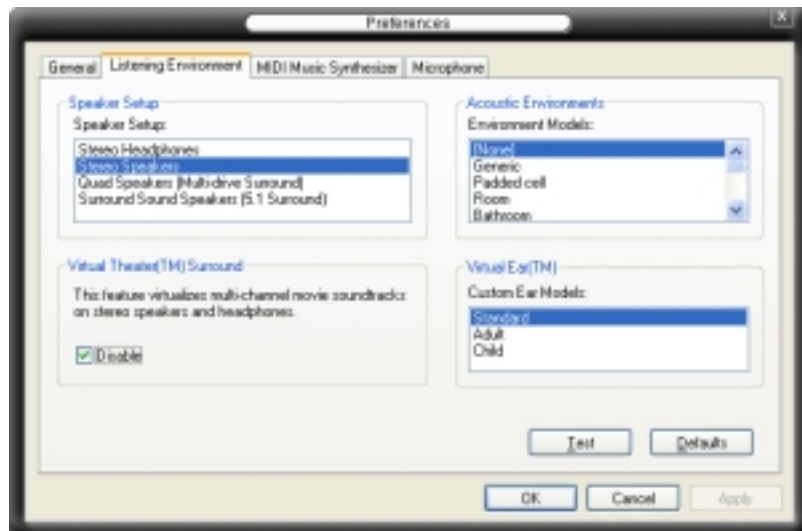
General

The **General** tab allows you to select and adjust the playback and recording devices, and the SoundMAX application preferences.



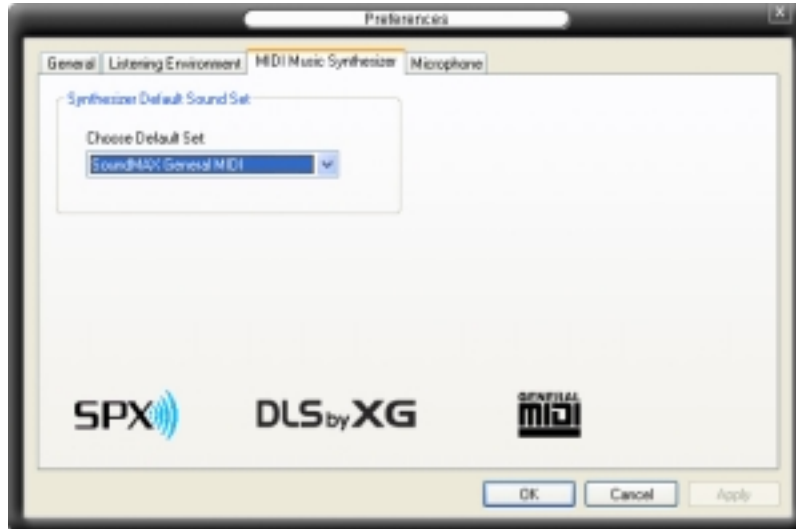
Listening Environment

The **Listening Environment** tab allows you to select the speaker setup, set the acoustic environment, enable the Virtual Theater(TM) Surround feature, and set the VirtualEar(TM) mode.



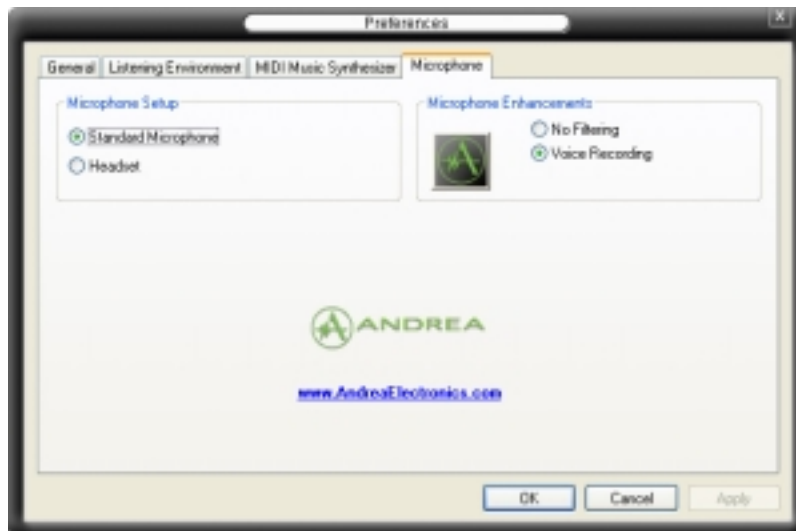
MIDI Music Synthesizer

The **MIDI Music Synthesizer** tab allows you to set the MIDI and synthesizer settings for your selected audio configuration.



Microphone

The **Microphone** tab allows you to select the microphone setup and environment.



3.3.2 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. The PC Probe II is available from the support CD that came with your system package. Refer to page 3-4 for installation details.

Launching PC Probe II

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

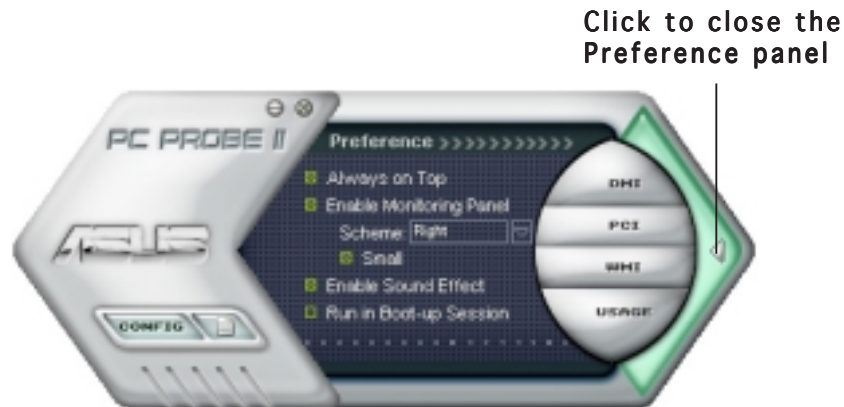
To launch the PC Probe II from the Windows® desktop, click **Start > All Programs > ASUS > PC Probe II**. The PC Probe II main window appears.

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.



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

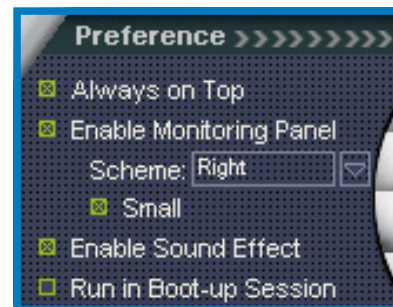
When a system sensor detects a problem, the main window right handle turns red. Refer to the illustration below.



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. Refer to the table below.



Preference	When checked
Always on top	the utility main window always appear on top of all opened windows
Enable Monitoring Panel	the utility displays large (hexagonal) or small (rectangular) monitor panels for system sensors. See the next section for details
Enable Sound Effect	the utility plays a sound everytime you click a button on the interface
Run in Boot up Session	the utility launches automatically everytime the computer starts



Refer to the online help file for detailed information on the application preferences and configuration.

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.



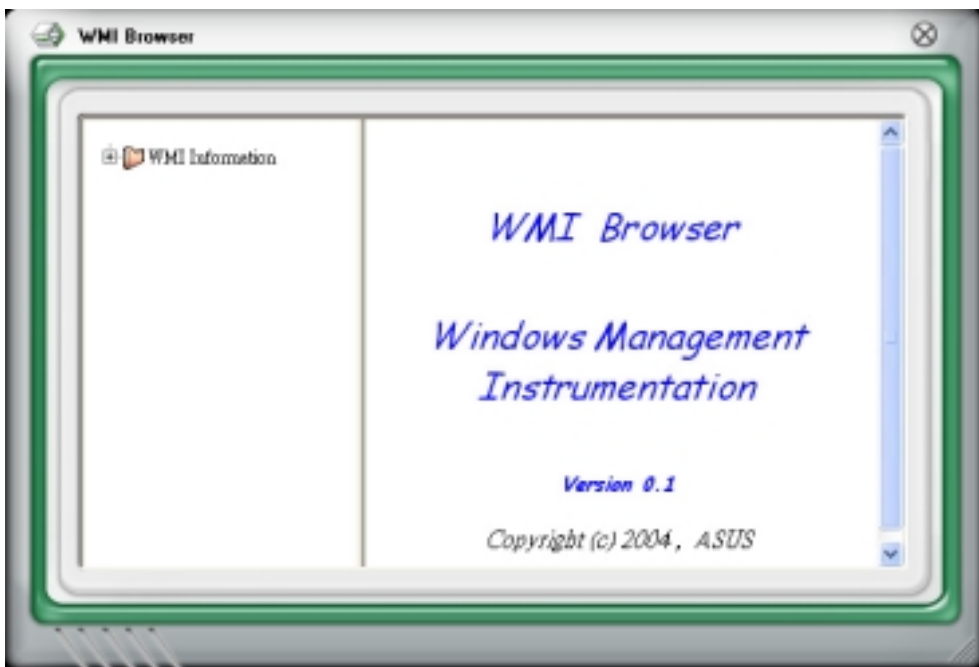
Large display



Small display

WMI browser

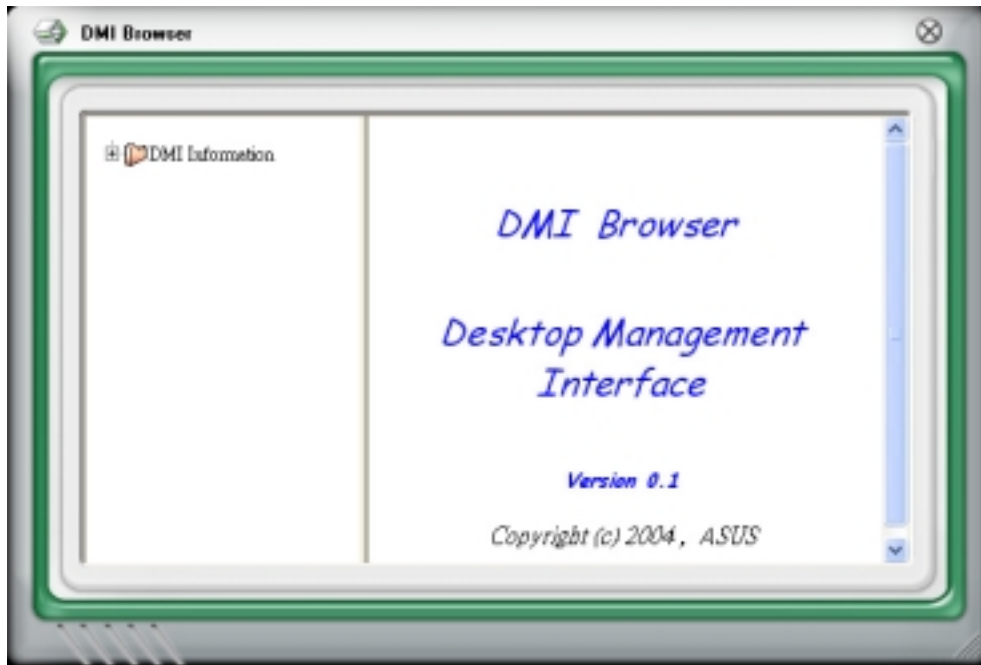
Click **WMI** to display the WMI (Windows Management Instrumentation) browser. This browser displays various Windows® management information. Click an item from the left panel to display on the right panel. Click the plus sign (+) before **WMI Information** to display the available information.



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

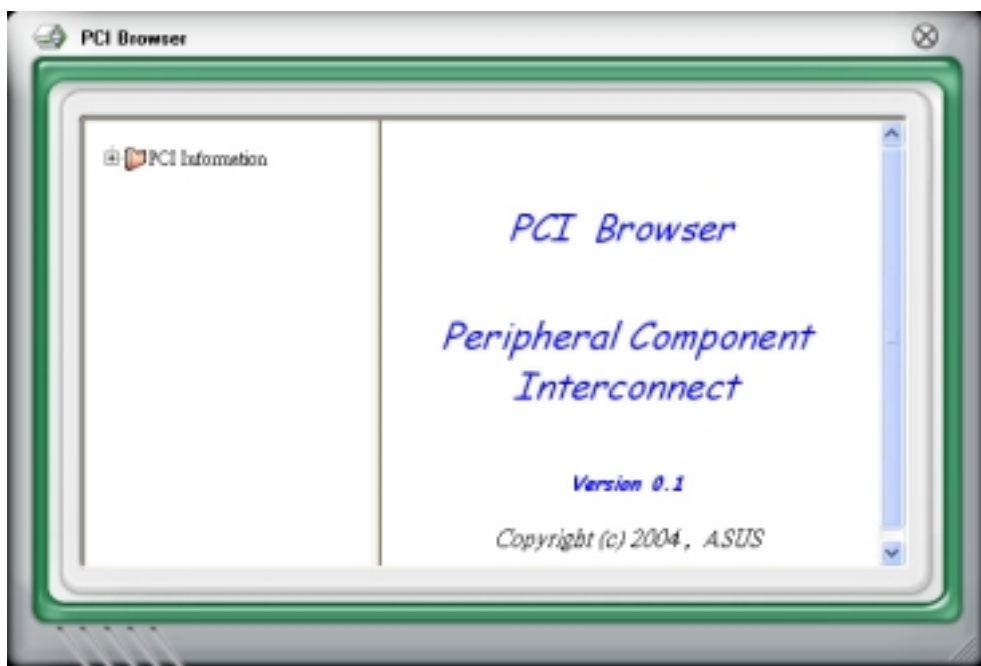
DMI browser

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.

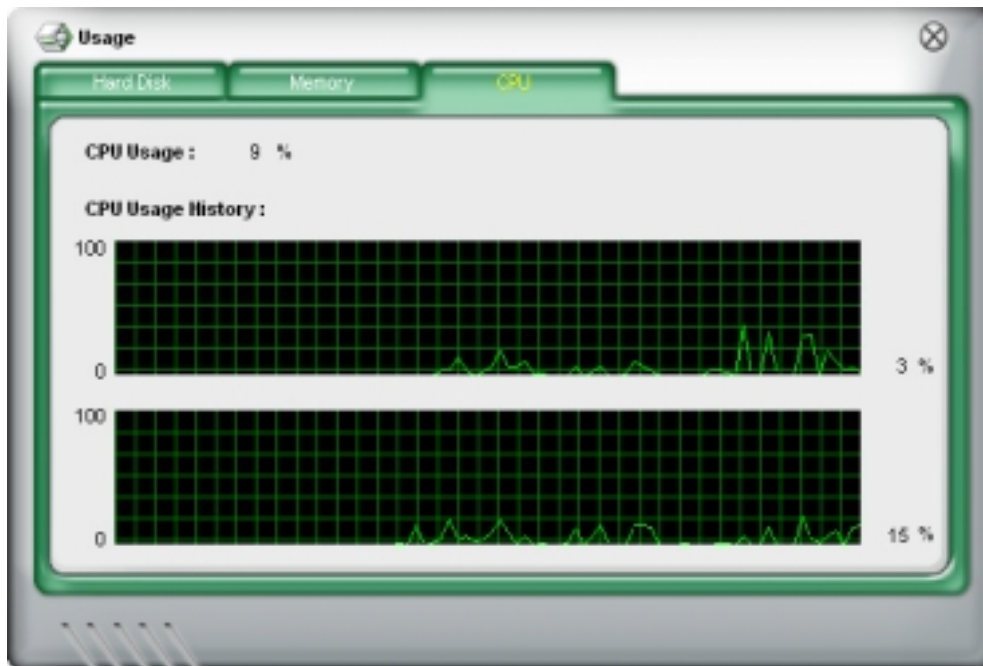


Usage

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.



*On Intel® CPUs only.

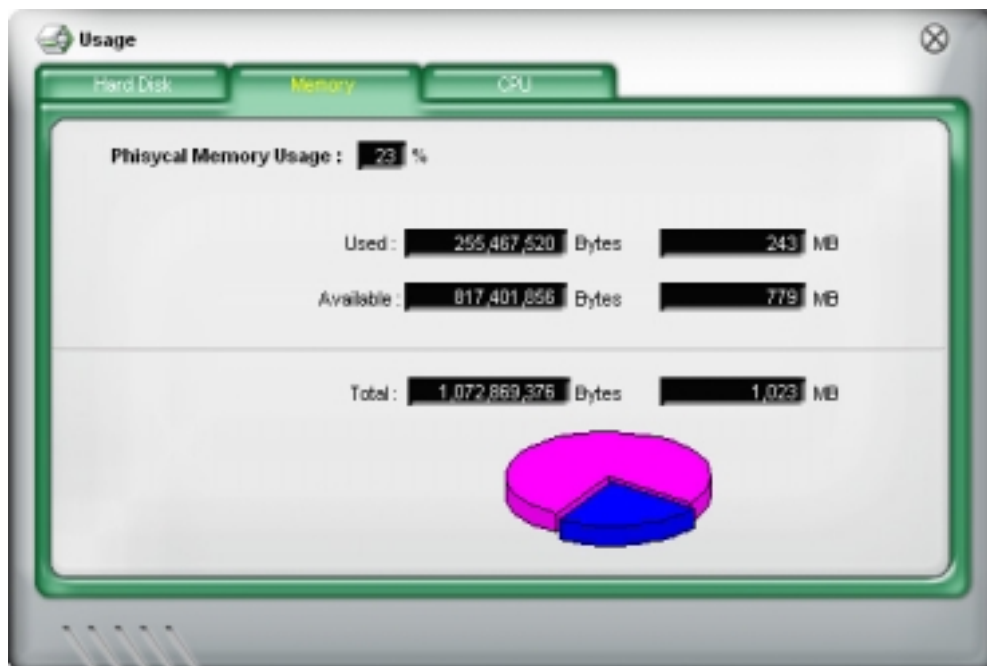
Hard disk drive space usage

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.



3.3.3 Cool ‘n’ Quiet!™ Technology



- Make sure to install the Cool ‘n’ Quiet!™ driver and application before using this feature.
- The AMD Cool ‘n’ Quiet!™ technology supports AMD Athlon™ XP and higher processors only.

The system motherboard supports the AMD Cool ‘n’ Quiet!™ Technology that dynamically and automatically change the CPU speed, voltage, and amount of power depending on the CPU loading.

Enabling Cool ‘n’ Quiet!™ Technology

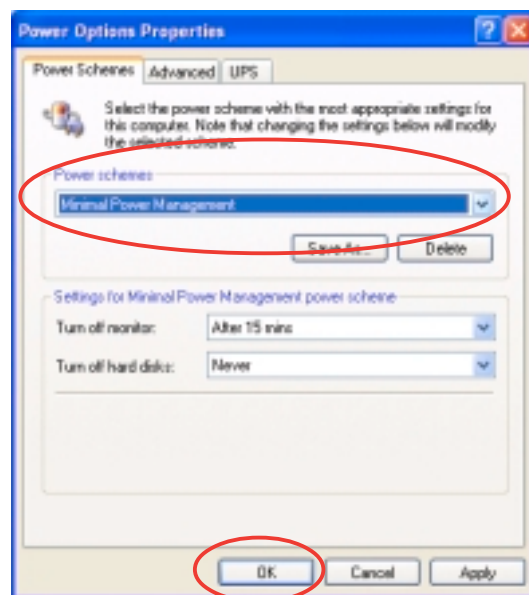
To enable Cool ‘n’ Quiet!™ Technology:

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, then set the **Cool ‘n’ Quiet** item to **Enabled**. See section “5.4 Advanced Menu” for details.
3. Go to the **Power** menu, then set the **ACPI 2.0 Support** item to **Yes**. See section “5.5 Power Menu” for details.
4. Save your changes, then exit the BIOS Setup.
5. Set the **Power Option Properties** depending on the operating system. Refer to the next section for details.

Setting the power options

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.



Launching the Cool 'n' Quiet!™ application

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



Make sure to install the Cool 'n' Quiet!™ software from the motherboard support CD. Refer to section "3.2.3 Utilities menu", for details.

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

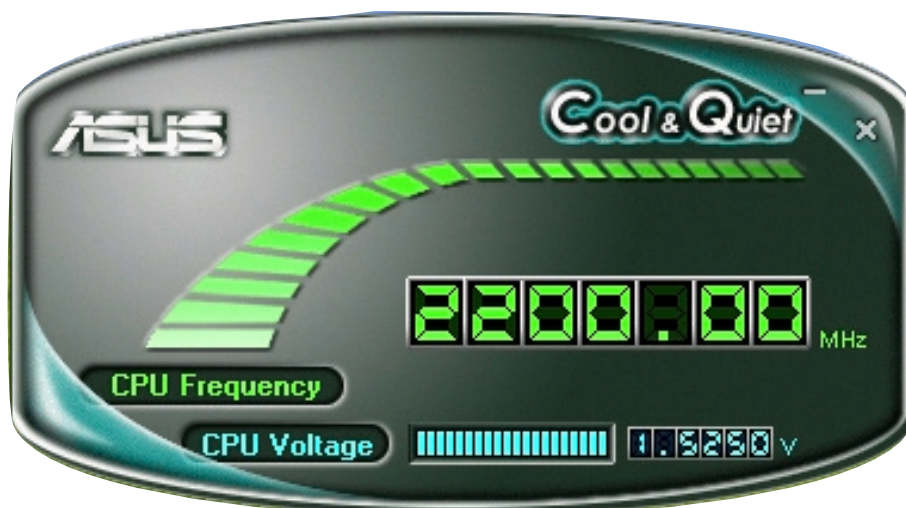
Windows® 2000 OS

1. Click the **Start** button.
2. Select **Programs > ASUS > Cool & Quiet > Cool & Quiet.**

Windows® XP OS

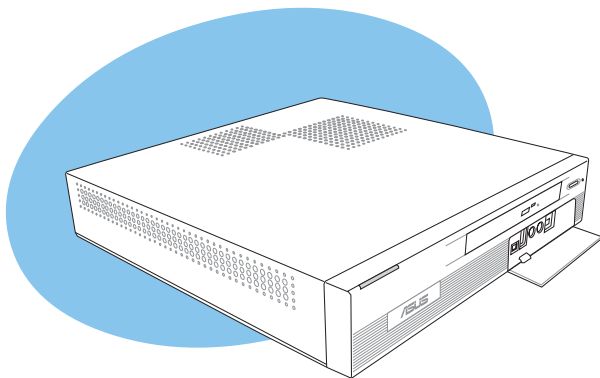
1. Click the **Start** button.
2. Select **All Programs > ASUS > Cool & Quiet > Cool & Quiet.**

The Cool 'n' Quiet!™ application window appears and displays the current CPU frequency and core voltage. Click (X) to close the window or (-) to minimize.



Chapter 4

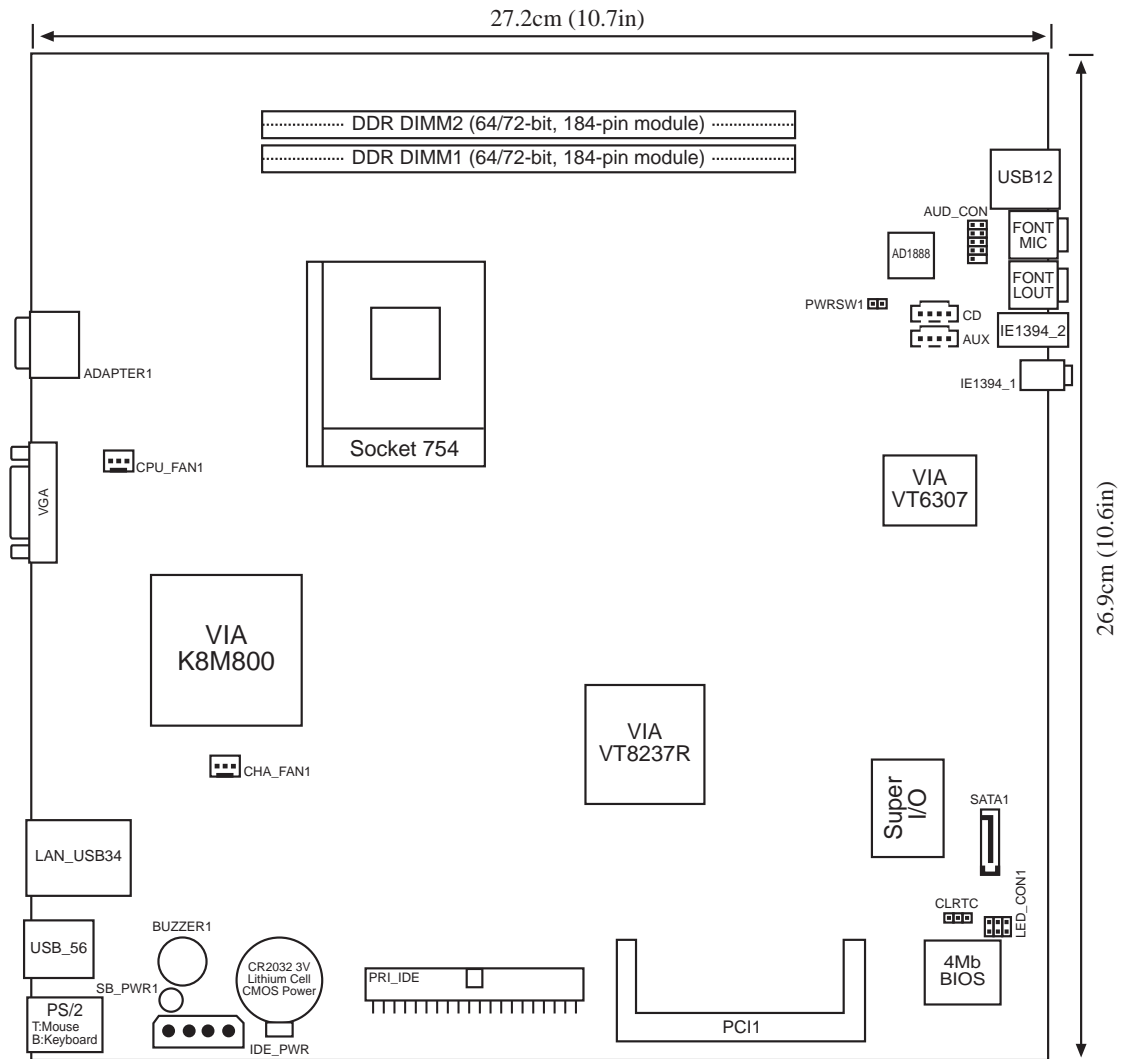
This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.



ASUS Pundit P2-AE2

4.1 Motherboard overview

Motherboard layout



4.2 Jumper

Clear RTC RAM (CLRTC)

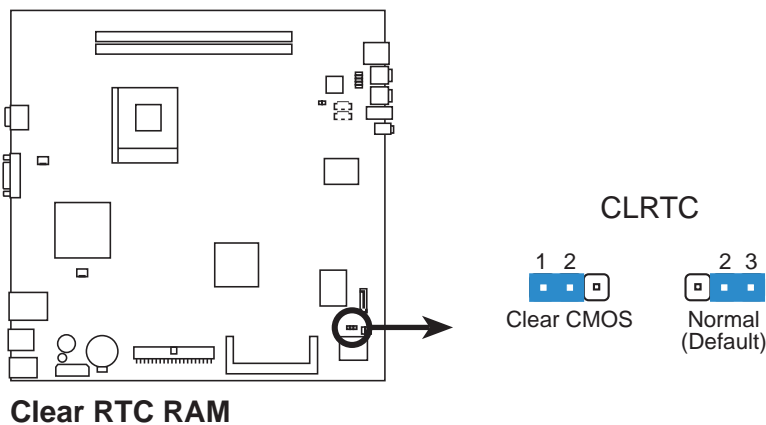
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

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



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



4.3 Connectors

4.3.1 Rear panel connectors

Refer to section “1.4 Rear panel” for a description of the rear panel I/O ports.

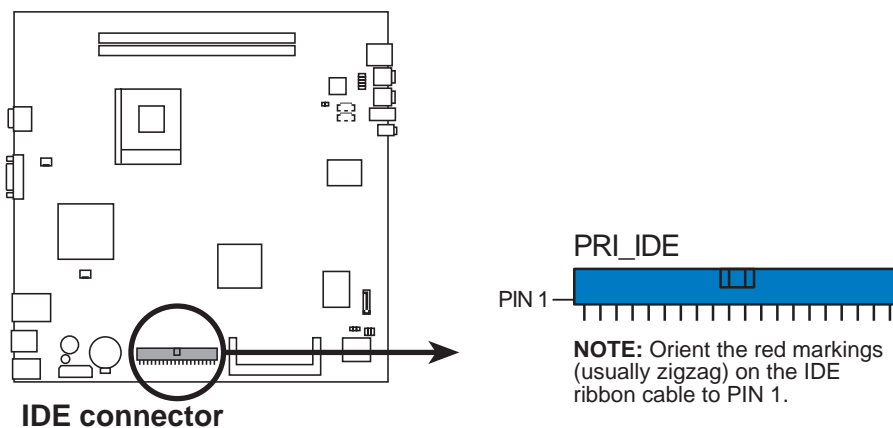
4.3.2 Internal connectors

1. Primary IDE connector (40-1 pin PRI_IDE)

This connector is for an Ultra DMA 133/100/66 signal cable. The Ultra DMA 133/100/66 signal cable has three connectors: a blue connector for the primary IDE connector on the motherboard, a black connector for an Ultra DMA 133/100/66 IDE slave device (optical drive/hard disk drive), and a gray connector for an Ultra DMA 133/100/66 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 133/100/66 IDE devices.

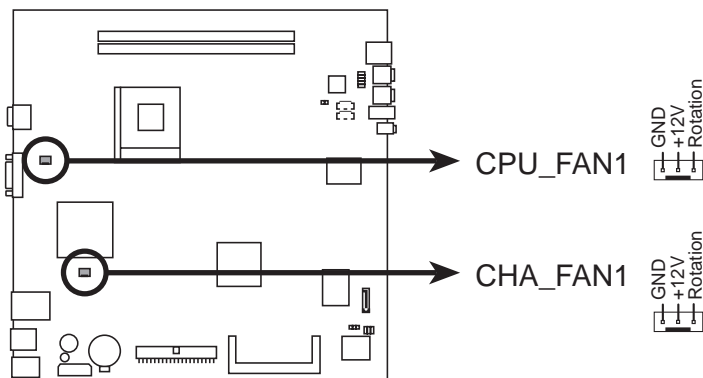


2. CPU and Chassis Fan connectors (3-pin CPU_FAN1, CHA_FAN1)

The fan connectors support cooling fans of 350 mA~740 mA (8.88 W max.) or a total of 1 A~2.22 A (26.64 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector. You can monitor the CPU and chassis fan rotations using the ASUS PC Probe utility. Refer to page 3-9 for details.



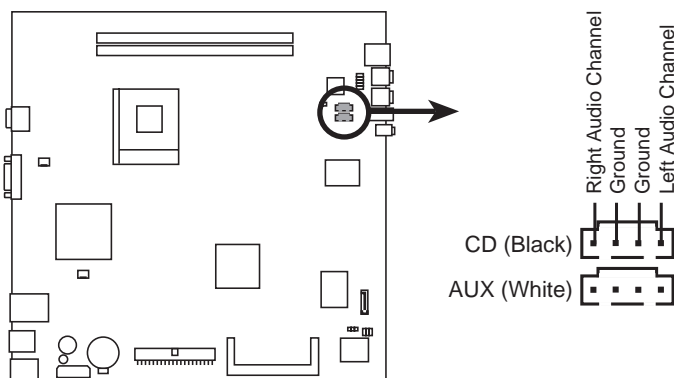
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



Fan connectors

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

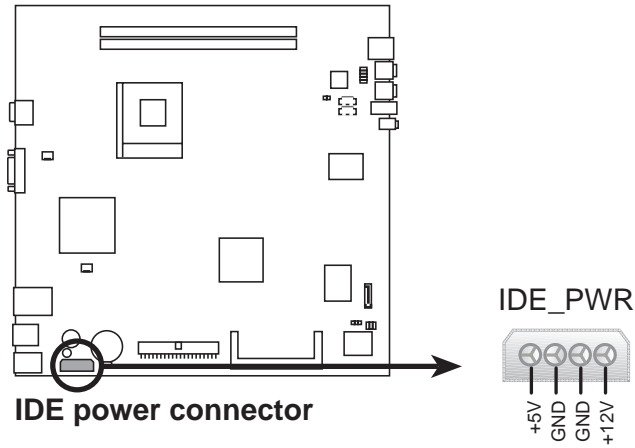
These connectors allow you to receive stereo audio input from audio sources such as an optical drive, TV tuner, or MPEG card.



Internal audio connectors

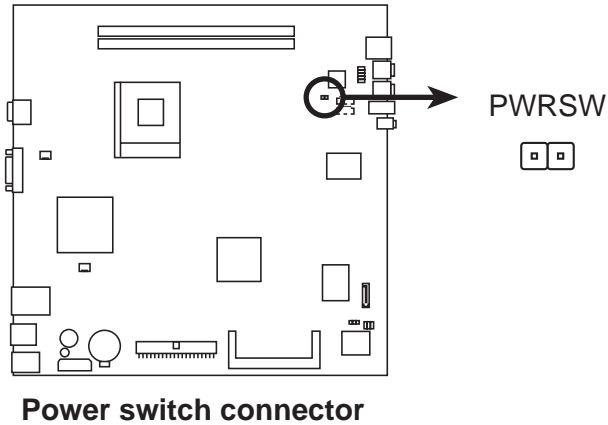
4. IDE power connector (4-pin IDE_PWR)

The IDE power connector is for the IDE power cable. This connector supplies power to the hard disk drive and the slim optical drive.



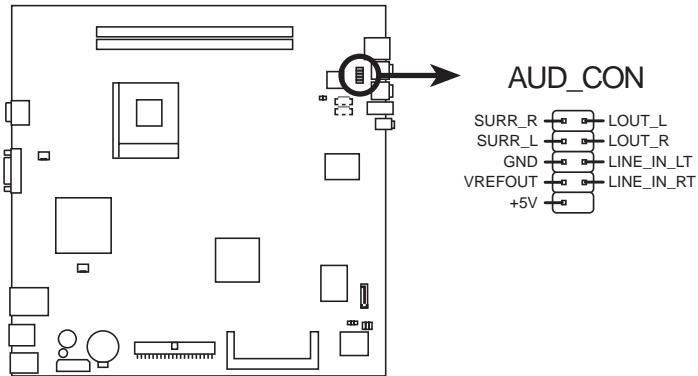
5. Power switch connector (2-pin PWRSW)

This connects to the the system power switch button on the system front panel.



6. Rear panel audio connectors (10-1 pin AUD_CON)

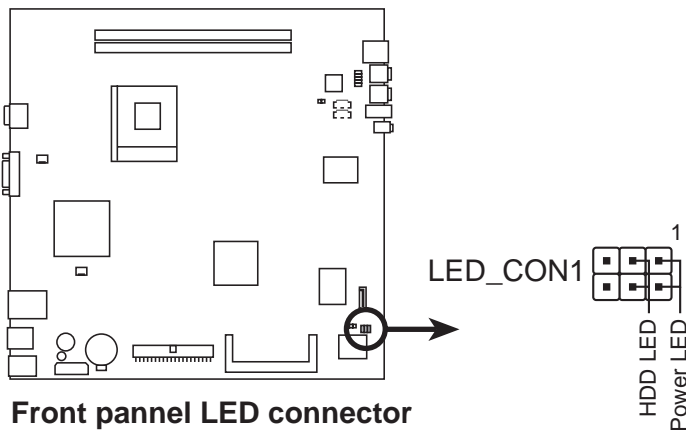
This connector is for the ASUS proprietary rear panel audio board that supports the rear panel audio I/O ports.



Rear panel audio connector

7. Front panel LED connector (6-pin LED_CON1)

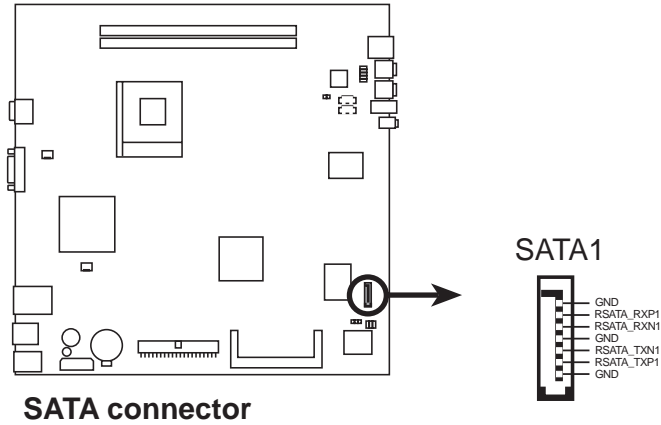
The connector is for the power and HDD activity LED in the system front panel.



Front panel LED connector

8. Serial ATA connector (7-pin SATA1)

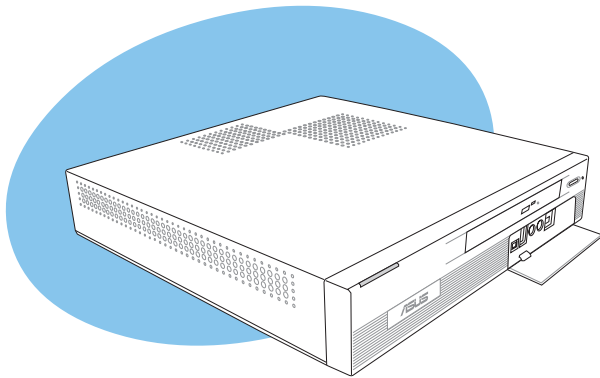
This connector is for the Serial ATA signal cables for a Serial ATA hard disk drive.



You must install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack 1 before using a Serial ATA hard disk drive.

Chapter 5

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



ASUS Pundit P2-AE2

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 EZFlash** (Updates the BIOS in DOS mode using the motherboard support CD.)
2. **ASUS CrashFree BIOS** (Updates the BIOS using the motherboard support CD when the BIOS file fails or gets corrupted.)
3. **ASUS Update** (Updates the BIOS in Windows® environment.)

Refer to the corresponding sections for details on these utilities.

5.1.1 ASUS EZ Flash utility

The ASUS EZ Flash feature allows you to update the BIOS without having to go through the long process of booting from a 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).



You can use the motherboard support CD to recover the original BIOS file.

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 **K8VQ.ROM**.
2. Save the BIOS file to a CD, then restart the system.
3. Press <Alt> + <F2> during POST to display the following.

```
EZFlash starting BIOS update
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
```

4. Insert the CD that contains the BIOS file to the optical 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 not found!
Checking for CD-ROM...
CD-ROM found!
Reading file "K8VQ.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 “CD-ROM not found!” error message appears if there is no CD in the optical drive. A “K8VQ.ROM not found!” error message appears if the correct BIOS file is not found in the CD. Make sure that you rename the BIOS file to K8VQ.ROM.
-

5.1.2 ASUS CrashFree BIOS utility

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



Prepare the system support CD containing the original or updated BIOS file before using this utility.

To recover the BIOS using the ASUS CrashFree BIOS Utility:

1. Turn on the system.
2. Place the support CD to the optical drive.
3. The utility displays the following message and automatically checks the motherboard support CD for the original/updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
CD-ROM found!
```

When the original/updated BIOS file is found, the utility automatically updates the corrupted BIOS file.



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

The utility restarts the system after the updating process.



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

5.1.3 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the system BIOS file 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 system package.



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

Installing ASUS Update

To install ASUS Update:

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

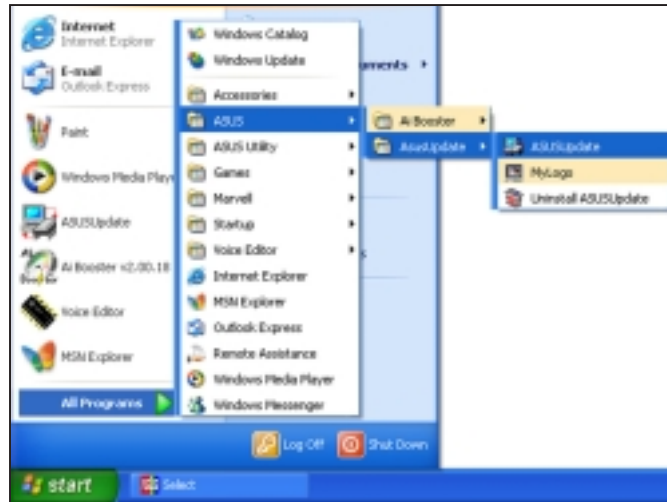


Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

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



2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.
3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.



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



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



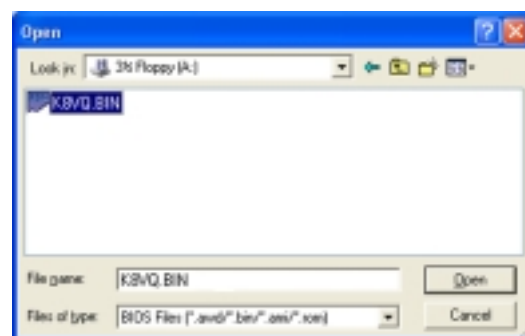
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

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



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



5.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section “5.1 Managing and updating your BIOS.”

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

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

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

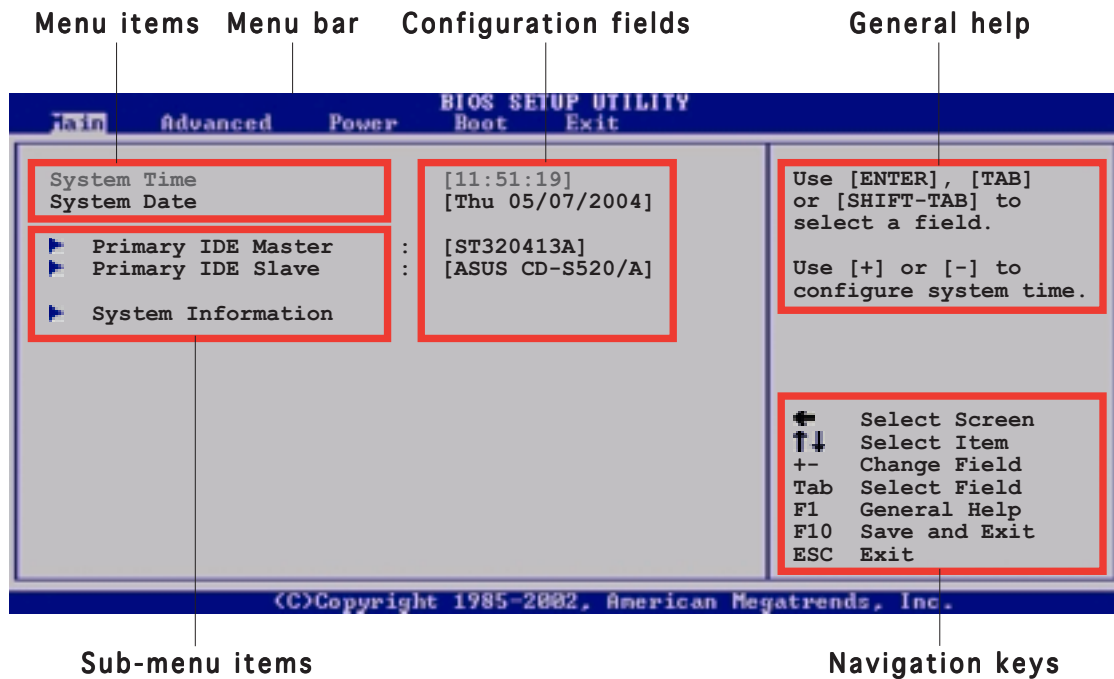
If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

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



-
- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Default Settings** item under the Exit Menu. See section “5.7 Exit Menu.”
 - The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
 - Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.
-

5.2.1 BIOS menu screen



5.2.2 Menu bar

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

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

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

5.2.3 Navigation keys

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

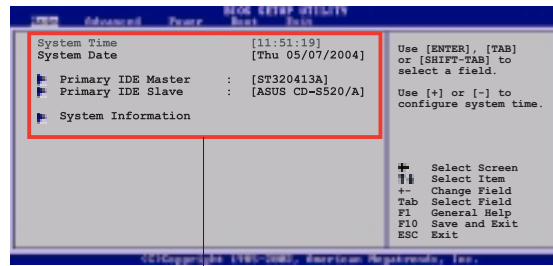


Some of the navigation keys differ from one screen to another.

5.2.4 Menu items

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

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



Main menu items

5.2.5 Sub-menu items

A solid triangle before each item on any menu screen means that the 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.

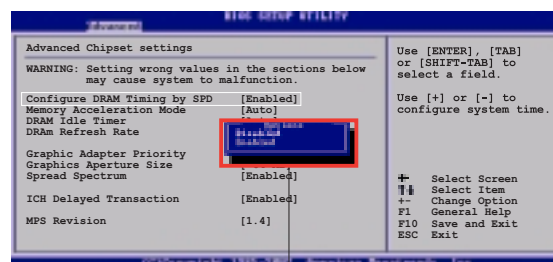
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to “5.2.7 Pop-up window.”

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

5.2.9 General help

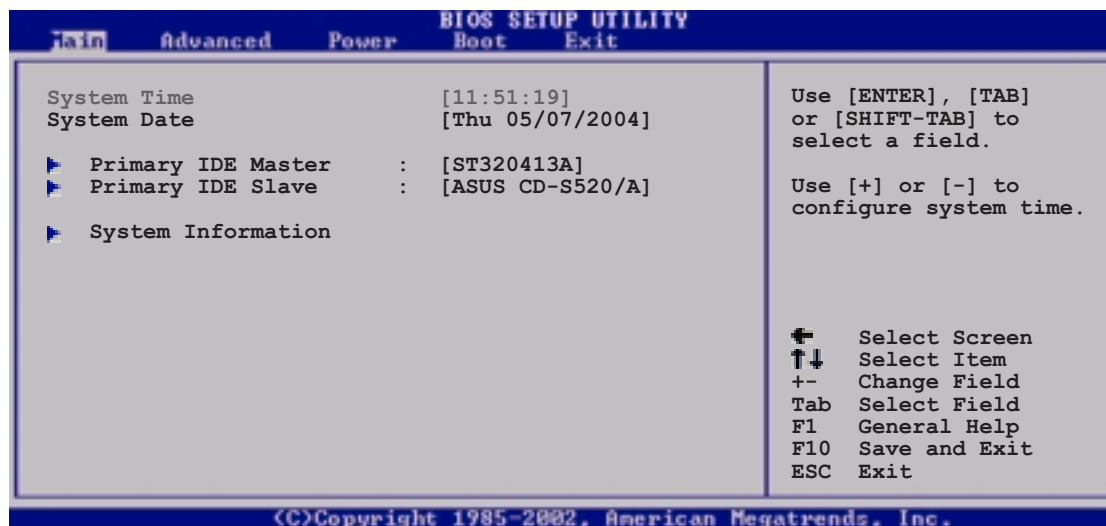
At the top right corner of the menu screen is a brief description of the selected item.

5.3 Main menu

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



Refer to section “5.2.1 BIOS menu screen” for information on the menu screen items and how to navigate through them.



5.3.1 System Time [xx:xx:xx]

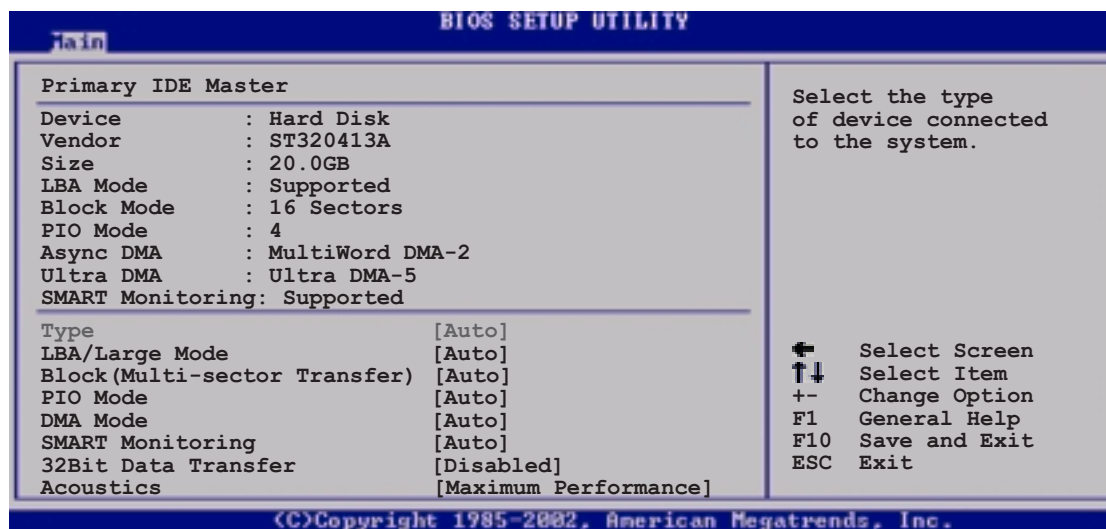
Allows you to set the system time.

5.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

5.3.3 Primary IDE Master/Slave

The BIOS automatically detects the connected 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 [4]

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.

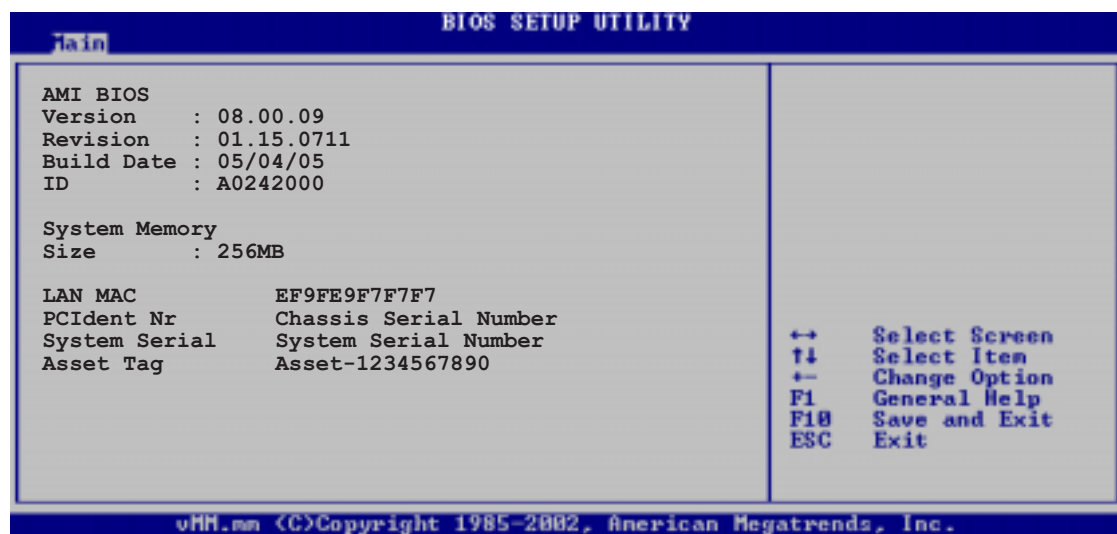
Configuration options: [Disabled] [Enabled]

Acoustics [Maximum Performance]

Allows you to manage the hard disk drive acoustics. The default **Maximum Performance** provides no acoustic management. The HDD acoustics decrease if you set this item to **Silent**, but may reduce the HDD performance. Configuration options: [Maximum Performance] [Medium] [Silent]

5.3.4 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.

System Memory

Displays the auto-detected system memory.

LAN MAC

Displays the auto-detected MAC address of the onboard LAN.

PCIdent Nr

Displays the chassis serial number.

System Serial

Displays the system serial number.

Asset Tag

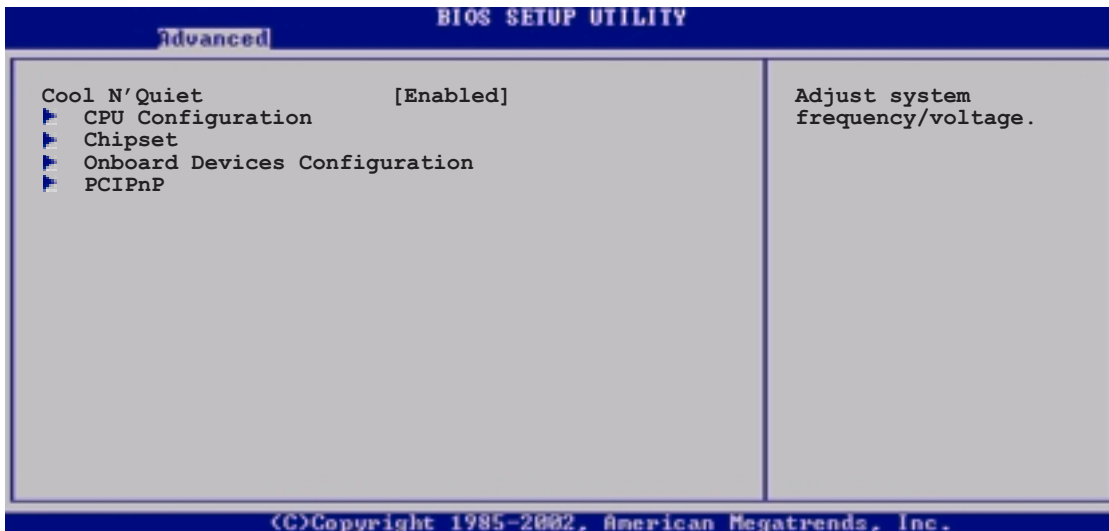
Displays the system's asset tag.

5.4 Advanced menu

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



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

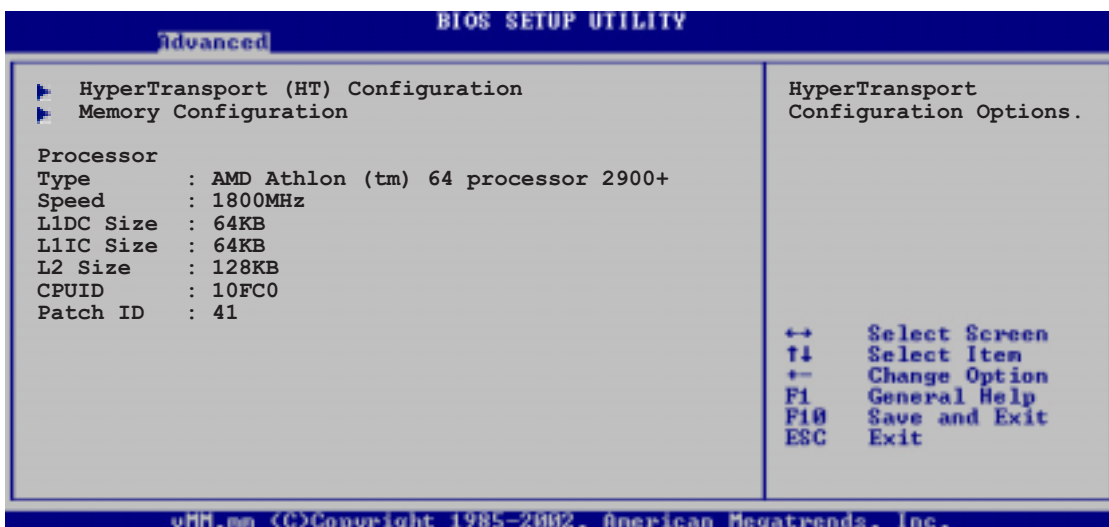


Cool N' Quiet [Enabled]

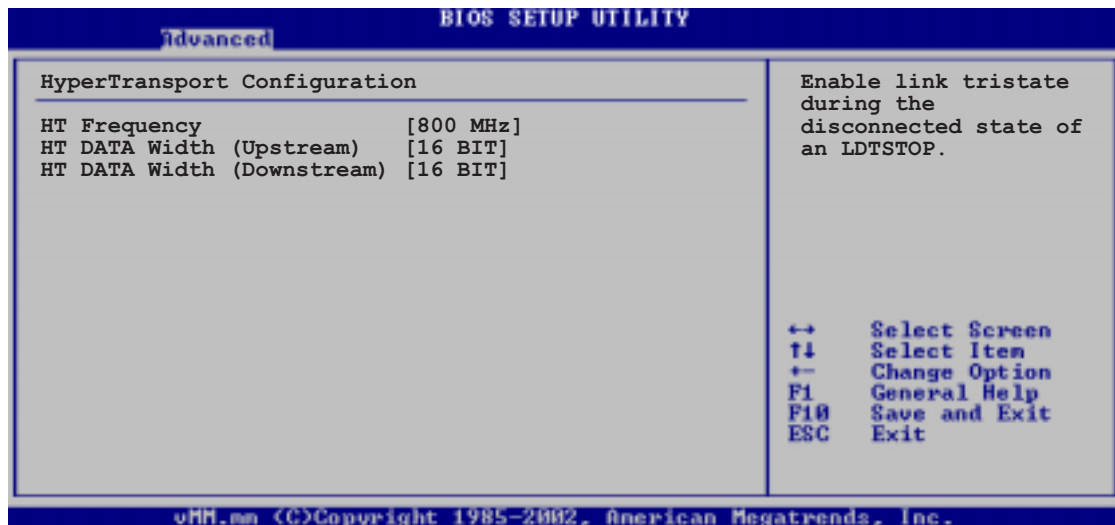
Allows you to enable or disable the AMD cool and quiet function.
Configuration options: [Enabled] [Disabled]

5.4.1 CPU Configuration

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



HyperTransport (HT) Configuration



HT Frequency [800 MHz]

Allows you to select the frequency of HyperTransport transfer from K8 CPU to AGP. Configuration options: [200 MHz] [400 Mhz] [600 Mhz] [800 Mhz]

HT DATA Width (Upstream) [16 BIT]

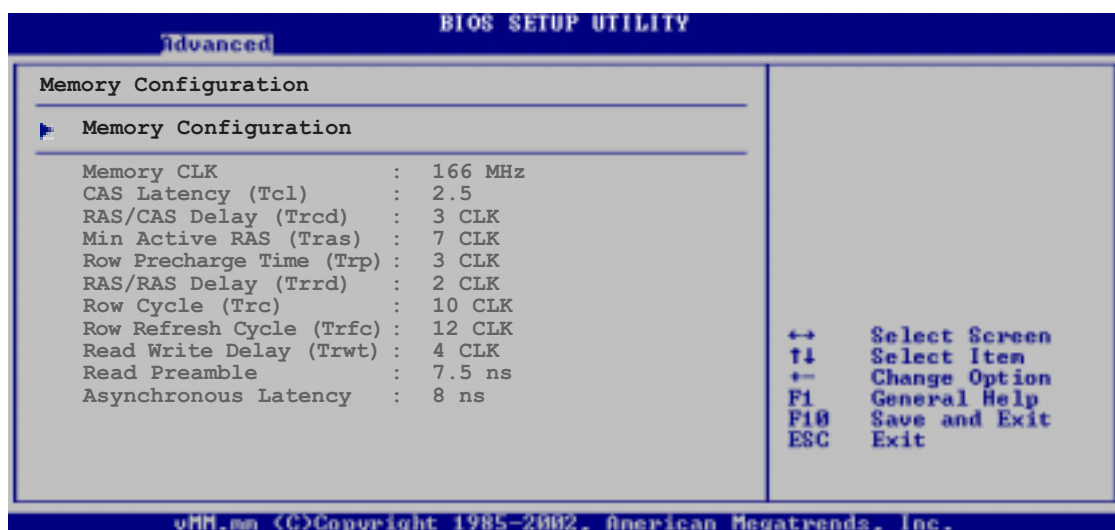
Allows selection of the HyperTransport upstream data width. Configuration options: [16 BIT] [8 BIT]

HT DATA Width (Downstream) [16 BIT]

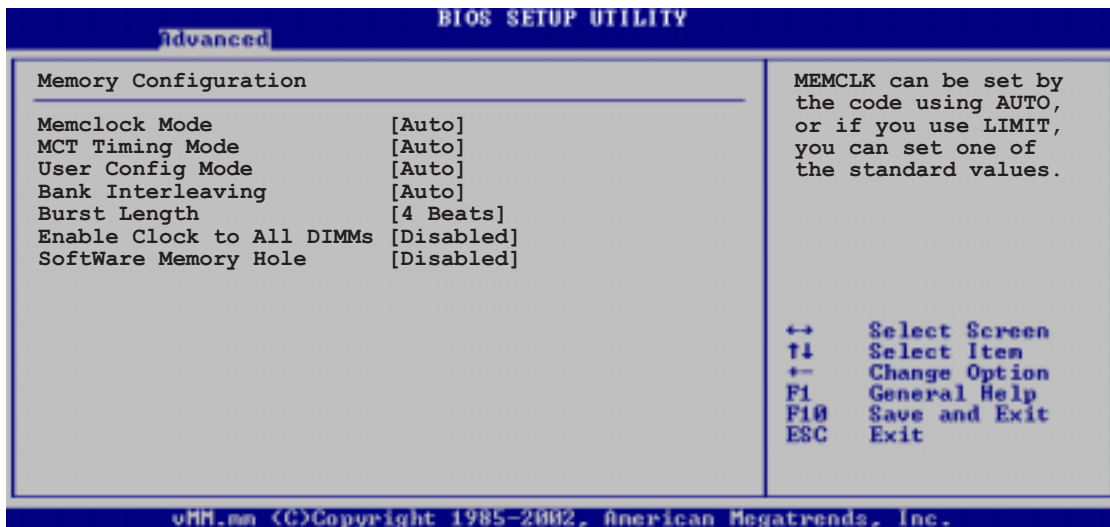
Allows selection of the HyperTransport downstream data width. Configuration options: [16 BIT] [8 BIT]

Memory Configuration

The Memory Configuration menu allows you to change the system memory settings. The dimmed items are auto-detected by the BIOS.



Memory Configuration



Memclock Mode [Auto]

Allows you to set the memory clock mode. Set by the code using [Auto] or select [Manual] to set using one of the standard values. Configuration options: [Auto] [Limit]



The **Memcheck to CPU Ratio** item appears only when you set the **Memclock Mode** item to [Limit].

Memcheck to CPU Ratio [Auto]

Allows you to set the memory to CPU ratio. Configuration options: [1:1 (DDR 200)] [4:3 (DDR 266)] [3:2] [5:3 (DDR 333)] [2:1 (DDR 400)]

MCT Timing Mode [Auto]

Allows you to set the MCT timing mode. Configuration options: [Auto] [Manual]

User Config Mode [Auto]

Allows you to set the user configuration mode. Configuration options: [Auto] [Manual]

Bank Interleaving [Auto]

Allows you to enable or disabled memory bank interleaving. Configuration options: [Auto] [Disabled]

Burst Length [4 Beats]

Allows you to set the memory burst length. Configuration options: [8 Beats] [4 Beats] [2 Beats]

Enable Clock to All DIMMs [Disabled]

Allows you enable the memory clock to all installed DIMMs. Configuration options: [Disabled] [Enabled]

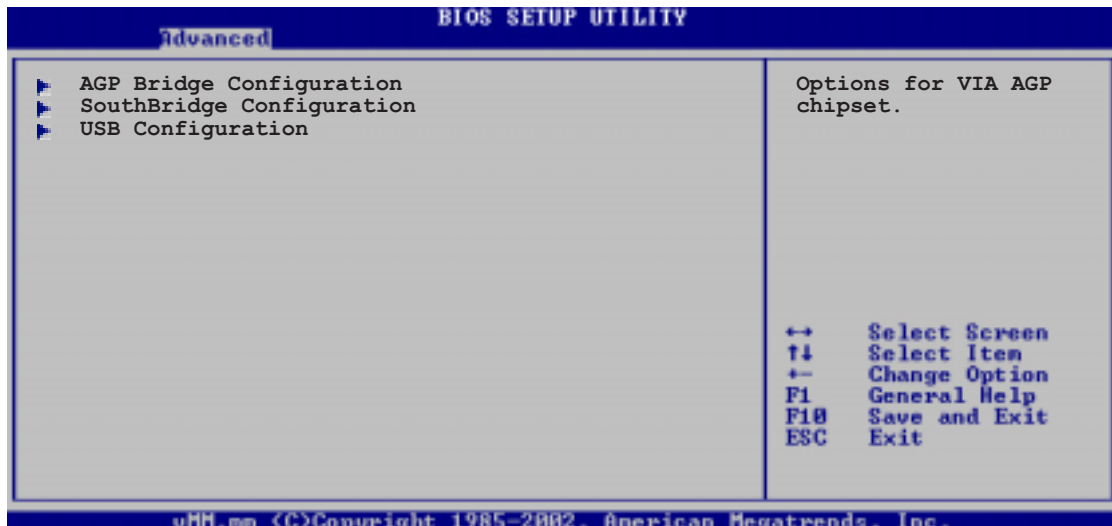
SoftWare Memory Hole [Disabled]

Allows you enable or disable the software memory hole.

Configuration options: [Disabled] [Enabled]

5.4.2 Chipset

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



AGP Bridge Configuration



OnChip VGA Frame Buffer Size [64MB]

Allows you to set the frame buffer size for the onboard graphic controller. Configuration options: [64MB] [32MB] [16MB] [8MB]

VLink 8X Supported [Enabled]

Allows you to enable the VIA dedicated bus that supports 4X and 8X data transfer rates. Configuration options: [Enabled] [Disabled]

AGP Mode [AGP 8X]

Allows you to set the speed of the onboard graphics controller. When set to [AGP 4X] mode, the AGP interface only provides a peak data throughput of 1.06GB/s. Configuration options: [AGP 8X] [AGP 4X]

AGP Fast Write [Enabled]

Enables or disables the AGP Fast Write feature.
Configuration options: [Enabled] [Disabled]

Graphics Aperture Size [64MB]

Allows you to select the size of mapped memory for AGP graphic data. Configuration options: [256MB] [128MB] [64MB] [32MB]

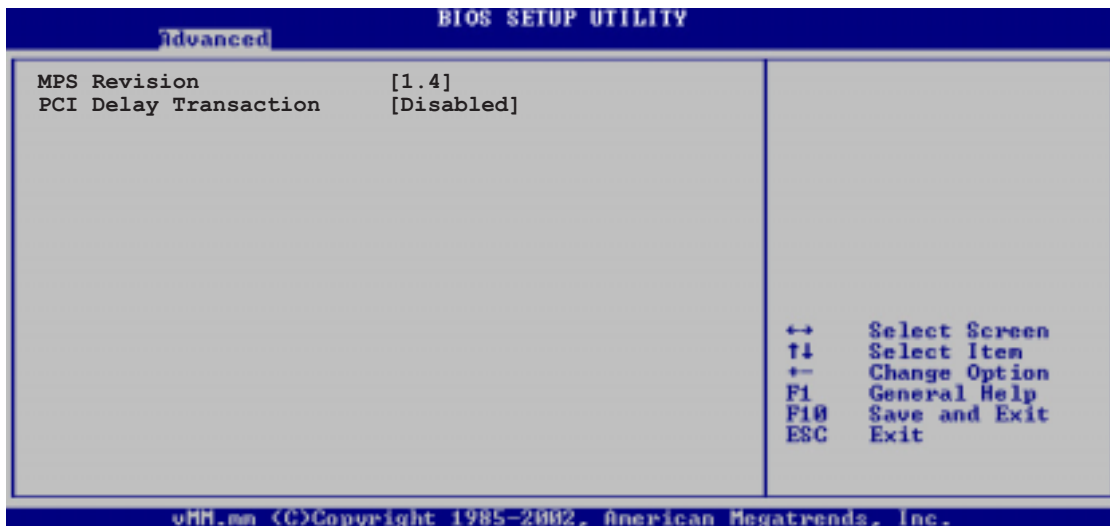
AGP 3.0 Calibration Cycle [Enabled]

Enables or disables the AGP Fast Write feature.
Configuration options: [Enabled] [Disabled]

DBI Output for AGP Trans [Disabled]

Enables or disables the DBI Output for the AGP.
Configuration options: [Disabled] [Enabled]

SouthBridge Configuration



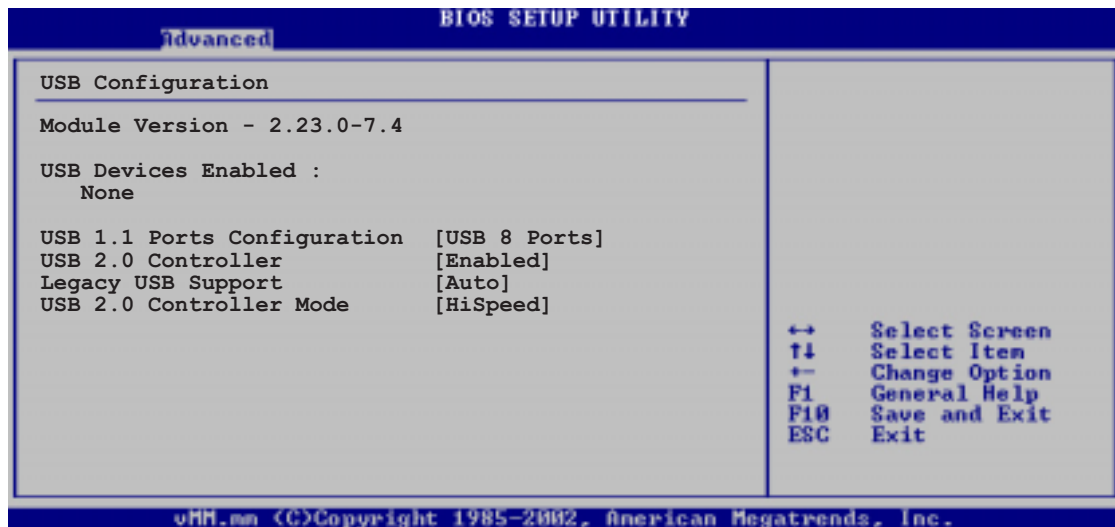
MPS Revision [1.4]

Sets the MPS revision value. Configuration options: [1.1] [1.4]

PCI Delay Transaction [Disabled]

Enables or disables the PCI delay transaction feature.
Configuration options: [Disabled] [Enabled]

USB Configuration



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

USB 1.1 Ports Configuration [USB 8 Ports]

Allows you to set the number of USB ports to activate. Configuration options: [Disabled] [USB 2 Ports] [USB 4 Ports] [USB 6 Ports] [USB 8 Ports]

USB 2.0 Controller [Enabled]

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

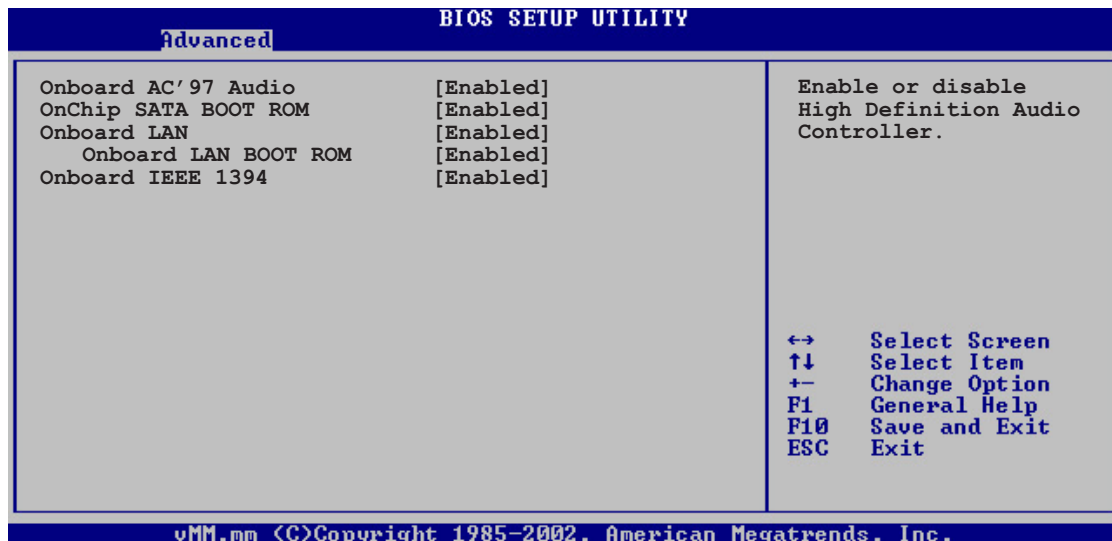
Legacy USB Support [Auto]

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

USB 2.0 Controller Mode [HiSpeed]

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

5.4.3 Onboard Devices Configuration



Onboard AC'97 Audio [Enabled]

Selecting [Enabled] allows the BIOS to detect whether you are using any audio device. If an audio device is detected, the onboard audio controller is enabled. If no audio device is detected, the controller is disabled.

Configuration options: [Enabled] [Disabled]

OnChip SATA BOOT ROM [Enabled]

Allows you to enable or disable the onboard SATA boot ROM.

Configuration options: [Enabled] [Disabled]

Onboard LAN [Enabled]

Allows you to enable or disable the onboard LAN controller.

Configuration options: [Disabled] [Enabled]

Onboard LAN BOOT ROM [Enabled]

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

Configuration options: [Enabled] [Disabled]

Onboard IEEE 1394 [Enabled]

Allows you to enable or disable the onboard IEEE 1394 controller.

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]

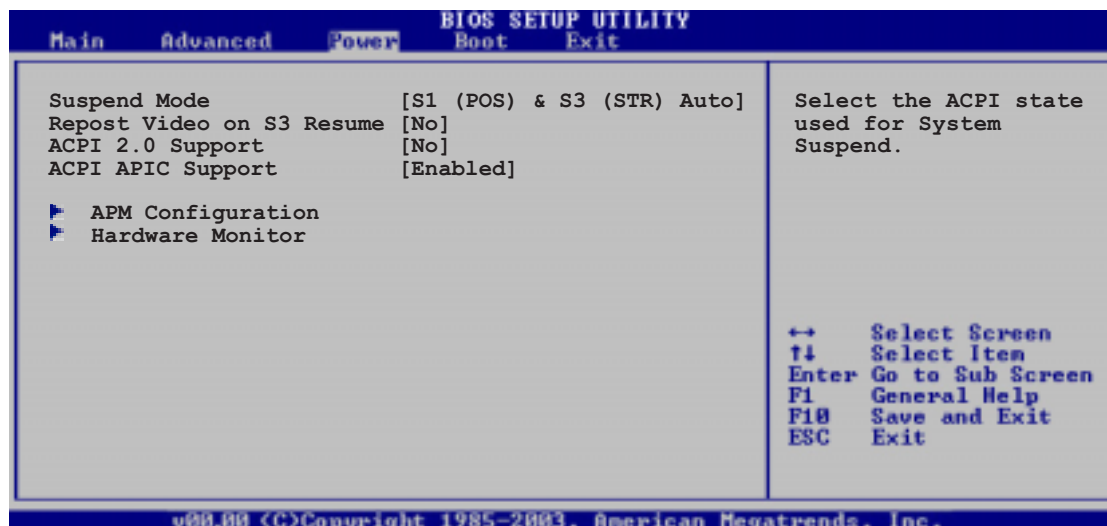
When set to [Available], the specific IRQ is free for use of PCI/PnP devices.

When set to [Reserved], the IRQ is reserved for legacy ISA devices.

Configuration options: [PCI Device] [Reserved]

5.5 Power menu

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



5.5.1 Suspend Mode [S1 (POS) & S3 (STR) Auto]

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

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

5.5.2 Repost Video on S3 Resume [No]

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

Configuration options: [No] [Yes]

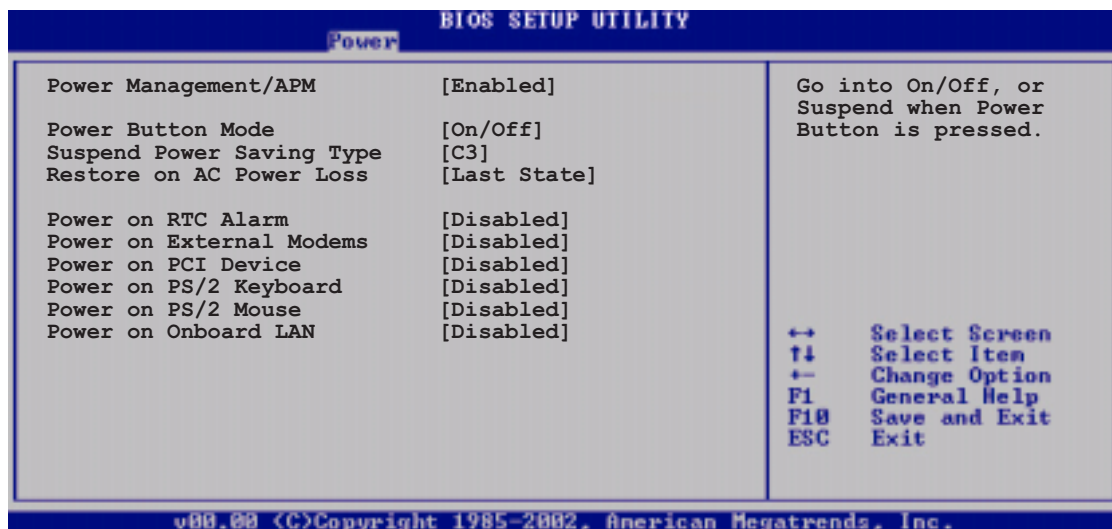
5.5.3 ACPI 2.0 Support [No]

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 Programmable Interrupt Controller (APIC) mode under Advanced Configuration and Power Interface (ACPI). When enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

5.5.5 APM Configuration



Power Management/APM [Enabled]

Allows you to enable or disable the Advanced Power Management (APM) feature. Configuration options: [Disabled] [Enabled]

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]

Suspend Power Saving Type [C3]

Allows you to set the suspend power saving type. Configuration options: [C3] [S1]

Restore on AC Power Loss [Last State]

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

Standby Time Out [Disabled]

Allows you to set the time before the system goes on standby. Configuration options: [Disabled] [1 minute] [2 minutes] [4 minutes] [8 minutes] [10 minutes] [20 minutes] [30 minutes] [40 minutes] [50 minutes] [60 minutes]

Power On By RTC Alarm [Disabled]

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

Configuration options: [Disabled] [Enabled]



The succeeding items appear when the **Power On By RTC Alarm** item is set to Enabled.

RTC Alarm Date (Days)

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

RTC Alarm Hour (Hours)

To set the alarm hour, highlight this item and press the <+> or <-> key to make the selection. Configuration options: [00] [1]... ~ [23]

RTC Alarm Minute (Minutes)

To set the alarm minute, highlight this item and press the <+> or <-> key to make the selection. Configuration options: [00] [1]... ~ [59]

RTC Alarm Second (Seconds)

To set the alarm second, highlight this item and press the <+> or <-> key to make the selection. Configuration options: [00] [1]... ~ [59]

Power on External Modems [Disabled]

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



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

Power On PCI Device [Disabled]

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

Configuration options: [Disabled] [Enabled]

Power On PS/2 Keyboard [Disabled]

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

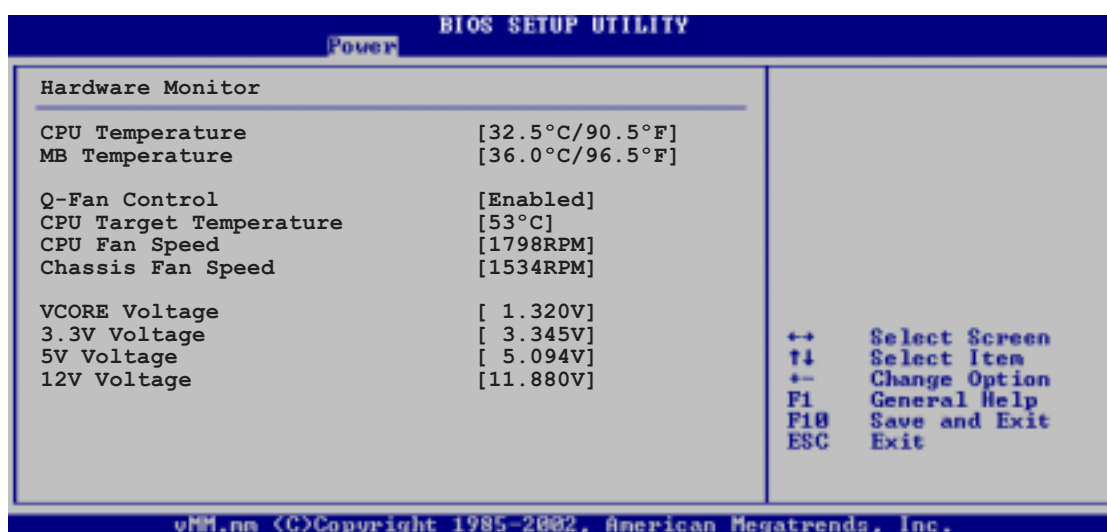
Power On PS/2 Mouse [Disabled]

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

Power On Onboard LAN [Disabled]

When set to [Enabled], this option allows you to use the onboard LAN to turn on the system. Configuration options: [Disabled] [Enabled]

5.5.6 Hardware Monitor



CPU Temperature [xxx°C/xxx°F]

MB Temperature [xxx°C/xxx°F]

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

Q-Fan Control [Enabled]

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

CPU Target Temperature [xx°C]

Allows you to set the CPU temperature threshold when the CPU fan speed is increased to lower the CPU temperature. The configuration options for this item depend on the recommended Intel® Fan Speed Control (FSC) temperature settings. The Intel® FSC provides target temperature options at 15 °C with 3 °C interval.

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

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

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

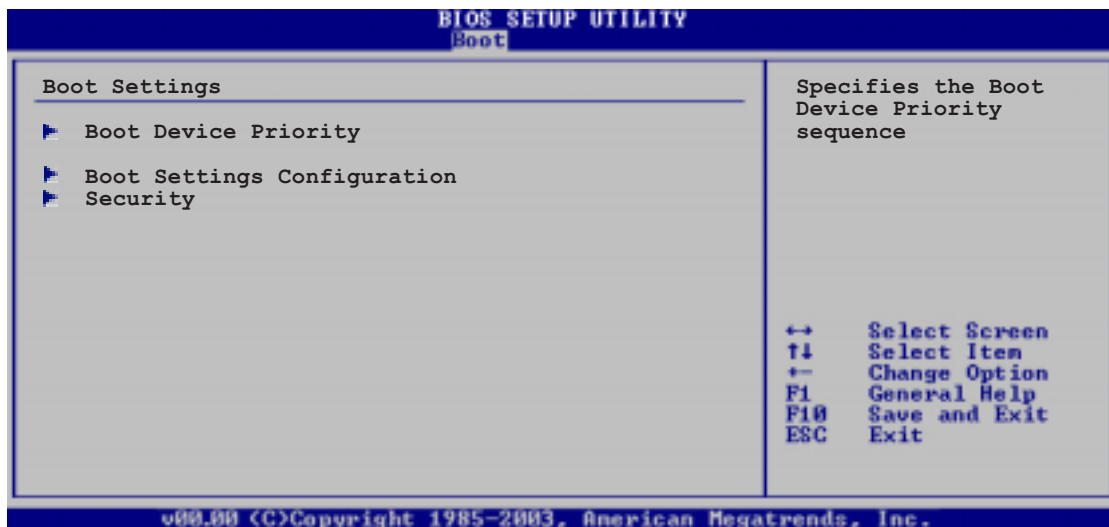
The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A.

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

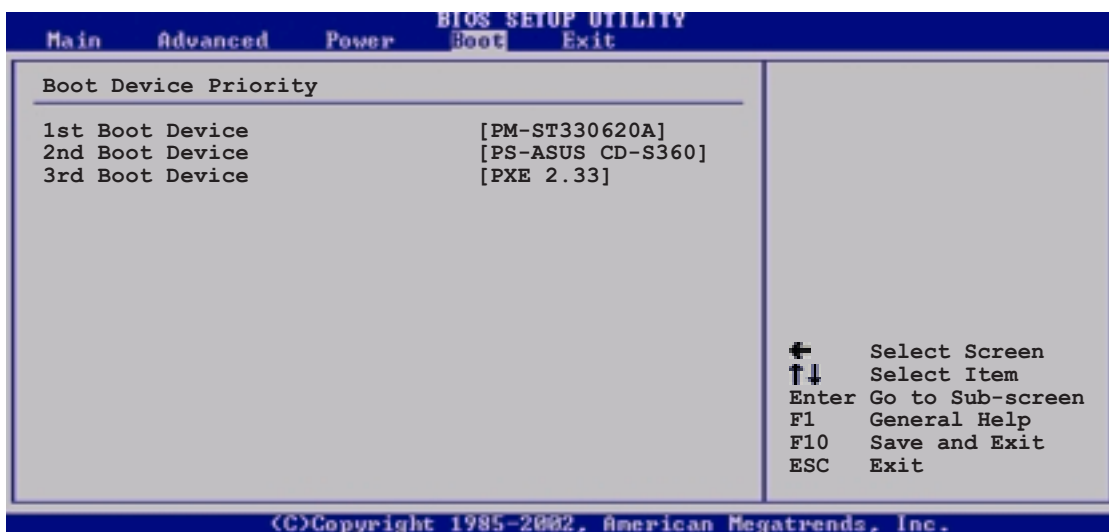
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

5.6 Boot menu

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



5.6.1 Boot Device Priority



1st ~ 3rd Boot Device [PM-XXXXXXXXXX]

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

Configuration options: [xxxxx Drive] [Disabled]

5.6.2 Boot Settings Configuration



Quick Boot [Enabled]

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

Configuration options: [Disabled] [Enabled]

Full Screen Logo [Disabled]

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

Configuration options: [Disabled] [Enabled]



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

Add On ROM Display Mode [Force BIOS]

Sets the display mode for option ROM.

Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

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

Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

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

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

Wait for 'F1' If Error [Enabled]

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

Hit 'DEL' Message Display [Enabled]

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

Interrupt 19 Capture [Disabled]

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

5.6.3 Security

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



Change Supervisor Password

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

To set a Supervisor Password:

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

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

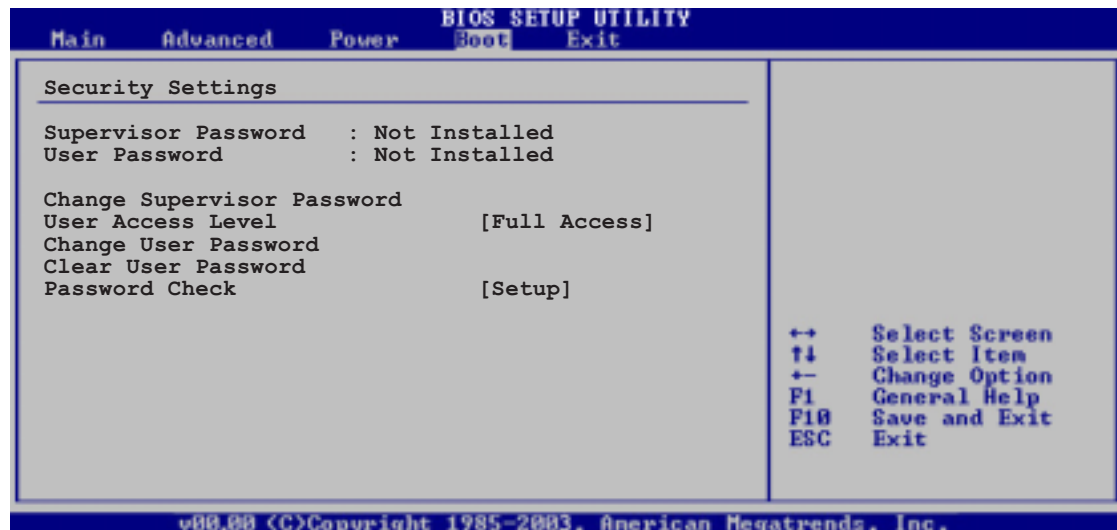
To change the supervisor password, follow the same steps as in setting a user password.

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



If you forget your BIOS password, you clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section “4.2 Jumpers” for information on how to erase the RTC RAM.

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



User Access Level (Full Access]

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

No Access prevents user access to the Setup utility.

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

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

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

Change User Password

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

To set a User Password:

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

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

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

Clear User Password

Select this item to clear the user password.

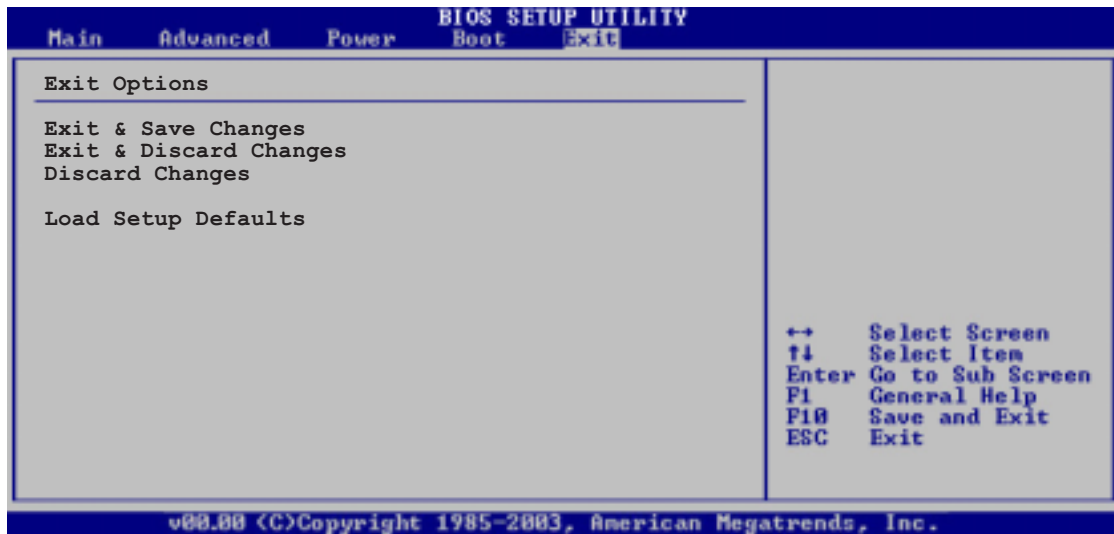
Password Check [Setup]

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

Configuration options: [Setup] [Always]

5.7 Exit menu

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



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

Exit & Save Changes

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