A7S8X-MX

Motherboard

E1766

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Notices

Federal Communications Commission Statement

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

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

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

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

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

Canadian Department of Communications Statement

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

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

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

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

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports. This chapter also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

- **Chapter 2: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

- **Chapter 3: Software support**

  This chapter describes the contents of the support CD that comes with the motherboard package.

Where to find more information

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

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select
Italics	Used to emphasize a word or a phrase
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key Example: <Enter> means that you must press the Enter or Return key
<Key1+Key2+Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+) Example: <Ctrl+Alt+D>
Command	Means that you must type the command exactly as shown Example: At the DOS prompt, type the command line: **D:\bootdisk\makeboot a:**

A7S8X-MX specifications summary

CPU	Socket A for AMD Athlon™ XP/Sempron™ processors
Chipset	Northbridge: SiS 741GX Southbridge: SiS 964 (without RAID support)
Front Side Bus	333/266/200 MHz
Memory	2 x 184-pin DIMM sockets support unbufferred non-ECC 333/266/200 MHz DDR SDRAM memory modules
Expansion slots	1 x AGP slot for 1.5V AGP cards 2 x PCI slots
Storage	SiS 964 Southbridge supports: - 4 x Ultra DMA 133/100/66 hard disk drives - 2 x Serial ATA hard disk drives (supported only under Windows® XP/2000/2003
Audio	ADI AD1888 SoundMax® 6-channel CODEC S/PDIF out interface support
LAN	Realtek® RTL 8201CL 10/100 Mbps LAN PHY
USB	Supports up to 8 USB 2.0 ports
Special features	ASUS EZ Flash ASUS CrashFree BIOS ASUS C.O.P. (CPU Overheating Protection) ASUS MyLogo™
BIOS features	2 Mb Flash EEPROM, Phoenix-Award BIOS with enhanced ACPI, DMI, Green, and PnP features
Rear panel	1 x PS/2 mouse port 1 x Parallel port 1 x LAN (RJ-45) port 4 x USB 2.0 ports 1 x VGA port 1 x Coaxial S/PDIF out port 1 x PS/2 keyboard port 6-channel audio ports

(continued on the next page)

A7S8X-MX specifications summary

Internal connectors	1 x Floppy disk drive connector 1 x Primary IDE connector 1 x Secondary IDE connector 2 x Serial ATA connectors 1 x CPU fan connector 1 x Chassis fan connector 2 x USB 2.0 connectors for 4 additional USB 2.0 ports 1 x GAME/MIDI connector 1 x 20-pin ATX power connector 1 x CD in connector 1 x AUX connector 1 x Front panel audio connector 1 x COM port connector 1 x Speaker out connector 1 x Power LED connector 1 x System panel connector
Industry standard	PCI 2.2, USB 2.0
Support CD contents	Device drivers ASUS PC Probe ASUS Update Anti-virus software (OEM version)
Form Factor	Micro ATX form factor: 9.6 in x 7.8 in (24.4 cm x 19.8 cm)

*Specifications are subject to change without notice.

This chapter describes the motherboard features and the new technologies it supports.

1 Product introduction

1.1 Welcome!

Thank you for buying an ASUS® A7S8X-MX motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

Before you start installing the motherboard and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	ASUS A7S8X-MX motherboard
Cables	1 x Serial port (COM) cable 1 x Ultra DMA cable 1 x Floppy disk drive cable
Accessory	I/O shield
Application CD	ASUS motherboard support CD
Documentation	User guide

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

1.3 Special features

1.3.1 Product highlights

AMD Athon™ XP/Sempron™ processor support

The motherboard comes with a 462-pin surface mount, Zero Insertion Force (ZIF) socket that supports 333 MHz front side bus frequency for AMD Athlon™ XP/Sempron™ processors. With an integrated low-latency high-bandwidth memory controller, the motherboard allows increased office productivity and enhanced digital media experience. See page 1-8.

AGP 8X support

The AGP 8X (AGP 3.0) VGA interface specification enables enhanced graphics performance with high bandwidth speeds up to 2.12 GB/s. See page 1-15.

Powerful integrated graphics

The SiS 741GX IGUI Host Memory Controller (HMC) features the SiS Real256E, an integrated graphics engine for enhanced 3D, 2D, and video capabilities.

Serial ATA technology

The motherboard supports the Serial ATA technology through the Serial ATA interfaces and the SiS 964. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, and up to 150 MB/s data transfer rate. See page 1-23.

6-channel digital audio

Providing high-quality, 6-channel audio solution is the onboard ADI AD1888 AC`97 audio CODEC. This motherboard comes with a coaxial S/PDIF connector on the rear panel to turn your computer into a high-end entertainment system with digital connectivity to powerful sound systems. See page 1-19.

Integrated 10/100 LAN controller

The onboard Realtek RTL8201CL is an integrated single-chip Fast Ethernet LAN controller with enhanced ACPI management function to provide efficient power management for advanced operating systems. See page 1-19.

S/PDIF digital sound ready

The motherboard supports the S/PDIF In/Out function through the S/PDIF interfaces on the rear panel and at midboard. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems. See page 1-20.

USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1. See pages 1-20 and 1-25.

1.3.2 Innovative ASUS features

C.O.P. (CPU Overheating Protection)

With AMD® Athlon XP™ installed, the motherboard offers automatic CPU Overheating Protection to prolong the life of the entire system. If the CPU temperature exceeds the set criteria, the PC shuts down automatically.

ASUS EZ Flash BIOS

With the ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-5.

ASUS CrashFree BIOS

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

ASUS MyLogo™

This new feature present in the motherboard allows you to personalize and add style to your system with customizable boot logos. See page 2-33.

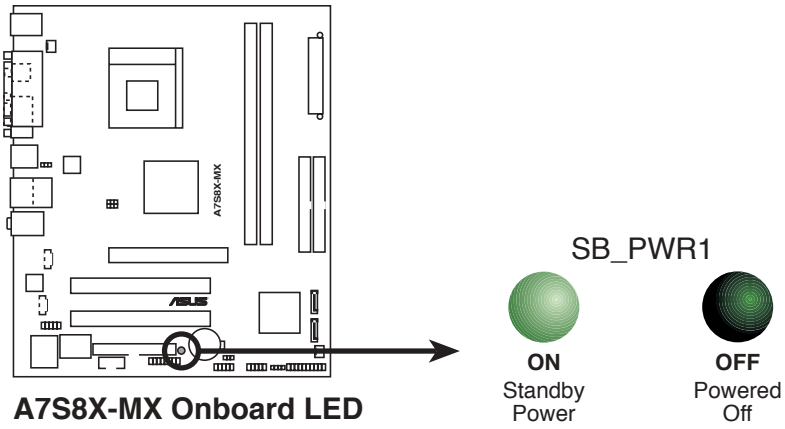
1.4 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord 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 ATX power supply is switched off or the power cord is detached from the power supply.** Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

Onboard LED

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



A7S8X-MX Onboard LED

1.5 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

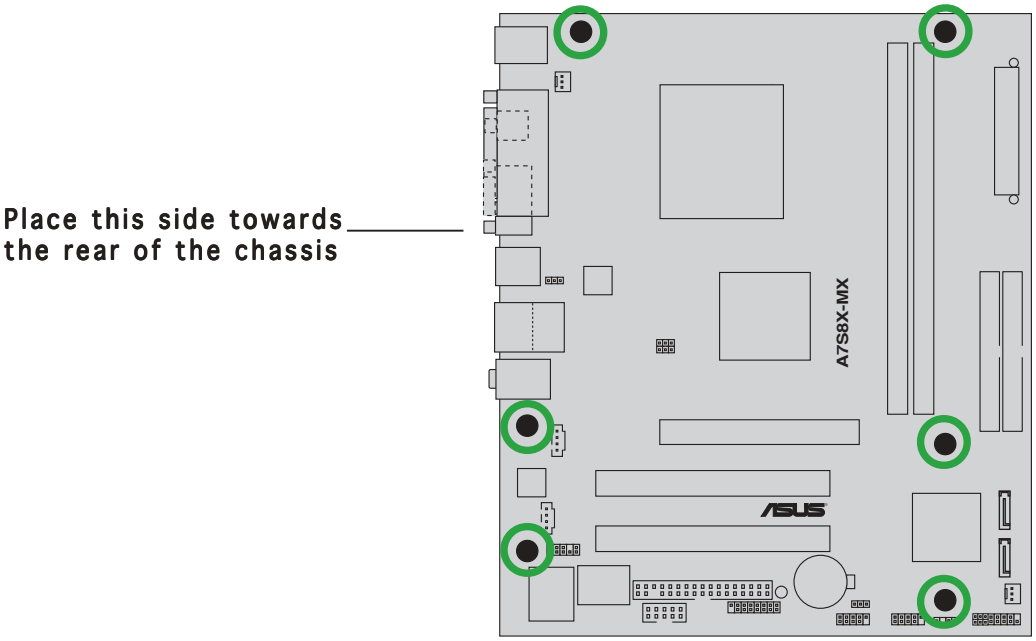
1.5.1 Placement direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

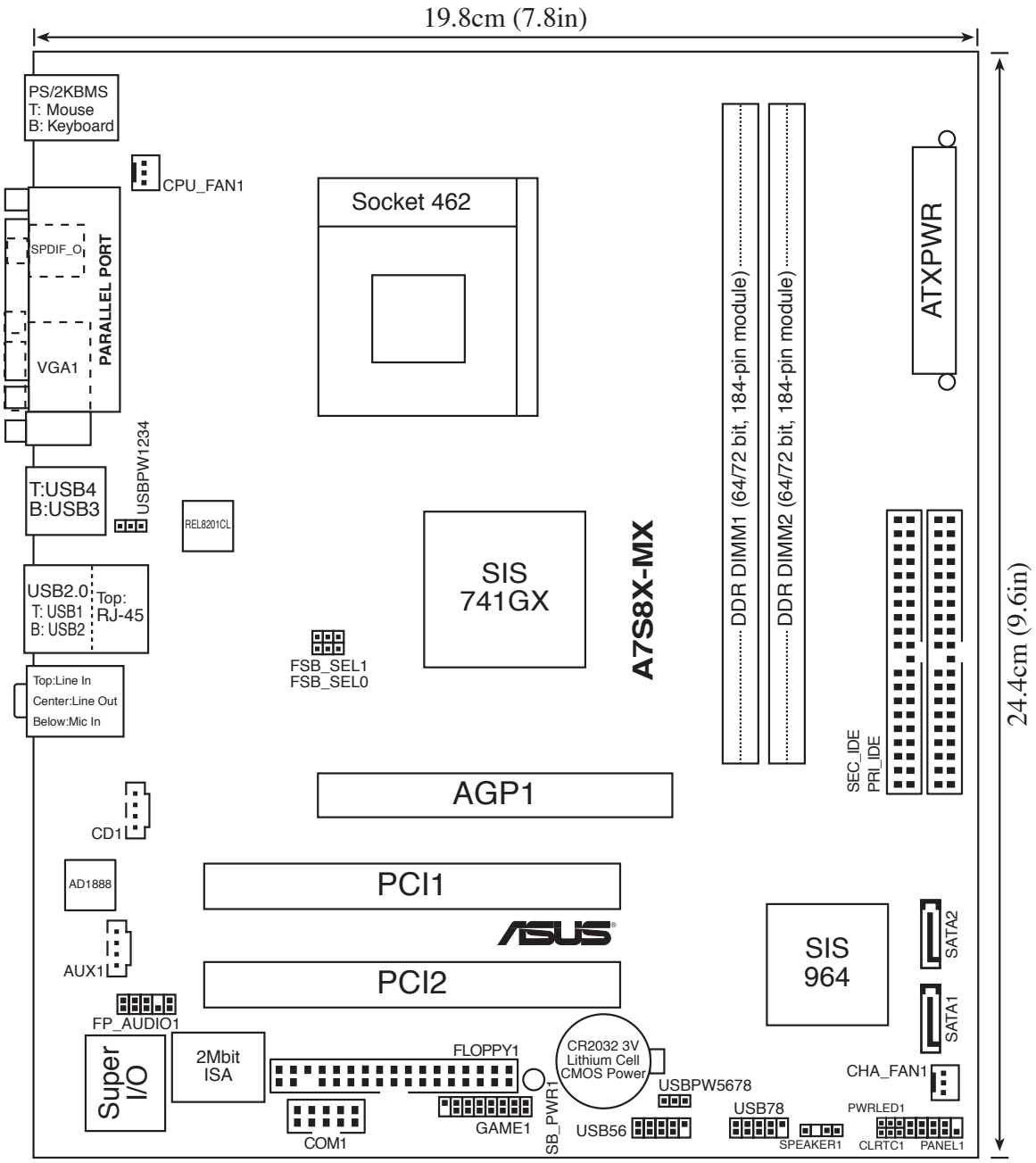
1.5.2 Screw holes

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

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



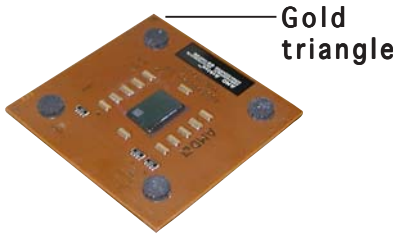
1.5.3 Motherboard layout



1.6 Central Processing Unit (CPU)

The motherboard comes with a surface mount 462-pin Zero Insertion Force (ZIF) socket designed for the AMD Athlon™ XP/Sempron™ processor.

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

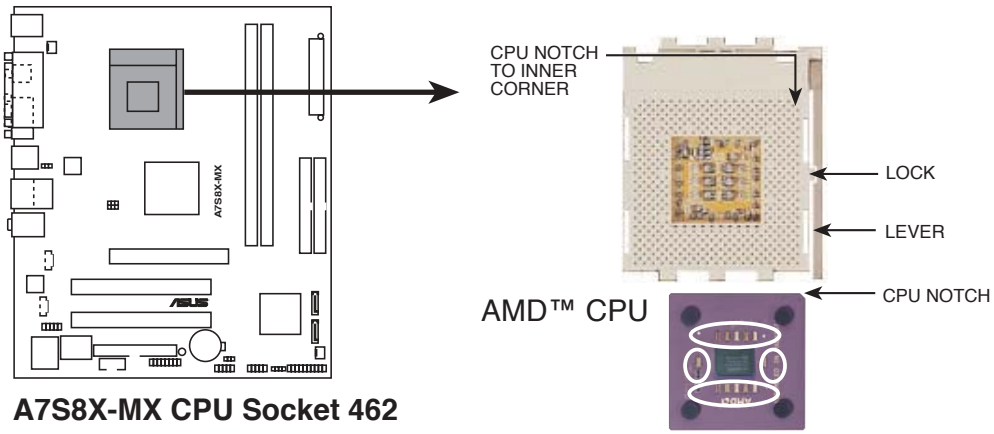


Do not use processors with core speeds of less than 1 GHz on this motherboard.

Installing the CPU

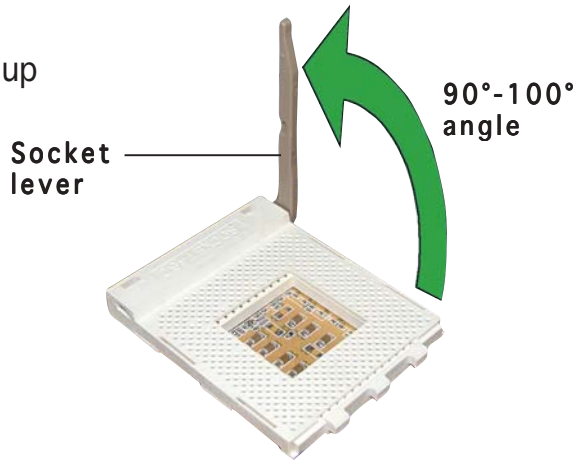
Follow these steps to install a CPU.

1. Locate the 462-pin ZIF socket on the motherboard.



A7S8X-MX CPU Socket 462

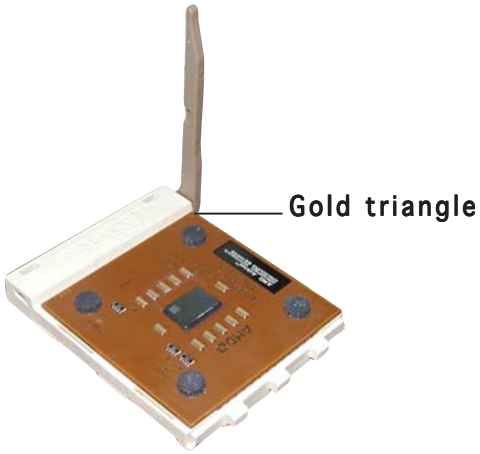
2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle.



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

3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the base of the socket lever.

4. Carefully insert the CPU into the socket until it fits in place.



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

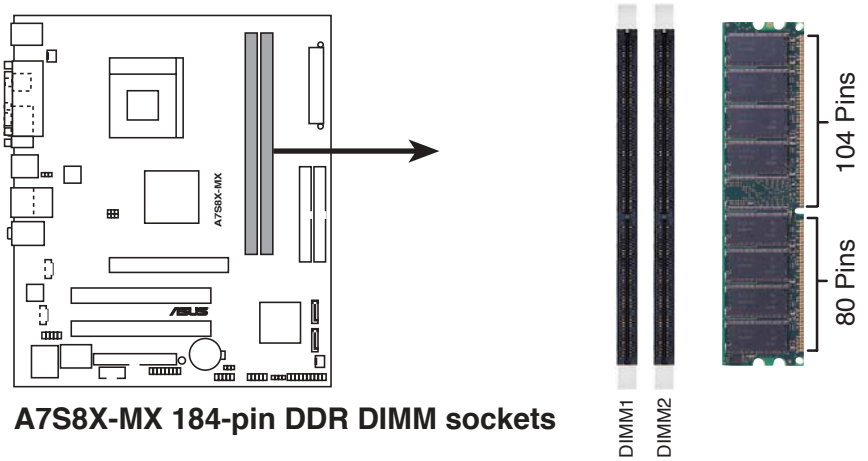
5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

1.7 System memory

1.7.1 Overview

The motherboard comes with two Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets. These sockets support up to 2 GB system memory using 184-pin PC2700/PC2100 unbuffered DDR DIMMs and allow up to 2.7 GB/s data transfer rate.

The following figure illustrates the location of the DDR DIMM sockets.



A7S8X-MX 184-pin DDR DIMM sockets

1.7.2 Memory Configurations

You may install 64 MB, 128 MB, 256 MB, 512 MB and 1 GB unbuffered non-ECC DDR DIMMs into the DIMM sockets using the memory configurations in this section.

- Installing DDR DIMMs other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations in the table on the next page.
- Always install DIMMs with the same CAS latency. For optimum compatibility, we recommend that you obtain memory modules from the same vendor.

Recommended memory configurations

		Sockets	
Mode		DIMM_A1	DIMM_A2
Single-channel	(1)	Populated	—
	(2)	—	Populated
	(3)	Populated	Populated

Memory frequency/CPU FSB synchronization

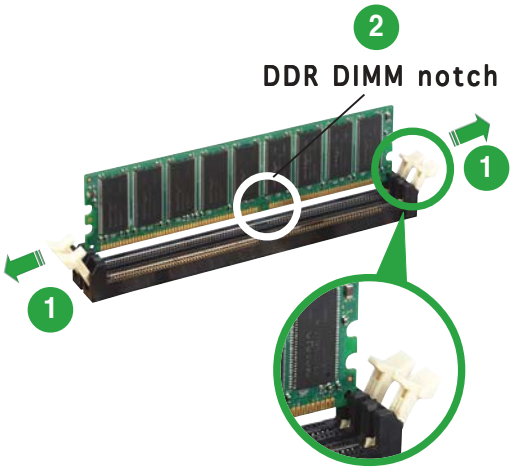
CPU FSB	DDR DIMM Type	Memory Frequency
333 MHz	PC2700/PC2100	333/266 MHz
266 MHz	PC2100	266 MHz

Obtain DDR DIMMs only from qualified vendors for better system performance.

1.7.3 Installing a DIMM

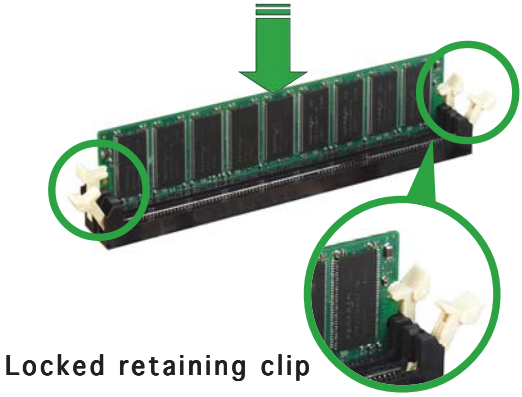
Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

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



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

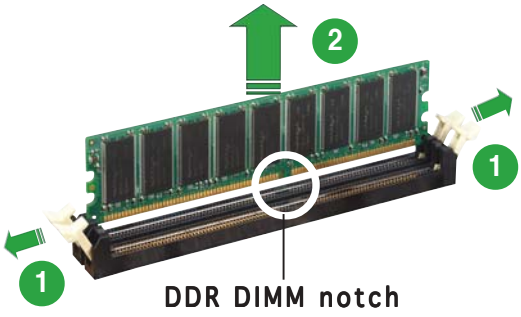
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



1.7.4 Removing a DIMM

Follow these steps to remove a DIMM.

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



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

2. Remove the DIMM from the socket.

1.8 Expansion slots

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

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

1.8.1 Installing an expansion card

To install an expansion card:

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

1.8.2 Configuring an expansion card

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

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

1.8.3 Interrupt assignments

Standard interrupt assignments

IRQ	Standard Function
0	System Timer
1	Keyboard Controller
2	Programmable Interrupt
4*	Communications Port (COM1)
5*	Sound Card (sometimes LPT2)
6	Floppy Disk Controller
7*	Printer Port (LPT1)
8	System CMOS/Real Time Clock
9*	ACPI Mode when used
10*	IRQ holder for PCI Steering
12*	PS/2 Compatible Mouse Port
13	Numeric Data Processor
14*	Primary IDE Channel
15*	Secondary IDE Channel

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

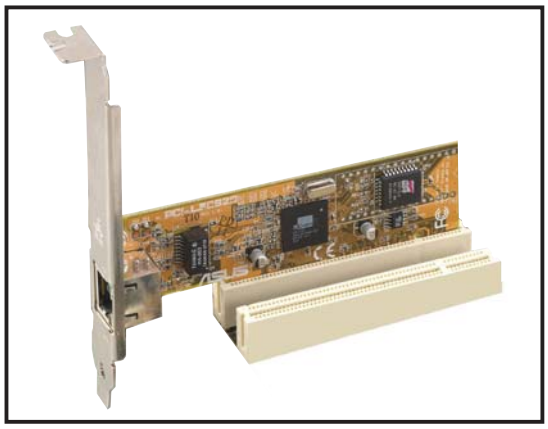
IRQ assignments for this motherboard

	A	B	C	D
AGP slot	used	—	—	—
PCI slot 1	—	used	—	—
PCI slot 2	—	—	used	—

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments; otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

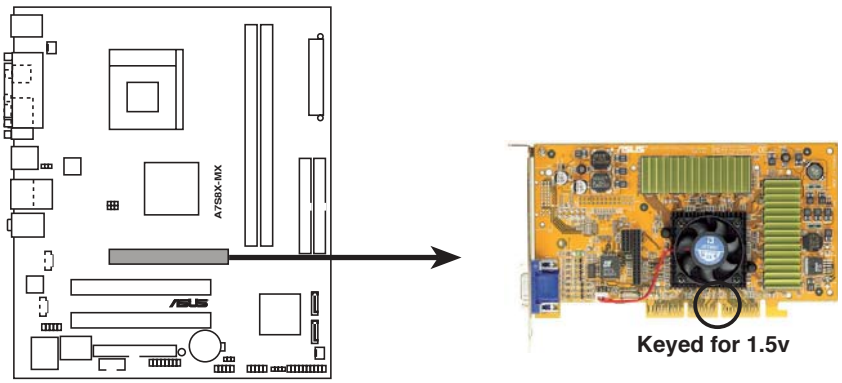
1.8.4 PCI slots

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



1.8.5 AGP slot

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



A7S8X-MX Accelerated Graphics Port (AGP1)

Install only 1.5V AGP cards on this motherboard!

1.9 Jumpers

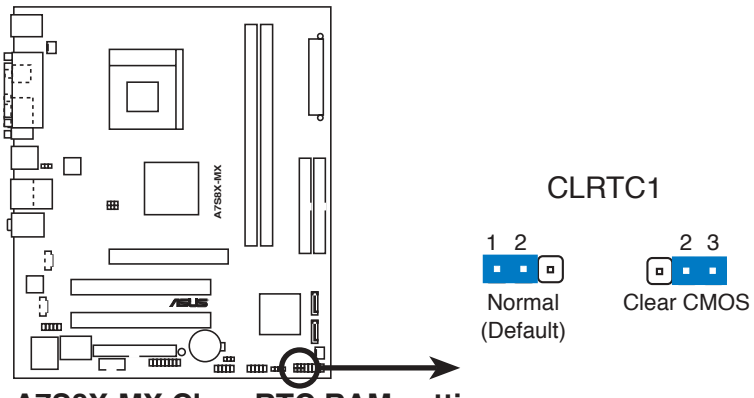
1. Clear RTC RAM (3-pin CLRTC1)

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> 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!

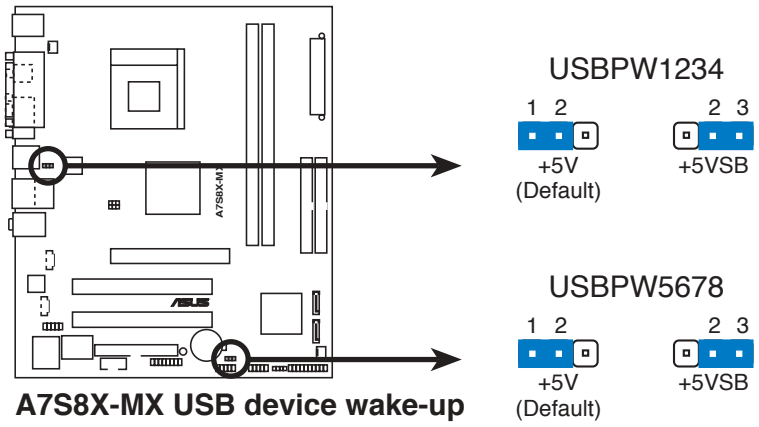


A7S8X-MX Clear RTC RAM setting

2. USB device wake-up (3-pin USBPW1234, USBPW5678)

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

The USBPW1234 jumper is for the rear USB ports. The USBPW5678 jumper is for the internal USB connectors that you can connect to additional USB ports.

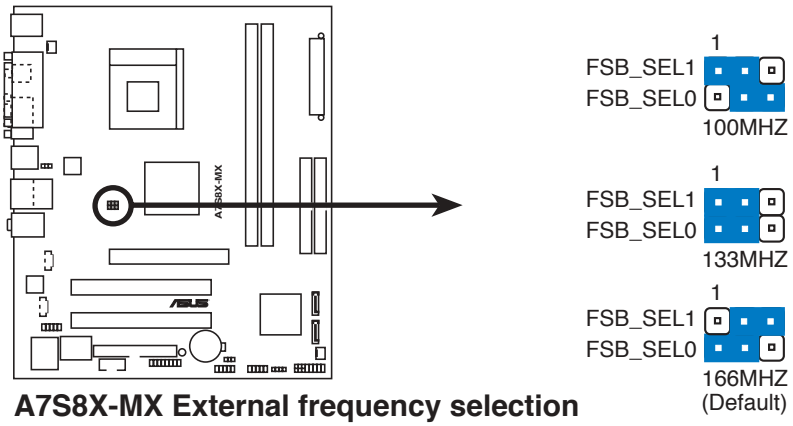


A7S8X-MX USB device wake-up

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

3. External frequency selection (3-pin FSB_SEL1, FSB_SEL0)

These jumpers allow you to set the CPU Front Side Bus (FSB) frequency. Refer to the jumper settings below.

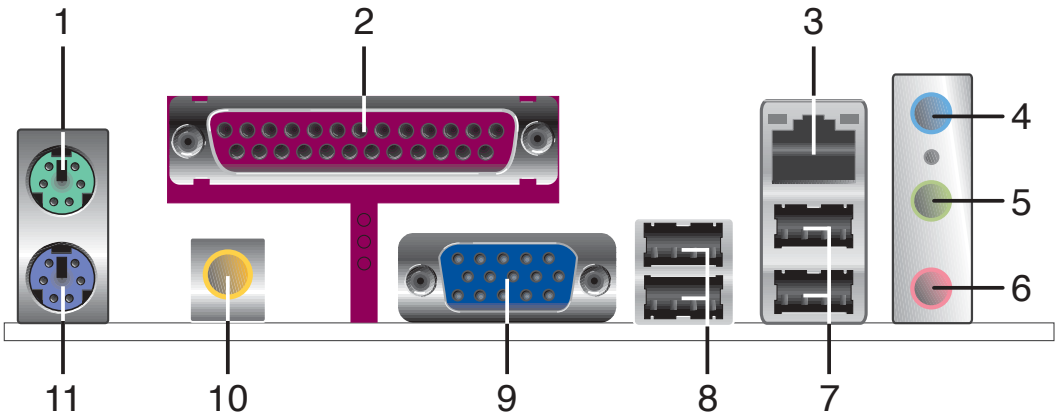


A7S8X-MX External frequency selection

Make sure you load the BIOS setup default after changing the external frequency selection. Refer to page 2-36.

1.10 Connectors

1.10.1 Rear panel connectors



1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.
2. **Parallel port.** This 25-pin port connects a parallel printer, a scanner, or other devices.
3. **LAN (RJ-45) port.** This port allows connection to a Local Area Network (LAN) through a network hub.
4. **Line In port (light blue).** This port connects a tape, CD, DVD player, or other audio sources.
5. **Line Out port (lime).** This port connects a headphone or a speaker. In 4/6-channel configuration, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects a microphone.

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

Audio 2, 4, or 6-channel configuration

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

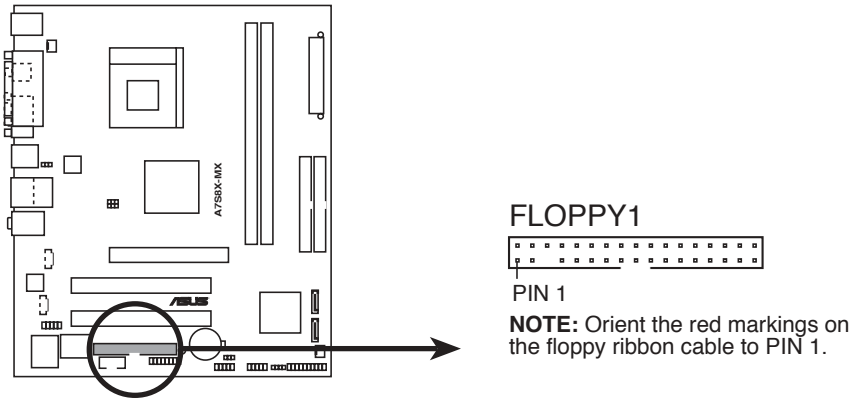
7. **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
8. **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
9. **Video Graphics Adapter port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
10. **Coaxial S/PDIF Out port.** This port connects an external audio output device via a coaxial S/PDIF cable.
11. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

1.10.2 Internal connectors

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

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

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

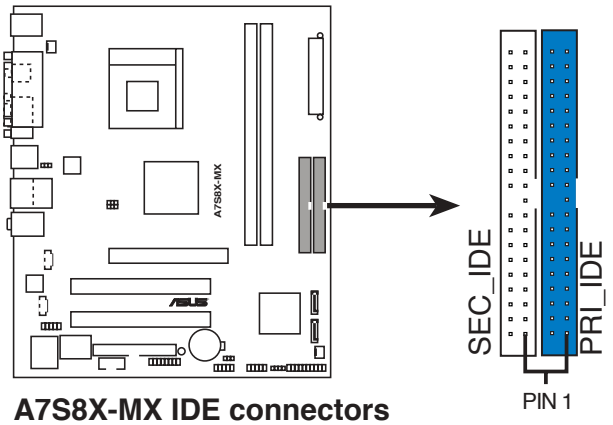


A7S8X-MX Floppy disk drive connector

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

These connectors are for Ultra DMA 133/100/66 signal cables. 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.

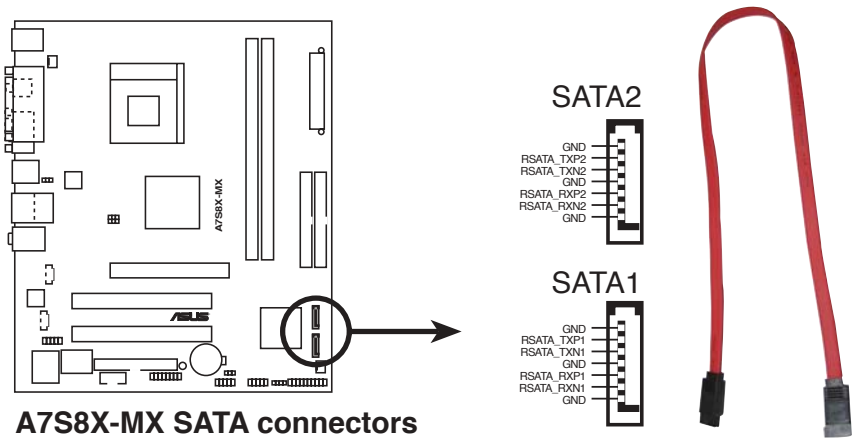


NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1.

A7S8X-MX IDE connectors

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

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



A7S8X-MX SATA connectors

Important notes on Serial ATA

- Install the Windows® 2000 Service Pack 4 or the XP Service Pack1 before using Serial ATA hard disk drives.
- Serial ATA is supported under Windows® XP/2000/2003 only. Legacy operating systems, such as Windows® 98 SE/Me, do not support native Serial ATA mode. See page 2-23.
- Plug your Serial ATA boot disk on the master port (SATA1) to support S3 function. Refer to the table below for details.

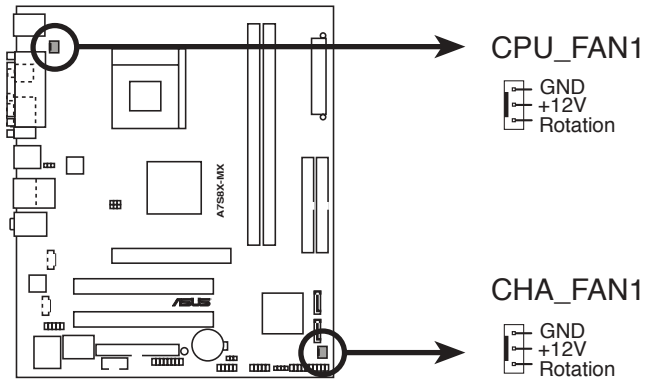
Serial ATA Master/Slave connectors

Connector	Setting	Use
SATA1	Master	Boot disk
SATA2	Slave	Data disk

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

The fan connectors support cooling fans of 350 mA ~ 740 mA (8.88 W max.) or a total of 1 A ~ 2.22 A (26.64 W max.) at +12 V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

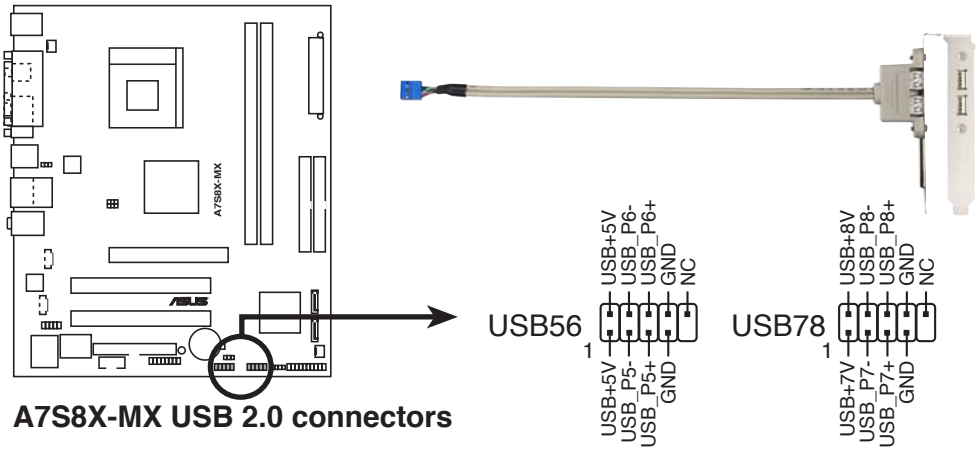
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.



A7S8X-MX Fan connectors

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

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

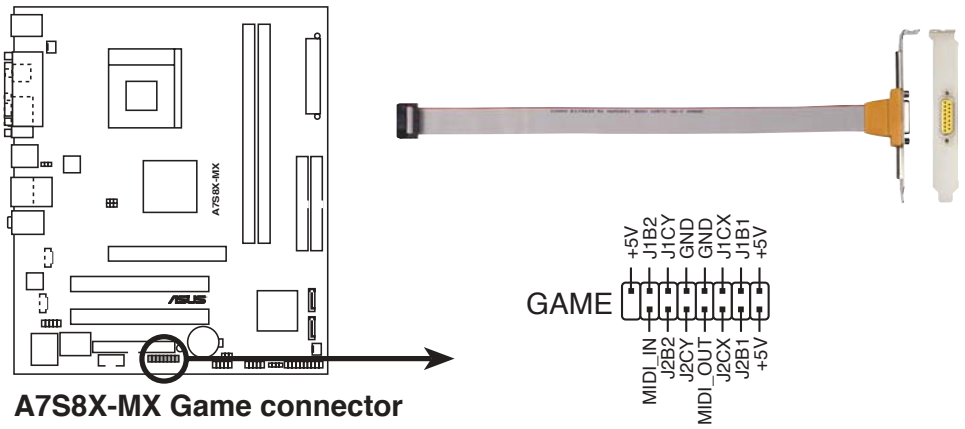


A7S8X-MX USB 2.0 connectors

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

6. GAME/MIDI connector (16-1 pin GAME1)

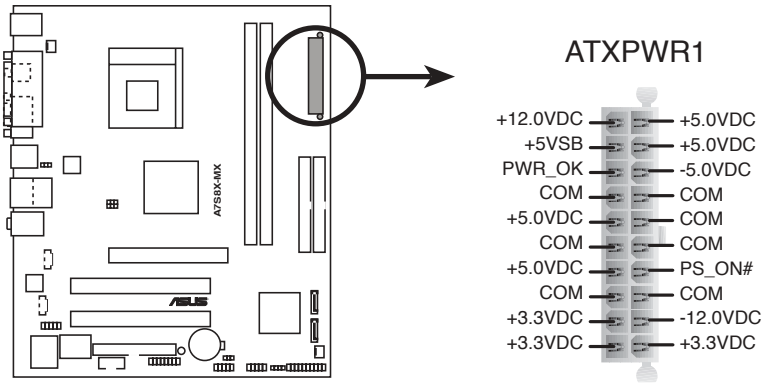
This connector is for a GAME/MIDI port. Connect the GAME/MIDI module cable to this connector, then install the module to a slot opening at the back of the system chassis. The GAME/MIDI port connects a joystick or game pad for playing games, and MIDI devices for playing or editing audio files.



A7S8X-MX Game connector

7. ATX power connector (20-pin ATXPWR1)

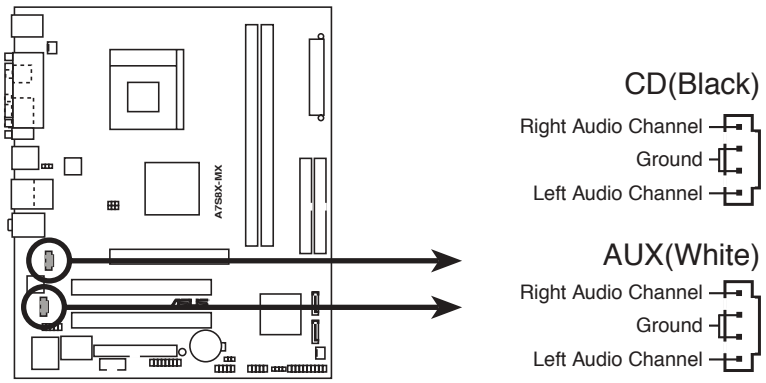
This connector is for an ATX power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



A7S8X-MX ATX power connector

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

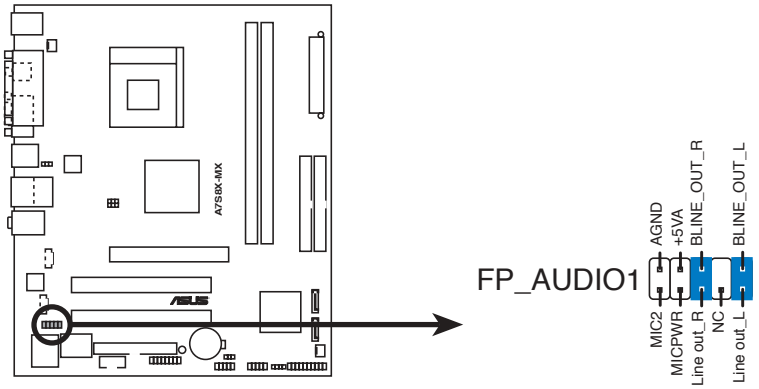
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.



A7S8X-MX Internal audio connectors

9. Front panel audio connector (10-1 pin FP_AUIDO1)

This connector is for a chassis-mounted front panel audio I/O module that supports either AC '97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

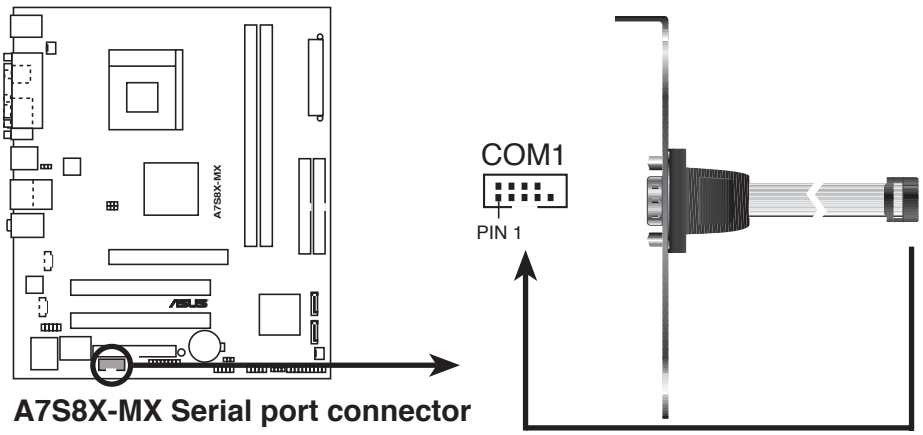


A7S8X-MX Front panel audio connector

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

This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.

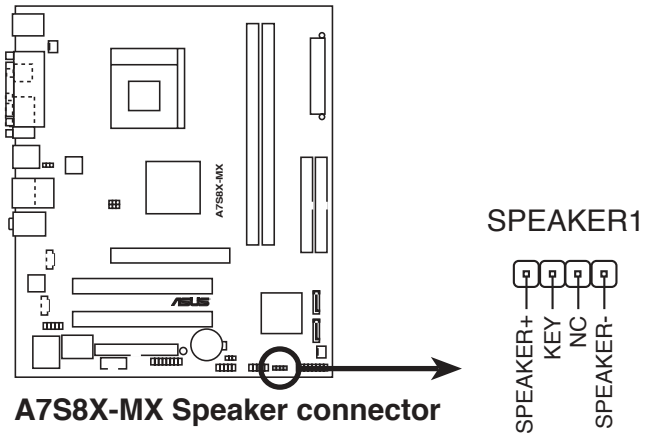
The serial port bracket (COM1) is purchased separately.



A7S8X-MX Serial port connector

11. Speaker out connector (4-pin SPEAKER1)

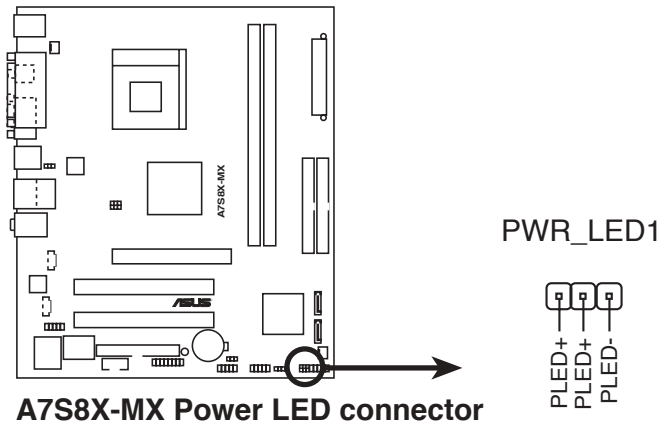
This connector is for the case-mounted speaker and allows you to hear system beeps and warnings.



A7S8X-MX Speaker connector

12. Power LED connector (3-1 pin PWR_LED1)

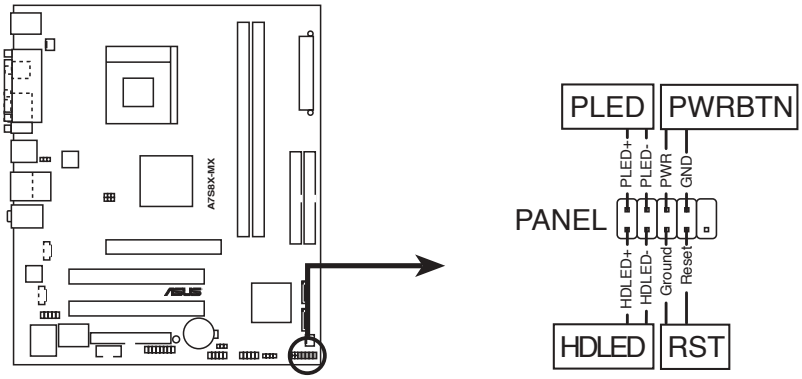
This 3-1 pin connector is for the system power LED. Connect the 3-pin power LED cable from the system chassis to this connector. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.



A7S8X-MX Power LED connector

13. System panel connector (10-1 pin PANEL)

This connector supports several chassis-mounted functions.



A7S8X-MX System panel connector

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

- **System power LED (Green 2-pin PLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
- **Hard disk drive activity (Red 2-pin HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
- **Power/Soft-off button (Black 2-pin PWRBTN)**
  This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Reset button (Blue 2-pin RST)**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

2 BIOS setup

2.1 Managing and updating your BIOS

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

1. **AwardBIOS Flash Utility** (Updates the BIOS using a floppy disk during POST.)
2. **ASUS EZ Flash** (Updates the BIOS using a floppy disk during POST.)
3. **ASUS CrashFree BIOS Utility** (Updates the BIOS using a bootable floppy disk when the BIOS gets corrupted.)
4. **ASUS Update** (Updates the BIOS in Windows® environment.)

Refer to the corresponding section for details on these utilities.

Important notes

- Save a copy of the **original motherboard BIOS file** to a **bootable floppy disk** in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFLASH utilities.
- Visit the ASUS website and download the latest BIOS file for this motherboard using the ASUS Update utility.

2.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.

   DOS environment

   a. Insert a 1.44 MB floppy disk into the drive.
   b. At the DOS prompt, type `format A:/S` then press <Enter>.

   Windows® XP environment

   a. Insert a 1.44 MB floppy disk to the floppy disk drive.
   b. Click **Start** from the Windows® desktop, then select **My Computer**.
   c. Select the 3 1/2 Floppy Drive icon.
   d. Click **File** from the menu, then select **Format**. A **Format 3 1/2 Floppy Disk** window appears.
   e. Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

Windows® 2000 environment

To create a set of boot disks for Windows® 2000:

a. Insert a formatted, high density 1.44 MB floppy disk into the drive.
b. Insert the Windows® 2000 CD to the optical drive.
c. Click **Start**, then select **Run**.
d. From the Open field, type

   D:\bootdisk\makeboot a:

   assuming that D: is your optical drive.
e. Press <Enter>, then follow screen instructions to continue.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

2.1.2 AwardBIOS Flash Utility

The Basic Input/Output System (BIOS) can be updated using the built-in Flash Memory Writer utility or using a bootable floppy disk with the executable Flash Memory Writer Utility (AWDFLASH.EXE). Follow these instructions to update the BIOS using this utility.

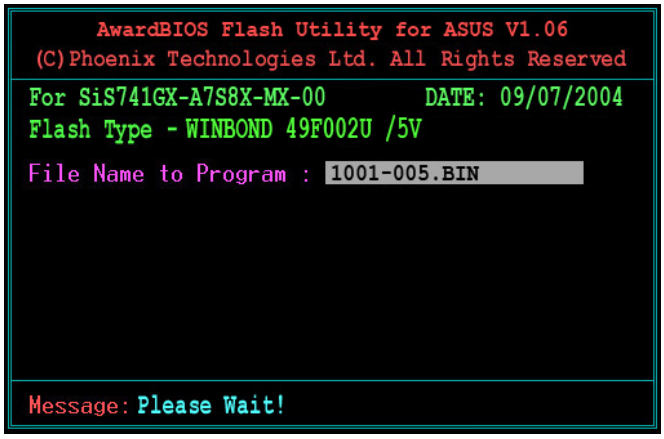
Save only the updated BIOS file in the floppy disk to avoid loading a wrong BIOS file.

The succeeding screens are for reference only. The actual displays may not exactly match what you see on your screen.

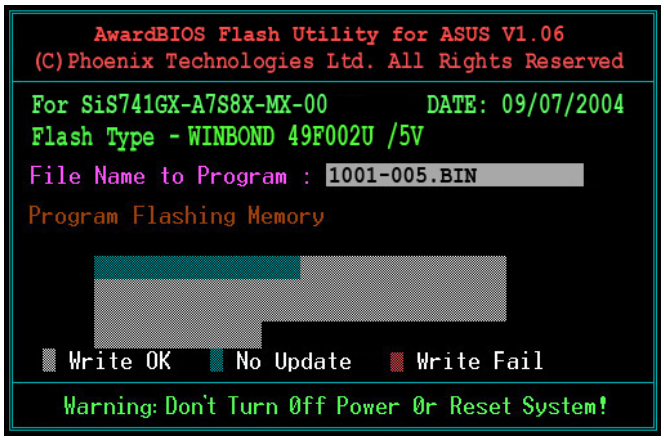
Updating the BIOS file

1. Download the latest BIOS file from the ASUS website. (www.asus.com). Rename the file to *.BIN and save it to the bootable floppy disk you created earlier.
2. Insert the disk that contains the new BIOS file into the floppy drive.
3. Reboot the computer.

4. Press <Alt> + <F2> during POST to display the following screen.
5. AWDFLASH checks the new BIOS file from the floppy disk.



6. After verification, AWDFLASH flashes the new BIOS file. Do not shut down the computer during the flash process.



7. After the new BIOS file is copied, the computer returns to POST.

2.1.3 ASUS EZ Flash utility

The ASUS EZ Flash feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self Tests (POST).

To update the BIOS using EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard and rename the same to **A7S8X-MX.ROM**.
2. Save the BIOS file to a floppy disk, then restart the system.
3. Press <Alt> + <F2> during POST to display the following.

```
EZFlash starting BIOS update
Checking for floppy...
```

4. Insert the floppy disk that contains the BIOS file to the floppy disk drive. When the correct BIOS file is found, EZ Flash performs the BIOS update process and automatically reboots the system when done.

```
EZFlash starting BIOS update
Checking for floppy...
Floppy found!
Reading file "A7S8X-MX.ROM". Completed.
Start erasing.......|
Start programming...|
Flashed successfully. Rebooting.
```

- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!
- A "Floppy not found!" error message appears if there is no floppy disk in the drive. An "A7S8X-MX.ROM not found!" error message appears if the correct BIOS file is not found in the floppy disk. Make sure that you rename the BIOS file to A7S8X-MX.ROM.

2.1.4 ASUS CrashFree BIOS utility

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

- Prepare the floppy disk containing the updated motherboard BIOS before using this utility.
- Make sure that you rename the original or updated BIOS file in the floppy disk to **A7S8X-MX.ROM**.

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1. Turn on the system.
2. Insert the floppy disk with the original or updated BIOS file to the floppy disk drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

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

When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "A7S8X-MX.ROM". Completed.
Start flashing...
```

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

4. Restart the system after the utility completes the updating process.

2.1.5 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file
- Download the latest BIOS file from the Internet
- Update the BIOS from an updated BIOS file
- Update the BIOS directly from the Internet, and
- View the BIOS version information.

This utility is available in the support CD that comes with the motherboard package.

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

Installing ASUS Update

To install ASUS Update:

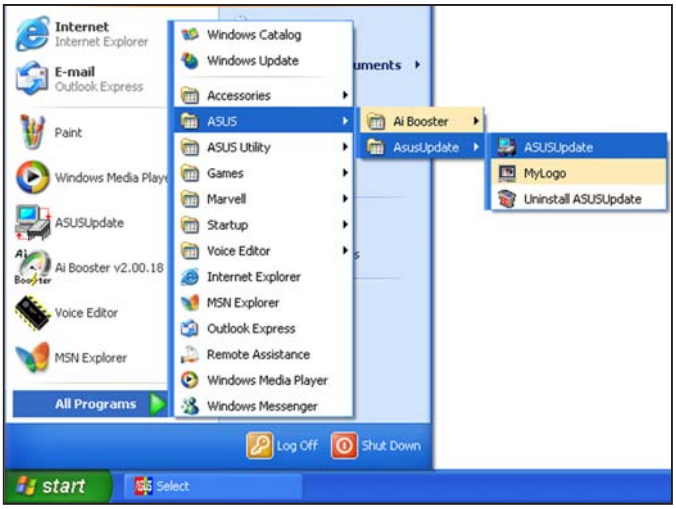
1. Place the support CD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update VX.XX.XX**. See page 3-4 for the **Utilities** screen menu.
3. The ASUS Update utility is copied to your system.

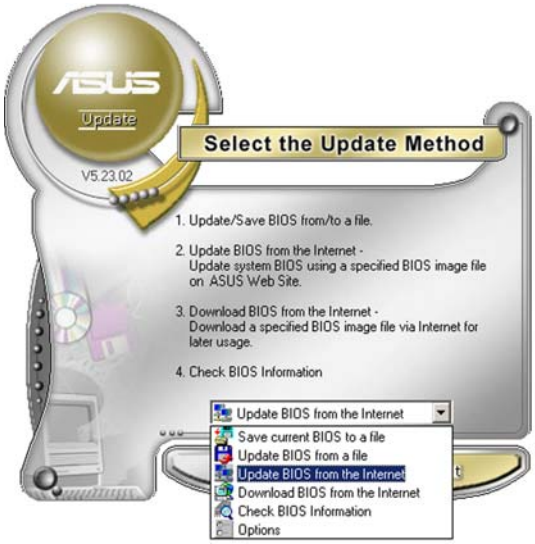
Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

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

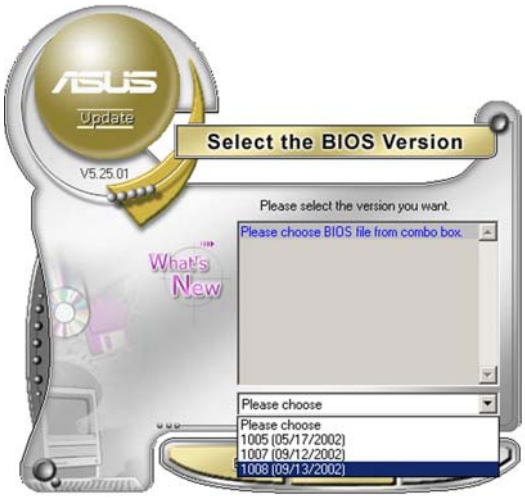




2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.

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

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

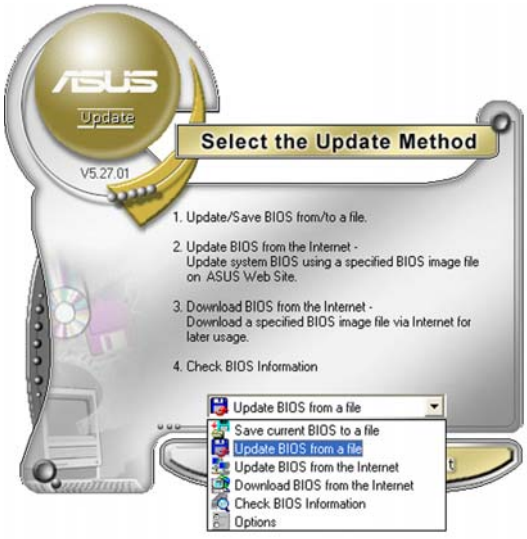


The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

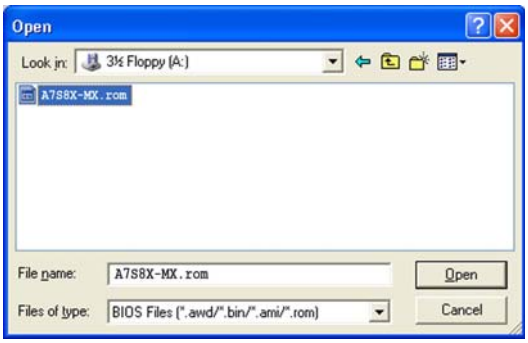
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

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



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



2.2 BIOS Setup program

This motherboard supports a programmable Flash ROM that you can update using the provided utility described in section *"2.1 Managing and updating your BIOS."*

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

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

The Flash ROM 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 <Delete> during the Power-On Self Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

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

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

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

2.2.1 BIOS menu bar

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

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

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

2.2.2 Legend bar

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

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

General help

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

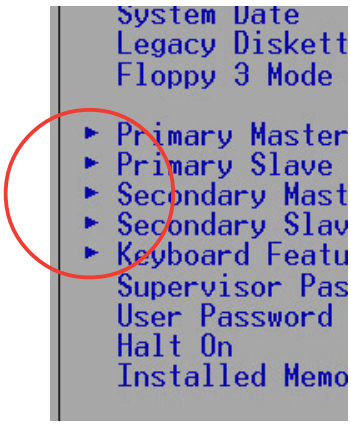
Saving changes and exiting the Setup program

See *"2.7 Exit Menu"* for detailed information on saving changes and exiting the setup program.

Scroll bar

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

Sub-menu

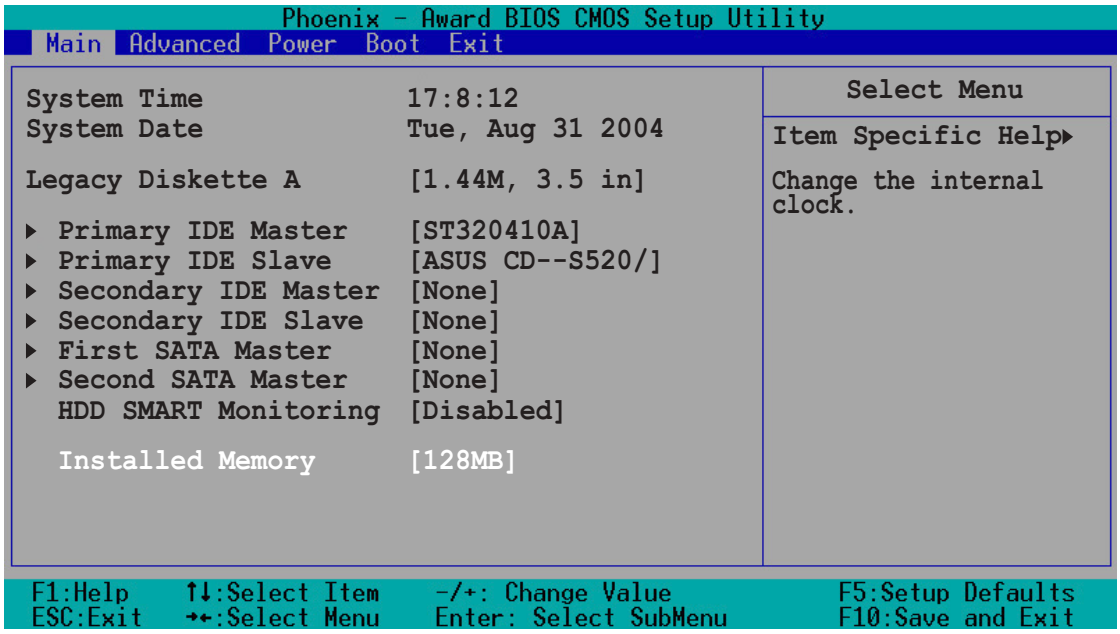


Note that a right pointer symbol (as shown on the left) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>.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

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

2.3 Main Menu

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



2.3.1 System Time [xx:xx:xx]

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

2.3.2 System Date [xx/xx/xxxx]

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

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

Sets the type of floppy drive installed. Configuration options: [None] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K , 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

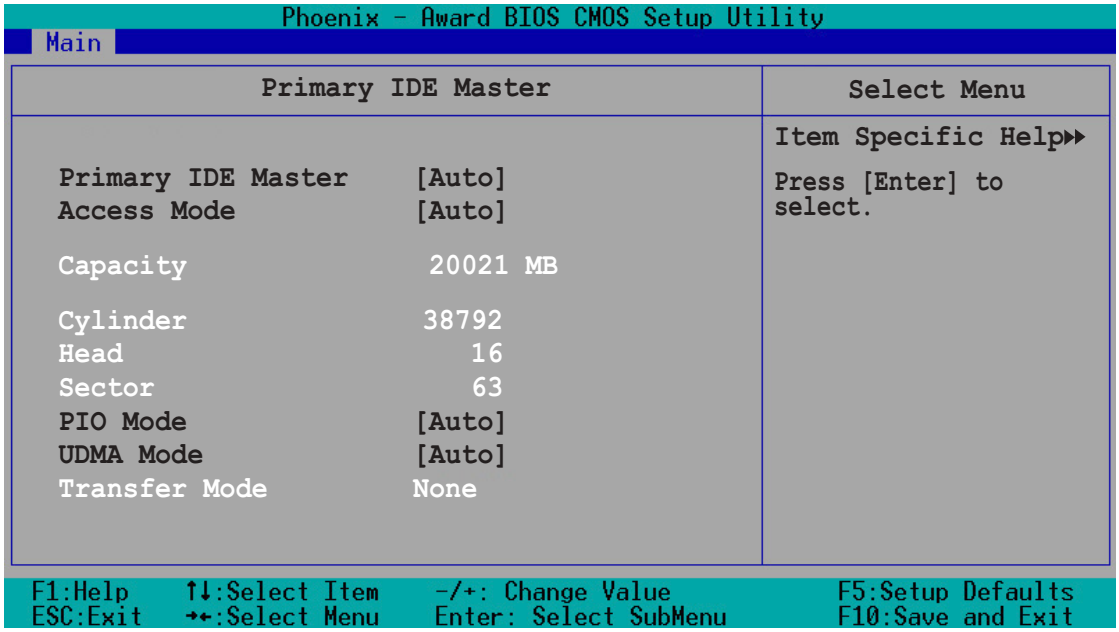
2.3.4 HDD SMART Monitoring [Disabled]

Enables or disables Hard Disk SMART capability support.

2.3.5 Installed Memory [xxx MB]

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

2.3.6 Primary and Secondary IDE Master/Slave



Primary IDE Master [Auto]

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

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

Access Mode [Auto]

This item allows the user to select the sector addressing mode. CHS (cylinder, head, sector) mode supports 528 MB hard disks. LBA (logical block addressing) mode supports hard disks up to 128 GB in size. Large mode (also called extended CHS mode) supports hard disks above 528 MB in size, but does not support LBA mode. Configuration options: [CHS] [LBA] [Large] [Auto]

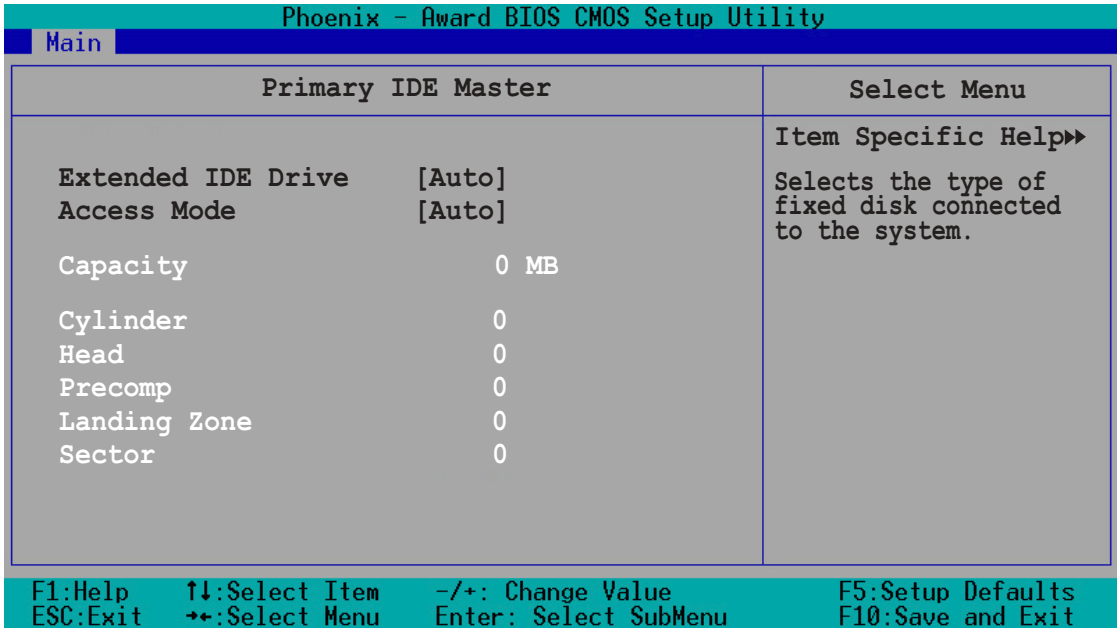
PIO Mode [Auto]

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

UDMA Mode [Auto]

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

2.3.7 First and Second SATA Master



Extended IDE Drive [Auto]

Select [Auto] to automatically detect a SATA hard disk drive. If automatic detection is successful, Setup automatically fills in the correct values for the remaining fields on this sub-menu. Configuration options: [None] [Auto]

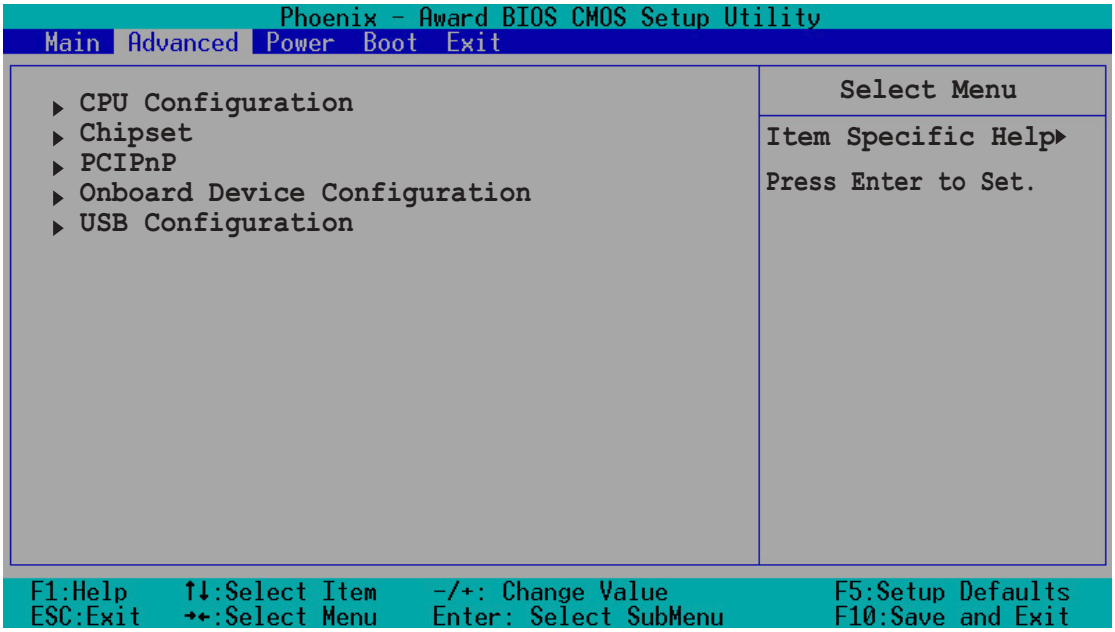
Access Mode [Auto]

Allows the user to select the sector addressing mode. Refer to the previous page for detailed descriptions of the different modes. Configuration options: [Large] [Auto]

2.4 Advanced Menu

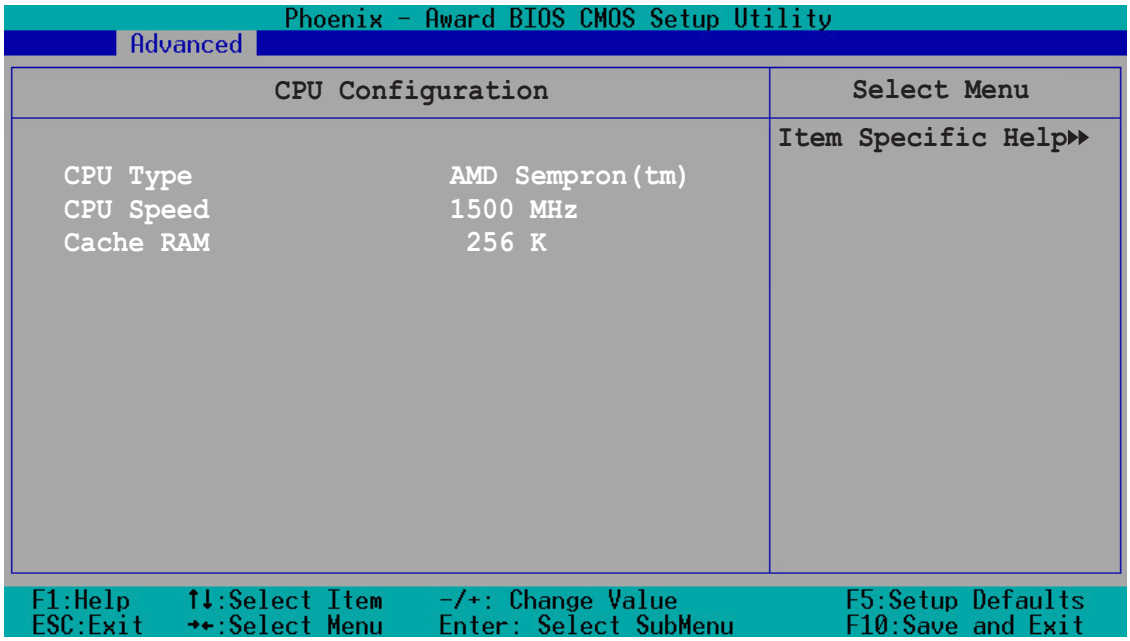
The Advanced menu items allow you to change the settings for the CPU and other system devices.

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



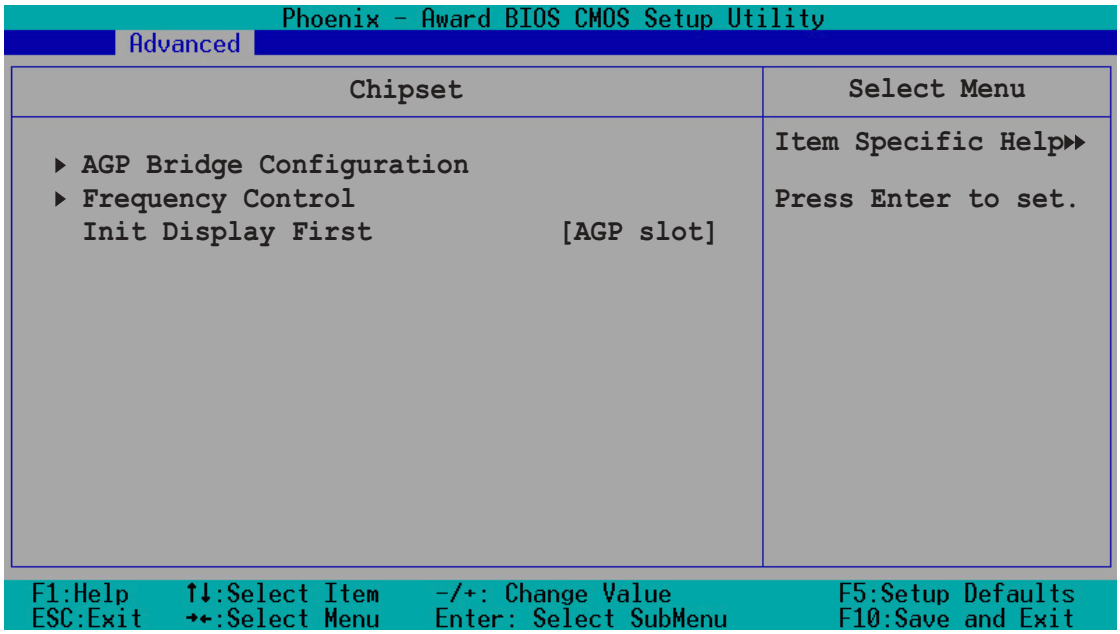
2.4.1 CPU configuration

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

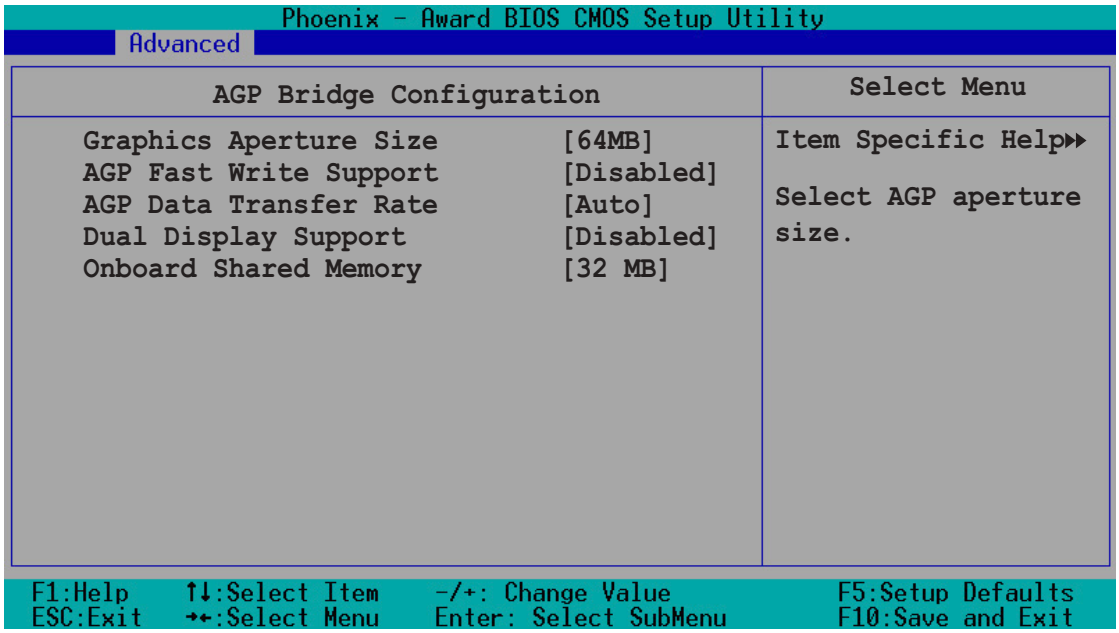


2.4.2 Chipset configuration

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



AGP Bridge Configuration



Graphics Aperture Size [64MB]

Allows you to select the size of mapped memory for AGP graphic data. Configuration options: [4MB] [8MB] [16MB] [32MB] [64MB] [128MB] [256MB] [512MB]

AGP Fast Write Support [Disabled]

Allows you to enable or disable the AGP fast write feature. The AGP fast write is a data transfer protocol that combines PCI and AGP protocols to support continuous data transfer directly from the chipset to the AGP. Configuration options: [Disabled] [Enabled]

AGP Data Transfer Rate [Auto]

Allows you to select the AGP data transfer rate.
Configuration options: [Auto] [4x]

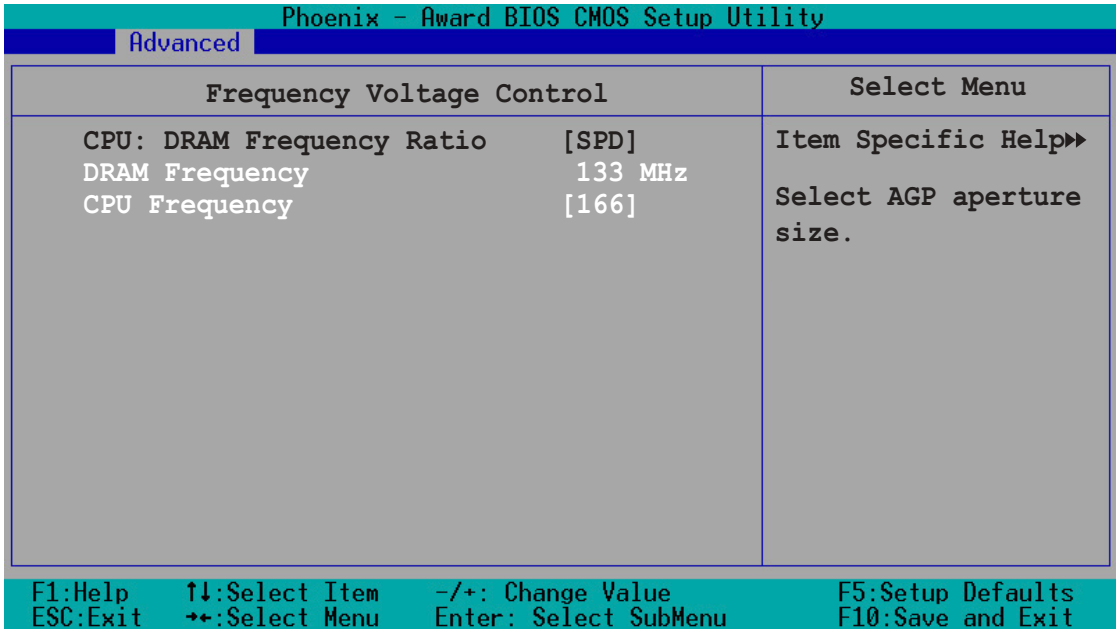
Dual Display Support [Disabled]

Enables or disables dual display support.
Configuration options: [Disabled] [Enabled]

Onboard Shared Memory [32 MB]

This item allows you to set the memory space reserved for the VGA frame buffer (display memory) within the system main memory. If you have installed a 3D graphics device, select at least 16MB VGA shared memory size. Note that the more system memory you share with VGA, the less memory space is left for other system devices.
Configuration options: [16 MB] [32 MB] [64 MB] [128 MB]

Frequency Control



CPU: DRAM Frequency Ratio [SPD]

Allows you to select the frequency ratio between the CPU and DRAM. Configuration options: [SPD] [5:4] [1:1]

DRAM Frequency [xxx MHz]

Shows the DDR operating frequency. The BIOS auto-detects the value of this item.

CPU Frequency [166]

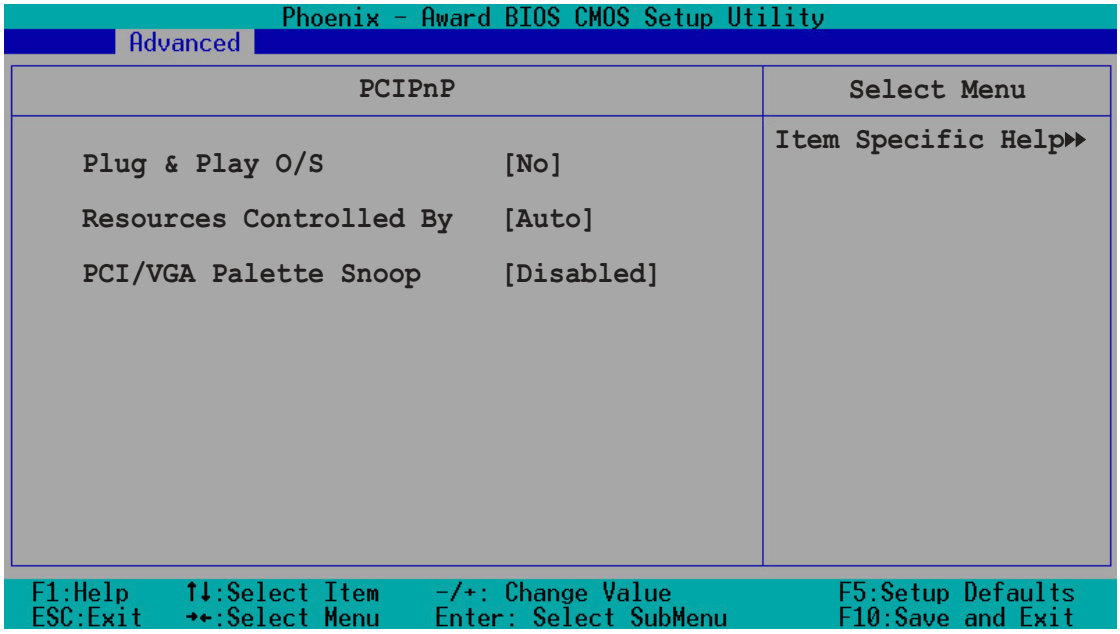
Displays the frequency set by the clock generator to the system bus and PCI bus. The BIOS auto-detects the value of this item.

Init Display First [PCI slot]

Allows you to select which graphics controller to use as the primary boot device. Configuration options: [PCI slot] [Onboard] [AGP]

2.4.3 PCIPnP

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



Plug & Play OS [No]

Select [Yes] if you are using a Plug and Play capable operating system. Select [No] if you need the BIOS to configure non-boot devices. Configuration options: [No] [Yes]

Resources Controlled By [Auto]

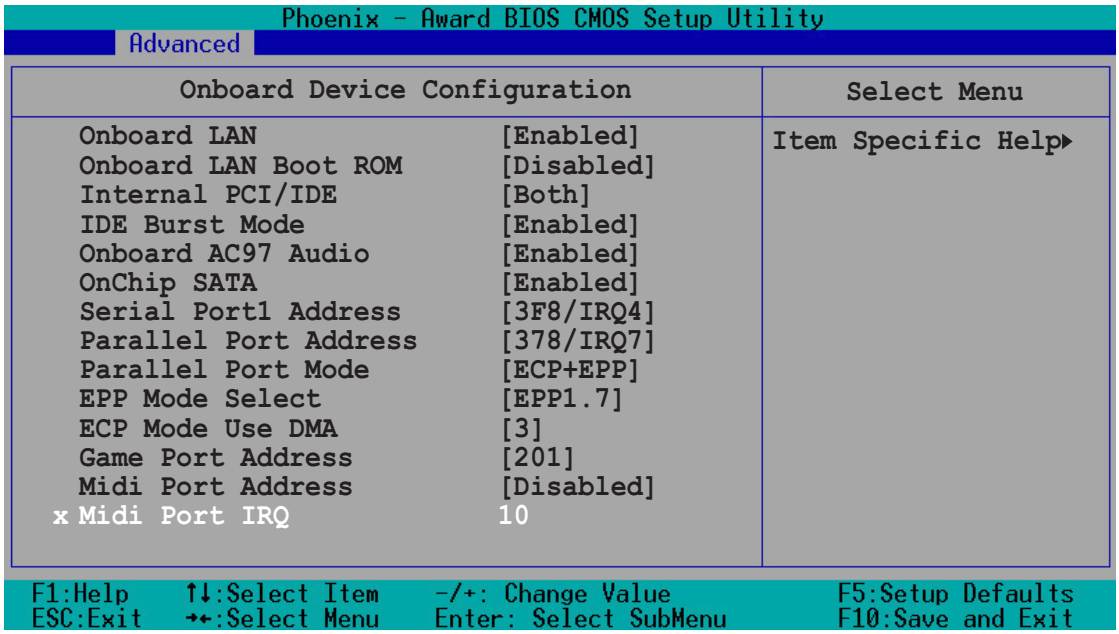
When set to [Auto], this allows the BIOS to automatically configure all the boot and Plug and Play devices. When set to [Manual], you can assign the available IRQ resources to the PCI devices. Configuration options: [Auto] [Manual]

PCI/VGA Palette Snoop [Disabled]

Some non-standard VGA cards, like graphics accelerators or MPEG video cards, may not show colors properly. Setting this field to [Enabled] corrects this problem. If you are using standard VGA cards, leave this field to the default setting [Disabled]. Configuration options: [Disabled] [Enabled]

2.4.4 Onboard device configuration

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



Onboard LAN [Enabled]

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

Onboard LAN Boot ROM [Disabled]

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

Internal PCI/IDE[Both]

Allows you to select which PCI/IDE device to activate.
Configuration options: [Disabled] [Primary] [Secondary] [Both]

IDE Burst Mode [Enabled]

Allows you to enable or disable the IDE burst mode.
Configuration options: [Disabled] [Enabled]

Onboard AC97 Audio [Enabled]

Allows you to enable or disable the onboard AC`97 Audio controller.
Configuration options: [Enabled] [Disabled]

OnChip SATA [Enabled]

Allows you to enable or disable the onchip SATA.
Configuration options: [Enabled] [Disabled]

When using Windows® 98 SE/Me, set this item to [Disabled]. Legacy operating systems, such as Windows® 98 SE/Me, do not support native Serial ATA mode.

Serial Port1 Address [3F8/IRQ4]

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

Parallel Port Address [378/IRQ7]

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

Parallel Port Mode [ECP+EPP]

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

EPP Mode Select [EPP1.7]

Allows you to select the EPP mode. This items becomes configurable only if the **Parallel Port Mode** is set to [EPP] or [ECP+EPP].
Configuration options: [EPP1.9] [EPP1.7]

ECP Mode Use DMA [3]

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

Game Port Address [201]

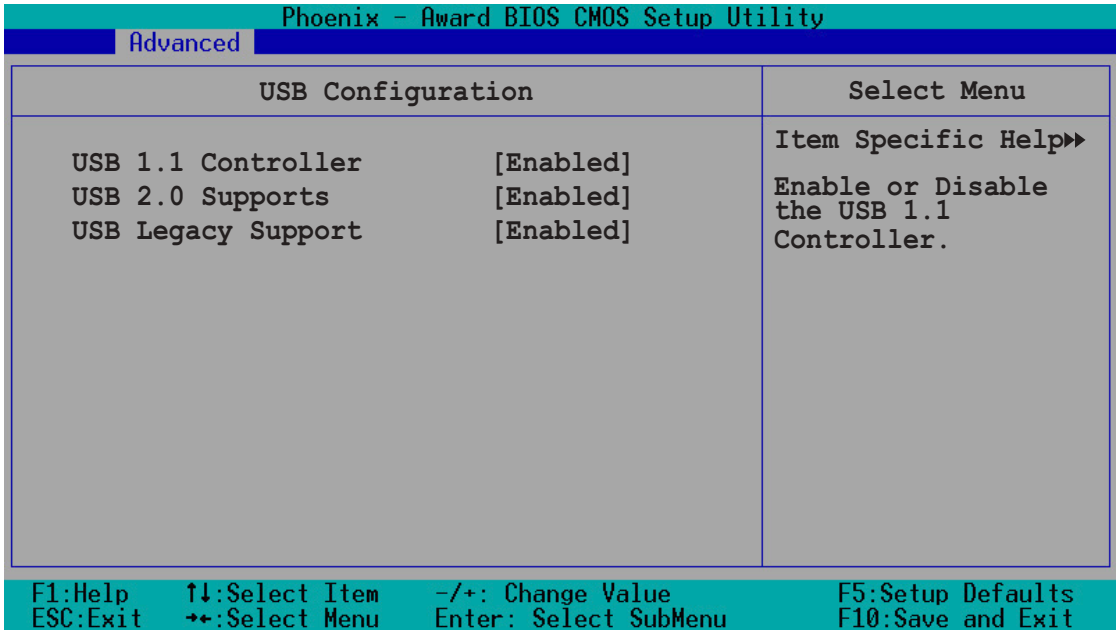
Sets the I/O address for the game port.
Configuration options: [Disabled] [201] [209]

Midi Port Address [Disabled]

Sets the I/O address for the MIDI I/O port.
Configuration options: [Disabled] [330] [300] [290]

2.4.5 USB configuration

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



USB 1.1 Controller [Enabled]

Allows you to enable or disable the USB 1.1 controller.
Configuration options: [Enabled] [Disabled]

USB 2.0 Supports [Enabled]

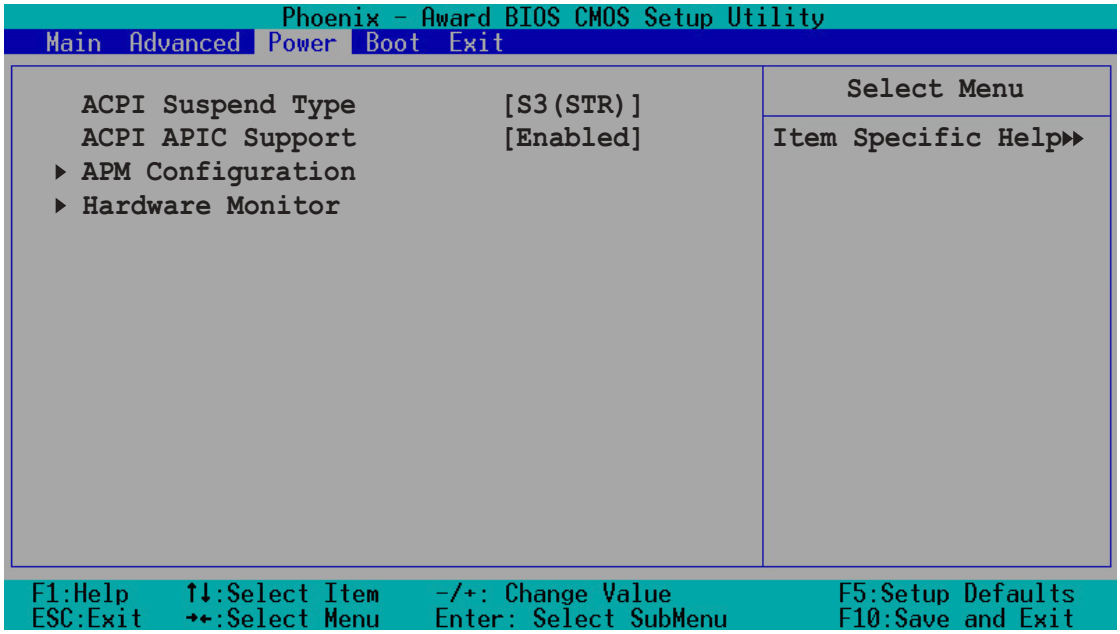
Allows you to enable or disable the EHCI controller. If the BIOS has built-in high speed USB support, setting this item to [Enabled] allows the built-in high speed USB support in the BIOS to turn on automatically when you install high speed USB devices. Configuration options: [Enabled] Disabled]

USB Legacy Support [Enabled]

Allows you to enable or disable support for legacy USB devices.
Configuration options: [Enabled] [Disabled]

2.5 Power Menu

The Power menu allows you to reduce power consumption. This feature turns off the video display and shuts down the hard disk after a period of inactivity.



ACPI Suspend Type [S3(STR)]

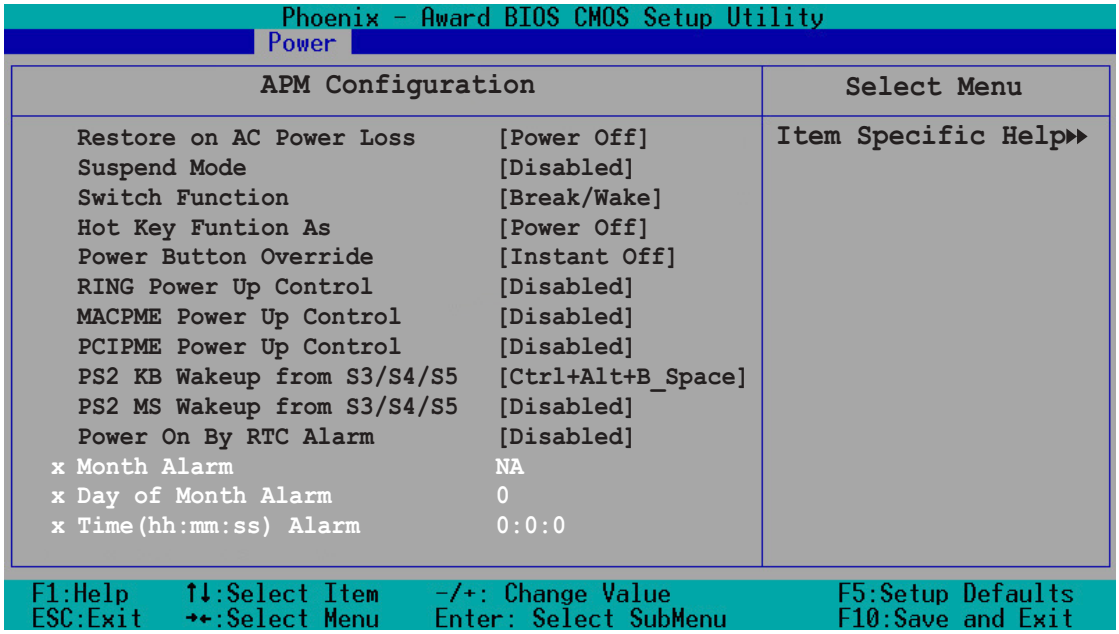
Allows you to select the ACPI state used for system suspend.
Configuration options: [S1(POS)] [S3(STR)] [S1&S3]

ACPI APIC Support [Enabled]

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

2.5.1 APM configuration

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



Restore on AC Power Loss [Power Off]

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

Suspend Mode [Disabled]

Sets the time period before the system goes into suspend mode. Configuration options: [Disabled] [1 Min] [2 Min] [4 Min] [8 Min] [12 Min] [20 Min] [30 Min] [40 Min] [1 Hour]

Switch Function[Break/Wake]

Enables or disables the Break/Wake switch function. Configuration options: [Disabled] [Break/Wake]

Hot Key Function [Power Off]

Allows you to select the hot key function. Configuration options: [Disable] [Power Off] [Suspend]

Power Button Override [Instant-Off]

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

Ring Power Up Control [Disabled]

Allows you to enable or disable system power up when the external modem receives a call while the computer is in soft-off mode. Configuration options: [Disabled] [Enabled]

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.

MACPME Power Up Control [Disabled]

Enables or disables system wake-up by MAC power management event (PME). Set this item to [Enabled] if you want to use the wake-on LAN feature to wake up the system. Configuration options: [Disabled] [Enabled]

PCIPME Power Up Control [Disabled]

Enables or disables system wake-up by PCIPME.
Configuration options: [Disabled] [Enabled]

PS2KB Wakeup from S3/S4/S5 [Ctrl+Alt+B_Space]

Allows you to wake up the system using a keyboard hot key or password. When you select the [Password] option, press <Enter> once to change the password. Press <Enter> twice to disable the keyboard power on function. Configuration options: [Any Key] [Ctrl+Alt+B_Space] [Password]

PS2MS Wakeup from S3/S4/S5 [Disabled]

Allows you to wake up the system using a PS/2 mouse.
Configuration options: [Disabled] [Click] [Move & Click]

Power On By RTC Alarm [Disabled]

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

The following items become configurable only when the **Power On By RTC Alarm** item is set to [Enabled].

Month Alarm [NA]

To set the month of alarm, highlight this item and press <Enter> to display a pop-up menu. Use the up and down arrow keys to choose the number corresponding to the month you want, then press <Enter>. Configuration options: [NA] [1] ~ [12]

Day of Month Alarm [NA]

To set the day of alarm, highlight this item and press <Enter> to display a pop-up menu. Key in a value (Min=0, Max=31), then press <Enter>. Selecting [0] means the alarm will set off everyday.

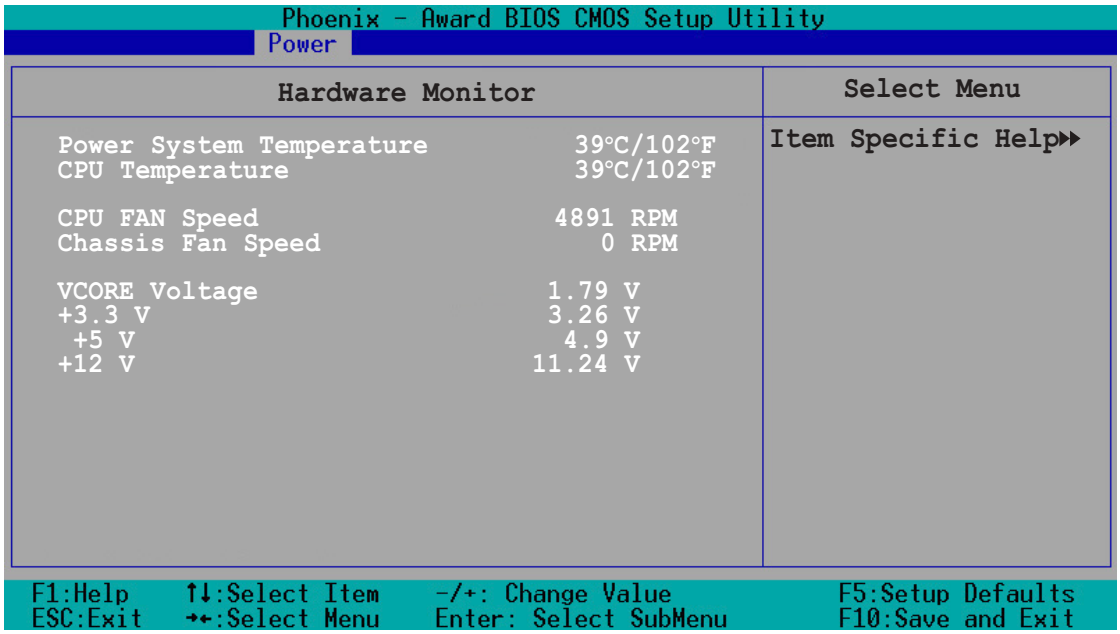
Time (hh:mm:ss) Alarm [0 : 0 : 0]

To set the time of alarm:

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

2.5.2 Hardware monitor

This menu shows the hardware monitor settings auto-detected by the BIOS.



Power System Temperature [xxx°C/xxx°F]
CPU Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the system and CPU temperatures in these fields.

CPU FAN Speed [xxxxRPM]
Chassis FAN Speed [xxxxRPM] or [N/A]

The onboard hardware monitor automatically detects and displays the CPU and chassis fan speeds in rotations per minute (RPM). If any of the fans is not connected to the motherboard, the specific field shows [N/A]

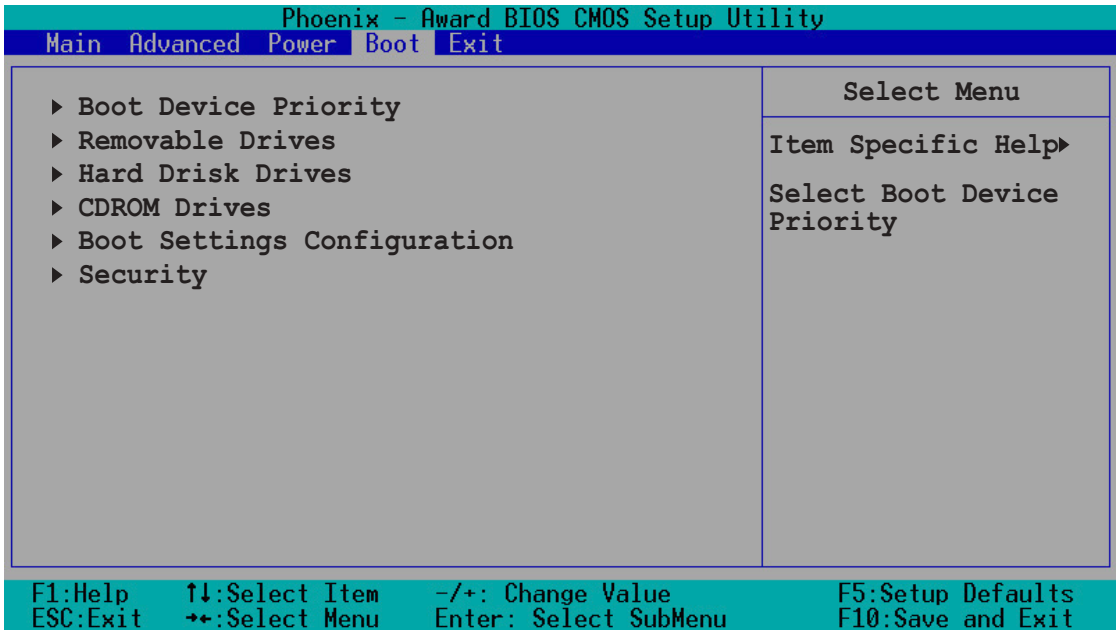
VCORE Voltage, +3.3V, +5V, +12V

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

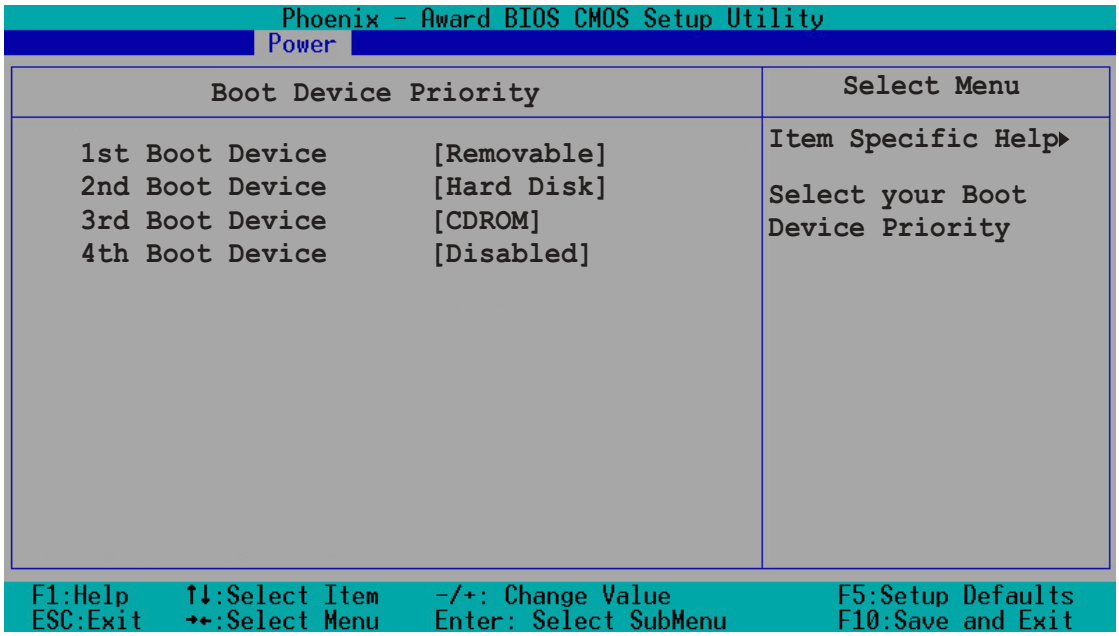
If any of the monitored items is out of range, the following error message appears: “Hardware Monitor found an error. Enter Power setup menu for details.” You will then be prompted to “Press F1 to continue or DEL to enter SETUP.”

2.6 Boot Menu

This Boot menu items allow you to change the system boot settings. Select an item then press <Enter> to display a pop-up menu with the configuration options.



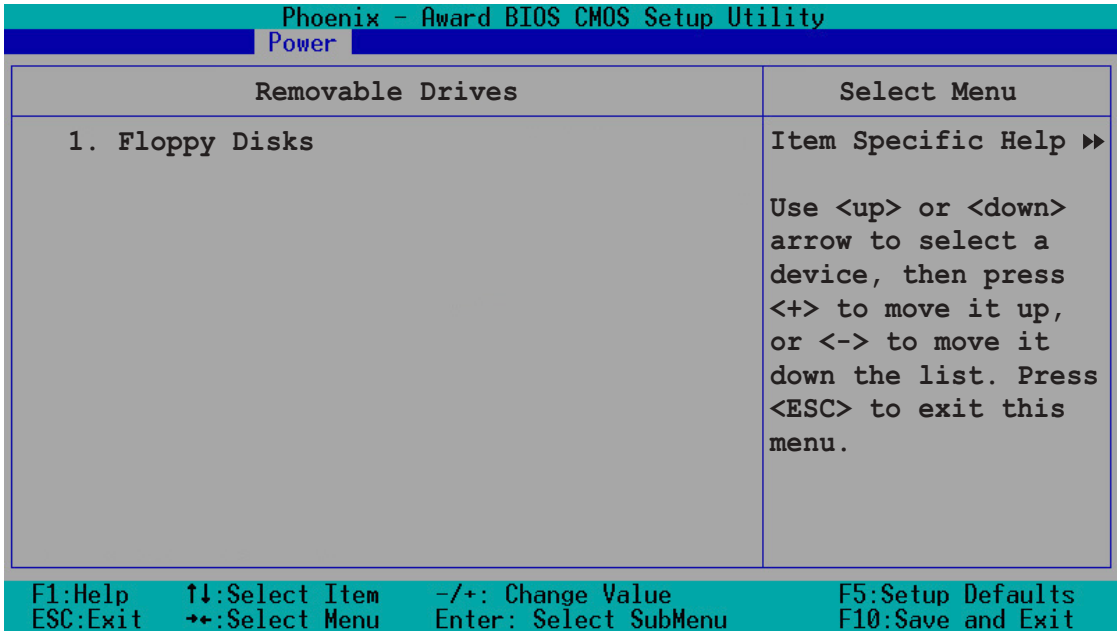
2.6.1 Boot Device Priority



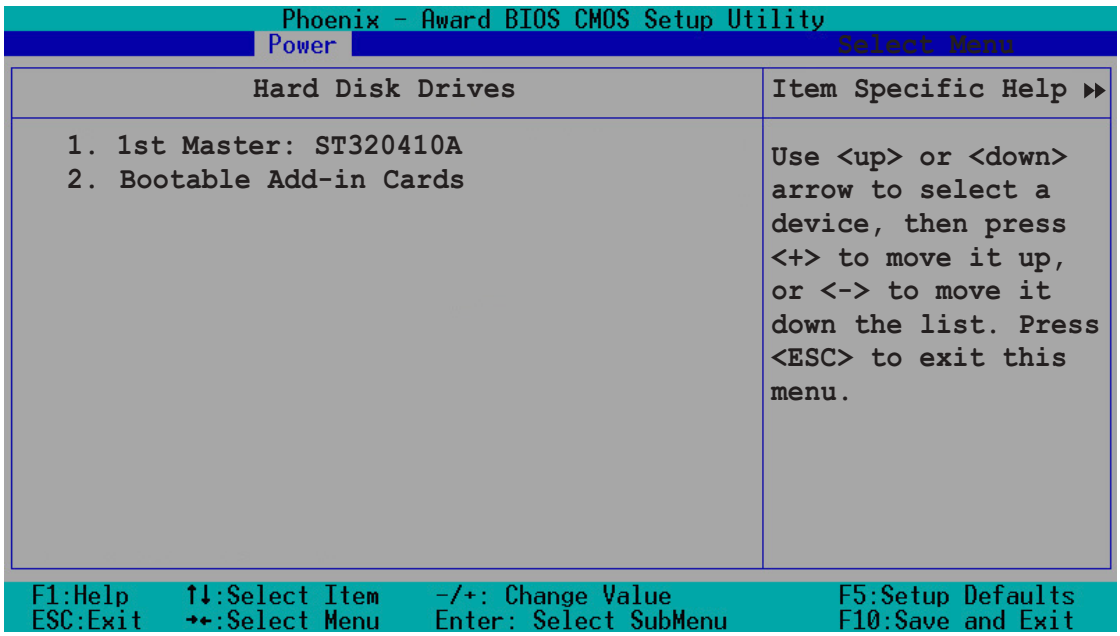
1st ~ xth Boot Device

These items specify the boot device priority sequence from the available devices. The number of devices that appears on the screen depends on the number of devices installed in the system. Configuration options: [Removable] [Hard Disk] [CDROM] [Legacy LAN] [Disabled]

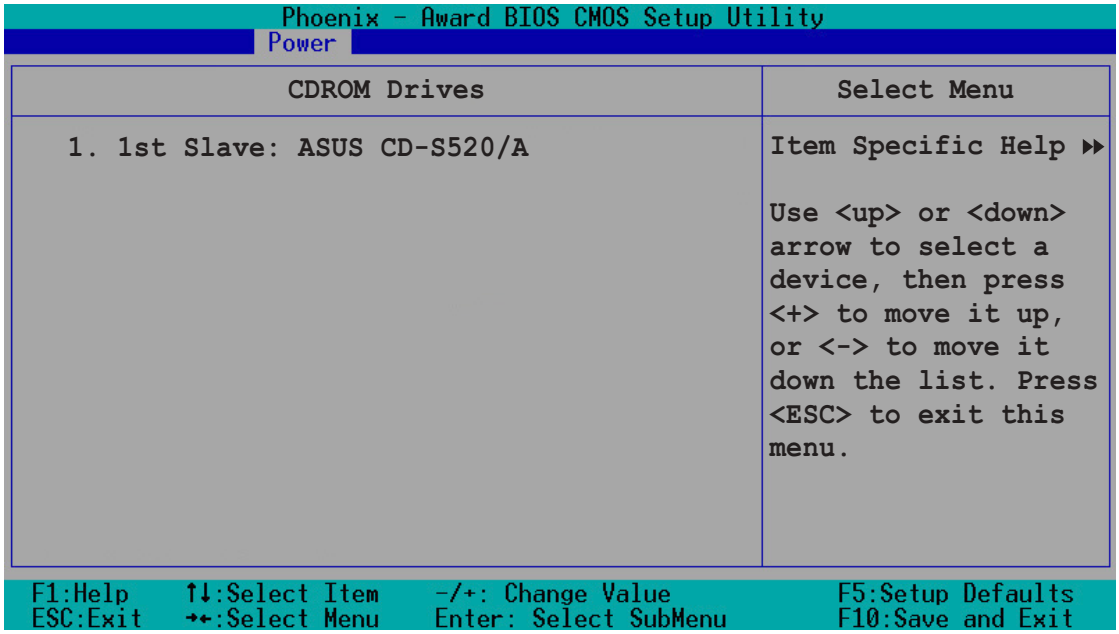
2.6.2 Removable drives



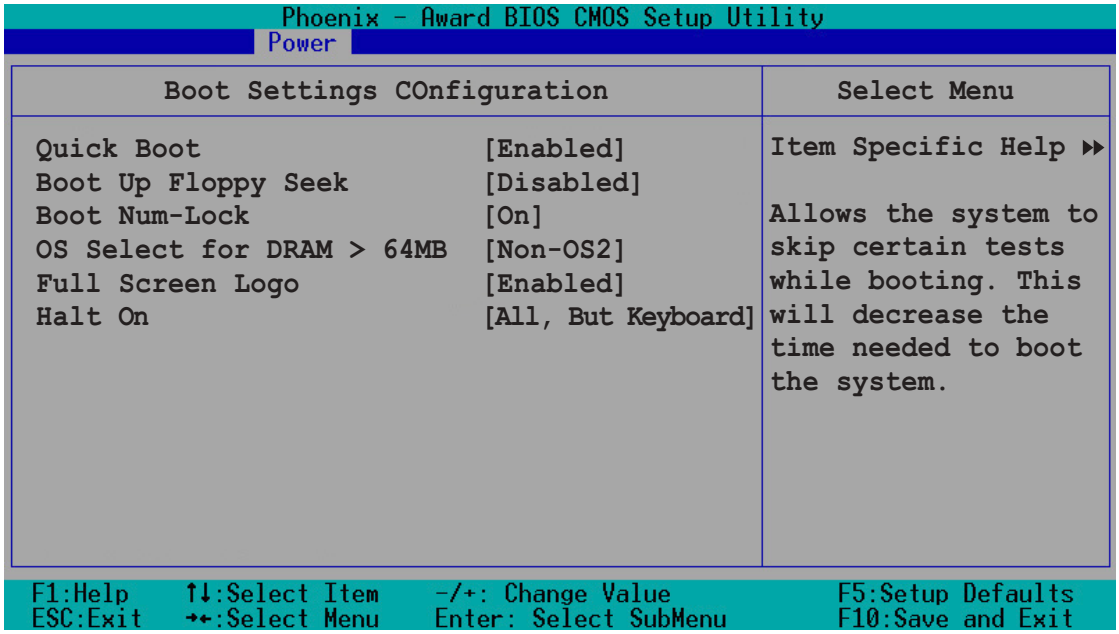
2.6.3 Hard Disk Drives



2.6.4 CD-ROM drives



2.6.5 Boot settings configuration



Quick Boot [Enabled]

Setting to [Enabled] allows the system to skip certain tests while booting, decreasing the time needed to boot the system.
Configuration options: [Disabled] [Enabled]

Boot Up Floppy Seek [Disabled]

When [Enabled], the BIOS will seek the flopy disk drive to determine whether the drive has 40 or 80 tracks. Configuration options: [Disabled] [Enabled]

Boot Up Num-Lock [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

OS Select for DRAM > 64MB [Non-OS2]

Select [OS2] only when you are using an OS2 operating system with greater than 64MB RAM; otherwise, set to [Non-OS2].
Configuration options: [Non-OS2] [OS2]

Full Screen Logo [Enabled]

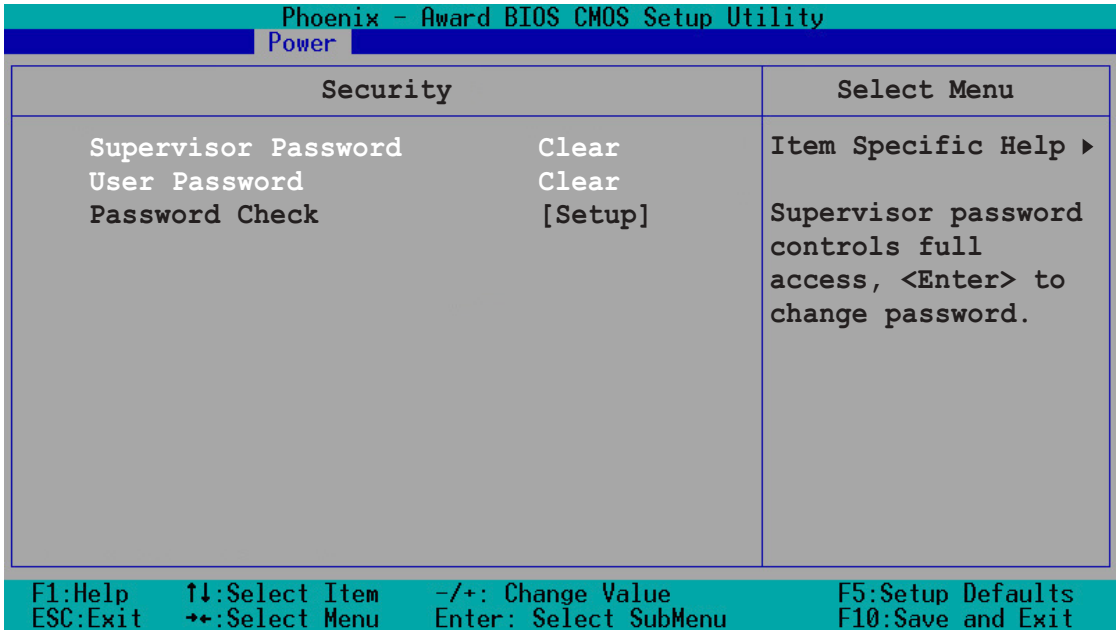
Allows you to enable or disable the full screen logo display feature.
Configuration options: [Disabled] [Enabled]

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

Halt On [All, But Keyboard]

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

2.6.6 Security



Supervisor Password [Clear]
User Password [Clear]

These fields allow you to set passwords.

To set a password:

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

To clear the password:

1. Highlight the password field, and press <Enter> twice. The following message appears:

   "PASSWORD DISABLED!!! Press any key to continue..."
2. Press any key to return to the menu.

A note about passwords

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

Forgot the password?

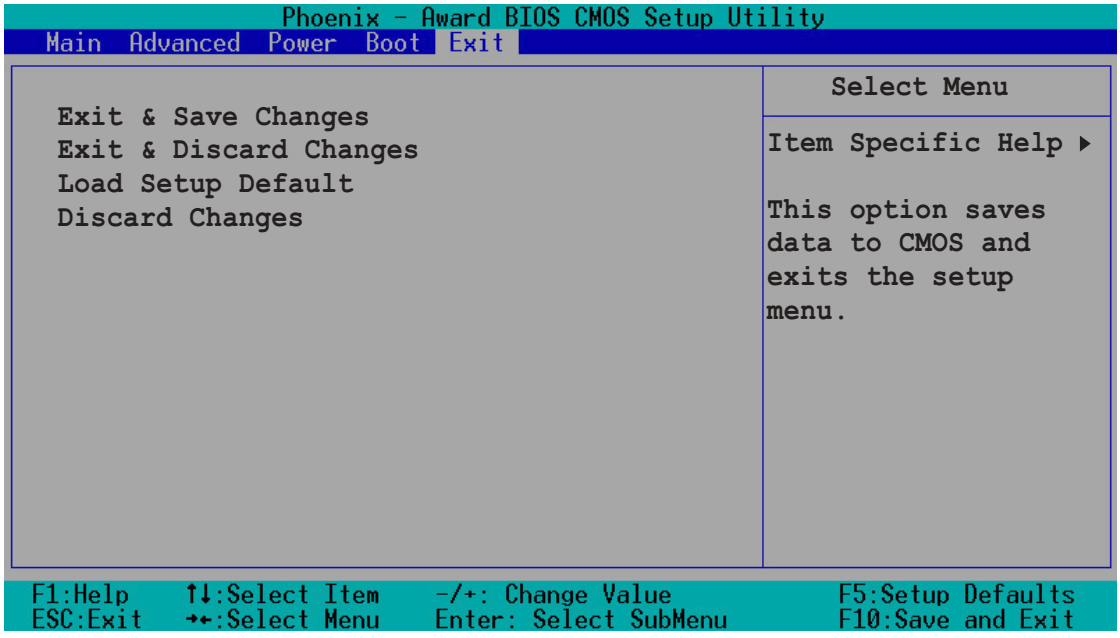
If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, refer to section "1.9 Jumpers" for instructions.

Password Check [Setup]

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

2.7 Exit menu

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



Exit & Save Changes

Select this option then press <Enter>, or simply press <F10>, to save your changes to CMOS before exiting the Setup utility.

When a confirmation window appears (with a blinking [Y]):

- press <Enter> to save and exit
- type [N], then press <Enter>, or simply press <Esc>, to cancel the command and return to the Exit menu

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than system date, system time, and password, the BIOS asks for a confirmation before exiting.

Load Setup Defaults

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

Discard Changes

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

This chapter describes the contents of the support CD that comes with the motherboard package.

3 Software support

3.1 Installing an operating system

This motherboard supports Windows® 2000/2003 Server/XP operating systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

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

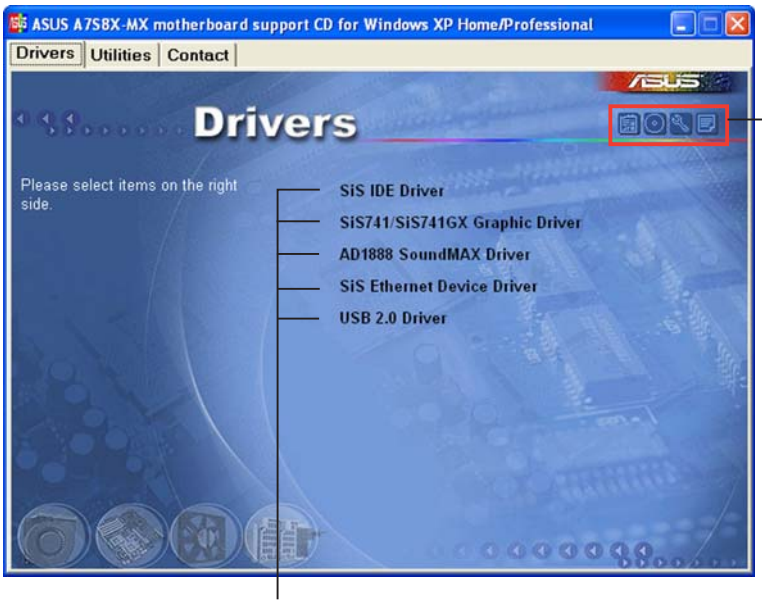
3.2 Support CD information

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

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

3.2.1 Running the support CD

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



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.

SiS IDE Driver

Installs the SiS IDE driver.

SiS741/SiS741GX Graphic Driver

Installs the SiS741/SiS741GX graphic driver.

AD1888 SoundMAX Driver

Installs the AD1888 SoundMAX® application and driver.

SiS Ethernet Device Driver

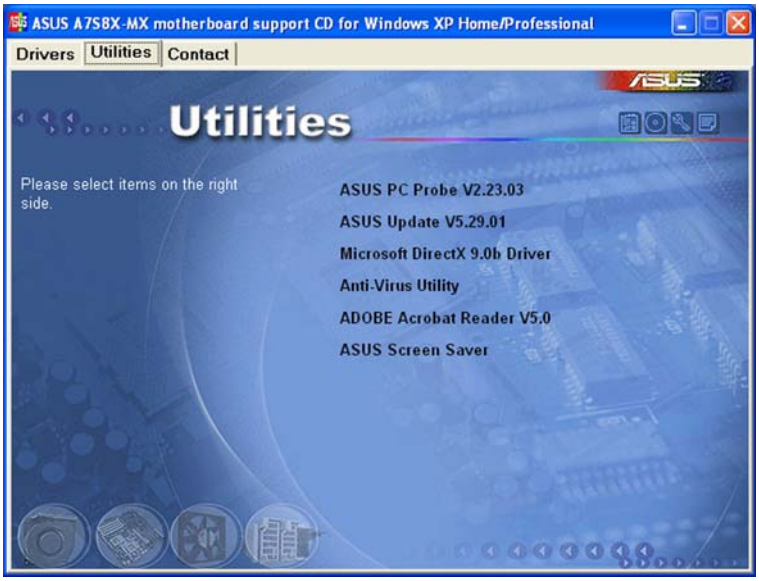
Installs the SiS Ethernet device driver.

USB 2.0 Driver

Installs the USB 2.0 driver.

3.2.3 Utilities menu

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



ASUS PC Probe

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

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP). See page 2-8 for details.

Microsoft DirectX

Installs the Microsoft® DirectX 9.0b driver.

Anti-Virus Utility

Installs the PC-cillin anti-virus program. View the online help for detailed information.

ADOBE Acrobat Reader

Installs the Adobe® Acrobat® Reader V5.0.

ASUS Screen Saver

Installs the ASUS screen saver.

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.