# P4S800-MX
## (Maxdata)

## User Guide

Motherboard

**E1638**

**First Edition V1**

**May 2004**

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# Notices

## Federal Communications Commission Statement

This device complies with FCC Rules Part 15. 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 adpater 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.

# P4S800-MX specifications summary

| | |
|---|---|
| **CPU** | Socket 478 for Intel® Pentium® 4 Northwood/Willamette processor<br>Intel® Hyper-Threading technology ready<br>New power design for next generation Intel® Prescott CPU |
| **Chipset** | SiS661 FX<br>SiS963L |
| **Front Side Bus (FSB)** | 800/533/400 MHz |
| **Memory** | 2 x 184-pin DDR DIMM sockets for up to 2GB memory<br>Supports PC3200/2700/2100 unbuffered non-ECC DDR DIMMs. |
| **Expansion slots** | 1 x AGP 8X/4X (1.5V only)<br>3 x PCI |
| **VGA** | SiS Real256E integrated graphics |
| **Storage** | 2 x UltraATA133, PIO Mode 0 ~ 4 |
| **Audio** | ADI AD1888 6-channel audio CODEC |
| **LAN** | Integrated MAC with VIA 6103L 10/100 LAN PHY |
| **Hardware monitoring** | Super I/O integrated monitoring of CPU/chassis fan rotation and MB/CPU temperature |
| **Special features** | Power loss restart<br>Digital audio via an S/PDIF out inteface |
| **Rear panel I/O** | 1 x Parallel port<br>1 x Serial port<br>1 x Video port<br>1 x PS/2 keyboard port<br>1 x PS/2 mouse port<br>1 x RJ-45 port<br>4 x USB 2.0/USB 1.1 ports<br>Line In/Line Out/Microphone ports |
| **Internal I/O** | 1 x USB 2.0 connector for additional two USB ports<br>CPU and chassis fan connectors<br>20-pin/4-pin ATX 12V power connectors<br>CD/AUX audio connectors<br>S/PDIF out connector<br>Front panel audio connector<br>Panel connector<br>Speaker out connector<br>GAME/MIDI connector<br>Power LED connector<br>Serial (COM2) connector<br>Chassis intrusion connector |

*(Continued on the next page.)*

# P4S800-MX specifications summary

| BIOS features | 4Mb Flash EEPROM, DMI, PnP features, SM BIOS 2.3, WfM 2.0, ASUS CrashFree BIOS, ASUS EZ Flash, and ASUS C.P.U. (CPU Parameter Recall) |
|---|---|
| Industry standard | PCI 2.2, USB 2.0/1.1 |
| Manageability | WOL/WOR by PME, Wake on USB KB/Mouse |
| Form Factor | Micro-ATX form factor: 9.6 in x 9.6 in (24.5 cm x 24.5 cm) |
| Support CD contents | Device drivers<br>ASUS PC Probe<br>ASUS LiveUpdate<br>ASUS Screensaver<br>Adobe Acrobat Reader<br>Trend Micro™ PC-cillin 2002 Anti-Virus application<br>Microsoft® DirectX 8.1 |

*\* Specifications are subject to change without notice.*

# About this guide

## Conventions used in this guide

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

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

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

**IMPORTANT:** Information that you MUST follow to complete a task.

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

# *Chapter 1*

This chapter describes the features of the
motherboard. It includes brief descriptions of the
motherboard components, and illustrations of the
layout, jumper settings, and connectors.

# Product introduction

# 1.1    Welcome!

**Thank you for buying the ASUS® P4S800-MX motherboard!**

The ASUS P4S800-MX 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.

✓  ASUS P4S800-MX motherboard
    Micro-ATX form factor: 9.6 in x 9.6 in  (24.5 cm x 24.5 cm)

✓  ASUS P4S800-MX series support CD

✓  80-conductor UltraATA IDE cable

✓  Ribbon cable for a 3.5-inch floppy drive

✓  I/O shield

✓  Bag of extra jumper caps

✓  User Guide

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

# 1.3    Special features

### Intel® 800MHz FSB CPU support

The motherboard comes with a 478-pin surface mount, Zero Insertion Force (ZIF) socket for the Intel® Pentium® 4 processor and 512/256KB L2 cache on 0.13 micron process. This motherboard supports 800/533/400 MHz system front side bus that allows 6.4GB/s, 4.3GB/s and 3.2GB/s data transfer rates, respectively. The P4S800-MX also supports the Intel® Hyper-Threading Technology and the next-generation Intel® Prescott CPU. **See page 1-8**.

### SiS661FX/963L chipset

Embedded in this motherboard is the SiS661FX/963L chipset that integrates various SiS-developed technologies to ensure an efficient and reliable computing performance.

The SiS661FX chipset provides a high performance host interface for the Intel® Pentium® 4 processor, and supports AGP 8X, 800MHz front side bus, and DDR400. The SiS661FX features the SiS HyperStreaming™ Engine that smartly manages data streams between peripherals, core logic chipsets, front side bus, memory and graphic interfaces. This technology dramatically optimizes and improves the entire computer system performance.

Providing I/O and peripheral support is the SiS963L southbridge. The southbridge is a subsystem that integrates various I/O functions including dual-channel ATA133 bus master IDE, USB 2.0/1.1, Ethernet, and audio controllers. The SiS963L provides LPC and AC'97 interfaces, and complies with the Advanced Power Management (APM) 1.2 specification. The SiS963L interconnects with the northbridge at up to 1GB/s using the SiS proprietary MuTIOL® bus interface.

## DDR400 support

The motherboard supports up to 2GB of system memory using PC3200/2700/2100 non-ECC DDR DIMMs to deliver up to 3.2GB/s data transfer rate for the latest 3D graphics, multimedia, and Internet applications. **See page 1-10**.

## Real256E integrated graphics

Embedded in the northbridge is the SiS Real256E integrated graphics with a 256-bit 3D engine and 2D graphics accelerator with a maximum 64MB shared display memory. The Real256E integrated graphics engine incorporates the UltraAGPII™ technology to provide a faster link between the built-in graphic engine and the northbridge memory controller. This technology boosts VGA throughput to up to 3.2GB/s to bring clearer and sharper images for your multimedia and graphic-intensive applications. The Real256E integrated graphics achieves a maximum resolution of 2048x1526 at 32bpp. **See page 2-16**.

## Integrated 10/100 Mbps LAN controller

Onboard is a VIA 6103L LAN PHY that that interconnects with the SiS963L southbridge LAN controller to fully support 10BASE-T/ 100BASE-TX Ethernet networking. **See page 1-17**.

## SoundMAX digital audio system

The SoundMax Digital Audio System is the industry's highest performance and most reliable audio solution for business professionals, audiophiles, musicians, and gamers. SoundMAX Digital Audio System can output 5.1 channel surround and features state-of-the-art DLS2 MIDI synthesizer with Yamaha DLSbyXG sound set, 5.1 Virtual Theater™ and supports all major game audio technologies including Microsoft DirectX™8.0, Microsoft DirectSound 3D™, A3D, MacroFX, ZoomFX, MultiDrive 5.1 and EAX. **See page 1-17**.

## USB 2.0 connectivity

The P4S800-MX rear panel is equipped with four (4) Universal Serial Bus (USB) ports to connect USB 2.0 devices. A USB header is also available at mid-board to accommodate a USB module for two (2) additional USB ports. The USB ports and header comply with USB 2.0 specification that supports up to 480 Mbps connection speed. This speed advantage over the conventional USB 1.1 (12 Mbps) allows faster Internet connection, interactive gaming, and simultaneous running of high-speed peripherals. USB 2.0 is backward compatible with USB 1.1. **See pages 1-17 and 1-20**.

## ASUS CrashFree BIOS

CrashFree BIOS allows users to restore BIOS  data from a floppy diskette even when BIOS code and data are corrupted during upgrade or invaded by a virus. Unlike other competing vendors' products, ASUS motherboards now enable users to enjoy this protection feature without the need to pay for an optional ROM. **See page 2-6**.

## 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**.

# 1.4    Before you proceed

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

1. Unplug the power cord from the wall socket before touching any component.

2. 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.

3. Hold components by the edges to avoid touching the ICs on them.

4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

5. **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 P4S800-MX comes with a stand-by power LED. When lit, the green LED indicates that the system is ON, in sleep mode, or in soft-off mode, 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.

**P4S800-MX Onboard LED**

SB_PWR1

**ON**
Standby
Power

**OFF**
Powered
Off
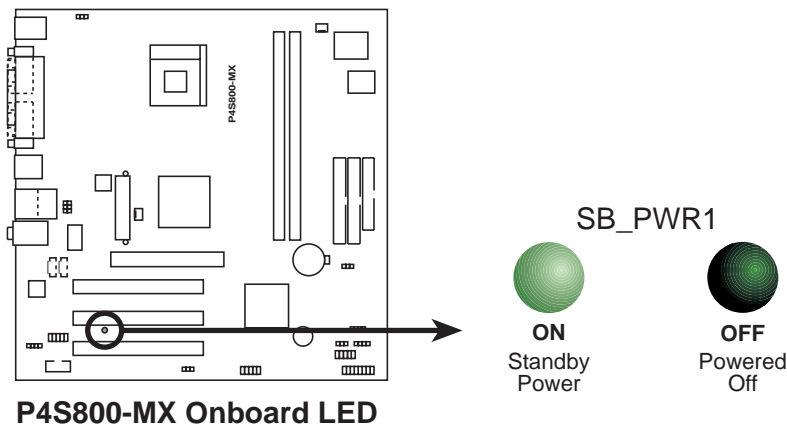
# 1.5 Motherboard overview

## 1.5.1 Motherboard layout

24.5cm (9.6in)



24.5cm (9.6in)

**P4S800-MX**

* Requires an ATX power supply.
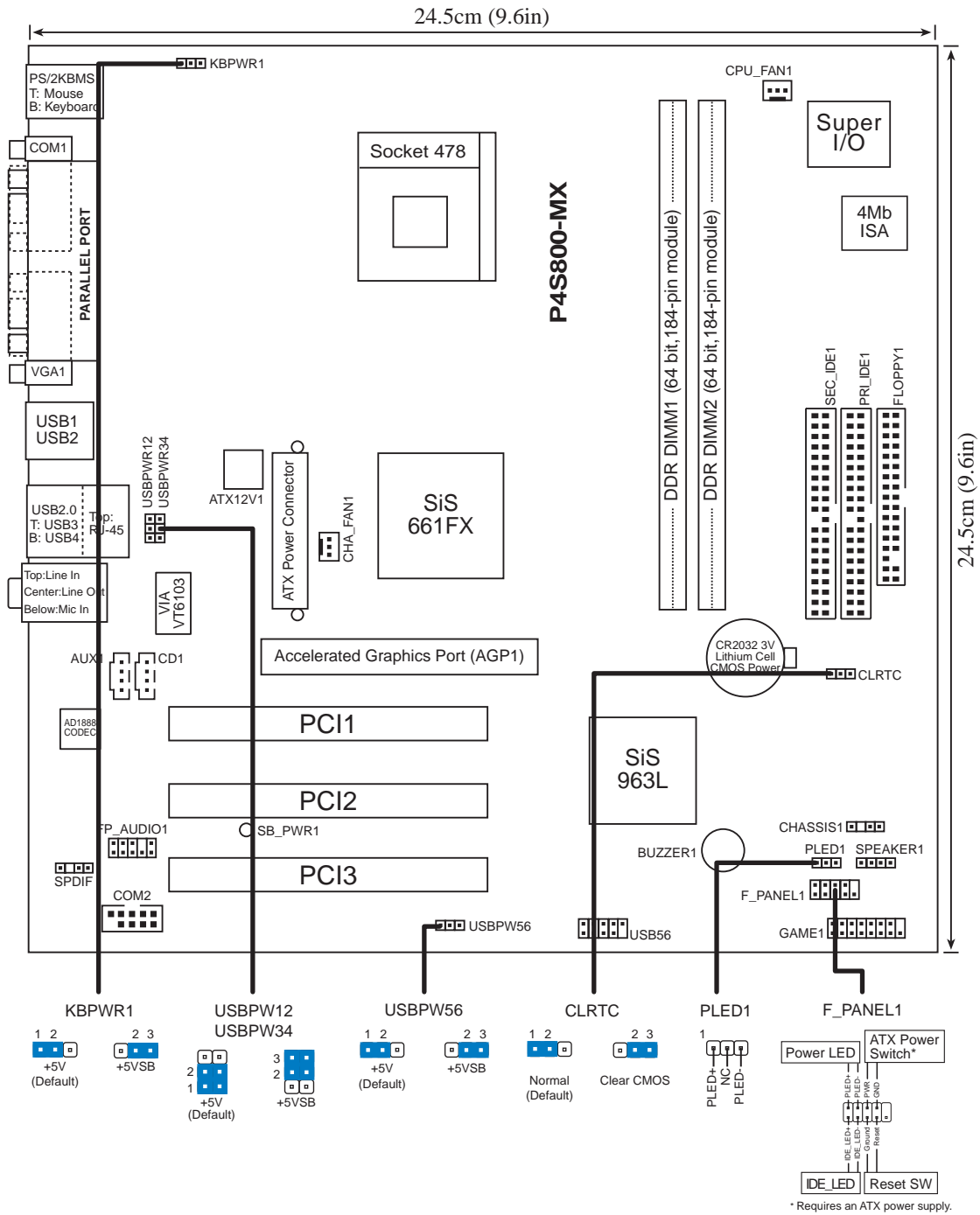
## 1.5.2   Placement direction

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.

## 1.5.3   Screw holes

Place eight (8) screws into the holes indicated by circles to secure the motherboard to the chassis.

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

**Place this side towards the rear of the chassis**
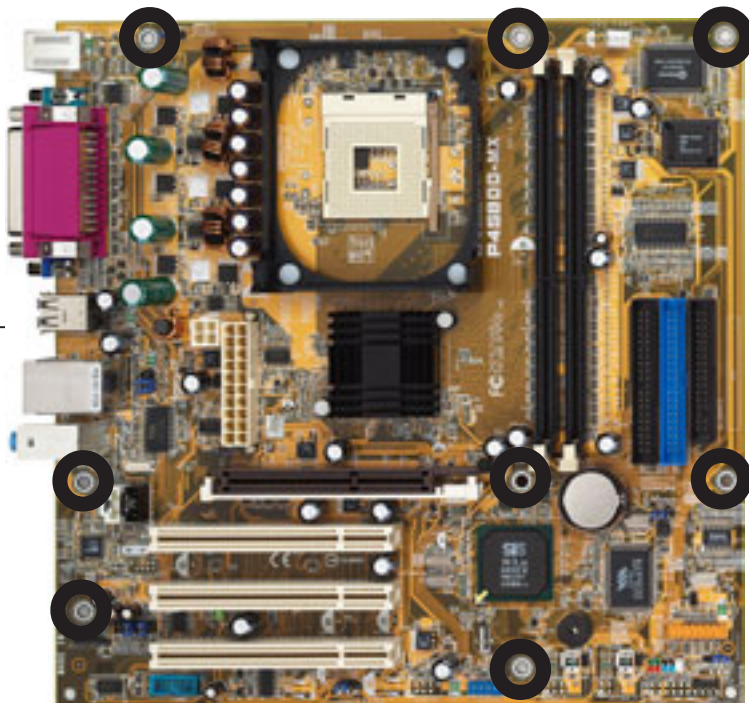
# 1.6    Central Processing Unit (CPU)

## 1.6.1    Overview

The Intel® Pentium® 4 processor has a gold triangular mark on one corner. This mark indicates the processor Pin 1 that should match a specific corner of the CPU socket.



← Gold Arrow
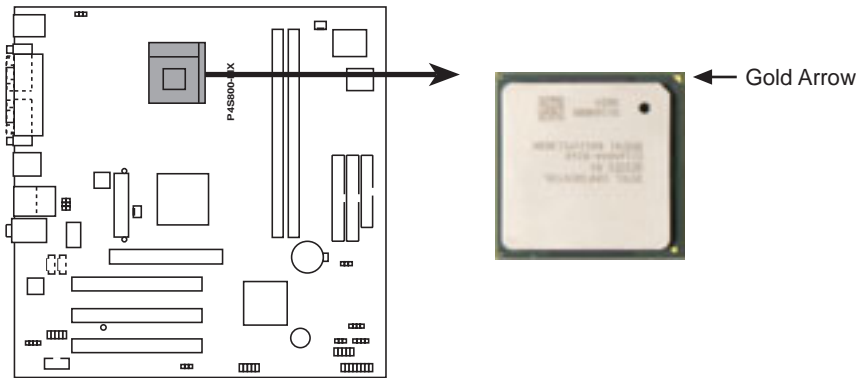
**P4S800-MX Socket 478**

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⚠️ Incorrect installation of the CPU into the socket may bend the pins and severely damage the CPU!

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### Notes on Intel® Hyper-Threading Technology

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1.  Hyper-Threading Technology is supported under **Windows XP** and **Linux 2.4.x (kernel)** and later versions only. Under Linux, use the Hyper-Threading compliler to compile the code. If you are using any other operating systems, disable the Hyper-Threading Techonology item in BIOS to ensure system stability and performance.

2.  It is recommended that you install WinXP Service Pack 1.

3.  Make sure to enable the Hyper-Threading Technology item in BIOS before installing a supported operating system.

4.  For more information on Hyper-Threading Technology, visit  **www.intel.com/info/hyperthreading**.

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## 1.6.2　Installing the CPU

Follow these steps to install a CPU.

1. Locate the 478-pin ZIF socket on the motherboard.

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.
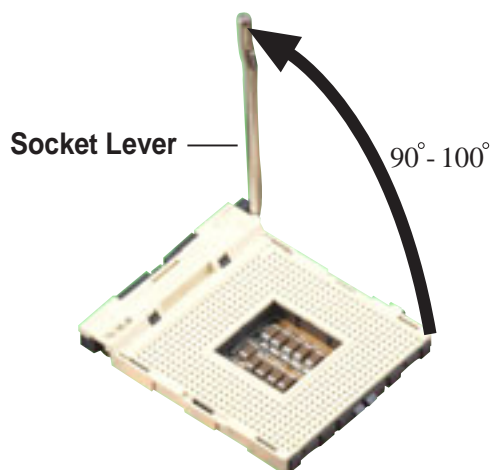
**Socket Lever** ——————                              $90^{°}$- $100^{°}$

3. Position the CPU above the socket such that its marked corner matches the base of the socket lever.

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

**Gold Mark**

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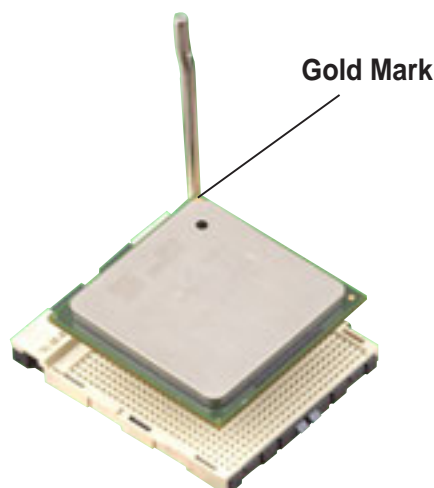
5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

6. Install a CPU heatsink and fan following the instructions that came with the heatsink package.

7. Connect the CPU fan cable to the CPU_FAN1 connector on the motherboard.
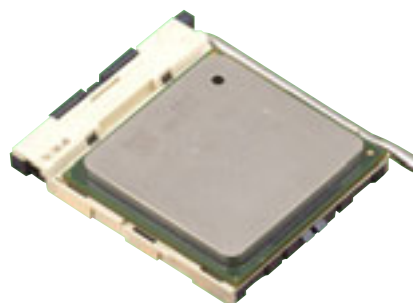
# 1.7 System memory

## 1.7.1 DIMM sockets location

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

**P4S800-MX 184-Pin DDR DIMM Sockets**
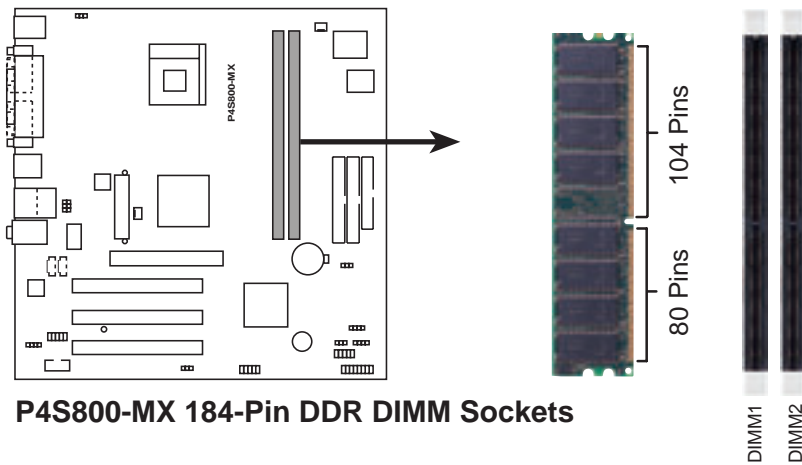
⚠️ Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

When installing long AGP cards, it is recommended to install the memory modules first. Long AGP cards, when installed, may interfere with the memory sockets.

## 1.7.2 Memory configurations

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

✏️ Obtain DDR DIMMs only from ASUS qualified vendors. Refer to the Qualified DDR400 vendors list next page. Visit the ASUS website (www.asus.com) for the latest DDR Qualified Vendors List.

## Table 1  Qualified DDR400 vendors list

This table lists the memory modules that have been tested and qualified for use with this motherboard.

| Size | Vendor | Part Number | Chip Brand | Side/s* | Chip Number |
|------|--------|-------------|------------|---------|-------------|
| 512MB | MICRON | MT16VDDT6464AG-40BC4 | MICRON | DS | MT46V32M8TG-5BC |
| 512MB | CENTURY | DXV2S8SSCCE3K27E | SAMSUNG | DS | K4H560838E-TCCC |
| 256MB | CENTURY | DXV6S8MC5BC3U27E | MICRON | SS | MT46V32M8TG-5BC |
| 256MB | BRAIN POWER | B6U808-256M-SAM-400 | SAMSUNG | SS | K4H560838D-TCC4 |
| 256MB | Transcend | TS32MLD64V4F3 | MOSEL | SS | V58C2256804SAT5 |
| 256MB | Apacer | 77.10636.465 | SAMSUNG | SS | K4H560838D-TCC4 |
| 256MB | ATP | AG32L64T8SQC4S | SAMSUNG | SS | K4H560838D-TCC4 |
| 256MB | NANYA | NT256D64S88B1G-5T | NANYA | SS | NT5DS32M8BT-5T |
| 256MB | MICRON | MT8VDDT3264AG-40BC4 | MICRON | SS | MT46V32M8TG-5BC |
| 512MB | elixir | M2U25664DS8HB3G-5T | elixir | DS | N2DS25680BT-5T |

**\*   Side/s:**
**DS - Double-sided**
**SS - Single-sided**

# 1.7.3   Installing a DIMM

Follow these steps to install a DIMM.

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.

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

**DDR DIMM notch**

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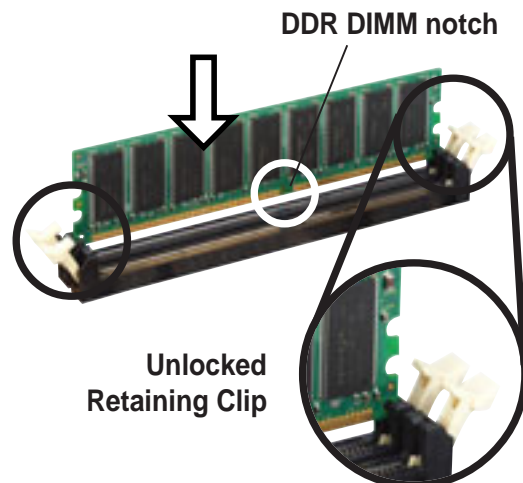
A DDR DIMM is  keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

# 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

Follow these steps 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 the 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.

## Standard interrupt assignments

| IRQ | Priority | Standard Function |
|-----|----------|-------------------|
| 0 | 1 | System Timer |
| 1 | 2 | Keyboard Controller |
| 2 | N/A | Programmable Interrupt |
| 3* | 11 | Communications Port (COM2) |
| 4* | 12 | Communications Port (COM1) |
| 5* | 13 | IRQ holder for PCI steering |
| 6 | 14 | Floppy Disk Controller |
| 7* | 15 | Printer Port (LPT1) |
| 8 | 3 | System CMOS/Real Time Clock |
| 9* | 4 | IRQ holder for PCI steering |
| 10* | 5 | Advance AC'97 CODEC |
| 11* | 6 | Standard PCI Graphics Adapter (VGA) |
| 12* | 7 | PS/2 Compatible Mouse Port |
| 13 | 8 | Numeric Data Processor |
| 14* | 9 | Primary IDE Channel |
| 15* | 10 | Secondary IDE Channel |

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

## IRQ assignments for this motherboard

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| PCI slot 1 | shared | — | — | — | — | — | — | — |
| PCI slot 2 | — | used | — | — | — | — | — | — |
| PCI slot 3 | — | — | shared | — | — | — | — | — |
| AGP slot | shared | — | — | — | — | — | — | — |
| Onboard USB controller 1 | — | — | — | — | used | — | — | — |
| Onboard USB controller 2 | — | — | — | — | — | used | — | — |
| Onboard USB 2.0 controller | — | — | — | — | — | — | — | used |
| Onboard LAN | — | — | — | used | — | — | — | — |
| Onboard audio | — | — | shared | — | — | — | — | — |

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

## 1.8.3  PCI slots

The PCI slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications.
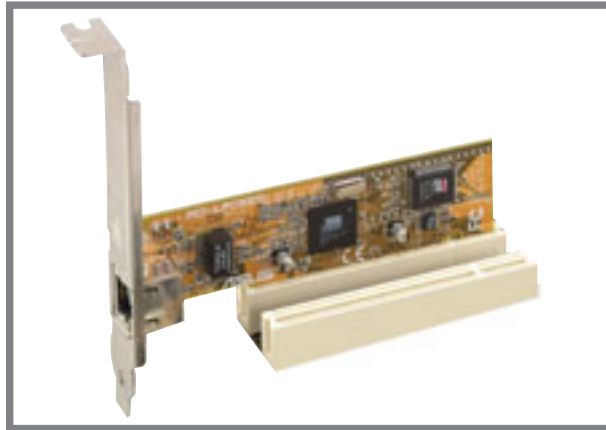
## 1.8.4  AGP slot

The Accelerated Graphics Port (AGP) slot that supports AGP 8X/4X (+1.5V) 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 the motherboard.

> This motherboard does not support 3.3V AGP cards. Install only +1.5V AGP cards.

**Keyed for 1.5v**
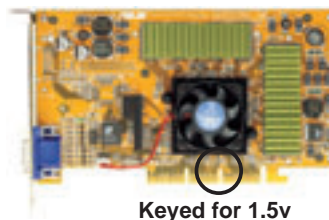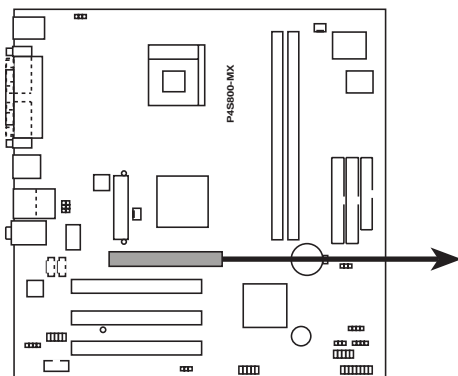
**P4S800-MX Accelerated Graphics Port (AGP)**

# 1.9  Jumpers

**1. Clear RTC RAM (CLRTC1)**

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. 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.
3. Plug the power cord and turn ON the computer.
4. 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 CLRTC1 jumper default position. Removing the cap will cause system boot failure!



**P4S800-MX Clear RTC RAM**
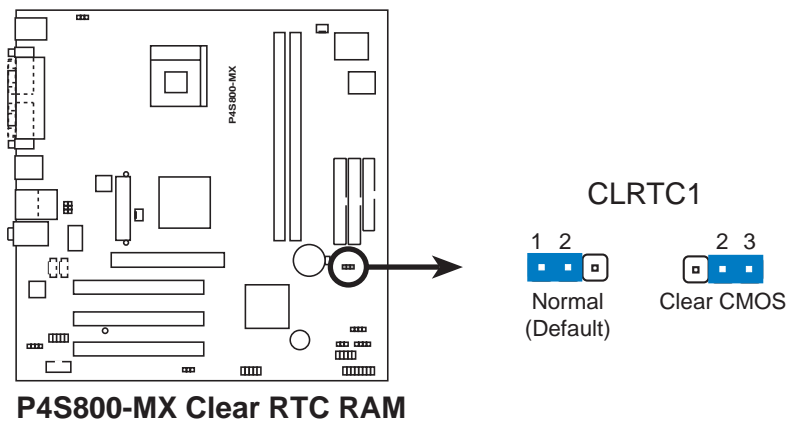
## 2. USB device wake-up (3-pin USBPW12, USBPW34, USBPW56)

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 sleep mode (no power to CPU, DRAM in slow refresh, power supply in reduced power mode). Both jumpers are set to pins 1-2 (+5V) by default because not all computers have the appropriate power supply to support this feature.

The USBPW_12 and USBPW_34 jumpers are for the rear USB ports. The USBPW_56 jumper is for the internal USB header that you can connect to the front USB ports.

1. This feature requires a power supply that can provide at least 1A on the +5VSB lead when these jumpers are set to +5VSB. Otherwise, the system would not power up.

2. The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.



**P4S800-MX USB Device Wake Up**
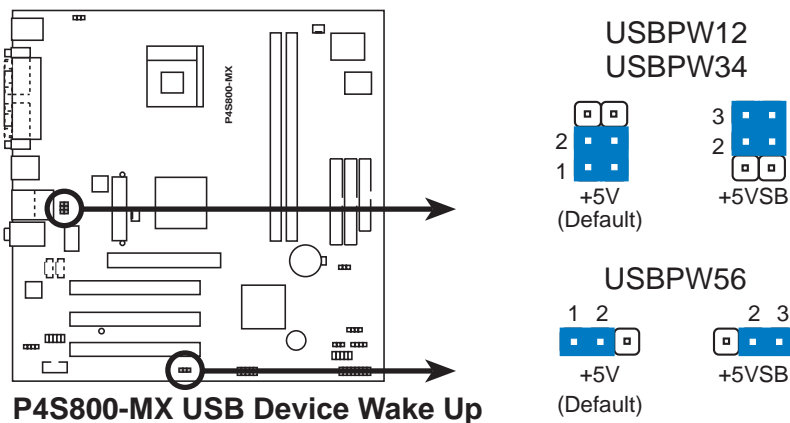
## 3. Keyboard power (3-pin KBPWR1)

This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default is the Space Bar). This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS (see 2.5.5 "**APM Configuration**").



**P4S800-MX Keyboard Power Setting**
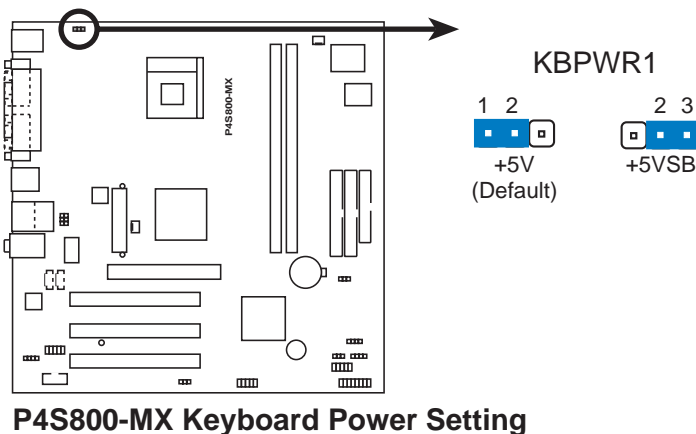
# 1.10 Connectors

This section describes and illustrates the motherboard rear panel and internal connectors.

## 1.10.1 Rear panel connectors
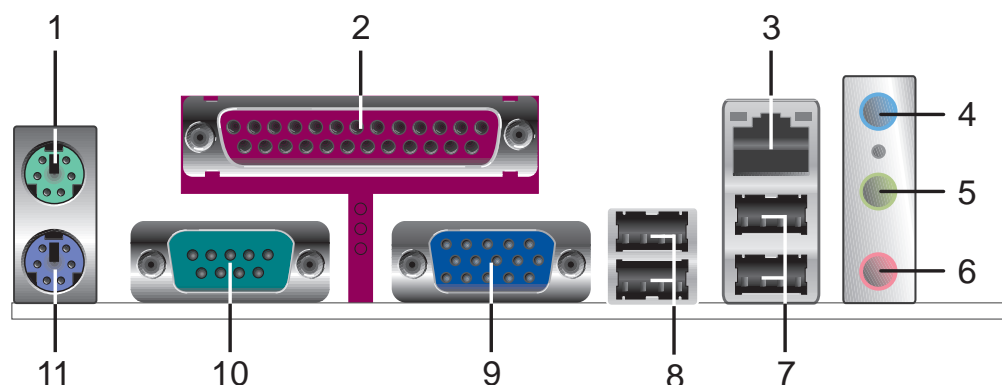


1. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.

2. **Parallel port.** This 25-pin port connects a parallel printer, scanner, or other devices.

3. **RJ-45 port.** This port allows connection to a Local Area Network (LAN) through a network hub.

4. **Line In jack.** This Line In (light blue) jack connects a tape player or other audio sources. In 6-channel mode, the function of this jack becomes Bass/Center.

5. **Line Out jack.** This Line Out (lime) jack connects a headphone or a speaker. In 6-channel mode, the function of this jack becomes Front Speaker Out.

6. **Microphone jack.** This Mic (pink) jack connects a microphone. In 6-channel mode, the function of this jack becomes Rear Speaker Out.

> The functions of the Line Out, Line In, and Microphone jacks change when you select the 6-channel audio configuration as shown in the following table.

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

|            | Headphone /2-Speaker | 4-Speaker         | 6-Speaker         |
|------------|----------------------|-------------------|-------------------|
| Light Blue | Line In              | Line In           | Bass/Center       |
| Lime       | Line Out             | Front Speaker Out | Front Speaker Out |
| Pink       | Mic In               | Rear Speaker Out  | Rear Speaker Out  |

> Windows® 98SE only supports 2-channel speaker configuration.

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. **VGA port.** This port connects a VGA compatible monitor.

10. **Serial port.** This 9-pin COM port is for pointing devices or other serial devices.

11. **PS/2 keyboard port.** This purple connector is for a PS/2 keyboard.

# 1.10.2 Internal connectors

### 1. IDE connectors (40-1 pin PRI_IDE1, SEC_IDE1)

This connector supports the provided UltraATA133 IDE hard disk ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraATA133 slave device (hard disk drive) and the black connector to the UltraATA133 master device.

> 1. Follow the hard disk drive documentation when setting the device in master or slave mode.
>
> 2. Pin 20 on each IDE connector is removed to match the covered hole on the UltraATA cable connector. This prevents incorrect orientation when you connect the cables.
>
> 3. The hole near the blue connector on the UltraATA cable is intentional.
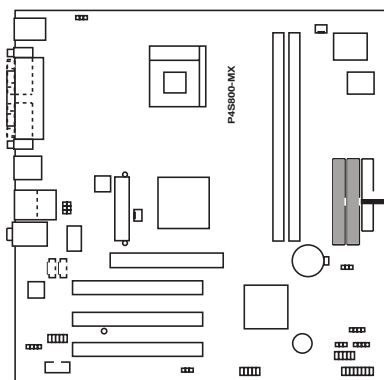


**P4S800-MX IDE Connectors**
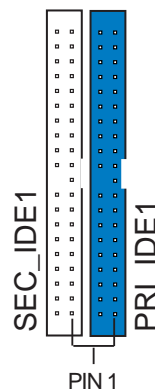
**NOTE:** Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1.

PIN 1

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

This connector supports the provided floppy drive ribbon cable. After connecting one end to the motherboard, connect the other end to the floppy drive. (Pin 5 is removed to prevent incorrect insertion when using ribbon cables with pin 5 plug).



FLOPPY1

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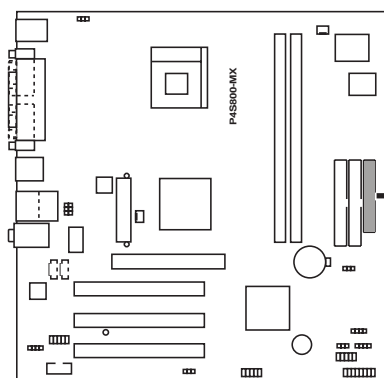
PIN 1

**P4S800-MX Floppy Disk Drive Connector**

### 3. ATX power connectors (20-pin ATXPWR1, 4-pin ATX12V1)

These connectors connect to an ATX 12V 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.

In addition to the 20-pin ATXPWR connector, this motherboard requires that you connect the 4-pin ATX +12V power plug to provide sufficient power to the CPU.

Make sure that your ATX 12V power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.



**P4S800-MX ATX Power Connector**
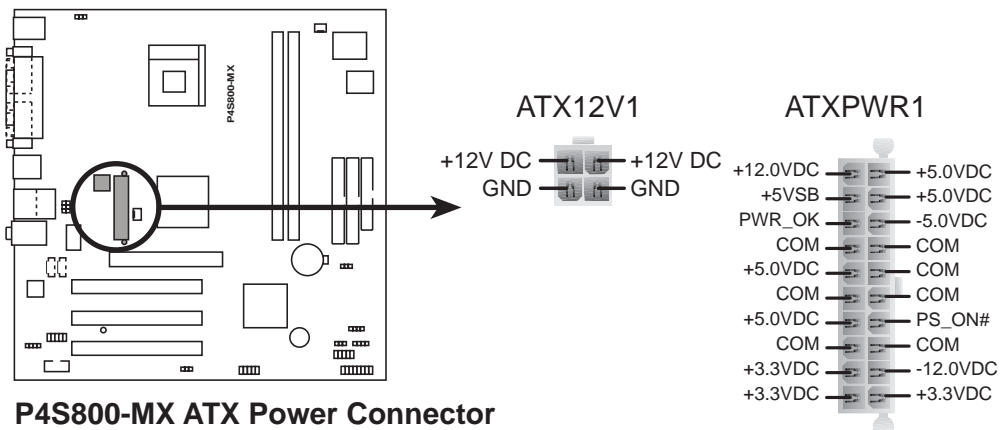
### 4. Front panel audio connector (10-1 pin FP_AUDIO1)

This is an interface for the front panel cable that allows convenient connection and control of audio devices.

Be default, the pins labeled LINE OUT_R/BLINE_OUT_R and the pins LINE OUT_L/BLINE_OUT_L are shorted with jumper caps. Remove the caps only when you are connecting the front panel audio cable.



**P4S800-MX Front Panel Audio Connector**
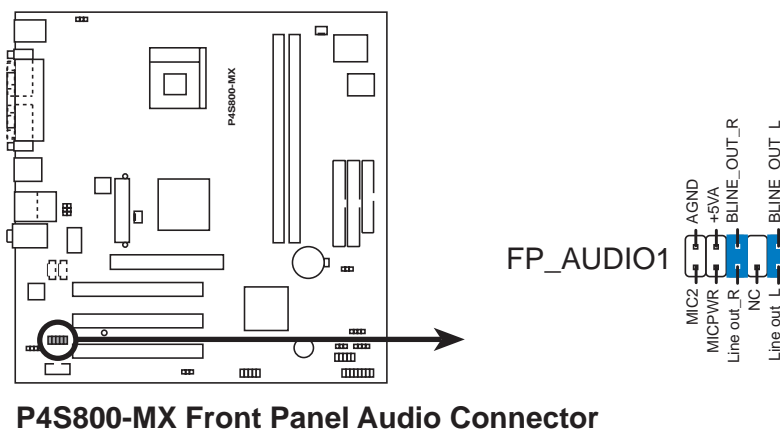
### 5. CPU and chassis fan connectors (3-pin CPU_FAN1, CHA_FAN1)

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

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



CPU_FAN1

GND
+12V
Rotation

CHA_FAN1

GND
+12V
Rotation
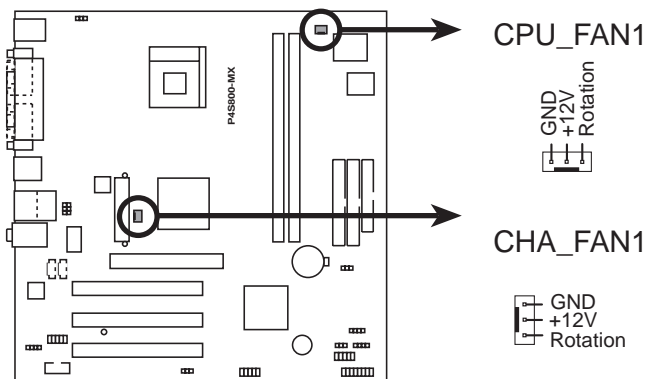
**P4S800-MX 12-Volt Fan Connectors**

### 6. USB header (10-1 pin USB56)

If the USB ports on the rear panel are inadequate, a USB header is available for two (2) additional USB ports. Connect the USB cable of an optional USB 2.0 module to this header. You may install the USB module in the chassis front panel. The module has two USB 2.0 ports for connecting next generation USB peripherals such as high resolution cameras, scanners, and printers.



USB56

USB+5V
USB_P6-
USB_P6+
GND
NC

USB+5V
USB_P5-
USB_P5+
GND

1
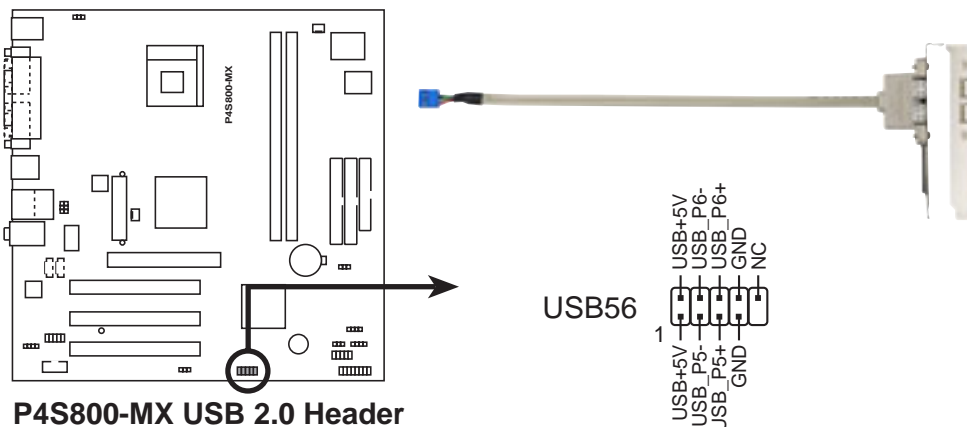
**P4S800-MX USB 2.0 Header**

> The USB module is purchased separately.

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

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



AUX1 (White)  CD1 (Black)

Left Audio Channel
Ground
Ground
Right Audio Channel
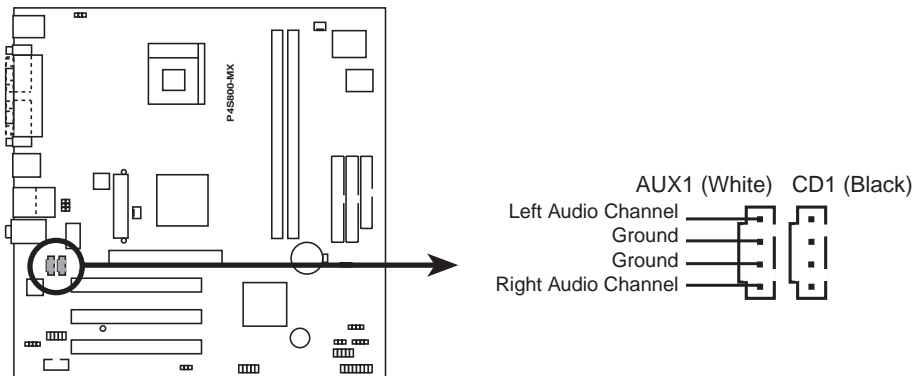
**P4S800-MX Internal Audio Connectors**

### 8. Speaker out connector (4-pin SPEAK1)

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



SPEAKER1

1

+5V
GND
GND
Speak Out
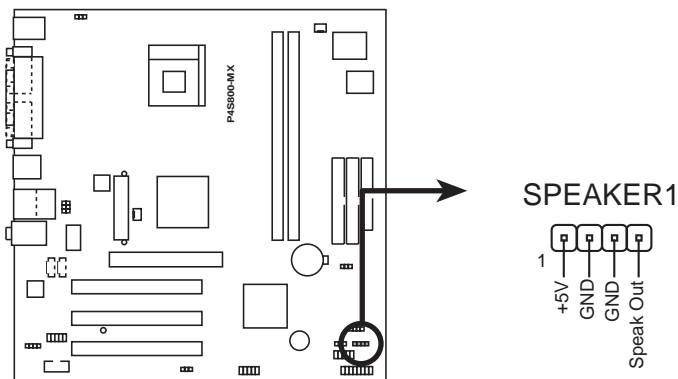
**P4S800-MX Speaker Out Connector**

### 9. Power LED Lead (3-1 pin PLED1)

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.



PLED1

1
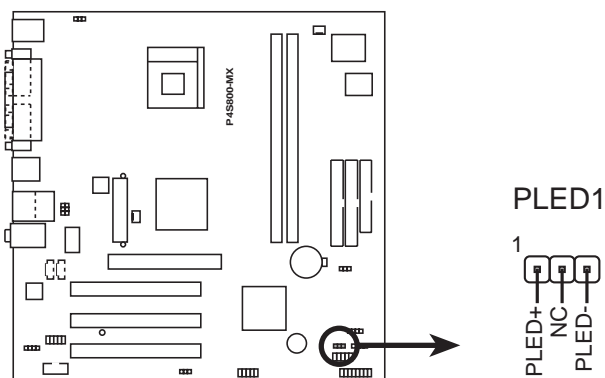
PLED+
NC
PLED-

**P4S800-MX PLED Setting**

---

### 10. Digital audio connector (4-1 pin SPDIF_OUT1)

An S/PDIF Out connector is available for an S/PDIF audio module. Connect one end of the S/PDIF audio module cable to this connector and the other end to the S/PDIF module.

SPDIF_OUT1

**P4S800-MX Digital Audio Connector**

+5V
SPDIFOUT
GND
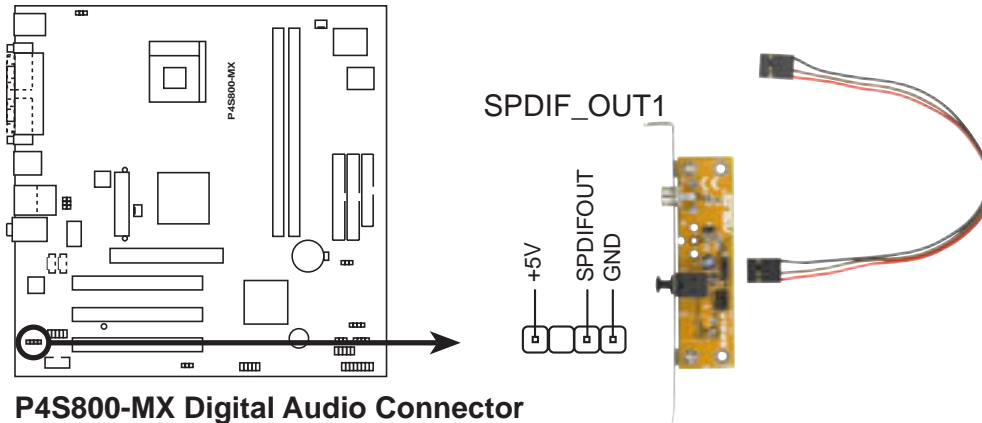
The S/PDIF module is purchased separately.

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

This connector supports a GAME/MIDI module. Connect the GAME/MIDI cable with yellow connector to the yellow header onboard. The GAME/MIDI port on the module connects a joystick or a game pad for playing games, and MIDI devices for playing or editing audio files.

**P4S800-MX Game Connector**

GAME1

+5V
J2B1
J2CX
MIDI_OUT
J2CY
J2B2
MIDI_IN

+5V
J1B1
J1CX
GND
GND
J1CY
J1B2
+5V
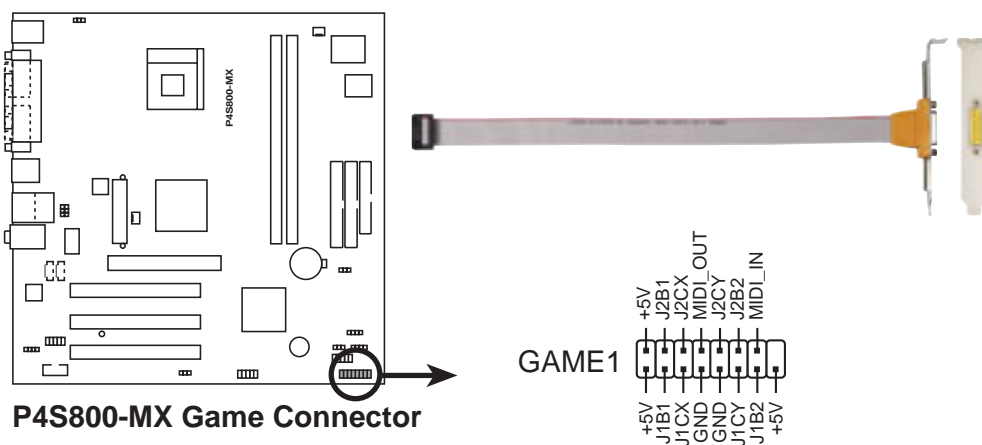
The GAME module is purchased separately.

## 12. Serial connector (10-1 pin COM2)

This connector accommodates a second serial port using an optional serial port module. Connect the COM2 module cable to this connector then install the module to a slot opening at the back of the system chassis.



**P4S800-MX Serial COM2 Bracket**

COM2

PIN 1
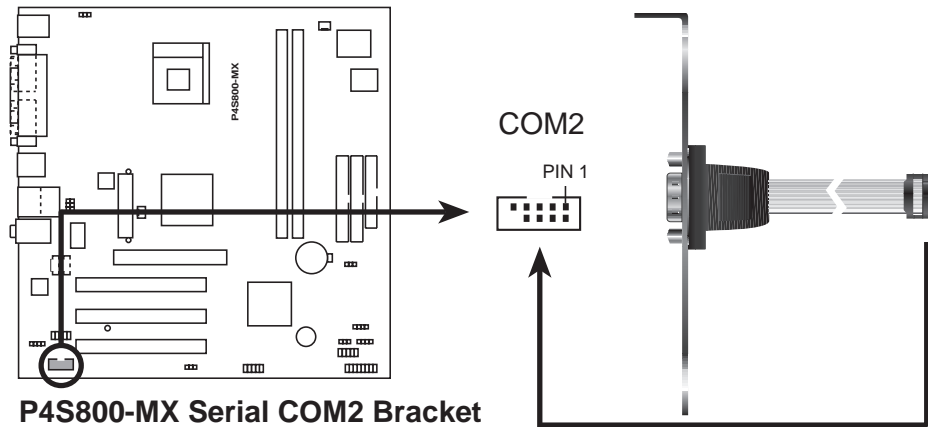
The COM2 module is purchased separately.

## 13. Chassis intrusion connector (4-1 pin CHASSIS)

This lead is for a chassis designed with intrusion detection feature. This requires an external detection mechanism such as a chassis intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event.

By default, the pins labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. If you wish to use the chassis intrusion detection feature, remove the jumper cap from the pins.



**P4S800-MX Chassis Alarm Lead**

CHASSIS1

+5VSB_MB
Chassis Signal
GND

(Default)
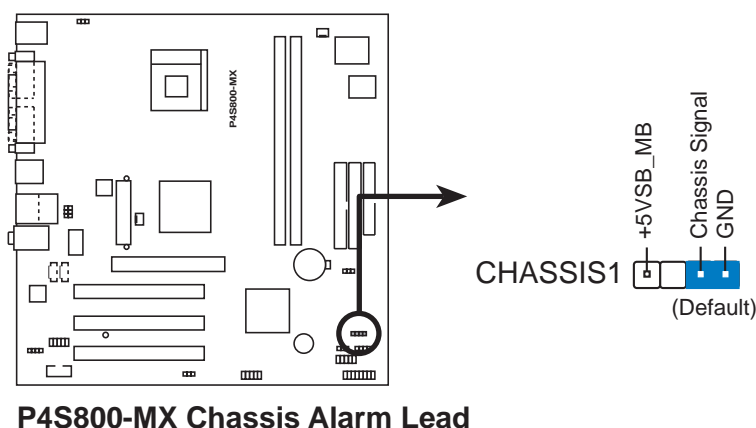
### 14. System panel connector (10-1 pin F_PANEL1)

This connector accommodates several system front panel functions.



**P4S800-MX Front Panel Audio Connector**

Power LED

ATX Power Switch*

F_PANEL1

PLED+
PLED-
PWR
GND

IDE_LED+
IDE_LED-
Ground
Reset

IDE_LED

Reset SW

* Requires an ATX power supply.
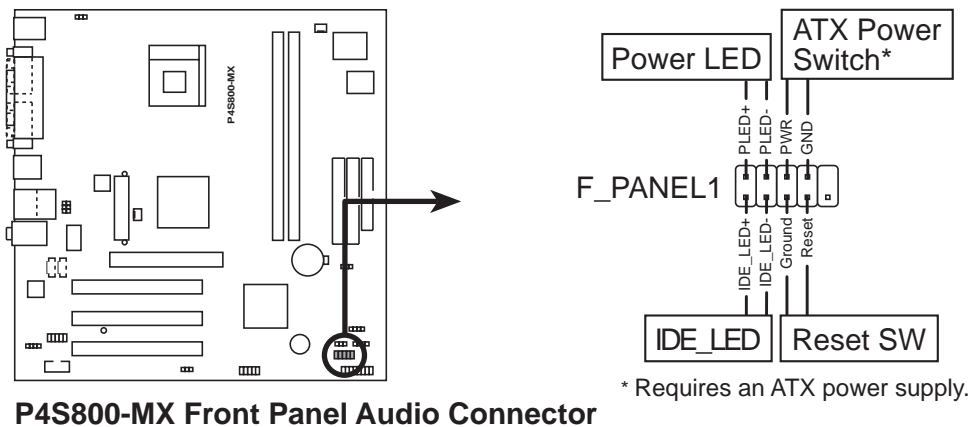
- **Power LED Lead (2-pin PWR_LED)**

  This 2-pin connector connects to the system power LED. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

  If your motherboard package comes with a 2-pin to 3-pin power LED converter, connect the 2-pin plug to this connector, and the other end to the 3-pin power LED plug from the system chassis.

- **Power Switch / Soft-Off Switch Lead (2-pin PWR_BTN)**

  This connector connects a switch that controls the system power. Pressing the power switch turns the system between ON and SLEEP, or ON and SOFT OFF, depending on the BIOS or OS settings. Pressing the power switch while in the ON mode for more than 4 seconds turns the system OFF.

- **IDE LED Lead (2-pin IDE_LED)**

  This 2-pin connector supplies power to the hard disk drive activity LED. The read or write activities of any device connected to the primary or secondary IDE connector cause this LED to light up.

- **Reset Switch Lead (2-pin RESET)**

  This 2-pin connector connects to the case-mounted reset switch for rebooting the system without turning off the system power.

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

# BIOS information

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

Refer to the corresponding section for details on these utilities.

## Important notes

- It is recommended that you 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 AFUDOS utility.
- Visit the ASUS website to download the latest BIOS file for this motherboard.

## 2.1.1 Creating a bootable floppy disk

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

   **DOS environment**

   Insert a 1.44 MB floppy disk into the drive. At the DOS prompt, type:

      **format A:/S**   then press <Enter>.

   **Windows® 98SE/ME environment**

   a. From your Windows desktop, click on **Start**, then select **My Computer**.

   b. Double-click on **Add/Remove Programs** icon from the Control Panel window.

   c. Click on the **Startup Disk** tab, then on **Create Disk...** button.

   d. Insert a 1.44 MB floppy disk when prompted. Follow the succeeding screen instructions to complete the process.

   **Windows® XP environment**

   a. Insert a 1.44 MB floppy disk into the floppy disk drive.

   b. From your Windows desktop, click on **Start**, 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**.

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

## 2.1.2 Using AFUDOS to copy the current BIOS

The AFUDOS.EXE utility can also be used to copy the current system BIOS settings to a floppy or hard disk. The copy can be used as a backup in case the system BIOS fails or gets corrupted.

1.  At the DOS prompt, type the command line:

    **afudos** /o***<filename>***

    where "filename" can be any user provided filename of not more than eight (8) alpha-numeric characters for the main filename and three (3) alpha-numeric characters for the extension name.

    Press the **Enter** key.

> The BIOS information on the screen is for reference only. What you see on your screen may not be exactly the same as shown.

**Main filename**   **Extension name**

```
A:\>afudos /oMYBIOS03.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading flash ..... 0x0008CC00 (9%)
```

2.  The utility will copy the current system BIOS by default to the floppy disk. Make sure that the floppy disk is not write-protected and have enough space (at least 600KB) to store the file.

```
A:\>afudos /oMYBIOS03.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading flash ..... done

A:\>
```

When the BIOS copy process is complete, the utility returns to the DOS prompt.

## 2.1.3 Using AFUDOS to update the BIOS

The AFUDOS is a DOS-based application that lets you update the BIOS file using a bootable floppy diskette. AFUDOS also allows you to copy the original BIOS file to a floppy diskette.

To update the BIOS using the AFUDOS.EXE:

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

Write down the BIOS file name to a piece of paper. You need to type the **exact BIOS file name** at the prompt.

2. Copy the AFUDOS.EXE utility from the support CD to the bootable floppy disk that contains the BIOS file.

3. Boot the system from the floppy disk.

4. At the DOS prompt, type the command line:

   **afudos /i<filename.rom>**

   where "filename.rom" means the latest (or original) BIOS file that you copied to the bootable floppy disk.

   The screen displays the status of the update process.

The BIOS information on the screen is for reference only. What you see on your screen may not be exactly the same as shown.

```
A:\>afudos /iP4S800-MX.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
   Reading file ..... done
   Erasing flash .... done
   Writing flash .... 0x0008CC00 (9%)
```

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

When the BIOS update process is complete, the utility returns to the DOS prompt.

```
A:\>afudos /iP4S800-MX.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
   Reading file ..... done
   Erasing flash .... done
   Writing flash .... 0x0008CC00 (9%)
   Verifying flash .. done

A:\>
```

5. Reboot the system from the hard disk.

## 2.1.4 Using ASUS EZ Flash to update the BIOS

The ASUS EZ Flash feature allows you to easily 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 is built-in the BIOS LPC chip so it is accessible by simply pressing <Alt> + <F2> during the Power-On Self Tests (POST).

### To update the BIOS using ASUS EZ Flash:

1.  Visit the ASUS website (www.asus.com) to download the latest BIOS file for your motherboard and rename it to **P4S800MX.ROM**. Save the BIOS file to a floppy disk.

2.  Reboot the system.

3.  To launch EZ Flash, press <Alt> + <F2> during POST to display the following.

```
User recovery requested. Starting BIOS recovery...
Checking for floppy...
```

- • If there is no floppy disk found in the drive, the error message "**Floppy not found!**" appears.

- • If the correct BIOS file is not found in the floppy disk, the error message "**P4S800MX.ROM not found!**"

4.  Insert the floppy disk that contains the BIOS file. If the **P4S800MX.ROM** file is found in the floppy disk, EZ Flash performs the BIOS update process and automatically reboots the system when done.

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

```
User recovery requested. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "P4S800MX.ROM". Completed.
Start flashing...
Flashed successfully. Rebooting.
```

## 2.1.5 Recovering the BIOS with CrashFree BIOS

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

- To use the CrashFree BIOS feature on this motherboard, install a VGA card in one of the expansion slots before rebooting the computer. On motherboards with onboard VGA, such as the **P4S800-MX**, you will not see the screen display when the BIOS crashes even if you reboot the computer.

- Prepare the **floppy disk that contains the motherboard BIOS** (P4S800MX.ROM) before proceeding with the BIOS update process.

- If you have saved a copy of the original motherboard BIOS to a bootable floppy disk, you may also use this disk to restore the BIOS. See section "2.1.1 Creating a bootable floppy disk."

**To recover the BIOS from a floppy disk:**

1. Boot the system.

2. When a corrupted BIOS is detected, the following message appears.

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

3. Insert a floppy disk that contains the original, or the latest, BIOS file for this motherboard (P4S800MX.ROM). If the BIOS file that you downloaded from the ASUS website has a different filename (e.g. P4S800MX_1001.ROM), rename it to **P4S800MX.ROM**. The BIOS update process continues when the P4S800MX.ROM is found.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "P4S800MX.ROM". Completed.
Start flashing...
```

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

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

**To recover the BIOS from the support CD:**

1.  Boot the system.

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

```
Bad BIOS checksum. Starting BIOS recovery...

Checking for floppy...
```

> If there is no floppy disk found in the drive, the system automatically checks the CD-ROM.

3.  Place the support CD in the CD-ROM. The support CD contains the original BIOS for this motherboard.

```
Bad BIOS checksum. Starting BIOS recovery...

Checking for floppy...

Floppy not found!

Checking for CD-ROM...

CD-ROM found.

Reading file "P4S800MX.ROM". Completed.

Start flashing...
```

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

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

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

# 2.2 BIOS Setup program

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

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

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

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

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

The Setup program is designed to make it as easy to use as possible. It is a menu-driven program, which means you can 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 "2.7 Exit Menu."

> • The BIOS setup screens shown in this chapter 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 product and BIOS information.

## 2.2.1 BIOS menu screen

**Menu items**  **Menu bar**  **Configuration fields**  **General help**



```
                        BIOS SETUP UTILITY
 Main   Advanced   Power    Boot   Exit

  System Time                [11:51:19]                Use [ENTER], [TAB]
  System Date                [Thu 08/05/2003]          or [SHIFT-TAB] to
  Legacy Diskette A          [1.44M, 3.5 in]           select a field.

    Primary IDE Master       : [ST320413A]             Use [+] or [-] to
    Primary IDE Slave        : [ASUS CD-S340]          configure system time.
    Secondary IDE Master     : [Not Detected]
    Secondary IDE Slave      : [Not Detected]

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

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

**Sub-menu items**  **Navigation keys**

## 2.2.2 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.

## 2.2.3 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.

## 2.2.4 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.
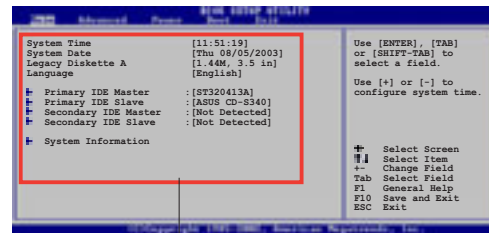


**Main menu items**

## 2.2.5 Sub-menu items

An item with a sub-menu on any menu screen is distinguished by a solid triangle before the item. To display the sub-menu, select the item and press <Enter>.

## 2.2.6 Configuration fields

These fields show the values for the menu items. If an item is user- configurable, you may change the value of the field opposite the item. You can not 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 "2.2.7 Pop-up window."

## 2.2.7 Pop-up window

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

## 2.2.8 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 PageUp/PageDown keys to display the other items on the screen.
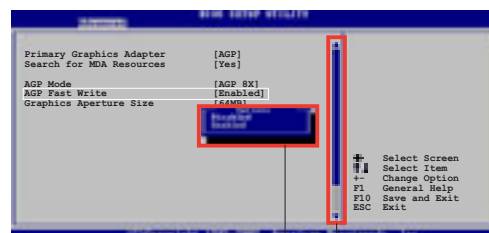


**Pop-up window**

**Scroll bar**

## 2.2.9 General help

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

# 2.3 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 "2.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                            BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

  System Time                   [01:29:59]              Use [ENTER], [TAB]
  System Date                   [Thu 01/01/2004]        or [SHIFT-TAB] to
  Legacy Diskette A             [1.44M, 3.5 in]         select a field.

 ▶  Primary IDE Master          : [ST320413A]           Use [+] or [-] to
 ▶  Primary IDE Slave           : [Pioneer CD-ROM ATA]  configure system
 ▶  Secondary IDE Master        : [Not Detected]        date.
 ▶  Secondary IDE Slave         : [Not Detected]

 ▶  System Information
                                                        ←→   Select Screen
                                                        ↑↓   Select Item
                                                        +-   Change Option
                                                        F1   General Help
                                                        F10  Save and Exit
                                                        ESC  Exit

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```

## 2.3.1 System Time [xx:xx:xxxx]

Allows you to set the system time

## 2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date

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

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

## 2.3.4 Primary and Secondary IDE Master/Slave

While entering Setup, BIOS auto-detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information.

```
                          BIOS SETUP UTILITY
 Main

 Primary IDE Master                           Select the type
                                              of device connected
 Device       : Hard Disk                     to the system.
 Vendor       : ST320413A
 Size         : 20.0GB
 LBA Mode     : Supported
 Block Mode   : 16 Sectors
 PIO Mode     : Supported
 Async DMA    : MultiWord DMA-2
 Ultra DMA    : Ultra DMA-5
 SMART Monitoring: Supported
                                              ←→   Select Screen
 Type                      [Auto]             ↑↓   Select Item
 LBA/Large Mode            [Auto]             +-   Change Option
 Block(Multi-sector Transfer)M   [Auto]       F1   General Help
 PIO Mode                  [Auto]             F10  Save and Exit
 DMA Mode                  [Auto]             ESC  Exit
 Smart Monitoring          [Auto]
 32Bit Data Transfer       [Disabled]

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```

The values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring) are auto-detected by BIOS and are not user-configurable. These items show "Not Detected" if no IDE device is installed in the system.

### Type [Auto]

Selects the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

### LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

### Block (Multi-sector Transfer) [Auto]

Enables or disables data multi-sectors transfers. When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to Disabled, the data transfer from and to the device occurs one sector at a time. Configuration options: [Disabled] [Auto]

### PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

### DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto] [SWDMA0] [SWDMA1]
[SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2]
[UDMA3] [UDMA4] [UDMA5]

### SMART Monitoring [Auto]

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

### 32Bit Data Transfer [Disabled]

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

## 2.3.6   System Information

This menu gives you an overview of the general system specifications. The items
in this menu are auto-detected by BIOS.

```
                         BIOS SETUP UTILITY
  Main

  AMI BIOS
  Version      : 08.00.09
  Build Data   : 03/26/04
  ID           : A0059001

  Processor
  Type         : Genuine Intel(R) CPU 3.20GHz
  Speed        : 2800MHz
  Count        : 1

  System Memory
  Size         : 224MB
```
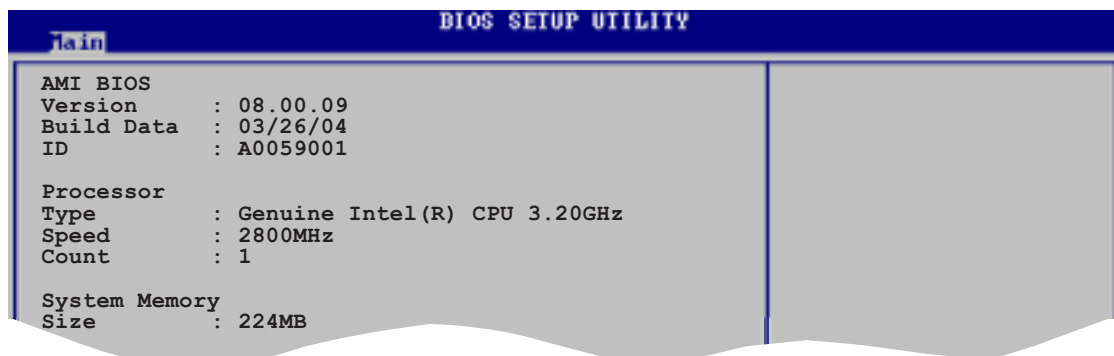
## AMI BIOS

Displays the auto-detected BIOS information.

## Processor

Displays the auto-detected CPU specification.

## System Memory

Displays the auto-detected system memory.

# 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.

```
                        BIOS SETUP UTILITY
 Main   Advanced   Power   Boot   Exit
──────────────────────────────────────────────────────────────────

  ▮ JumperFree Configuration
  ▮ CPU Configuration
  ▮ Chipset
  ▮ Onboard Devices Configuration
  ▮ PCIPnP
  ▮ USB Configuration



                                            ←→    Select Screen
                                            ↑↓    Select Item
                                            Enter Go to Sub Screen
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit

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```

## 2.4.1 JumperFree Configuration

```
                        BIOS SETUP UTILITY
 Advanced
──────────────────────────────────────────────────────────────────
 Configure System Frequency/Voltage            Select the target CPU
                                               frequency, and the
 AI Overclock Tuner            [Standard]      relevant parameters
 DRAM Frequency               [Auto]           will be auto-adjusted.
                                               Frequencies higher
                                               that CPU manufacturer
                                               recommends are not
                                               guaranteed to be
                                               stable. If the system
                                               becomes unstable,
                                               return to default.
```

## AI Overclock Tuner [Standard]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking options.
Configuration options: [Standard] [Manual]

## DRAM Frequency [Auto]

Allows you to set the DDR operating frequency. The configuration options depend on the frequency of the CPU installed. Configuration options: [Auto] [200MHz] [266MHz] [333MHz] [400MHz] [450MHz] [500MHz] [533MHz]

## 2.4.2 CPU Configuration

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

```
                         BIOS SETUP UTILITY
  Advanced

 Configure advanced CPU settings                    Sets the ratio between
                                                     CPU Core Clock and the
 Manufacturer :Intel                                 FSB Frequency.
 Brand String :Genuine Intel (R) CPU 3.20GHz         NOTE: If an invalid
 Frequency    :2800MHz                               ratio is set in CMOS
 FSB Speed:   :800MHz                                then actual and
                                                     setpoint values may
 Cache L1      :16KB                                 differ.
 Cache L2      :1024KB
 Cache L3      :0KB

 Ratio Status  : Unlocked
 Ratio Actual Value :14                              ←→    Select Screen
    Ratio CMOS Setting:          [14]                ↑↓    Select Item
    VID CMOS Setting:            [62]                 +-    Change Option
 Max CPUID Value Limit:          [Disabled]          F1    General Help
 CPU Internal Thermal Control:   [Auto]              F10   Save and Exit
                                                     ESC   Exit
 Hyper Threading Function        [Enabled]

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```

### VID CMOS Setting [62]

Allows you to set the VID CMOS setting at which the processor is to run. Use the arrow keys to adjust the value.

### Max CPUID Value Limit [Disabled]

Enable this item is you want to boot legacy operating systems that cannot support CPUs with extended CPUID functions. Configuration options: [Disabled] [Enabled]

### CPU Internal Thermal Control [Auto]

This item allows you to disable or set to auto the CPU Internal Thermal Control function. Configuration options: [Auto] [Disabled]

### Hyper Threading Function [Enabled]

This item allows you to enable or disable the processor Hyper-Threading Technology. Configuration options: [Enabled] [Disabled]

> The **Hyper-Threading Technology** item appears only when you install an Intel® Pentium® 4 CPU with Hyper-Threading Technology support.

# 2.4.3 Chipset

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

```
                    BIOS SETUP UTILITY
 Main   Advanced   Power   Boot   Exit

                                              Options for NB
►  NorthBridge SIS661FX Configuration
►  SouthBridge SiS963/SiS963L Configuration
```

## NorthBridge SIS661FX Configuration

```
                    BIOS SETUP UTILITY
    Advanced

 Primary Graphics Adapter       [PCI]
 MA 1T/2T Latency               [Auto]
 DRAM CAS# Latency              [By SPD]
 DRAM Precharge Delay           [Auto]
 DRAM RAS# to CAS# Delay        [Auto]
 DRAM RAS# Precharge            [Auto]
 Graphic Win Size               [ 64MB]

 Share Memory Size              [ 32MB]
```
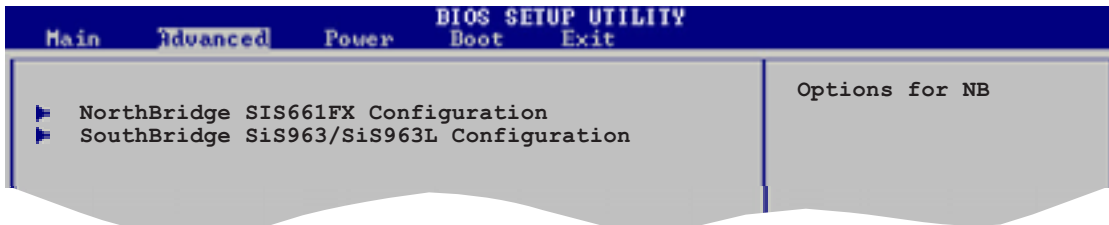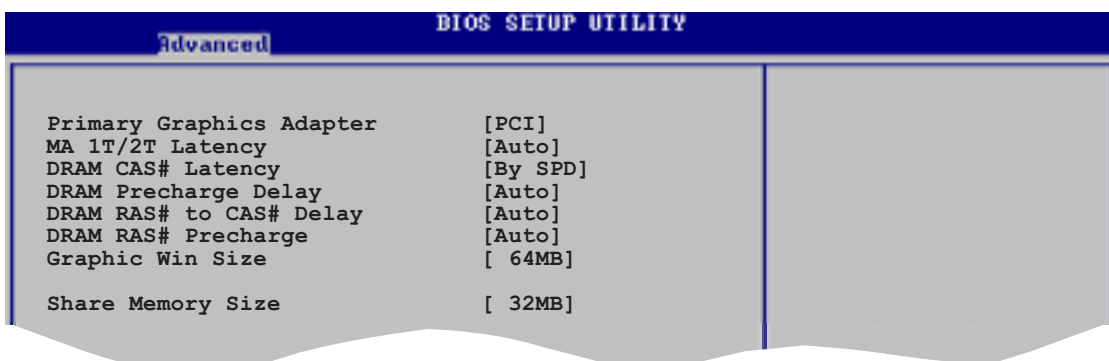
### Primary Graphics Adapter [PCI]

Allows selection of the graphics controller to use as primary boot device.
Configuration options: [PCI] [AGP] [OnBoard AGP]

### MA 1T/2T Latency

Configuration options: [Auto] [MA 2T] [MA 1T]

### DRAM CAS# Latency [By SPD]

This item controls the latency between the SDRAM read command and the time the data actually becomes available.
Configuration options: [By SPD] [2T] [2.5T] [3T]

### DRAM Precharge Delay [Auto]

Configuration options: [Auto] [6T] [7T] [5T] [4T] [8T] [9T]

### DRAM RAS# to CAS# Delay [4 Clocks]

This item controls the latency between the DDR SDRAM active command and the read/write command. Configuration options: [Auto] [3T] [2T] [4T] [5T]

### DRAM RAS# Precharge [4 Clocks]

This item controls the idle clocks after issuing a precharge command to the DDR SDRAM. Configuration options: [Auto] [3T] [2T] [4T] [5T]

## Graphic Win Size [64MB]

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

## Share Memory Size [32MB]

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

## Southbridge SiS963/SiS963L Configuration

```
                          BIOS SETUP UTILITY
    Advanced

  OnBoard AC97 Audio DEVICE          [Enabled]        <Enter> to enable or
  OnBoard SiS900 LAN DEVICE          [Enabled]        disable.
    OnBoard LAN Boot ROM             [Disabled]
```
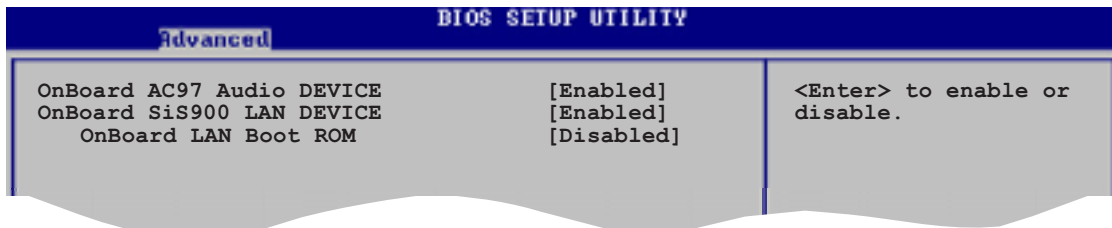
## OnBoard AC97 Audio DEVICE [Enabled]

Allows you to enable or disable the onboard AC'97 audio controller.
Configuration options: [Enabled] [Disabled]
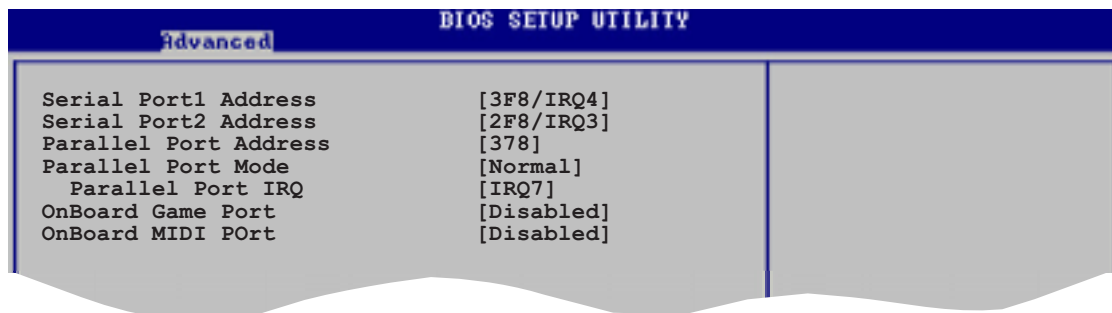
## OnBoard SiS900 LAN DEVICE [Enabled]

Allows you to enable or disable the onboard SiS900 LAN device.
Configuration options: [Enabled] [Disabled]

## OnBoard LAN Boot ROM [Disabled]

Allows you to enable or disable the optional ROM in the onboard LAN
controller. This item appears only when the **Onboard SiS900 LAN DEVICE**
item is set to Enabled. Configuration options: [Disabled] [Enabled]

## 2.4.4 Onboard Devices Configuration

```
                    BIOS SETUP UTILITY
       Advanced

   Serial Port1 Address        [3F8/IRQ4]
   Serial Port2 Address        [2F8/IRQ3]
   Parallel Port Address       [378]
   Parallel Port Mode          [Normal]
     Parallel Port IRQ         [IRQ7]
   OnBoard Game Port           [Disabled]
   OnBoard MIDI POrt           [Disabled]
```

### Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [3E8/IRQ4] [2E8/IRQ3]

### Serial Port2 Address [2F8/IRQ3]

Allows you to select the Serial Port2 base address.
Configuration options: [Disabled] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

### Parallel Port Address [378]

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

### Parallel Port Mode [Normal]

Allows you to select the Parallel Port  mode. This item appears only when the **Parallel Port Address** is not Disabled.  Configuration options: [Normal] [Bi-directional] [EPP] [ECP]

#### ECP Mode DMA Channel [DMA3]

Sets the ECP Mode DMA channel. This item appears only when the **Parallel Port Mode** is set to ECP. Configuration options: [DMA0] [DMA1] [DMA3]

#### EPP Version [1.9]

Sets the EPP Version. This item appears only when the **Parallel Port Mode** is set to EPP. Configuration options: [1.9] [1.7]

### Parallel Port IRQ [IRQ7]

Selects the Parallel Port IRQ. Configuration options: [IRQ5] [IRQ7]

### Onboard Game Port [Disabled]

Allows you to enable or disable the Game Port address.
Configuration options: [Disabled] [Enabled]

### Onboard MIDI Port [Disabled]

Allows you to select the MIDI Port address or disable the port.
Configuration options: [Disabled] [300] [330]

## 2.4.5   PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.

> ⚠️ Take caution when changing the settings of the PCI PnP menu items. Incorrect field values may cause the system to malfunction.

```
                          BIOS SETUP UTILITY
    Advanced

   Advanced PCI/PnP Settings

   WARNING: Setting wrong values in below sections
            may cause the system to malfunction.

   Plug And Play O/S           [No]
   PCI Latency Timer           [64]
   Allocate IRQ to PCI VGA     [Yes]
   Palette Snooping            [Disabled]
   PCI IDE BusMaster           [Enabled]

   IRQ-3  assigned to          [PCI Device]
   IRQ-4  assigned to          [PCI Device]           ←→    Select Screen
   IRQ-5  assigned to          [PCI Device]           ↑↓    Select Item
   IRQ-7  assigned to          [PCI Device]           +-    Change Option
   IRQ-9  assigned to          [PCI Device]           F1    General Help
   IRQ-10 assigned to          [PCI Device]           F10   Save and Exit
   IRQ-11 assigned to          [PCI Device]           ESC   Exit
   IRQ-14 assigned to          [PCI Device]
   IRQ-15 assigned to          [PCI Device]

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```

### 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 installed a Plug & Play operating system, the operating system configures the Plug & 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. Setting to [Disabled] deactivates this feature.
Configuration options: [Disabled] [Enabled]

### PCI IDE BusMaster [Enabled]

Allows BIOS to use PCI bus mastering when reading/writing to IDE devices.
Configuration options: [Disabled] [Enabled]

## IRQ-xx assigned to [PCI Device]

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

# 2.4.5 USB Configuration

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

```
                          BIOS SETUP UTILITY
            Advanced

    USB Configuration

    Onboard SiS USB1.1 DEVICE      [Enabled]
    Onboard SiS USB2.0 DEVICE      [Enabled]

    Module Version : 2.23.2-9.4
    USB Devices Enabled: None

    Legacy USB Support             [Auto]
    USB 2.0 Controller Mode        [HiSpeed]
    Stop EHCI HC in OHCI handover  [Enabled]
```
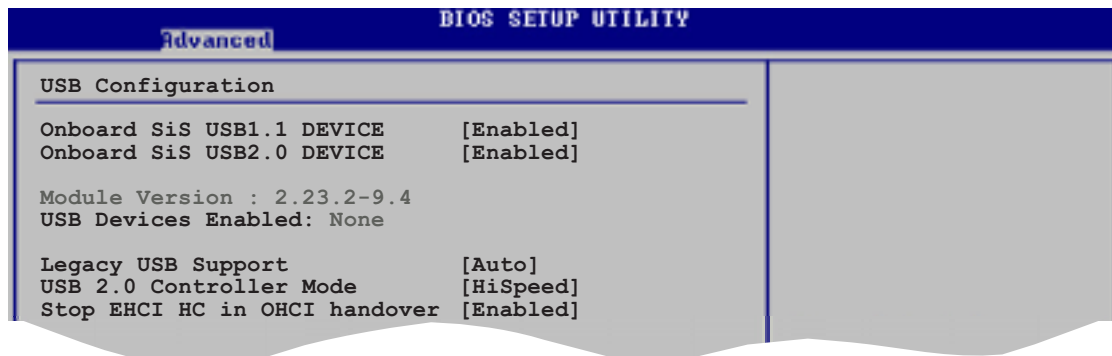
The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

## Onboard SiS USB1.1 DEVICE [Enabled]

Enables or disables the onboard SiS USB1.1 device.
Configuration options: [Enabled] [Disabled]

## Onboard SiS USB1.1 DEVICE [Enabled]

Enables or disables the onboard SiS USB2.0 device.
Configuration options: [Enabled] [Disabled]

## Legacy USB Support [Auto]

Allows you to enable or disables 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 module is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Auto] [Enabled] [Disabled]

## USB 2.0 Controller Mode [HiSpeed]

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

## Stop EHCI HC in OHCI handover [Enabled]

Setting to [Enabled] stops the EHCI host controller during OHCI OS handover call. This is needed for installing OS that does not support EHCI host controllers. Configuration options: [Enabled] [Disabled]

# 2.5    Power menu

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

```
                          BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit


  ACPI Aware O/S              [Yes]
  Suspend Mode               [Auto]
  Repost Video on S3 Resume  [No]
  ACPI APIC Support          [Enabled]
  ▶ APM Configuration
  ▶ Hardware Monitor



                                             ←→    Select Screen
                                             ↑↓    Select Item
                                             Enter Go to Sub Screen
                                             F1    General Help
                                             F10   Save and Exit
                                             ESC   Exit


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```

## 2.5.1    ACPI Aware O/S [Yes]

Allows you to enable or disabled ACPI support for the OS.
Configuration options: [Yes] [No]

## 2.5.2    Suspend Mode [Auto]

Allows you to select the ACPI state to be used for system suspend.
Configuration options: [Auto] [S1 (POS) Only] [S3 Only]
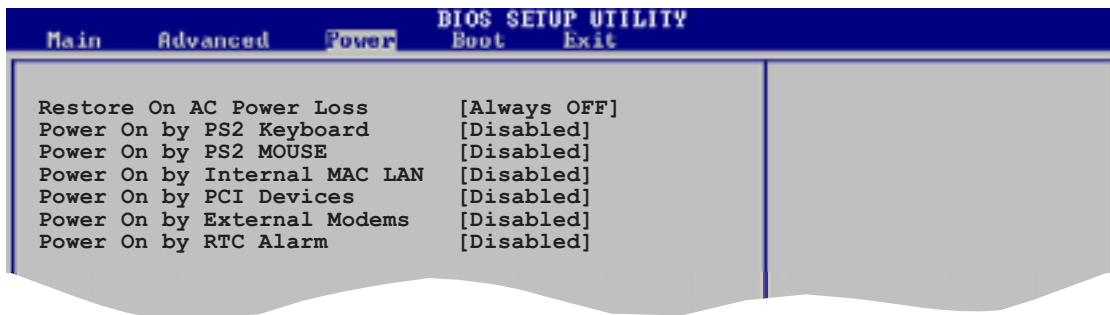
## 2.5.3    Repost Video on S3 Resume [No]

Determines whether to invoke VGA BIOS POST on S3/STR resume.
Configuration options: [No] [Yes]

## 2.5.4    ACPI APIC Support [Enabled]

Allows you to enable or disable the ACPI support in the ASIC. When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list.
Configuration options: [Disabled] [Enabled]

## 2.5.5    APM Configuration

```
                         BIOS SETUP UTILITY
  Main    Advanced     Power    Boot    Exit

  Restore On AC Power Loss      [Always OFF]
  Power On by PS2 Keyboard      [Disabled]
  Power On by PS2 MOUSE         [Disabled]
  Power On by Internal MAC LAN  [Disabled]
  Power On by PCI Devices       [Disabled]
  Power On by External Modems   [Disabled]
  Power On by RTC Alarm         [Disabled]
```

### Restore on AC Power Loss [Always OFF]

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

### Power On by PS2 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] [Space Bar] [Ctrl-Esc] [Power Key]

### Power On by PS2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS2 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 by Internal MAC LAN [Disabled]

Enables or disables MAC wake from sleep state.
Configuration options: [Disabled] [Enabled]

### Power On by PCI Devices [Disabled]

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

### Power On by External Modem [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 options: [Disabled] [Enabled]

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

## Power On by 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]

# 2.5.6    Hardware Monitor

```
                           BIOS SETUP UTILITY
                 Power

 Hardware Monitor

 CPU Temperature             [50°C/122°F]
 MB Temperature              [28°C/982°F]

 CPU Fan Speed               [5769RPM]
 Chassis Fan Speed           [N/A]

 Q-Fan Control               [Enabled]
 Q-Fan Control Temperature   [50 Degrees]
 Q-Fan Control Tolerance     [+- 5 Degrees]

 VCORE Voltage               [ 1.376V]                ←→    Select Screen
 3.3V Voltage                [ 3.360V]                ↑↓    Select Item
 5V Voltage                  [ 5.080V]                +-    Change Option
 12V Voltage                 [11.968V]                F1    General Help
                                                      F10   Save and Exit
 Chassis Intrude             [Disabled]               ESC   Exit


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```

## CPU Temperature [xxxC/xxxF]
## MB Temperature [xxxC/xxxF]

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. Configuration options: [Ignored] [xxxC/xxxF]

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

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

## 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. When this field is set to [Enabled], the **Q-Fan Control Temperature** and **Q-Fan Control Tolerance** items appear.
Configuration options: [Enabled] [Disabled]

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

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Configuration options: [Ignored] [x.xxxV]
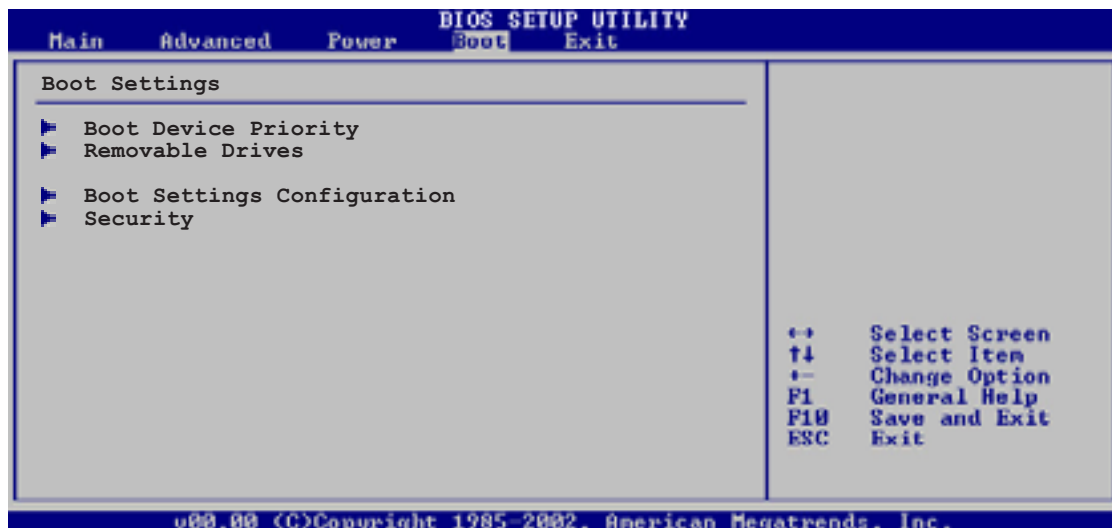
## Chassis Intrude [Disabled]

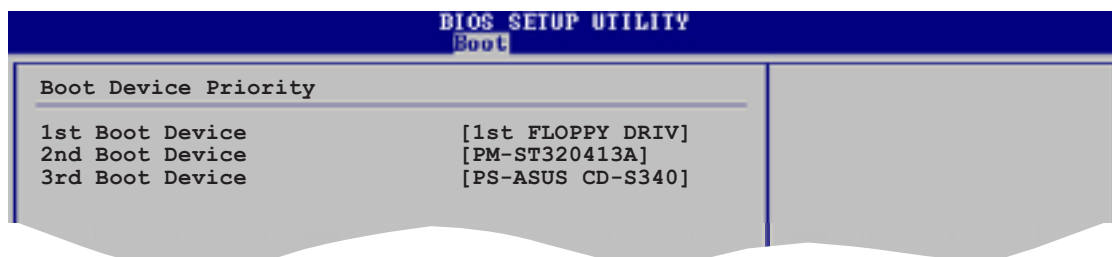Allows you to enable or disable the chassis intrusion detection.
Configuration options: [Disabled] [Enabled]

# 2.6    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.

```
                        BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

  Boot Settings

  ▶ Boot Device Priority
  ▶ Removable Drives

  ▶ Boot Settings Configuration
  ▶ Security

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

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```

## 2.6.1    Boot Device Priority

```
                        BIOS SETUP UTILITY
                             Boot

  Boot Device Priority

  1st Boot Device              [1st FLOPPY DRIV]
  2nd Boot Device              [PM-ST320413A]
  3rd Boot Device              [PS-ASUS CD-S340]
```

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

These items specify the boot device priority sequence from the available devices. The number of device items that appear on the screen depends on the the number of devices installed in the system. Configuration options: [xxxxx Drive] [Disabled]

## 2.6.2 Boot Settings Configuration

```
                        BIOS SETUP UTILITY
                          Boot

   Boot Settings Configuration

   Quick Boot                  [Enabled]
   Full Screen Logo            [Enabled]
   AddOn ROM Display Mode       [Force BIOS]
   Bootup Num-Lock             [On]
   PS/2 Mouse Support          [Auto]
   Wait for 'F1' If Error      [Enabled]
   Hit 'DEL' Message Display   [Enabled]
   Interrupt 19 Capture        [Disabled]
```

### Quick Boot [Enabled]

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

### Full Screen Logo [Enabled]

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

---

Make sure that the above item is set to [Enabled] if you wish to use the ASUS MyLogo™ feature.

---

### AddOn 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 F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

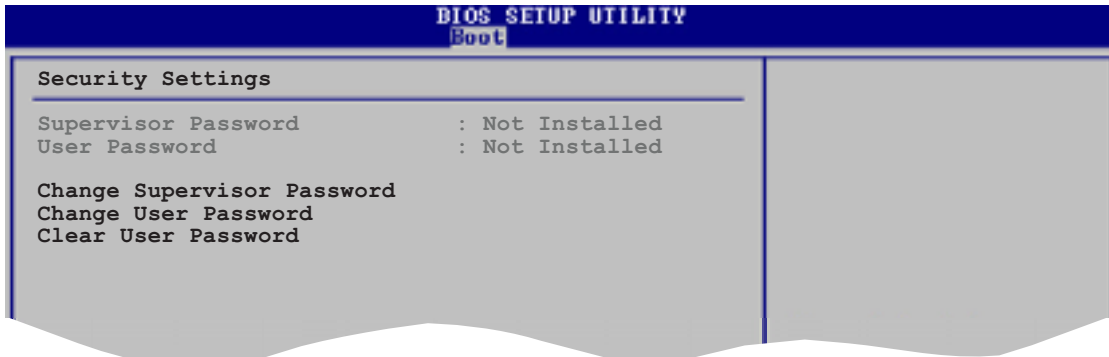### Hit 'DEL' Message Display [Enabled]

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]

## 2.6.3 Security

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

```
                      BIOS SETUP UTILITY
                          Boot

  Security Settings

  Supervisor Password          : Not Installed
  User Password                : Not Installed

  Change Supervisor Password
  Change User Password
  Clear User Password
```

### 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 have 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 combination of at least six (6) letters and/or numbers, then press **<Enter>**.

3.  Confirm the password when prompted.

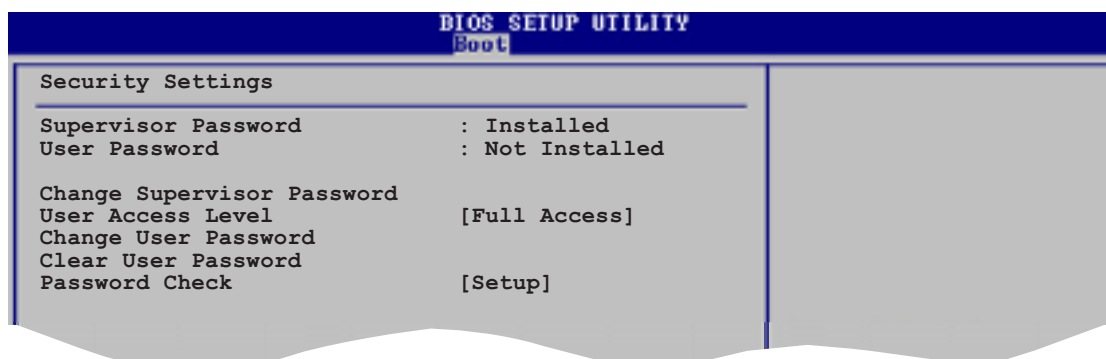The message "Password Installed" appears after you have successfully set your password.

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

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

> If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "1.9 Jumpers" for information on how to erase the RTC RAM.

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

```
                        BIOS SETUP UTILITY
                            Boot
  Security Settings

  Supervisor Password            : Installed
  User Password                  : Not Installed

  Change Supervisor Password
  User Access Level              [Full Access]
  Change User Password
  Clear User Password
  Password Check                 [Setup]
```

## 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 change to only 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 have 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 combination of at least six
    (6) letters and/or numbers, then press **<Enter>**.
3.  Confirm the password when prompted.

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

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

## Clear User Password

Select this item if you want to clear the user password.

# 2.7    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.

```
                      BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit

   Exit Options

   Exit & Save Changes
   Exit & Discard Changes
   Discard Changes

   Load Setup Defaults
```

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

## Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. The CMOS RAM is sustained by an onboard backup battery and stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select **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 & Saving Changes** or make other changes before saving the values to the non-volatile RAM.

# Chapter 3

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

# Software support

# 3.1 Install an operating system®

This motherboard supports Windows® 98SE/ME/2000/XP operating system (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.

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

# 3.2 Support CD information

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

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

## 3.2.1 Running the support CD

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



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

## 3.2.2    Drivers menu

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

### SiS AGP Driver

The item installs the SiS AGP Driver.

### SiS Compatible VGA display driver

This item installs SiS VGA display driver.

### SoundMAX Audio Driver and Application

The item installs the AD1888 audio driver and SoundMAX application.

### SiS PCI LAN Driver

This item installs the driver for the onboard SiS PCI LAN controller.

### USB 1.1 Driver

This item installs the USB 1.1 driver.

## 3.2.3    Utilities menu

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



### ASUS PC Probe

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

## Install ASUS Update

This program allows you to download the latest version of the BIOS from the ASUS website. Before using the ASUS Update, make sure that you have an Internet connection so you can connect to the ASUS website. See page 2-7 for ASUS Update installation and use.

## Microsoft® DirectX 8.1

This item installs the Microsoft® DirectX 8.1.

## PC-CILLIN 2002

This item installs the Tren Micro PC-CILLIN 2002 anti-virus program.View the PC-CILLIN online help for details.

## Adobe Acrobat Reader

This item installs the Adobe Acrobat Reader V5.0. The Acrobat Reader software is for viewing files saved in Portable Document Format (PDF).

## ASUS Screen Saver

This item installs the ASUS screen saver.

# 3.2.4    ASUS contact information

Click the Contact tab to display the ASUS contact information.



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