SK8V

User Guide

Motherboard

ASUS

E1473

Revised Edition V2
November 2003

Contents

Contents

Contents

Notices

Federal Communications Commission Statement

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

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

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

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

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.

About this guide

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

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**

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

- **Chapter 2: Hardware information**

  This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

- **Chapter 3: Powering up**

  This chapter describes the power up sequence, the vocal POST messages, and ways of shutting down the system.

- **Chapter 4: BIOS setup**

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

- **Chapter 5: Software support**

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

Conventions used in this guide

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

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

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

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

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

Typography

Bold Text	Indicates a menu or an item to select.
\<Enter\>	Indicates that you must press the Enter or Return key.
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: **Ctrl+F**
Words in Italics	Italics are used to emphasize a point.

Where to find more information

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

1. **ASUS websites**

    The ASUS websites worldwide provide updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

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

SK8V specifications summary

CPU	Socket 940 for AMD Athlon™ 64 FX and Opteron™ CPUs
Chipset	VIA K8T800 VIA VT8237
System Bus	Scalable Hyper-Transport Bus
Memory	4 x 184-pin DDR DIMM sockets for up to 8GB memory that supports registered ECC and non-ECC PC3200/PC2700/PC2100/PC1600 DDR DIMMs
Expansion slots	1 x AGP 8X/4X 5 x PCI 1 x Wi-Fi slot

Storage	Supported by SouthBridge
	  - 2 x ATA 133 connectors
	  - 2 x SATA supports RAID 0, RAID 1 configuration
	Supported by Promise PDC20378 RAID controller
	  - 1 x ATA133
	  - 2 x SATA connectors
	  - RAID 0, RAID 1, and RAID 0+1 configurations

Audio	ADI AD1985 SoundMax 6-channel audio CODEC support for S/PDIF out interface
LAN	3COM® 3C940 Gigabit LAN controller
Overclocking Features	Adjustable Memory, Vcore, AGP and VLink voltage SFS (Stepless Frequency Selection) from 200 MHz up to 300 MHz at 1 MHz increments Adjustable FSB/DDR ratio ASUS JumperFree ASUS C.P.R. (CPU Parameter Recall) Adjustable CPU Frequency Multiple
Special features	ASUS AI Audio ASUS AI NET ASUS AI BIOS ASUS POST Reporter ASUS CrashFree BIOS2 ASUS Q-Fan ASUS C.P.R. (CPU Parameter Recall) ASUS EZ Flash ASUS MyLogo2 ASUS Instant Music Multi-language BIOS

SK8V specifications summary

Rear panel I/O	1 x Parallel port 1 x Serial port 1 x PS/2 keyboard port 1 x PS/2 mouse port 4 x USB 2.0 ports 1 x IEEE 1394 port 1 x S/PDIF out 1 x RJ-45 port Line In/Line Out/Microphone ports
Internal I/O	2 x USB 2.0 connectors for 4 additional USB ports CPU/Chassis/Power fan connectors 20-pin/4-pin ATX 12V power connectors CD/AUX connectors S/PDIF out connector GAME/MIDI connector IEEE 1394 connector Serial port 2 connector
BIOS features	4Mb Flash EEPROM AMI BIOS with enhanced ACPI, PnP, DMI2.0, Green ASUS EZ Flash, ASUS MyLogo2, Q-Fan, SM BIOS 2.3, Multi-Language BIOS, CrashFree BIOS2
Industry standard	PCI 2.2, USB 2.0/1.1
Manageability	DMI 2.0, WOL by PME, WOR by PME
Power Requirement	ATX power supply (with 4-pin 12V plug)
Form Factor	ATX form factor: 12 in x 9.6 in (30.5 cm x 24.4 cm)
Support CD contents	Device drivers ASUS PC Probe Trend Micro™ PC-cillin 2002 anti-virus software

* Specifications are subject to change without notice.

Chapter 1

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

Product introduction

Chapter summary

1.1   Welcome!

Thank you for buying the ASUS® SK8V motherboard!

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

The motherboard combines the powers of the AMD Athlon™ 64 FX or AMD Opteron™ processor and the VIA K8T800 chipset to set a new benchmark for an effective desktop platform solution.

Supporting up to 8GB of system memory with PC3200/PC2700/PC2100/ PC1600 DDR SDRAM, high-resolution graphics via an AGP 8X slot, Dual Serial ATA RAID, IEEE 1394, USB 2.0, and 6-channel audio features, the motherboard takes you ahead in the world of power computing!

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 SK8V motherboard
- ✓ ASUS support CD
- ✓ 2 x SATA cable
- ✓ 1 x 4 port USB module w/ cable
- ✓ 1 x Single port 1394 module
- ✓ 1 x S/PDIF out module
- ✓ 2 x 80-conductor ribbon cable for UltraDMA/66/100/133 IDE drives
- ✓ 1 x 40-conductor IDE cable
- ✓ 1 x Ribbon cable for a 3.5-inch floppy drive
- ✓ 1 x SATA power cable (Retail boxes only)
- ✓ WinDVD Suite (Retail boxes only)
- ✓ Instant Music label (Retail boxes only)
- ✓ 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

1.3.1 Product Highlights

Latest processor technology

The 940-pin ZIF socket on the motheboard supports the AMD Athlon™ 64 FX and AMD Opteron™ processors. The AMD Opteron™ processor represents the industry's first x86-64 technology, while the AMD Athlon™ 64 FX is a 64-bit PC processor designed specifically for cinematic computing.

HyperTransport™ Technology

HyperTransport™ Technology is a high-speed, low latency, point-to-point link designed to increase the communication speed between integrated circuits in computers, networking and telecommunicatons equipment up to 48 times faster than other existing technologies.

Serial ATA solution

The motherboard supports four interfaces compliant to the Serial ATA (SATA) specification, an evolutionary replacement of the Parallel ATA storage interface. The Serial ATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, up to 150 MB/s data transfer rate.

Dual SATA RAID

The motherboard provides two high-performance Serial ATA RAID controllers that enhances hard disk performance and data back-up protection without the cost of additional RAID cards. The Promise® 20378 RAID controller incorporates two Serial ATA and one parallel connector with RAID 0, RAID 1 and RAID 0+1 functions while the onboard VIA® VT8237 RAID controller provides an additional two Serial ATA connectors for RAID 0 and RAID 1 functions.

Dual Channel DDR memory support

Employing the Double Data Rate (DDR) memory technology, the motherboard supports up to 8GB of system memory using PC3200/PC2700/PC2100/PC1600 DDR DIMMs. The ultra-fast 400MHz memory bus delivers the required bandwidth for the latest 3D graphics, multimedia, and Internet applications.

AGP 8X support

AGP 8X (AGP 3.0) is the next generation VGA interface specification that enables enhanced graphics performance with high bandwidth speeds up to 2.12 GB/s.

S/PDIF out

The SK8V's S/PDIF out function turns your computer into a high-end entertainment system with digital connectivity to powerful speaker systems.

IEEE 1394 support

The IEEE 1394 interface provides high-speed and flexible PC connectivity to a wide range of peripherals and devices compliant to IEEE 1394a standards. The IEEE 1394 interface allows up to 400Mbps transfer rates through simple, low-cost, high-bandwidth asynchronous (real-time) data interfacing between computers, peripherals, and consumer electronic devices such as camcorders, VCRs, printers,TVs, and digital cameras.

USB 2.0 technology

The motherboard implements the new Universal Serial Bus (USB) 2.0 specification, extending the connection speed from 12 Mbps on USB 1.1 to a fast 480 Mbps on USB 2.0 - supporting up to 8 USB 2.0 ports. The higher bandwidth of USB 2.0 allows connection of devices such as high resolution video conferencing cameras, next generation scanners and printers, and fast storage units. USB 2.0 is backward compatible with USB 1.1.

1.3.2 Unique ASUS features

ASUS Wi-Fi slot

The ASUS Wi-Fi slot is specifically designed for the ASUS WiFi-b™ add-on card to set up an environment for wireless LAN. The ASUS WiFi-b™ add-on card bundles the exclusive Software AP (Access Point) to save the extra cost of a stand-alone AP. In addition, the card comes with user-friendly utilities and applications that allow quick connection to notebooks, PDAs and other wireless LAN peripherals. See page 2-18.

AI Audio solution

The ADI AD1985 AC'97 audio CODEC supports 6-channel surround sound output, stereo microphone input, variable sample rate conversion (SRC), professional quality 103-dB output with 94-dB SNR, and analog enumeration capability. The SoundMAX® 4 XL software features the AudioESP™ (Audio Enumeration and Sensing Process) that allows intelligent detection of the peripherals plugged into the audio ports and identifies the incompatible devices, if any. See page 5-12.

AI NET solution

The 3COM® 3C940 Gigabit PCI LAN controller chipset is onboard to provide a single-chip solution for LAN on Motherboard (LOM) applications. The controller integrates 32-bit 10/100/1000BASE-T Gigabit Ethernet Media Access Control (IEEE 802.3 compliant) and Physical Layer Transceiver solution to support high performance network applications. The controller is equipped with the net-diagnosing utility, VCT (Virtual Cable Tester), that intelligently diagnoses and reports cable faults from a remote location up to 100 meters. This feature helps maintain a more stable network connection. See page 5-32.

AI BIOS solution

The AI BIOS is a combination of three ASUS intelligent solutions: Q-Fan, POST Reporter, and CrashFree BIOS2.

ASUS Q-Fan technology

The ASUS Q-Fan technology smartly adjusts the fan speeds according to the system loading to ensure quiet, cool, and efficient operation. See pages 4-34.

ASUS POST Reporter

SK8V Deluxe offers a new exciting feature called the ASUS POST Reporter to provide friendly voice messages and alerts during the Power-On Self-Tests (POST). Through an added external speaker, you will hear the messages informing you of the system boot status and causes of boot errors, if any. The bundled Winbond Voice Editor software allows you to customize the voice messages, and provides multi-language support. See page 3-3.

CrashFree BIOS 2

This feature allows you to restore the original BIOS data from the ASUS support CD in case when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. See page 4-5.

C.P.R. (CPU Parameter Recall)

The C.P.R. feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and BIOS automatically restores the CPU previous setting for each parameter.

ASUS MyLogo2™

This new feature present in the SK8V motherboard allows you to personalize and add style to your system with customizable boot logos. See pages 4-37, 5-7.

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 4-4.

ASUS Multi-language BIOS

The multi-language BIOS allows you to select the language of your choice from the available options. The localized BIOS menus allow you to configure easier and faster. Visit the ASUS website for information on the supported languages. See page 4-12.

Instant Music

This unique feature allows you to playback audio CDs even without booting the system to Windows™. Just press the ASUS Instant Music special function keys and enjoy the music! See details on pages 4-30 and 5-9.

Chapter 2

This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

Hardware information

Chapter summary

2.1   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 motherboard comes with a standby 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.

SB_PWR

ON
Standby
Power

OFF
Powered
Off

SK8V Onboard LED
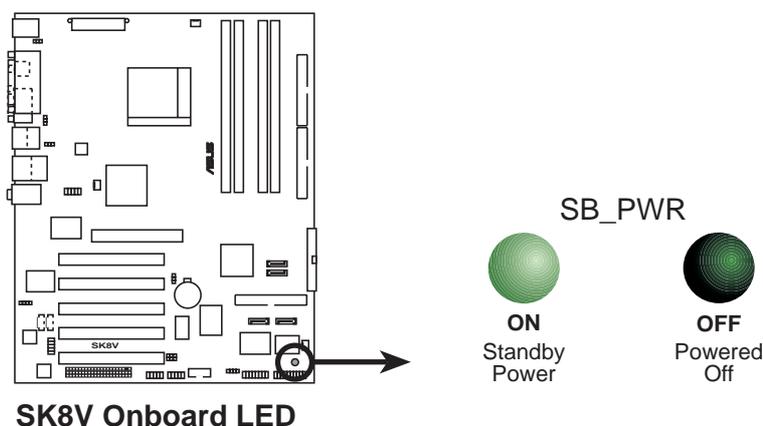
2.2   Motherboard overview

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

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

2.2.1   Placement direction

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

2.2.2   Screw holes

Place nine (9) 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
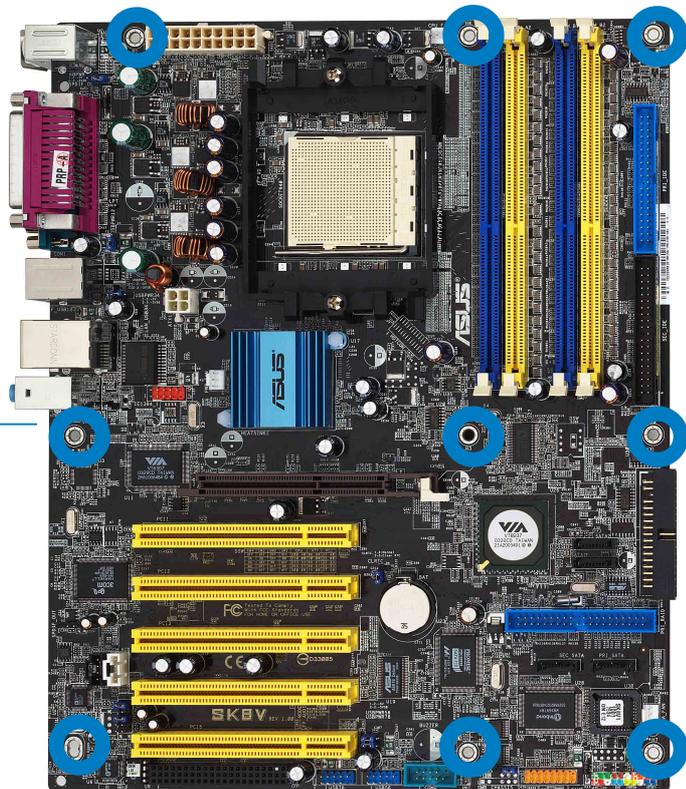
2.2.3 Motherboard layout

24.5cm (9.6in)

30.5cm (12.0in)

PS/2KBMS
T: Mouse
B: Keyboard

KBPWR

ATX Power Connector

CPU_FAN

SPDIF_O

PARALLEL PORT

COM1

USBPWR12

Bottom:
USB1
USB2

Top:
1394

USBPWR34

ATX12V

USB2.0
T: USB4
B: USB3

Top:
RJ-45

PWR_FAN

VIA
K8T800

Top:Line In
Center:Line Out
Below:Mic In

IE1394_1

Socket 940

DDR DIMM_A1 (64 bit,184-pin module)

DDR DIMM_A2 (64 bit,184-pin module)

DDR DIMM_B1 (64 bit,184-pin module)

DDR DIMM_B2 (64 bit,184-pin module)

PRI_IDE

SEC_IDE

ASUS

VIA
VT6307
Chipset

Accelerated Graphics Port (AGP)

PCI1

Gigabit
LAN

PCI2

CLRTC

VIA
VT8237

SATA2

SATA1

FLOPPY

SPDIF_OUT

PCI3

CR2032 3V
Lithium Cell
CMOS Power

PRI_RAID

CD

AUX

Audio
Codec

PCI4

SK8V

ASUS
AS99 Deluxe

RAID
Promise
PDC20378

SATA_RAID1

SATA_RAID2

Super
I/O

4Mbit
BIOS

CHA_FAN

FP_AUDIO

PCI5

USBPWR56
USBPWR78

SB_PWR

PANEL

WIFI

USB78

USB56

COM2

CHASSIS

GAME

2.2.4   Layout Contents

Slots	
1. PCI slots	p. 2-17
2. AGP slot	p. 2-17
3. Wi-Fi slot	p. 2-18
4. DDR DIMM slots	p. 2-11

Jumpers	
1. Clear RTC RAM (3-pin CLRTC1)	p. 2-19
2. Keyboard power (3-pin KBPWR)	p. 2-20
3. USB device wake-up (3-pin USBPWR12, USBPWR34	p. 2-20

Rear Panel Connectors	
1. PS/2 mouse port	p. 2-21
2. Parallel port	p. 2-21
3. IEEE 1394 port	p. 2-21
4. Gigabit LAN port (RJ-45)	p. 2-21
5. Line In jack	p. 2-21
5. Line Out jack	p. 2-21
6. Microphone jack	p. 2-21
7. USB 2.0 ports 3 and 4	p. 2-22
8. USB 2.0 ports 1 and 2	p. 2-22
9. Serial connector	p. 2-22
10. S/PDIF out jack	p. 2-22
11. PS/2 keyboard port	p. 2-22

Internal Connectors

1. Primary IDE connector (40-1 pin PRI_IDE)	p. 2-22
2. Secondary IDE connector (40-1 pin SEC_IDE)	p. 2-22
3. Floppy disk connector (34-1 pin FLOPPY)	p. 2-23
4. RAID ATA connector (40-1 pin PRI_RAID)	p. 2-23
5. Serial ATA connectors (7-pin SATA1, SATA2, SATA_RAID1, SATA_RAID2)	p. 2-24
6. CPU fan connector (3-pin CPU_FAN)	p. 2-25
7. Power fan connector (3-pin PWR_FAN)	p. 2-25
8. Chassis fan connector (3-pin CHA_FAN)	p. 2-25
9. Serial Port 2 connector (10-1 pin COM2)	p. 2-25
10. ATX power connector (20-pin ATXPWR)	p. 2-26
11. ATA 12V power connector (4-pin ATX12V)	p. 2-26
12. USB headers (10-1 pin USB56, USB78)	p. 2-27
13. CD connector (4-pin CD)	p. 2-28
14. AUX connector (4-pin AUX)	p. 2-28
15. IEEE 1394 connector (10-1 pin IE1394_1)	p. 2-28
16. Front panel audio connector (10-1 pin FP_AUDIO)	p. 2-29
17. Digital audio connector (6-1 pin SPDIF_OUT)	p. 2-29
18. GAME/MIDI connector (16-1 pin GAME)	p. 2-30
19. System panel connector (20-pin PANEL1)	p. 2-30
- System Power LED Lead (Green 3-1 pin PLED)	
- System Warning Speaker Lead (Orange 4-pin SPKR)	
- Reset Switch (Blue 2-pin RESET)	
- ATX Power Switch (Yellow 2-pin PWRBTN)	
- System Management Interrupt Lead (Light blue 2-pin SMI)	
- Hard Disk Activity LED (Red 2-pin IDE_LED)	

2.3 Central Processing Unit (CPU)

2.3.1 Overview

The motherboard comes with a surface mount 940-pin Zero Insertion Force (ZIF) socket designed for the AMD Athlon™ 64 FX and AMD Opteron™ processors.

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

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

Gold triangle

2.3.2 Installing the CPU

Follow these steps to install a CPU.

1. Locate the 940-pin ZIF socket on the motherboard.
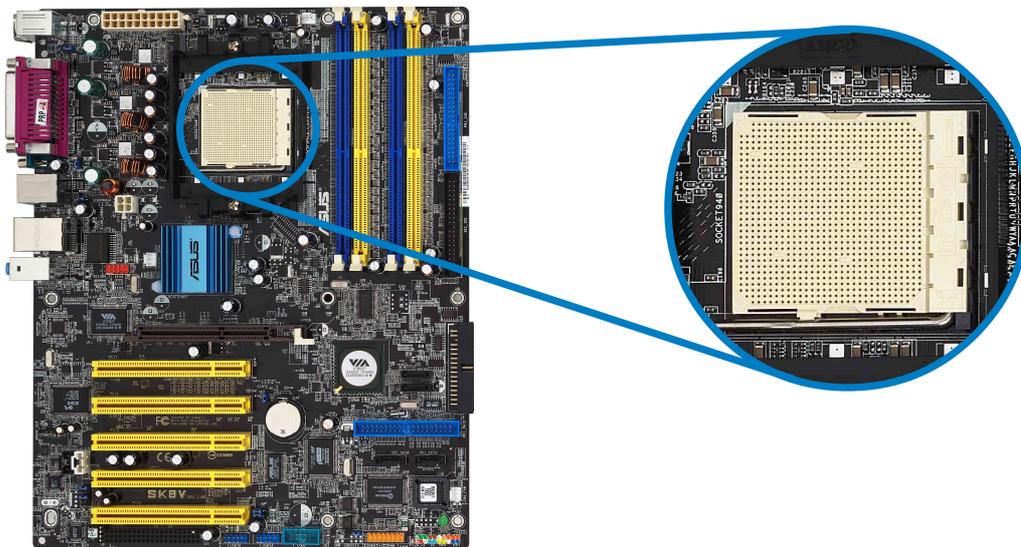
2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle.
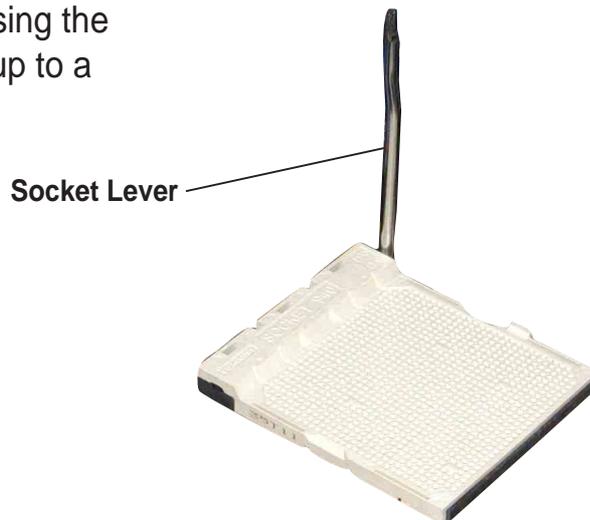
Socket Lever

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

3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.

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

Gold triangle

Small triangle

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

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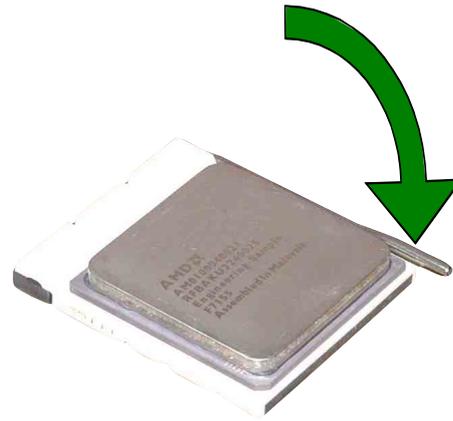
2.3.3 Installing the heatsink and fan

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

Make sure that you use only qualified heatsink and fan assembly.

Follow these steps to install the CPU heatsink and fan.

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

1. The retention module base is already installed on the motherboard upon purchase.
2. You do not have to remove the retention module base when installing the CPU or installing other motherboard components.

CPU Fan

CPU Heatsink

Retention Module Base

Retention bracket   **Retention bracket lock**
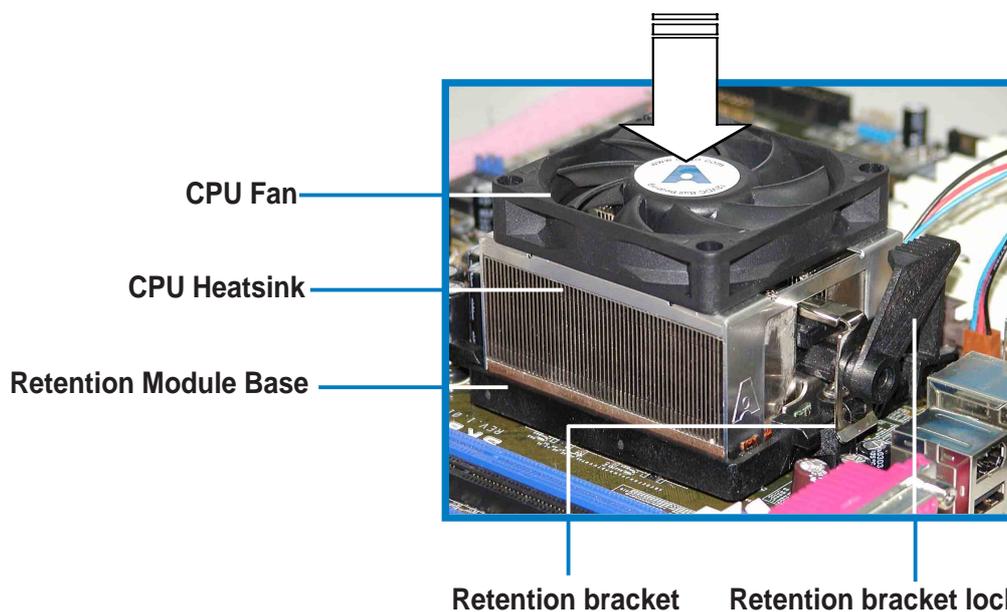
Your boxed CPU heatsink and fan assembly should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.

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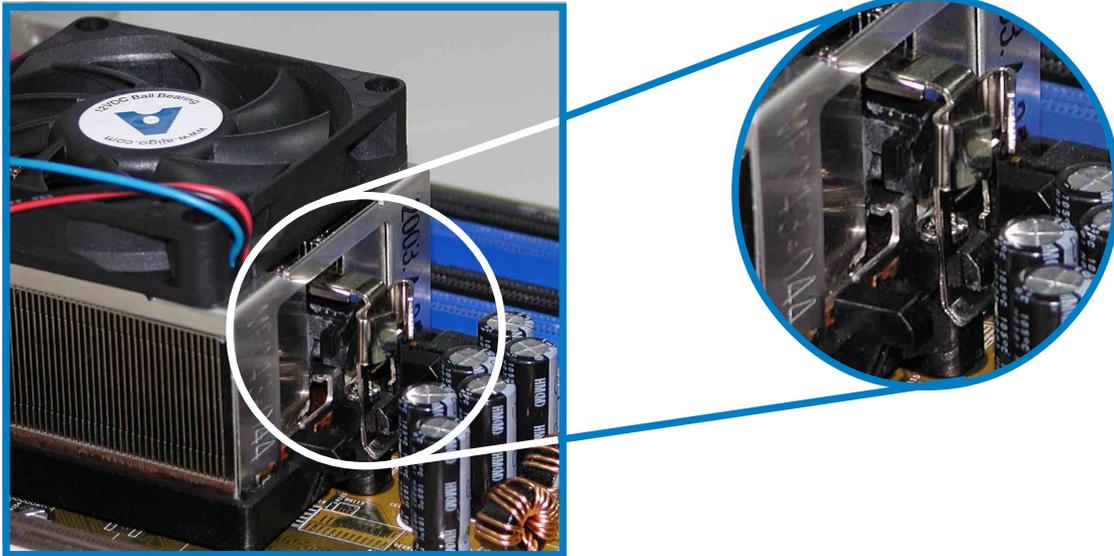
3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.

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

4. Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.
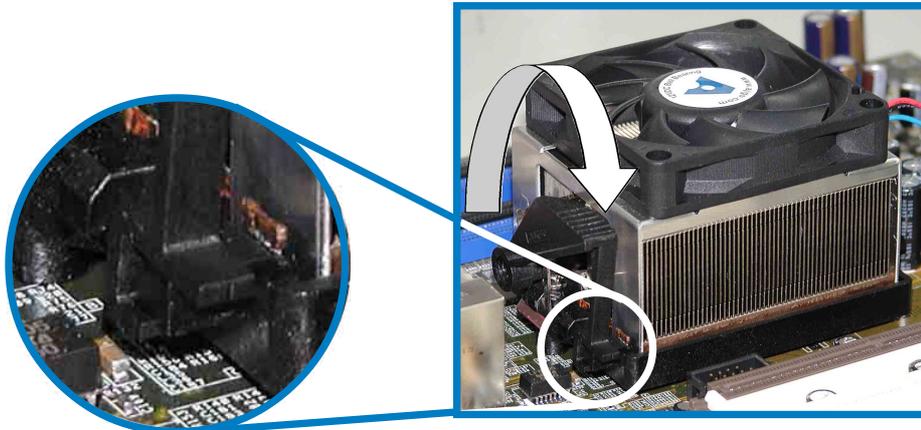
2.3.4   Connecting the CPU fan cable

When the fan, heatsink, and the retention mechanism are in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.

CPU Fan Connector
(CPU_FAN)
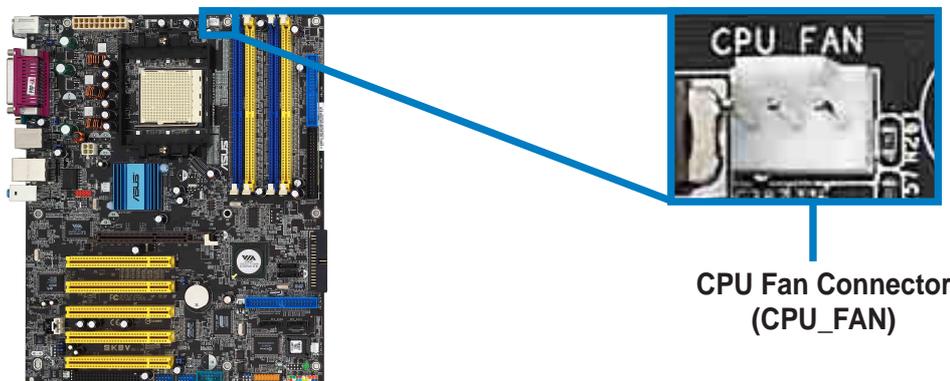
Don't forget to connect the CPU fan connector! Hardware monitoring errors may occur if you fail to plug this connector.

2.3.5   CPU heatsink and fan Qualified Vendors List

The following table lists the CPU heatsink and fan assembly that have been tested and qualified for use with this motherboard.

Vendor	Part Number
AVC	Z7UB003
Thermaltake	AP1892
Taisol	111-8061010-90

2.4 System memory

2.4.1 Overview

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

The following figure illustrates the location of the sockets.

SK8V 184-Pin DDR DIMM Sockets
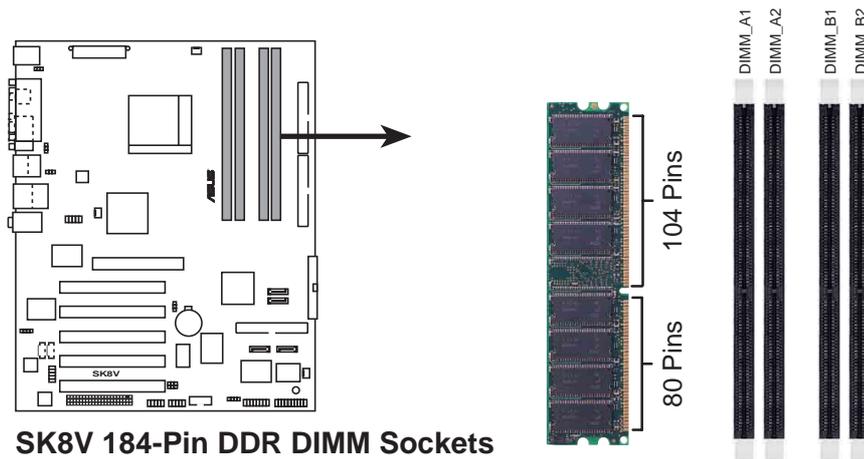
2.4.2 Memory configurations

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

Important notes on memory configurations

1. Installing DDR DIMMs other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations in Table 1.
2. In Dual-channel configurations, install only identical (the same type and size) DDR DIMM pairs for each channel.
3. Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor. See list of Qualified Vendors List on page 2-12.
4. When all four sockets are populated with 1GB DIMMs (total 4GB), the system may detect only 3+GB (a little less than 4GB) due to the Southbridge resource allocation.
5. It is recommended to use the blue DIMM slots first.

Table 1   Recommended memory configurations

Mode		DIMM_A1	Sockets DIMM_A2	DIMM_B1	DIMM_B2
Single-channel	(1)	Populated	—	—	—
	(2)	—	Populated	—	—
	(3)	Populated	Populated	—	—
Dual-channel*	(1)	—	Populated	—	Populated
	(2)	Populated	—	Populated	—
	(3)	Populated	Populated	Populated	Populated

* **Use only identical DDR DIMM pairs.**

* **For dual-channel configuration (3), you may:**
- install identical DIMM pair in DIMM_A1 and DIMM_B1 (blue sockets)
  and identical DIMM pair in DIMM_A2 and DIMM_B2 (yellow sockets)

2.4.3   Qualified Vendor List

DDR333 Qualified Vendor List

The following table lists the PC2700 (DDR333) memory modules that have been tested and qualified for use with this motherboard.

Size	Vendor	Part No.	Brand	SS/DS	Chip Number	A*	B*	C*
256MB	ATP	AB32L72Q8SQB3S	SAMSUNG	SS	K4H560838D-TCB3(ECC)REG	•	•	•
512MB	ATP	AB64L72Q8S8B3S	SAMSUNG	DS	K4H560838D-TCB3(ECC)REG	•	•	•
1024MB	ATP	AB28L72T4SQB3S	SAMSUNG	DS	K4H560438D-TCB3(ECC)REG	•	•	•
1024MB	ATP	AB28L72P4SMB3C	Infineon	DS	HYB25D256400BT-6B(ECC)REG	•	•	•
512MB	TwinMOS	M2S5J18C2AWB5F0811C-T	Winbond	DS	W942508CH-6(ECC)REG	•	•	•
256MB	Kingston	KVR333X72RC25/256	Infineon	SS	HYB25D256809BT-6B(ECC)REG	•	•	
512MB	Kingston	KVR333X72RC25/512	Micron	DS	MT46V64M4TG-6TC(ECC)REG	•	•	•
1024MB	Kingston	KVR333X72RC25/1024		DS	D644DWH-60(ECC)REG	•	•	
512MB	CORSAIR	CM72SD512RLP-2700/S	SAMSUNG	DS	K4H560838D-TCB3(ECC)REG	•	•	•
1024MB	CORSAIR	CM74SD1024RLP-2700/S	SAMSUNG	DS	K4H560438D-TCB3(ECC)REG	•	•	
256MB	Apacer	77.10632.112	Infineon	SS	HYB25D256800BT-6B(ECC)REG	•	•	•
512MB	Apacer	77.10732.112	Infineon	DS	HYB25D256800BT-6B	•	•	
1024MB	Apacer	78.01053.112	Infineon	DS	HYB25D256400BC-6SSS26366	•	•	•

DDR400 Qualified Vendor List

The following table lists the PC3200 (DDR400) memory modules that have been tested and qualified for use with this motherboard.

Size	Vendor	Part No.	Brand	SS/DS	Chip Number	A*	B*	C*
512MB	Samsung	M312L6420EG0-CCC	Samsung	DS	K4H560438E-GCCC	•	•	•
512MB	Kingston	KRX3200K2/1G	Kingston	DS		•	•	•

Legend:

A*   -   supports one module inserted in the slot referred in Table 1, in a Single-channel memory configuration.

B*   -   supports one pair of modules inserted into either the blue slots or the yellow slots as one pair of Dual-channel memory configuration .

C*   -   support for 4 modules inserted into the blue & yellow slots as two pairs of Dual-channel memory configuration.

> Obtain DDR DIMMs only from ASUS qualified vendors for better system performance. Visit the ASUS website (www.asus.com) for the latest qualified vendor's list.

2.4.4   Installing a DIMM

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

1. Unlock a DIMM socket by pressing the retaining clips outward.

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

DDR DIMM NOTCH

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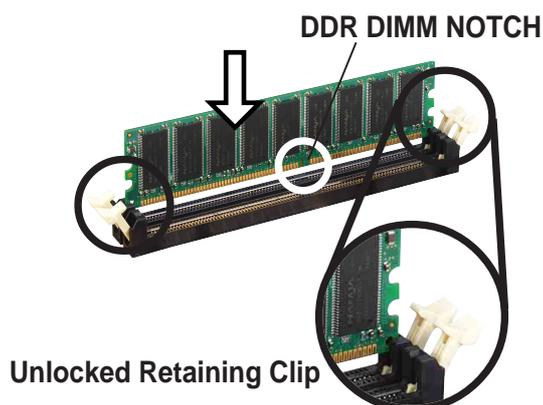
> A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

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

Locked Retaining Clip
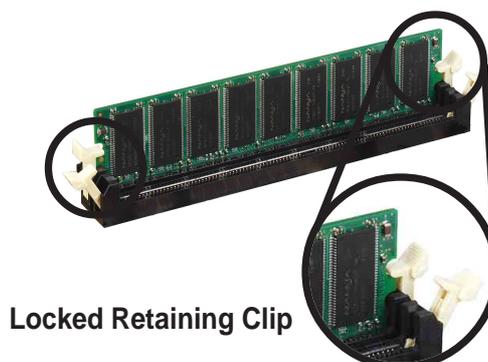
2.4.5 Removing a DIMM

Follow these steps to remove a DIMM.

1. Simultaneously press the retaining clips outward to unlock the DIMM.
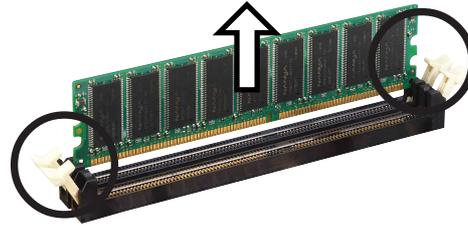
> Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.

2.5   Expansion slots

In the future, you may need to install expansion cards. The motherboard has available PCI slots and an Accelerated Graphics Port (AGP) slot. The following sub-sections describe the slots and the expansion cards that they support.

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

2.5.1   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.

2.5.2   Configuring an expansion card

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

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 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.

2.5.3   Interrupt assignments

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	Sound Card (sometimes LPT2)
6	14	Floppy Disk Controller
7*	15	Printer Port (LPT1)
8	3	System CMOS/Real Time Clock
9*	4	ACPI Mode when used
10*	5	IRQ Holder for PCI Steering
11*	6	IRQ Holder for PCI Steering
12*	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14*	9	Primary IDE Channel
15*	10	Secondary IDE Channel

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

IRQ assignments for this motherboard

	PCI INT A	PCI INT B	PCI INT C	PCI INT D
PCI slot 1	shared	—	—	—
PCI slot 2	—	shared	—	—
PCI slot 3	—	—	shared	—
PCI slot 4	—	—	—	shared
PCI slot 5	shared	—	—	—
AGP slot	—	shared	—	—
Onboard RAID	—	—	shared	—
Onboard 1394	shared	—	—	—
Onboard LAN	—	shared	—	—
WiFi slot	shared	—	—	—

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

2.5.4 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. The following figure shows a LAN card installed on a PCI slot.

2.5.5 AGP slot

The Accelerated Graphics Port (AGP) slot that supports AGP8X/4X cards. When you buy an AGP card, make sure that you ask for one with +1.5V specification. Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.

> Install only 1.5V AGP cards on this motherboard! 3.3V AGP cards are not supported in this motherboard.
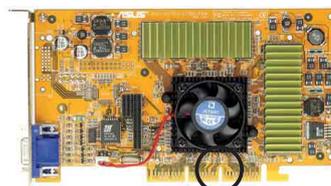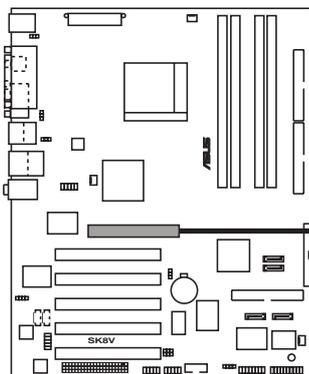
Keyed for 1.5v

SK8V Accelerated Graphics Port (AGP)

> If installing the ATi 9500 or 9700 Pro Series VGA cards, use only the card version **PN xxx-xxxxx-30** or later, for optimum performance and overclocking stability.

2.5.6 Wi-Fi slot

The Wi-Fi (Wireless Fidelity) slot will support the ASUS Wi-Fi module. Visit the ASUS website (www.asus.com) for product updates.

The Wi-Fi slot conforms to the Institute of Electrical and Electronics Engineers (IEEE) 802.11b/g standard for wireless devices operating in the 2.4 GHz frequency band.

SK8V WIRELESS Connectors
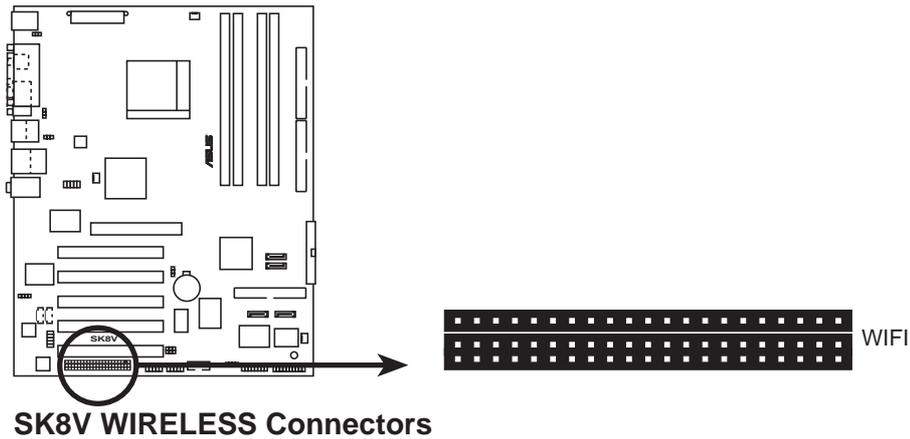
WIFI

ASUS WiFi-b™ Setup

- The PCI 5 slot and the Wi-Fi slot can not be used at the same time.
- The ASUS Wi-Fi module is purchased separately.

2.6 Jumpers

1. Clear RTC RAM (CLRTC1)

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Replace the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup menu.
7. Load the BIOS default settings or key-in data.

CLRTC

2
1
Normal
(Default)

3
2
Clear CMOS

SK8V Clear RTC RAM
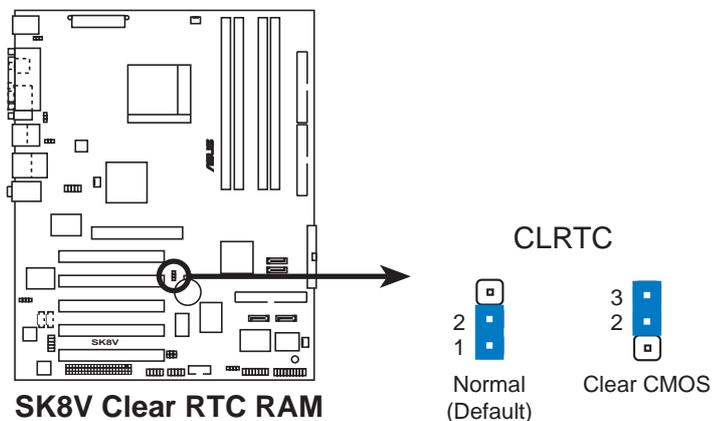
2. Keyboard power (3-pin KBPWR)

This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard. 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 section "4.5.5 APM Configuration").
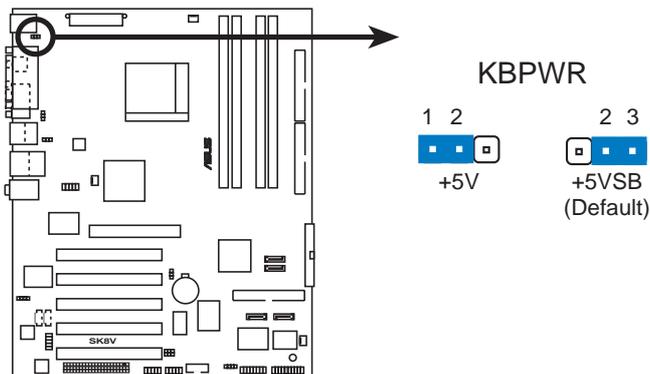
SK8V Keyboard Power Setting

3. USB device wake-up (3-pin USBPWR12, USBPWR34, USBPWR56, USBPWR78)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).
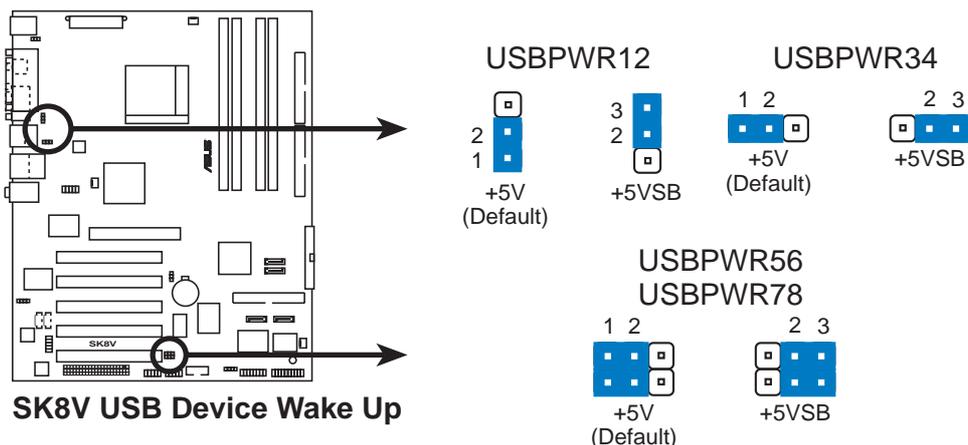
SK8V USB Device Wake Up

- The USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for each USB port. Otherwise, the system would not power up.

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

2.7 Connectors

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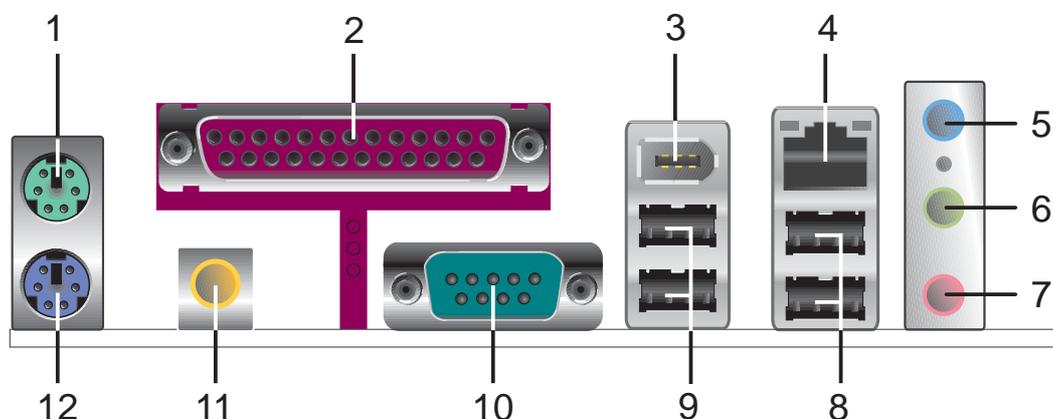
1. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.

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

3. **IEEE 1394 port.** This 6-pin IEEE 1394 port provides high-speed connectivity for audio/video devices, storage peripherals, other PC's and/or portable devices.

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

5. **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.

6. **Line Out jack.** This Line Out (lime) jack connects a headphone or a speaker. In 4-channel and 6-channel mode, the function of this jack becomes Front Speaker Out.

7. **Microphone jack.** This Mic (pink) jack connects a microphone. In 4-channel and 6-channel mode, the function of this jack becomes Rear Speaker Out.

Audio 2, 4 or 6-channel configuration

> 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.

	Headphone/ 2-channel	4-channel	6-channel
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

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. **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

10. **Serial connector.** This 9-pin COM1 port is for serial devices.

11. **S/PDIF out jack.** This jack connects to external audio output devices.

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

2.7.2   Internal connectors

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

    This connector supports the provided UltraATA 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 UltraATA slave device (hard disk drive) and the black connector to the UltraATA 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.

SK8V IDE Connectors

PRI_IDE

SEC_IDE

PIN 1

PIN 1

NOTE: Orient the colored stripe (usually zigzag) on the IDE ribbon cable to PIN 1.
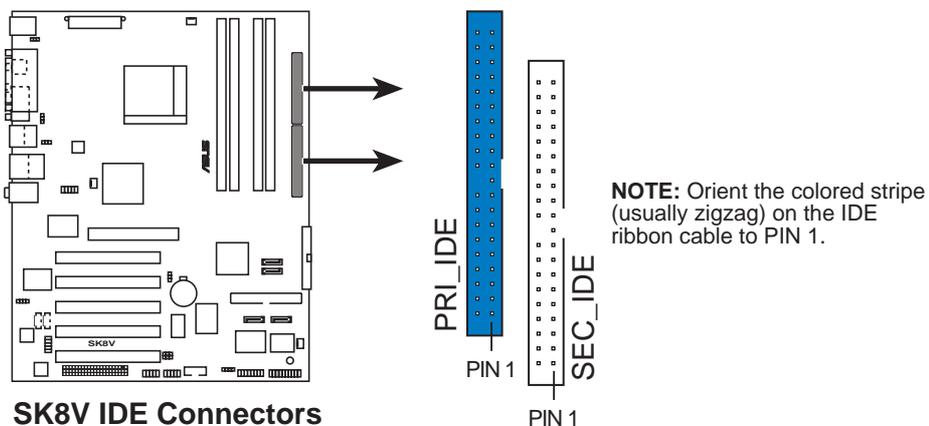
2. Floppy disk drive connector (34-1 pin FLOPPY)

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).

PIN 1

FLOPPY

NOTE: Orient the colored stripe on the floppy ribbon cable to PIN 1.
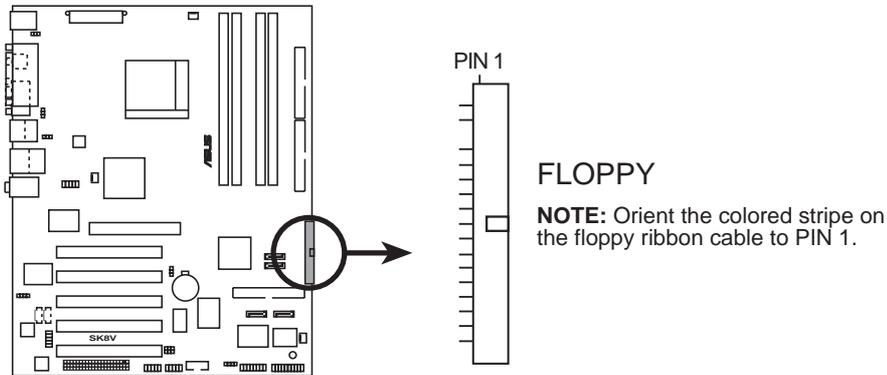
SK8V Floppy Disk Drive Connector

3. RAID ATA connector (40-1 pin PRI_RAID)

This connector support either RAID 0, RAID 1 or RAID 0 + 1 configuration with the Serial ATA connectors through the onboard Promise® PDC20378 controller. You can use the RAID feature to set up a disk array configuration and to support additional IDE devices.

PRI_RAID

PIN 1

NOTE: Orient the colored stripe (usually zigzag) on the IDE ribbon cable to PIN 1.
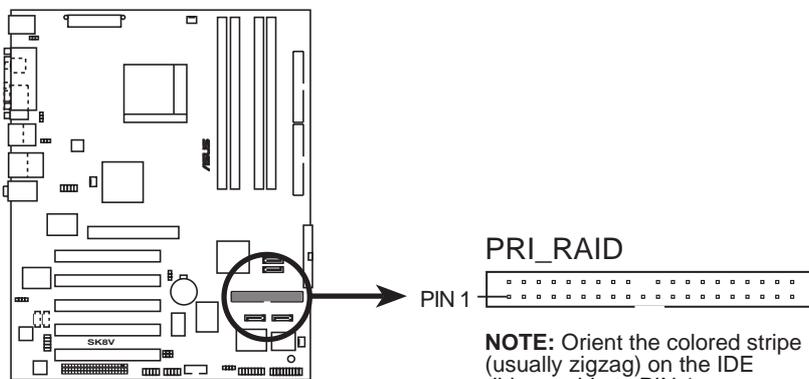
SK8V PRI_RAID Connectors

Important notes on the RAID feature:

• By default, the drive that you connect to the PRI_RAID connector follow the ATA133/100/66/33 protocol as an independent drive, not as a disk array.
• The RAID/SATA controller chipset does not support ATAPI devices such as CD-ROMs, DVD-ROMs, etc.
• Refer to sections "5.5 VIA RAID Configurations" and "5.6 Promise® RAID Configurations" for details.

4. Serial ATA connectors
(7-pin SATA1, SATA2, SATA_RAID1, SATA_RAID2)

These next generation connectors support the thin Serial ATA cables for primary internal storage devices. The current Serial ATA interface allows up to 150 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (UltraDMA133).

SK8V SATA Connectors

SK8V SATA RAID Connectors
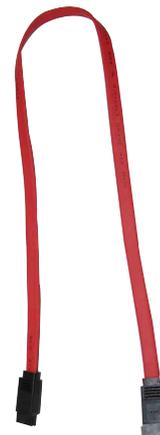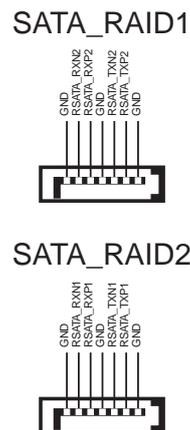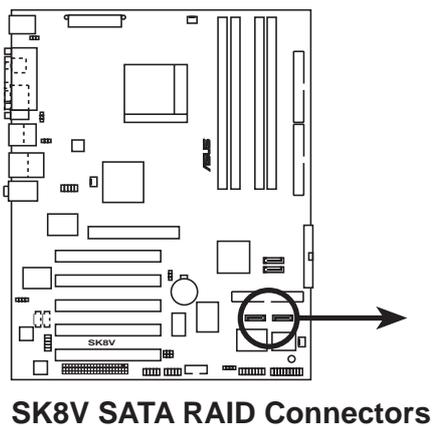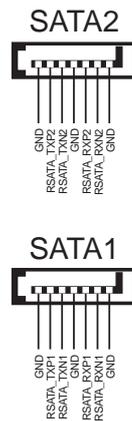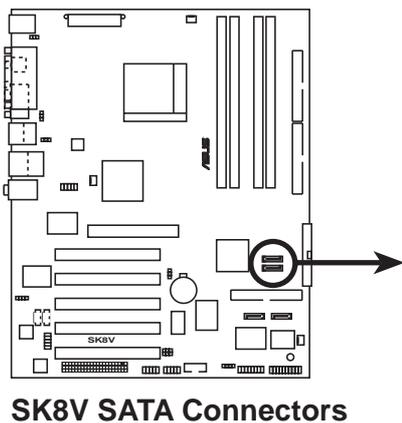
Important notes on Serial ATA solution:

- The Serial ATA cable is smaller and more flexible allowing easier routing inside the chassis. The lower pin count of the Serial ATA cable eliminates the problem caused by the wide, flat ribbon cables of the Parallel ATA interface.
- Hot plug support for Serial ATA drive and connections are not available in this motherboard.
- Install Windows® XP™ Service Pack 1 when using Serial ATA.
- Refer to sections "5.5 VIA RAID Configurations" or "5.6 Promise® RAID Configurations" for details on SATA RAID configuration.

5. CPU, Power and Chassis Fan Connectors (3-pin CPU_FAN, PWR_FAN, CHA_FAN)

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_FAN

Rotation
+12V
GND

PWR_FAN

GND
+12V
Rotation

CHA_FAN

GND
+12V
Rotation

SK8V 12-Volt Fan Connectors
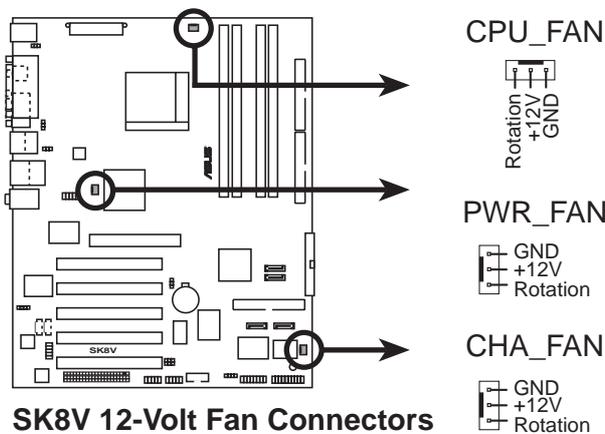
6. Serial Port 2 connector (10-1 pin COM2)

This connector accomodates a serial port using a serial port bracket. Connect the bracket cable to this connector then install the bracket into a slot opening at the back of the system chassis.

COM2

PIN 1

SK8V Serial COM2 Bracket
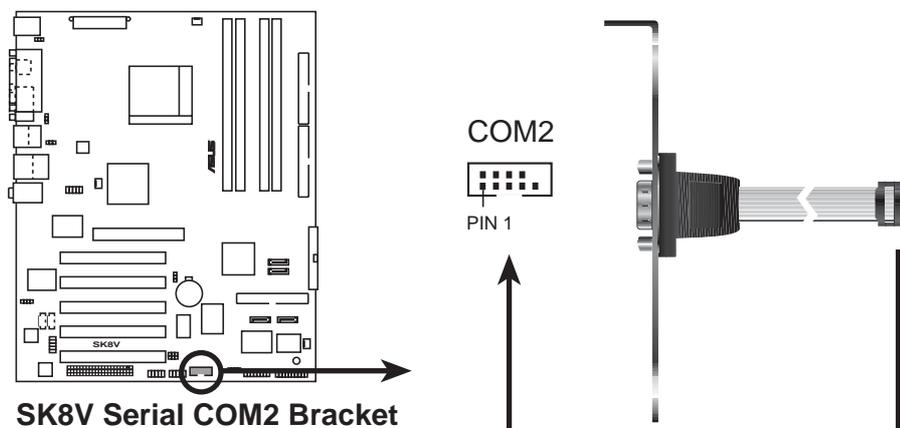
> ✎ The serial port bracket is purchased separately.

7. ATX power connectors (20-pin ATXPWR, 4-pin ATX12V)

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 ATXPWR1 connector, this motherboard requires that you connect the 4-pin ATX +12V power plug to provide sufficient power to the CPU.

- • Do not forget to connect the 4-pin ATX +12V power plug. Otherwise, the system does not boot up.

- • 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 300W, or 350W for a fully configured system. The system may become unstable or may not boot up if the power is inadequate.

SK8V ATX Power Connectors

ATXPWR

+5.0VDC
+5.0VDC
-5.0VDC
COM
COM
COM
PS_ON#
COM
-12.0VDC
+3.3VDC

Pin 1

+12.0VDC
+5VSB
PWR_OK
COM
+5.0VDC
COM
+5.0VDC
COM
+3.3VDC
+3.3VDC

ATX12V

+12V DC   GND

+12V DC   GND
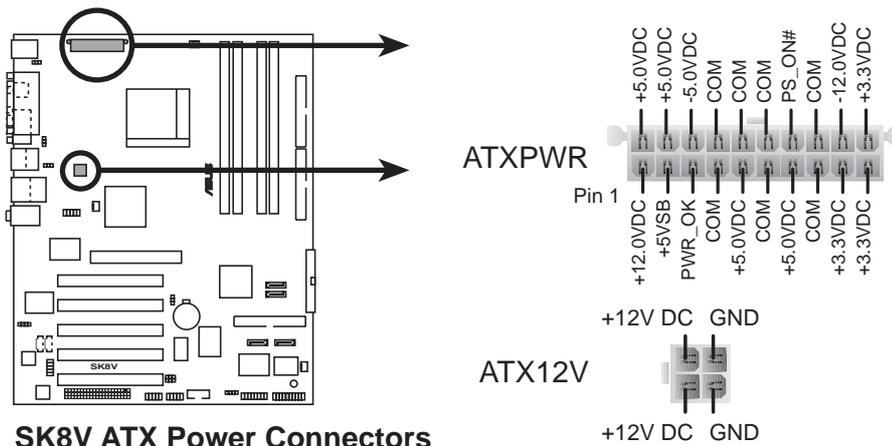
8. USB headers (10-1 pin USB56, USB78)

If the USB ports on the rear panel are inadequate, a USB header is available for additional USB ports. The USB header complies with USB 2.0 specification that supports up to 480 Mbps connection speed. This speed advantage over the conventional 12 Mbps on USB 1.1 allows faster Internet connection, interactive gaming, and simultaneous running of high-speed peripherals.

You must install the driver before you can use the USB 2.0 capability.

SK8V USB 2.0 Header

USB78

USB56
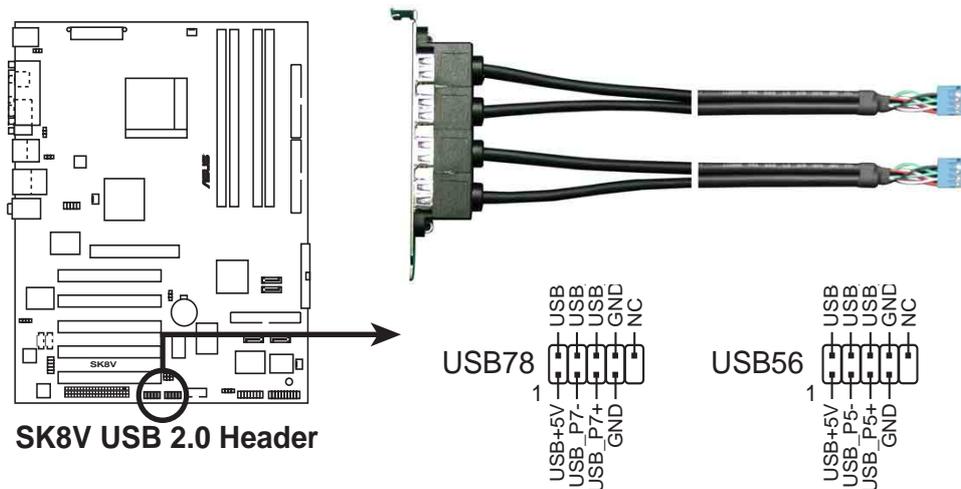
NEVER connect a **1394 cable** to any of the USB connectors. Doing so will damage the motherboard!

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

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

CD (Black)   AUX (White)

— Left Audio Channel
— Ground
— Right Audio Channel
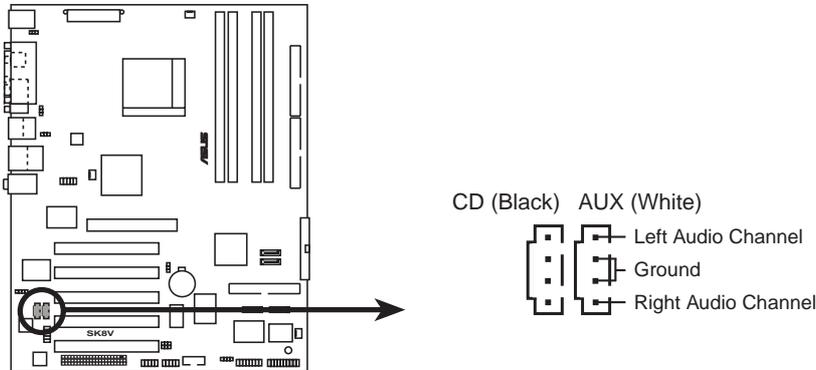
SK8V Internal Audio Connectors

10. IEEE 1394 connectors (10-1 pin IE1394_1)

These connectors are for IEEE 1394 modules. Attach the 10-1 pin cable plugs to these connectors. You may also connect a 1394-compliant internal hard disk to these connectors.

SK8V IEEE-1394 Connector

IE1394_1

TPA0-
GND
TPB0-
+12V
GND

TPA0+
GND
TPB0+
+12V
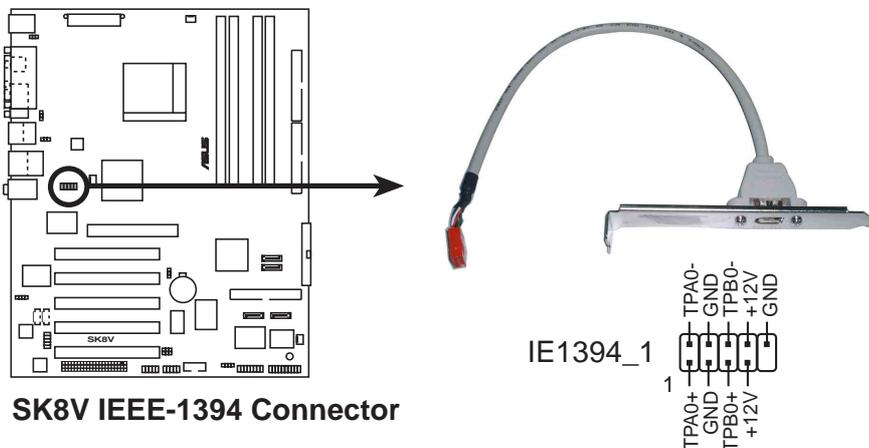
NEVER connect a **USB cable** to any of the IEEE 1394 (orange) connectors. Doing so will damage the motherboard!

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

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

By 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.

FP_AUDIO

BLINE_OUT_L — Line out_L
NC
BLINE_OUT_R — Line out_R
+5VA — MICPWR
AGND — MIC2
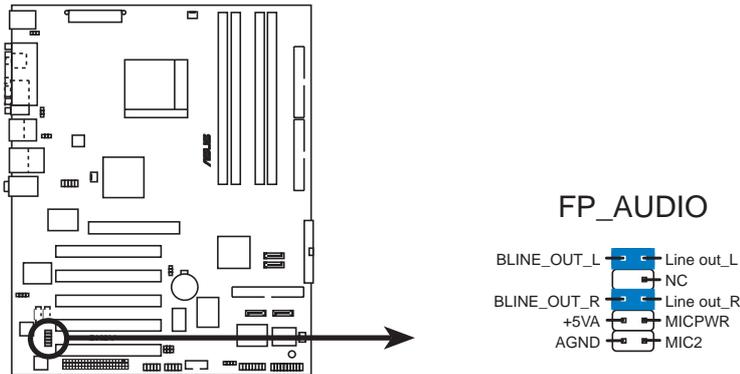
SK8V Front Panel Audio Connector

12. Digital Audio connector (6-1 pin SPDIF_OUT)

This connector is for the S/PDIF audio module to allow digital sound output. Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module.

SPDIF_OUT

+5V
SPDIFOUT
GND
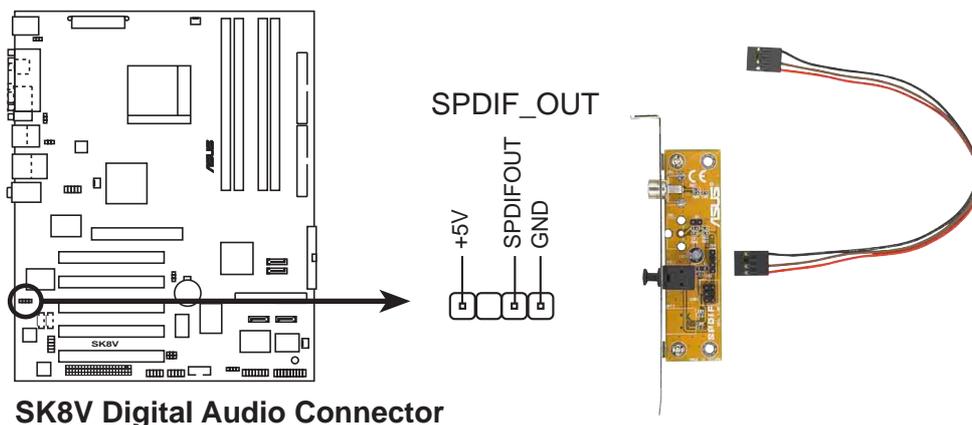
SK8V Digital Audio Connector

13. GAME/MIDI connector (16-1 pin GAME)

This connector supports a GAME/MIDI module. If a GAME/MIDI module is available, connect the GAME/MIDI cable to this connector. 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.

SK8V Game Connector
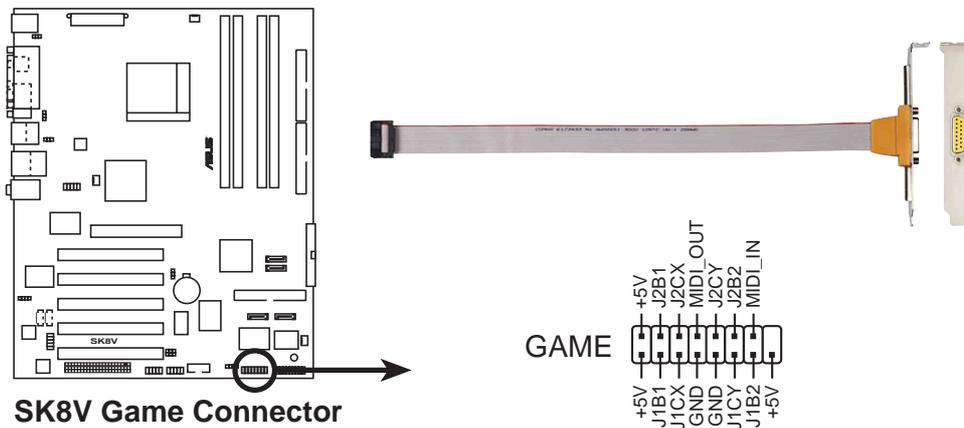
GAME

The GAME/MIDI module is purchased separately.

13. System panel connector (20-pin PANEL)

This connector accommodates several system front panel functions.

SK8V System Panel Connectors

Power LED

Speaker Connector

IDE_LED

SMI Lead

Reset SW

ATX Power Switch*
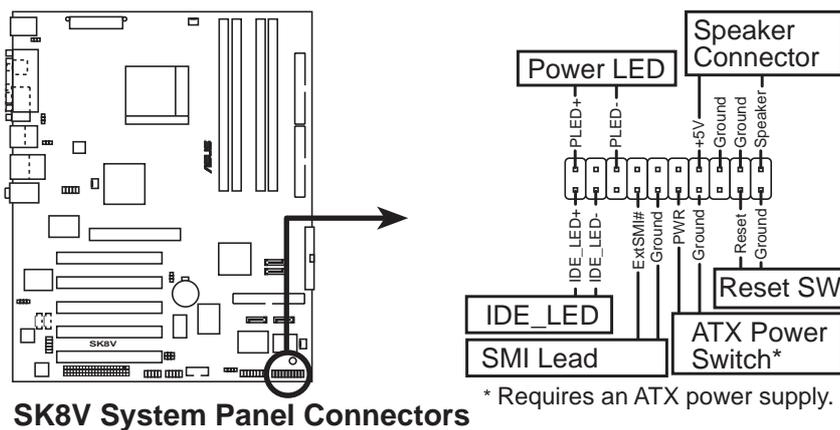
* Requires an ATX power supply.

- **System Power LED Lead (Green 3-1 pin PLED)**

This 3-1 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.

- **System Warning Speaker Lead (Orange 4-pin SPKR)**

  This 4-pin connector connects to the case-mounted speaker and allows you to hear system beeps and warnings.

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

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

- **ATX Power Switch / Soft-Off Switch Lead (Yellow 2-pin PWRBTN)**

  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.

- **System Management Interrupt Lead (Light blue 2-pin SMI)**

  This 2-pin connector allows you to manually place the system into a suspend mode, or "green" mode, where system activity is instantly decreased to save power and to expand the life of certain system components. Attach the case-mounted suspend switch to this 2-pin connector.

- **Hard disk activity LED (Red 2-pin IDE_LED)**

  This connector supplies power to the hard disk activity LED. Any read or write activity of an IDE device cause this LED to light up.

> The System Panel connector is color-coded for easy and foolproof connection. Take note of the specific connector colors as described.

Chapter 3

This chapter describes the power up sequence, the vocal POST messages and ways of shutting down the system.

Powering up

Chapter summary

3.1   Starting up for the first time

1. After making all the connections, replace the system case cover.

2. Be sure that all switches are off.

3. Connect the power cord to the power connector at the back of the system chassis.

4. Connect the power cord to a power outlet that is equipped with a surge protector.

5. Turn on the devices in the following order:

    a. Monitor

    b. External SCSI devices (starting with the last device on the chain)

    c. System power (if you are using an ATX power supply, you need to switch on the power supply as well as press the ATX power switch on the front of the chassis).

6. After applying power, the power LED on the system front panel case lights up. For ATX power supplies, the system LED lights up when you press the ATX power switch. If your monitor complies with "green" standards or if it has a "power standby" feature, the monitor LED may light up or switch between orange and green after the system LED turns on. The system then runs the power-on tests. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.

7. At power on, hold down <Delete> to enter BIOS Setup. Follow the instructions in Chapter 4.

3.2 Powering off the computer

3.2.1 Using the OS shut down function

If you are using Windows 98SE/ME/2000, click the **Start** button, click **Shut Down...**, make sure that the **Shut down** option button is selected, then the **OK** button to shut down the computer. The power supply should turn off after Windows shuts down.

If you are using Windows XP, click the **Start** button, click **Turn Off Computer**, then the **Turn Off** button to shut down the computer. The power supply should turn off after Windows shuts down.

3.2.2 Using the dual function power switch

While the system is ON, pressing the power switch for less than 4 seconds puts the system to sleep mode or to soft-off mode, depending on the BIOS setting. Pressing the power switch for more than 4 seconds lets the system enter the soft-off mode regardless of the BIOS setting. See section "4.5 Power Menu" in Chapter 4.

3.3   ASUS POST Reporter™

This motherboard includes the Winbond speech controller to support the ASUS POST Reporter™ feature. This feature gives you vocal POST messages and alerts to inform you of system events and boot status. In case of a boot failure, you will hear the specific cause of the problem.

These POST messages are customizable using the Winbond Voice Editor software that came with your package. You can record your own messages to replace the default messages.

> Make sure that the speaker is plugged in the Line-out jack.

3.3.1   Vocal POST messages

Following is a list of the default POST messages and their corresponding actions:

POST Message	Action
No CPU installed	• Install a supported processor into the CPU socket. See section "2.3 Central Processing Unit (CPU)" for supported processors.
System failed CPU test	• Check the CPU if properly installed. • Call ASUS technical support for assistance. See the "ASUS contact information" on the inside front cover of this manual.
System failed memory test	• Install supported DDR DIMMs into the sockets. • Check if the DIMMs on the DIMM sockets are properly installed. • Make sure that your DIMMs are not defective. • Refer to section "2.4 System memory" for instruction on installing a DIMM.
System failed VGA test	• Install a PCI VGA card into one of the PCI slots, or a 1.5V AGP card into the AGP slot. • Make sure that your VGA/AGP card is not defective.

POST Message	Action
System failed due to CPU over-clocking	• Check your CPU settings in BIOS and make sure you only set to the recommended settings. See section "4.4 Advanced menu."
No keyboard detected	• Check your keyboard if properly connected to the purple PS/2 connector on the rear panel. • See section "2.7.1 Rear panel connectors" for the location of the connector.
No floppy disk detected	• Make sure you have connected a floppy disk to the floppy disk connector on the motherboard.
No IDE hard disk detected	• Make sure you have connected an IDE hard disk drive to the one of the IDE connectors on the motherboard.
CPU temperature too high	• Check CPU fan if working properly.
CPU fan failed	• Check the CPU fan and make sure it turns on after you applied power to the system. • Make sure that your CPU fan supports the fan speed detection function.
CPU voltage out of range	• Check your power supply and make sure it is not defective. • Call ASUS technical support for assistance. See the "ASUS contact information" on the inside front cover of this manual.
System completed Power-On Self Test	• No action required
Computer now booting from operating system	• No action required

You may disable the ASUS POST Reporter™ in the BIOS setup. See section "4.4.6 Speech Configuration".

3.3.2 Winbond Voice Editor

The Winbond Voice Editor software allows you to customize the vocal POST messages. Install the software from the utilities menu of the support CD. See section "5.2.3 Utilities menu" for details.

> To avoid conflicts, do not run the Winbond Voice Editor while running the ASUS PC Probe.

Follow these steps to use the Winbond Voice Editor.

Launching the program

Launch the program either from the Winbond Voice Editor icon on your desktop, or from the Windows Start menu, **Programs/Winbond Voice Editor/ Voice Editor**.

The Winbond Voice Editor screen appears.
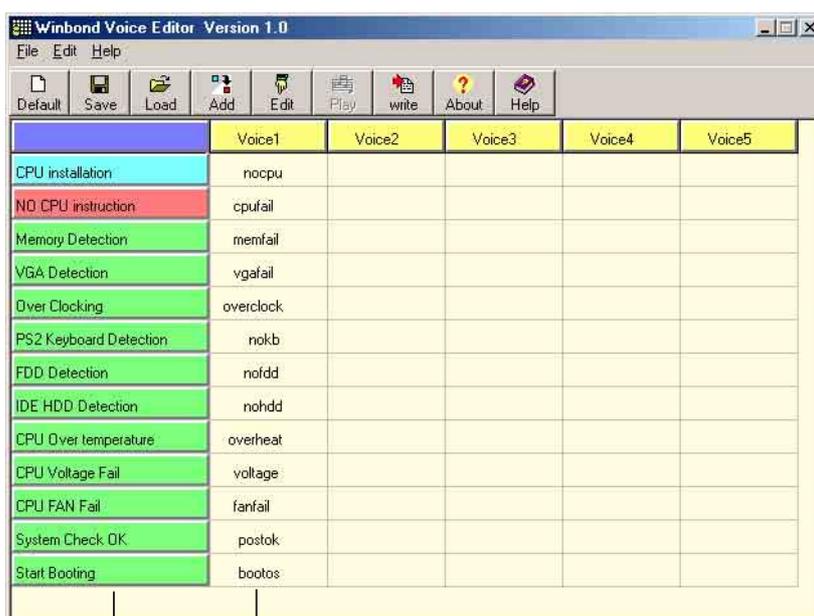
Default Messages

POST Events

Playing the default wave files

To play the default wave files, simply click on a POST event on the left side of the screen, then click the Play button.

> The default language setting is English.

Changing the default language

1. Click on the Load button. a window showing the available languages appears.

2. Select your desired language then click Open. The event messages for the language you selected appear on the Voice Editor screen.

> For some languages, not all events have a corresponding message due to file size constraints.

3. Click on the Write button to update the EEPROM.

4. Click Yes on the confirmation window that appears.

The next time you boot your computer, the POST messages are announced in the language that you selected .

Customizing your POST messages

If your language is not in the selection or if you wish to record your own POST messages to replace the pre-installed wave files, follow these steps.

1. Launch the Voice Editor and take note of the list of POST events on the leftmost column of the screen.

2. Prepare your message for each event.

> The total compressed size for all the wave files must not exceed 1Mbit, so make your messages as short as possible.

3. Use a recording software, such as Windows Recorder, to record your messages.

4. Save the messages as wave files (.WAV). It is recommended that you save your files in low quality to keep them small. For example, use 8-bit, mono quality at 22Khz sampling rate.

> You may want to create a separate folder for your wave files so you can locate them easily in one place.

5. From the Voice Editor screen, click the **Add** button to display the Add Wave File window.

6. Copy the wave files that you recorded to the database. Close the window when done.
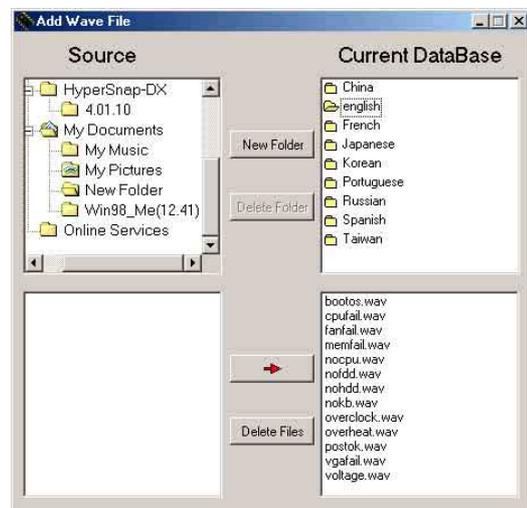
7. Click a POST event on the Voice Editor screen, then on the **Edit** button. The Event Sound Editor window appears.

8. Locate and select your wave file for the event then click on the arrow opposite Voice1. The file you selected appears on the space next to it.

9. Click **OK** to return to the Voice Editor screen.

10. Do steps 7 to 9 for the other events.

11. When done, click the **Save** button. A window appears prompting you to save your configuration.

12. Type a file name with a **.flh** extension, then click **Save**.

13. Click on the **Write** button to compress the file and copy into the EEPROM.

14. Click **Yes** on the confirmation window that appears.
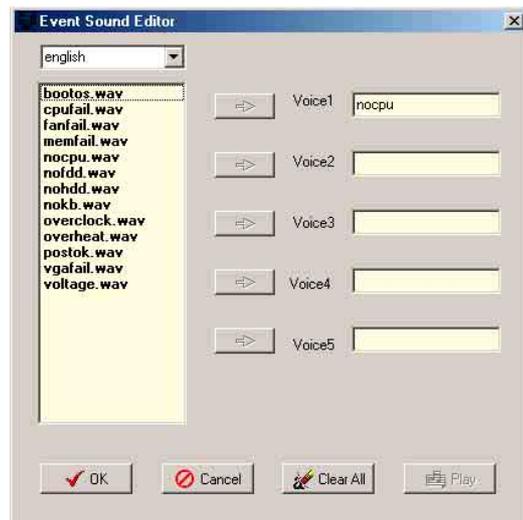
If you receive an error message telling you that the files exceed the total allowable size, do one or all of the following.

• Try to modify your messages to make them shorter

• Save the wave files at a lower quality

• Skip lesser used events like FDD Detection, IDE HDD Detection, etc.

Chapter 4

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

BIOS setup

Chapter summary

4.1 Managing and updating your BIOS

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

1. **ASUS AFUDOS** *(Updates the BIOS using a bootable floppy disk in DOS mode.)*
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 or the motherboard support CD.)*
4. **ASUS Update** *(Updates the BIOS in a Windows® environment.)*

Refer to the corresponding sections 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 ASUS Update (refer to section "4.1.6 ASUS Update") or AFUDOS (refer to section "4.1.3 Using AFUDOS to copy BIOS from PC")
- Visit the ASUS website and download the latest BIOS file for this motherboard using the ASUS Update utility.

4.1.1 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/2000/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. If you are using Windows™ XP, select **Create an MS-DOS startup disk** from the format options field, then click **Start**.
   OR
   If you are using Windows™ 98SE/ME/2000, select **Full** option button and make sure the **Copy system files** is checked, then click **Start**.

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

4.1.2   Using AFUDOS to update the BIOS

Update the BIOS using the AFUDOS.EXE utility in DOS environment.

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*>

where "filename" 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 /iSK8V.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 /iSK8V.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.

4.1.3 Using AFUDOS to copy BIOS from PC

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.

4.1.4   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 diskette and using a DOS-based utility. The EZ Flash is built-in the BIOS firmware 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 the downloaded file as **SK8V.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 "**SK8V.ROM not found!**" is displayed. Make sure to rename the downloaded BIOS file as "**SK8V.ROM**".

4. Insert the floppy disk that contains the BIOS file. If all the necessary files are 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 "SK8V.rom". Completed.

Start flashing...

Flashed successfully. Rebooting.
```

4.1.5   Recovering the BIOS with CrashFree BIOS 2

The CrashFree BIOS 2 auto recovery tool allows you to restore BIOS from the motherboard support CD, or from a floppy disk that contains the BIOS file, in case the current BIOS on the motherboard fails or gets corrupted.

> 1. Prepare the **support CD** that came with the motherboard or a **floppy disk that contains the motherboard BIOS** before proceeding with the BIOS update process.
>
> 2. 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 "4.1.1 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 screen 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. If all the necessary files are found in the floppy disk, the BIOS update process continues.

Make sure that the BIOS file in the floppy disk is renamed as "**SK8V.ROM**".

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "SK8V.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 a working 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 "SK8V.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 ASUS website (www.asus.com) to download the latest BIOS file.

4.1.6 ASUS Update

The ASUS Update is a utility that allows you to update the motherboard BIOS in Windows® environment. This utility is available in the support CD that comes with the motherboard package. ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

To install ASUS Update:

1. Insert the support CD into the CD-ROM drive. The **Drivers** menu appears.

2. Click the **Utilities** tab, then click **Install ASUS Update VX.XX.XX**. See page 5-3 for the **Utilities** menu screen.

3. The ASUS Update utility is copied into your system.

To update the BIOS using the ASUS Update:

1. Launch the utility from the Windows desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update initial screen appears.

2. Select your desired update method, then click **Next**.
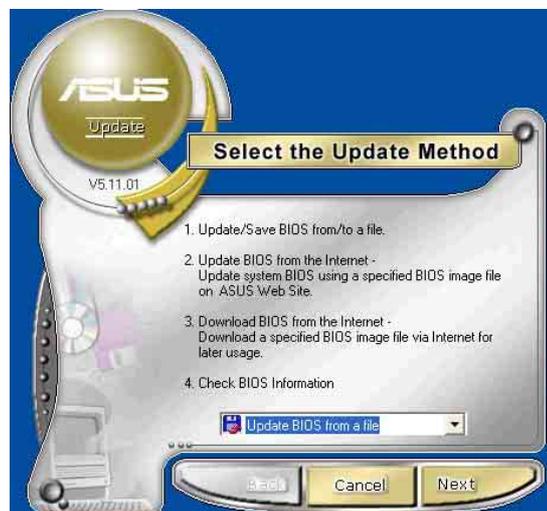
3. If you selected updating/ downloading from the Internet, select the ASUS FTP site nearest you to avoid network traffic, or choose **Auto Select**. Click **Next**.
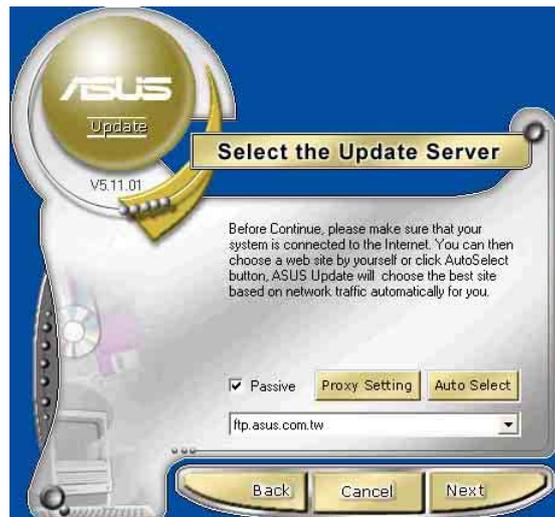
4. From the FTP site, select the BIOS version that you wish to download. Click **Next**.

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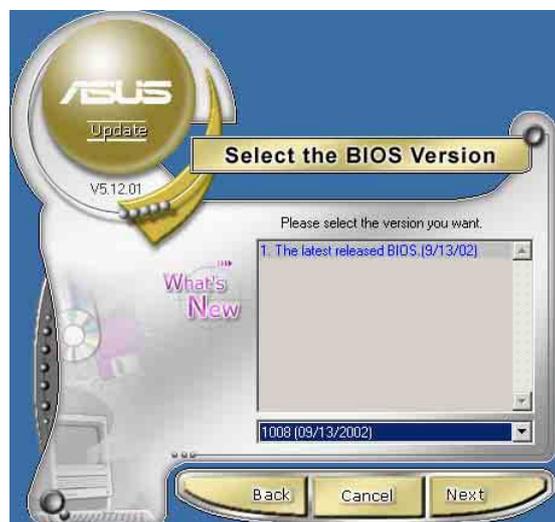
If you selected the option to update the BIOS from a file, a window pops up prompting you to locate the file. Select the file, click **Save**, then follow the screen instructions to complete the update process.

4.2   BIOS Setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section "4.1 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.

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

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 "4.7 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.

4.2.1   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.
  Language                   [English]
                                                       Use [+] or [-] to
  ▶ Primary IDE Master       :[ST320413A]              configure system time.
  ▶ Primary IDE Slave        :[ASUS CD-S340]
  ▶ Secondary IDE Master     :[Not Detected]
  ▶ Secondary IDE Slave      :[Not Detected]

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

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

Sub-menu items   **Navigation keys**

4.2.2   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.

4.2.3   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.

4.2.4 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.
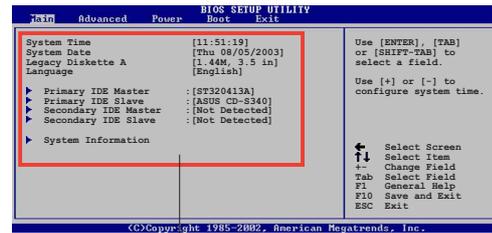
The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.

Main menu items

4.2.5 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.

4.2.6 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 "4.2.7 Pop-up window."

4.2.7 Pop-up window

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

4.2.8 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 **Up/ Down arrow keys** or **PageUp/ PageDown keys** to display the other items on the screen.
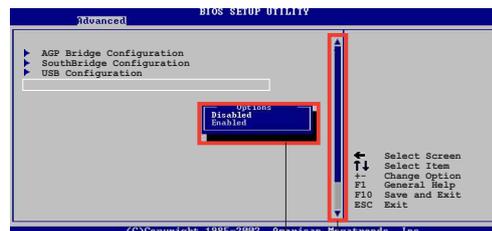
Pop-up window

Scroll bar

4.2.9 General help

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

4.3 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 "4.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                        BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

System Time                 [11:51:19]              Use [ENTER], [TAB]
System Date                 [Thu 08/05/2003]        or [SHIFT-TAB] to
Legacy Diskette A           [1.44M, 3.5 in]         select a field.
Language                    [English]
                                                    Use [+] or [-] to
  Primary IDE Master        :[ST320413A]            configure system time.
  Primary IDE Slave         :[ASUS CD-S340]
  Secondary IDE Master      :[Not Detected]
  Secondary IDE Slave       :[Not Detected]

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

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

4.3.1 System Time [xx:xx:xxxx]

This item allows you to set the system time.

4.3.2 System Date [Day xx/xx/xxxx]

This item allows you to set the system date.

4.3.3 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, 3.5in.]

4.3.4 Language [English]

This field allows you to choose the BIOS language version from the available options.

4.3.5 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

  Type                        [Auto]               ←     Select Screen
  LBA/Large Mode              [Auto]               ↑↓    Select Item
  Block (Multi-sector Transfer)  [Auto]            +-    Change Option
  PIO Mode                    [Auto]               F1    General Help
  DMA Mode                    [Auto]               F10   Save and Exit
  Smart Monitoring            [Auto]               ESC   Exit
  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 N/A if no IDE device is installed in the system.

Type [Auto]

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

LBA/Large Mode [Auto]

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

Block (Multi-sector Transfer) [Auto]

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

PIO Mode [Auto]

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

DMA Mode [Auto]

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

SMART Monitoring [Auto]

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

32Bit Data Transfer [Disabled]

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

4.3.6   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    : 08.00.08
  Build Date : 08/04/03
  ID         : K8V__031

  System Memory
  Size       : 256MB


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

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```
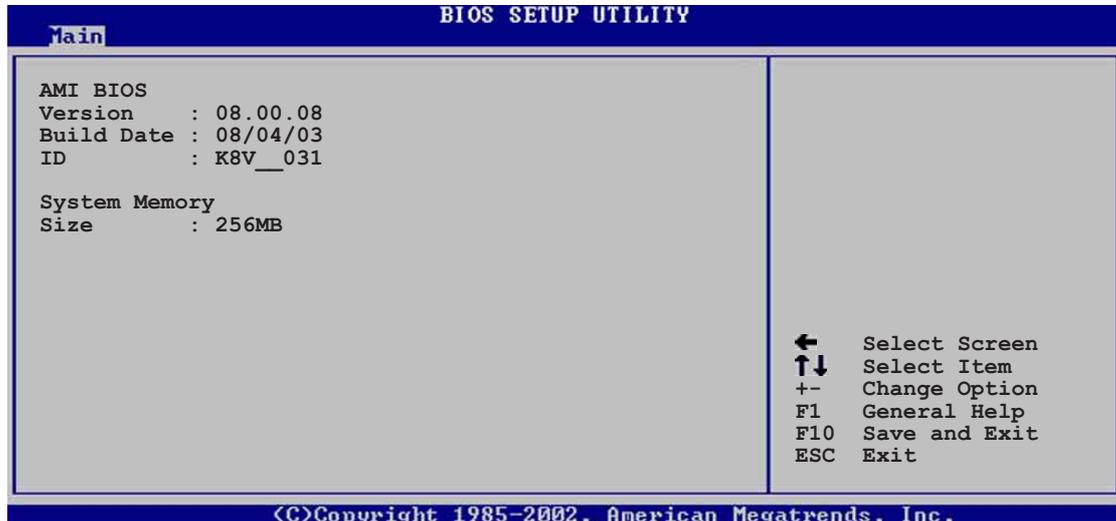
AMI BIOS

This item displays the auto-detected BIOS information.

System Memory

This item displays the auto-detected system memory.

4.4   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

 ▶  CPU Configuration                        Configure CPU.
 ▶  Chipset
 ▶  Onboard Devices Configuration
 ▶  PCI PnP
 ▶  JumperFree Configuration
 ▶  Speech Configuration
 ▶  Instant Music Configuration

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

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```
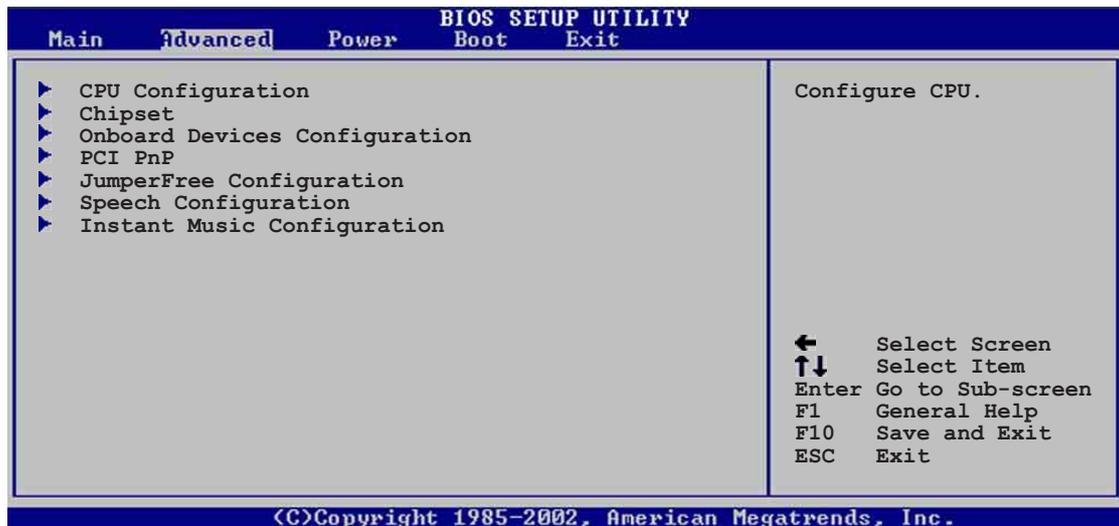
4.4.1   CPU Configuration

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

```
                         BIOS SETUP UTILITY
        Advanced

 ▶  HyperTransport (HT) Configuration
 ▶  Memory Configuration
 ▶  AMD PowerNow Configuration

   Processor
   Type    : AMD Athlon(tm) 64 FX-51 Processor
   Speed   : 2400MHz

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

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```

HyperTransport Configuration
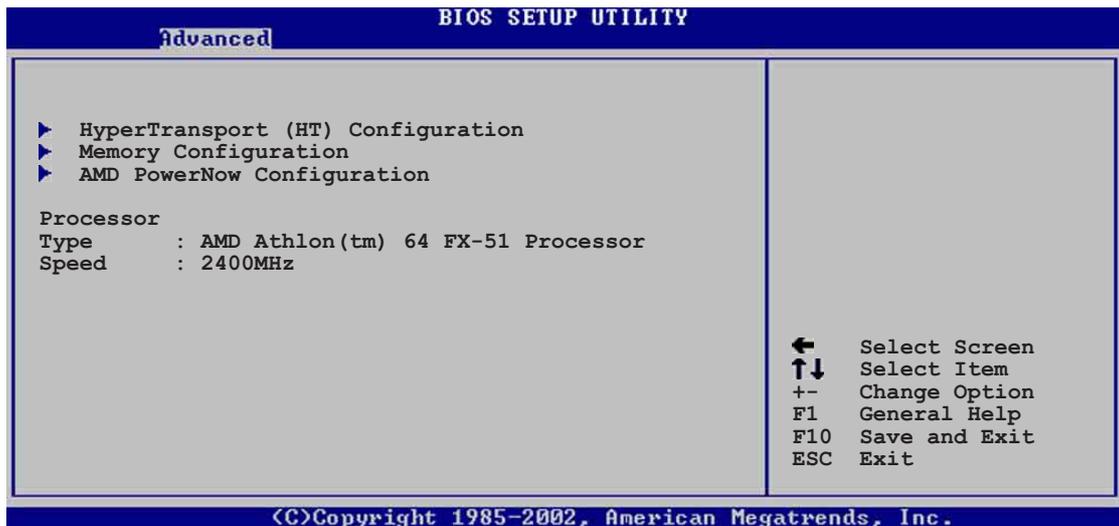
```
                         BIOS SETUP UTILITY
      Advanced

    HyperTransport Configuration

    HT Tristate Enable          [Enabled]
    CRC Flood Enable            [Disabled]
    HT Frequency                [800 MHz]
    HT DATA Width(Upstream)     [16 BIT]
    HT DATA Width(Downstream)   [16 BIT]



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

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```

HT Tristate Enable [Enabled]

This item enables or disables the HyperTransport Tristate that enables the tristate link during the disconnected state of an LDTSTOP.
Configuration options: [Disabled] [Enabled]

CRC Flood Enable [Disabled]

This item enables or disables the CRC Flood that enable the generation of syncronized packets on CRC Error.
Configuration options: [Disabled] [Enabled]

HT Frequency [800 MHz]

This item allows frequency selection of HyperTransport transfer from K8 CPU to AGP. Configuration options: [200 MHz] [400 Mhz] [600 Mhz] [800 Mhz]

HT DATA Width (Upstream) [16 BIT]

This item allows selection of HyperTransport upstream data width.
Configuration options: [16 BIT] [8 BIT]

HT DATA Width (Downstream) [16 BIT]

This item allows selection of HyperTransport downstream data width.
Configuration options: [16 BIT] [8 BIT]

Memory Configuration

```
                         BIOS SETUP UTILITY
 Advanced

 Memory Configuration
 ──────────────────────────────────────
 ▶  Memory Configuration
 ▶  ECC Configuration

 Memory CLK          : 266 MHz
 CAS Latency         : 2.5
 TRCD                : 3 CLK
 TRAS                : 6 CLK
 TRP                 : 3 CLK
                                                    ←    Select Screen
                                                    ↑↓   Select Item
                                                    +-   Change Option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit

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```
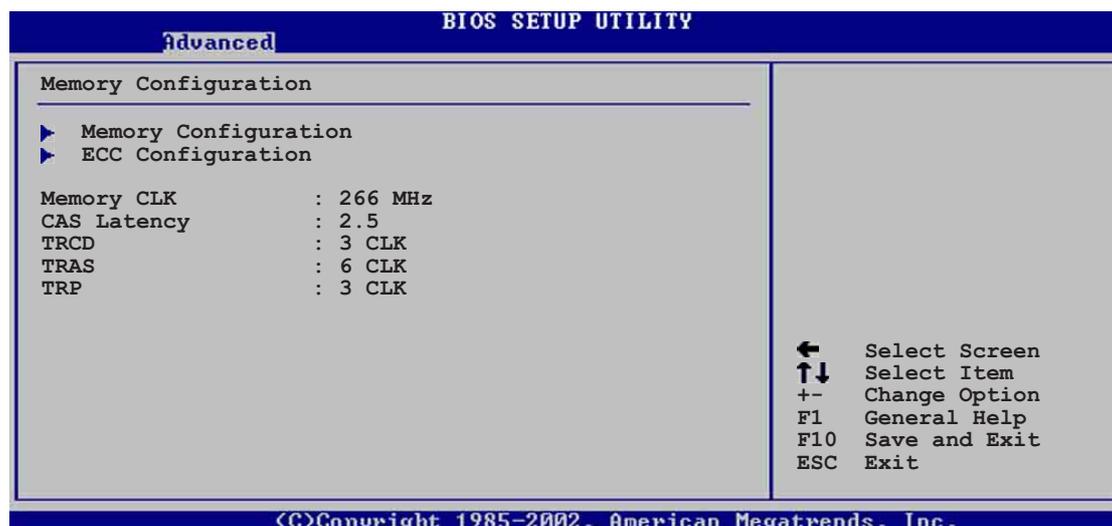
Memory Configuration

The Memory configuration menu item allows you to change the memory settings. Select an item then press Enter to display the sub-menu.

```
                         BIOS SETUP UTILITY
 Advanced

 Memory Configuration
 ──────────────────────────────────────
 Memclock Mode               [Auto]
 DRAM Over 4G Remapping      [Disabled]
 Bank Interleaving           [Auto]
 CAS Latency (CL)            [Auto]
 TRC                         [Auto]
 TRFC                        [Auto]
 TRCD                        [Auto]
 TWR                         [Auto]
 TRWT                        [Auto]
 TRAS                        [Auto]
 TRP                         [Auto]
                                                    ←    Select Screen
                                                    ↑↓   Select Item
                                                    +-   Change Option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit

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```
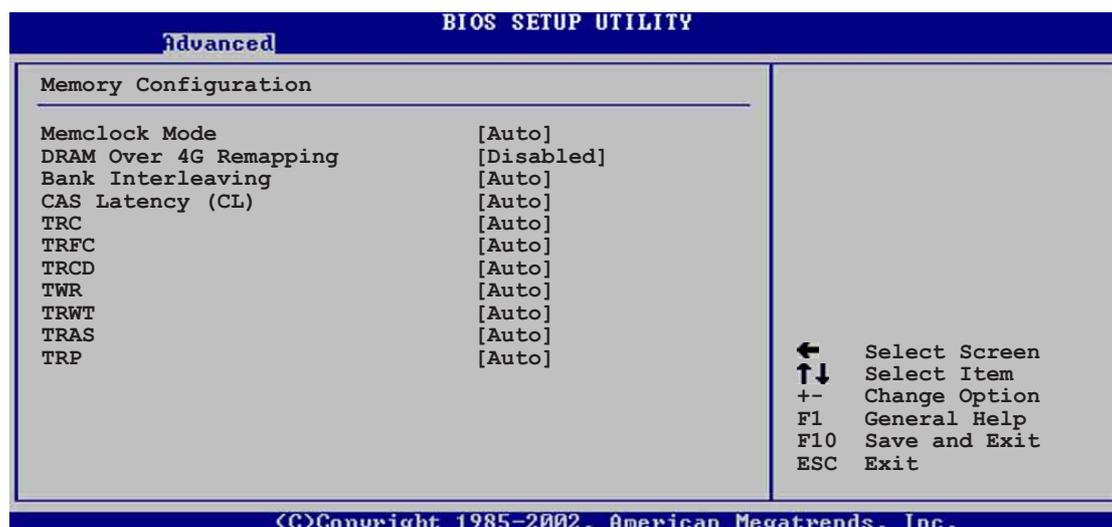
Memclock Mode [Auto]

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

DRAM Over 4G Remapping [Disabled]

When 4 Gigabytes or more of total memory are installed in the system, the continuous memory space will overlap with the PCI memory space making it unavailable for use. If your operating system supports PAE (Physical Address Extension), like Windows XP, enable this item to avoid the problem. When enabled it allows remapping of the DRAM addresses over 4 gigabytes. Configuration options:[Disabled] [Enabled]

Bank Interleaving [Auto]

This item sets whether to allow memory accesses to be spread out over BANKS on the same node or across nodes, decreasing access contention. Configuration options: [Auto] [Disabled]

CAS Latency (CL) [Auto]

This item sets the CAS Latency.
Configuration options: [Auto] [2.0] [3.0] [2.5]

TRC [Auto]

This item sets the TRC.
Configuration options: [Auto] [7 CLK] [8 CLK] [9 CLK] [10 CLK] [11 CLK] [12 CLK] [13 CLK]

TRFC [Auto]

This item sets the TRFC.
Configuration options: [Auto] [9 CLK] [10 CLK] [11 CLK] [12 CLK] [13 CLK] [14 CLK] [15 CLK]

TRCD [Auto]

This item sets the TRCD.
Configuration options: [Auto] [2 CLK] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TWR [Auto]

This item sets the TWR.
Configuration options: [Auto] [2 CLK] [3 CLK]

TRWT [Auto]

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

TRAS [Auto]

This item sets the TRAS.
Configuration options: [Auto] [5 CLK] [6 CLK] [7 CLK] [8 CLK] [9 CLK] [10 CLK] [11 CLK] [12 CLK] [13 CLK] [14 CLK] [15 CLK]

TRP [Auto]

This item sets the TRP.
Configuration options: [Auto] [2 CLK] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

ECC Configuration

```
                              BIOS SETUP UTILITY
        Advanced

   ECC Configuration

   Master ECC Enable             [Disabled]




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

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```
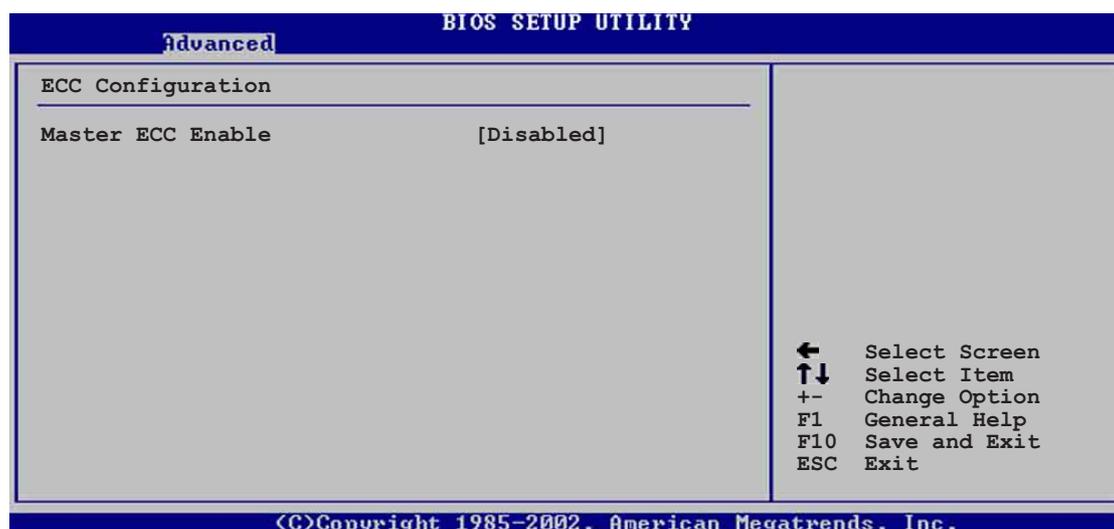
Master ECC Enable [Disabled]

This item enables or disables support on all nodes for ECC error detect and correction. Configuration options: [Disabled] [Enabled]

> The following items appear only when the **Master ECC Enable** item is set to [Enabled].

DRAM ECC Enable [Disabled]

This item enables or disables the DRAM ECC that allows hardware to report and correct memory errors automatically to maintain system integrity. Configuration options: [Disabled] [Enabled]

L2 Cache BG Scrub [Disabled]

This item disables or sets the L2 data cache RAM to be corrected when idle. Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

Data Cache BG Scrub [Disabled]

This item disables or sets the L1 data cache RAM to be corrected when idle. Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

> The following items appear only when the **DRAM ECC Enable** item is set to [Enabled].

DRAM BG Scrub [Disabled]

This item disables or set the DRAM scrubbing functionality that corrects and rewrites memory errors so later reads are correct. Doing this while the memory is not being used improves performance. Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

DRAM SCRUB REDIRECT [Disabled]

This item sets the system to correct DRAM ECC errors immediately when they occur, even if background scrubbing is on. Configuration options: [Disabled] [Enabled]

ECC Chip Kill [Disabled]

This item enables or disables the ECC chip kill feature. Configuration options: [Disabled] [Enabled]

Memory CLK [266MHz]

This item displays the memory clock speed setting.

CAS Latency [2.5]

This item displays the CAS Latency setting.

TRCD [3 CLK]

This item displays the TRCD clock setting.

TRAS [7 CLK]

This item displays the TRAS clock setting.

TRP [3 CLK]

This item displays the TRP clock setting.

AMD PowerNow Configuration

```
                        BIOS SETUP UTILITY
    Advanced

  AMD PowerNow Configuration

  FID/VID Change                    [Auto]


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

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```
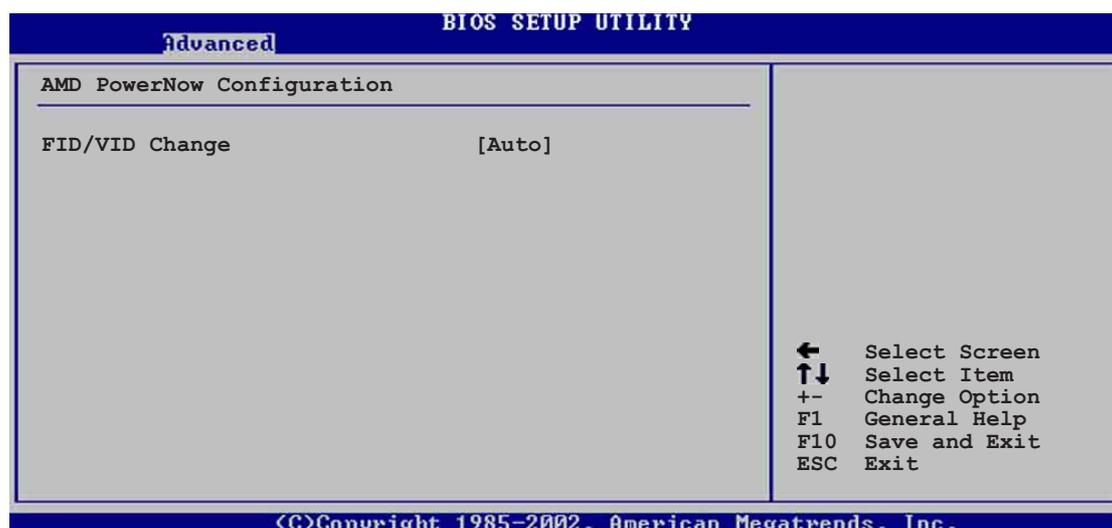
FID/VID Change [Auto]

This item allows you to manually set the Frequency ID and Voltage ID. Set to auto to automatically detect recommended settings. Configuration options: [Auto] [Manual]

> The following items appear only when the **FID/VID Change** item is set to [Manual].

Hammer FID [x12 2400MHz]

This allows you to set the Hammer Frequency ID in Mhz. Configuration options: [x4 800MHz] [x5 1000MHz] [x6 1200MHz] [x7 1400MHz] [x8 1600MHz] [x9 1800MHz] [x10 2000MHz] [x11 2200MHz] [x12 2400MHz] [x13 2600MHz] [x14 2800MHz]

Hammer VID [1.550 V]

This allows you to set the Hammer Voltage ID. Configuration options: [1.550 V] [1.525 V] [1.500 V] [1.475 V] [1.450 V] [1.425 V] [1.400 V] [1.375 V] [1.350 V] [1.325 V] [1.300 V] [1.275 V] [1.250 V] [1.225 V] [1.200 V] [1.175 V]

Processor

This item displays the processor type and speed.

4.4.2 Chipset

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

```
                    BIOS SETUP UTILITY
      Advanced

    ▶  AGP Bridge Configuration
    ▶  SouthBridge Configuration
    ▶  USB Configuration




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

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```

AGP Bridge Configuration

```
                    BIOS SETUP UTILITY
      Advanced

    Primary Graphics Adapter      [AGP]
    Search for MDA Resources      [Yes]

    AGP Mode                      [AGP 8X]
    AGP Fast Write                [Enabled]
    Graphics Aperture Size        [64MB]




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

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```

Primary Graphics Adapter [AGP]

This item will switch the PCI Bus scanning order while searching for a video card. This allows you to select the type of Primary VGA in case of multiple video controllers. Configuration options: [PCI] [AGP]

Search for MDA Resources [No]

This item sets whether to allow search for MDA resources. Configuration options: [Yes] [No]

AGP Mode [AGP 8X]

This motherboard supports the AGP 8X interface that transfers video data at 2.12GB/s. AGP 8X is backward-compatible, so you may keep the default [AGP 8X] mode even if you are using an AGP 4X video card. When set to [AGP 4X] mode, the AGP interface only provides a peak data throughput of 1.06GB/s even if you are using an AGP 8X video card. Configuration options: [8X] [4X]

AGP Fast Write [Enabled]

This item enables or disables the AGP Fast Write feature. Configuration options: [Disabled] [Enabled]

Graphics Aperture Size [64MB]

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

SouthBridge Configuration

```
                          BIOS SETUP UTILITY
        Advanced

  MPS Revision              [1.4]
  PCI Delay Transaction     [Enabled]




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

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```
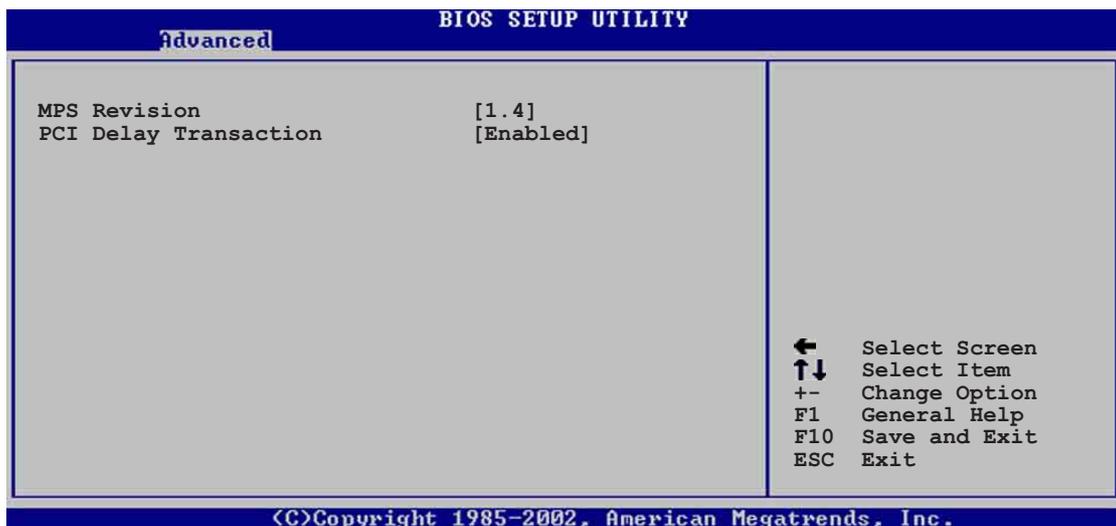
MPS Revision [1.4]

This item sets the MPS revision value. Configuration options: [1.1] [1.4]

PCI Delay Transaction [Disabled]

This item enables or disables the PCI Delay transaction feature. Configuration options: [Disabled] [Enabled]

USB Configuration

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

```
                         BIOS SETUP UTILITY
   Advanced

   USB Configuration                               Enables USB host
                                                   controllers.
   Module Version  : 2.23.0-7.4

   USB Devices Enabled : None

   USB 1.1 Ports Configuration    [8 USB Ports]
   USB 2.0 Controller             [Enabled]
   Legacy USB Support             [Auto]
   USB 2.0 Controller Mode        [HiSpeed]


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

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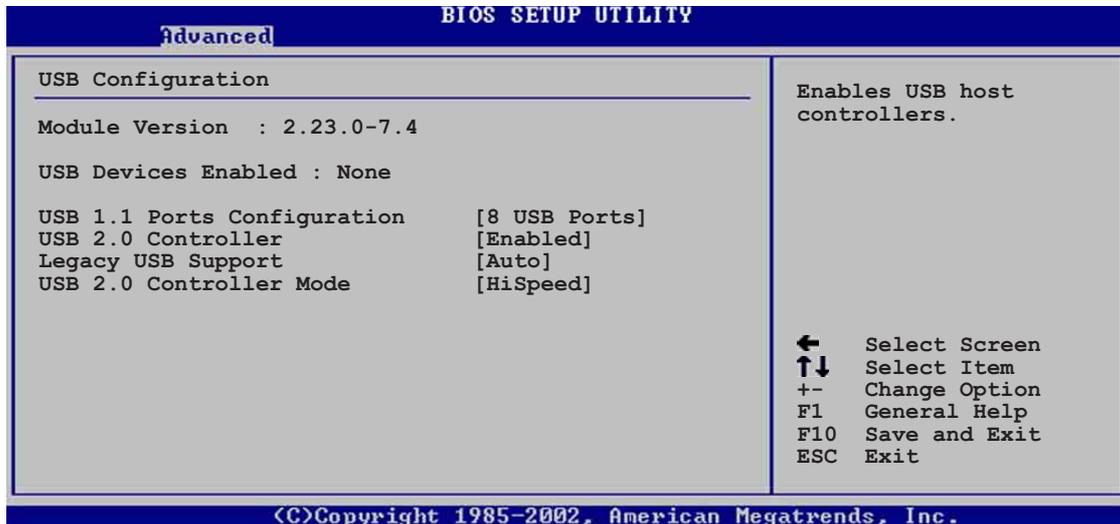
> The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

USB 1.1 Ports Configuration [USB 8 Ports]

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

USB 2.0 Controller [Enabled]

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

Legacy USB Support [Auto]

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

USB 2.0 Controller Mode [HiSpeed]

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

4.4.3 Onboard Devices Configuration

```
                        BIOS SETUP UTILITY
  Advanced

  OnBoard AC'97 Audio           [Enabled]
  OnChip SATA BOOTROM           [Disabled]
  OnBoard Promise Controller    [Enabled]
   Operating Mode               [RAID]
  OnBoard LAN                   [Enabled]
   OnBoard LAN Boot ROM         [Disabled]
  OnBoard 1394                  [Enabled]

  Serial Port1 Address          [3F8/IRQ4]
  Serial Port2 Address          [2F8/IRQ3]
  Parallel Port Address         [Disabled]        ←    Select Screen
  Onboard Game Port             [Disabled]       ↑↓   Select Item
  Onboard MIDI Port             [Disabled]        +-   Change Option
                                                  F1   General Help
                                                  F10  Save and Exit
                                                  ESC  Exit

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```

OnBoard AC'97 Audio [Enabled]

[Auto] allows the BIOS to detect whether you are using any audio device. If an audio device is detected, the onboard audio controller is enabled; if no audio device is detected, the controller is disabled. Configuration options: [Disabled] [Enabled]

OnChip SATA Boot ROM [Enabled]

Allows you to enable or disable the onchip Serial ATA boot ROM. Configuration options: [Disabled] [Enabled]

OnBoard Promise Controller [Enabled]

Allows you to enable or disable the onboard Promise RAID controller. Configuration options: [Disabled] [Enabled]

Operating Mode [RAID]

This item allows you to set the Promise RAID controller operating mode. Configuration options: [RAID] [Onboard IDE Operate Mode]

OnBoard LAN [Enabled]

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

OnBoard LAN Boot ROM [Disabled]

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

OnBoard 1394 [Enabled]

Allows you to enable or disable the onboard IEEE 1392 controller.
Configuration options: [Disabled] [Enabled]

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

EPP Version [1.9]

This item appears only when the Parallel Port Mode is set to [EPP]. It
allows you to to select the Parallel Port EPP version.
Configuration options: [1.9] [1.7]

ECP Mode DMA Channel [DMA3]

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

Parallel Port IRQ [IRQ7]

Configuration options: [IRQ5] [IRQ7]

Onboard Game Port [Disabled]

This item enables or disables the onboard GAME port.
Configuration options: [Disabled] [Enabled]

Onboard MIDI Port [Disabled]

This item enables or disables the onboard MIDI port.
Configuration options: [Disabled] [Enabled]

4.4.4 PCI PnP

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

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

```
                        BIOS SETUP UTILITY
       Advanced
  Advanced PCI/PnP settings                       NO: Lets the bIOS
                                                  configure all the
  WARNING: Setting wrong values in the sections below   devices in the system.
           may cause system to malfunction.       YES: Lets the
  Plug and Play OS             [No]               operating system
  PCI Latency Timer           [64]                configure Plug and
  Allocate IRQ to PCI VGA     [Yes]               Play (PnP) devices not
  Palette Snooping            [Disabled]          required for boot if
                                                  your system has a Plug
  IRQ3                        [Available]         and Play operating
  IRQ4                        [Available]         system.
  IRQ5                        [Available]
  IRQ7                        [Available]         ←      Select Screen
  IRQ9                        [Available]         ↑↓     Select Item
  IRQ10                       [Available]         +-     Change Option
  IRQ11                       [Available]         F1     General Help
  IRQ14                       [Available]         F10    Save and Exit
  IRQ15                       [Available]         ESC    Exit

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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 pallete 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]

IRQ xx [Available]

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

4.4.5   JumperFree Configuration

```
                       BIOS SETUP UTILITY
        Advanced

   Configure System Frequency/Voltage

   CPU FSB Frequency            [200MHz]
   VCORE Offset                 [None]
   DDR Voltage                  [Auto]
   AGP Voltage                  [1.5V]
   V-Link Voltage               [2.5V]
   Performance Mode             [Standard]


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

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```
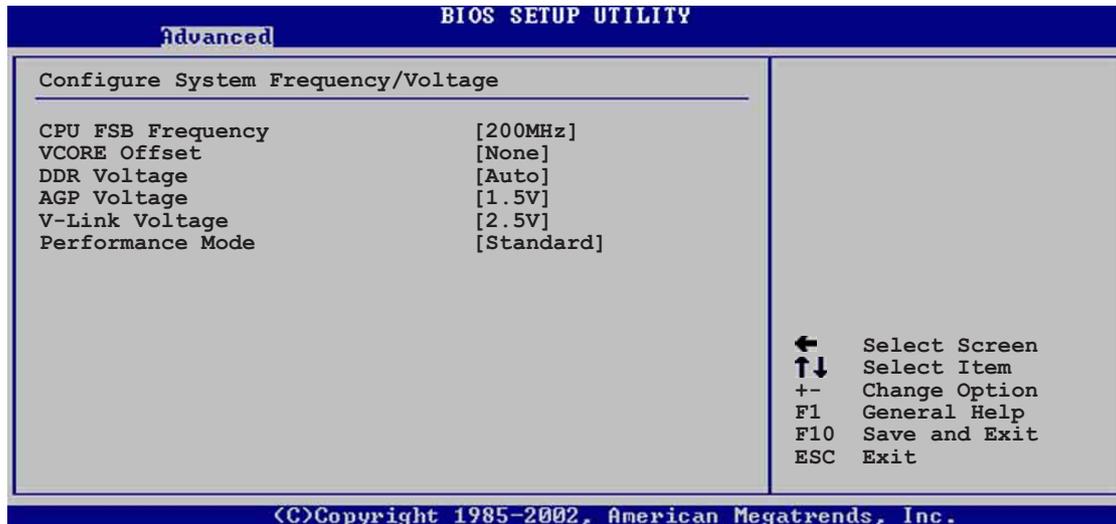
CPU FSB Frequency [200MHz]

This item allows you to adjust the CPU FSB operating frequency. Configuration options: [200MHz] [201 MHz] ~ [260MHz]

VCORE Offset [None]

This item allows you to set a specific VCore offset voltage. Configuration options: [None] [100mV] [200mV] [300mV]

DDR Voltage [Auto]

This item allows you to automatically detect or select from a list the DDR operating voltage. Configuration options: [Auto] [2.6V] [2.7V] [2.8V]

AGP Voltage [1.5V]

This item adjusts the AGP voltage setting. Configuration options: [1.5V] [1.7V]

V-Link Voltage [2.5V]

This item adjusts the V-Link voltage setting. Configuration options: [2.5V] [2.7V]

Performance Mode [Safe]

Allows enhanced system performance. Setting to [TurboX] may cause the system to become unstable. If this happens, revert to the default setting [Standard]. Configuration options: [Standard] [Turbo1] [Turbo2] [Turbo3] [Safe]

4.4.6 Speech Configuration

```
                         BIOS SETUP UTILITY
         Advanced

   Speech Option                                    Disable/Enable Speech.

   Speech Post Reporter       [Enabled]
   Report IDE Error           [Disabled]
   Report System Checking     [Disabled]
   Report System Booting      [Disabled]




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

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```
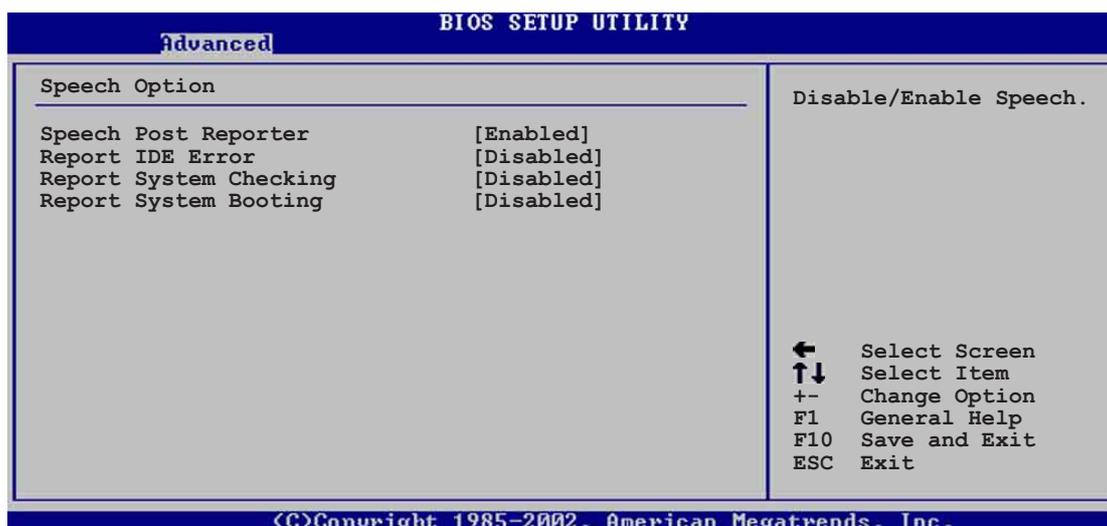
Speech POST Reporter [Enabled]

Allows you to enable or disable the ASUS Speech POST Reporter™ feature. Configuration options: [Disabled] [Enabled]

> The following items appear only when Speech POST Reporter is set to Enabled.

Report IDE Error [Disabled]

This item allows you to enable or disable the Report IDE Error feature. Configuration options: [Disabled] [Enabled]

Report System Checking [Disabled]

This item allows you to enable or disable the Report System Checking function. Configuration options: [Disabled] [Enabled]

Report System Booting [Disabled]

This item allows you to enable or disable the Report System Booting function. Configuration options: [Disabled] [Enabled]

4.4.7 Instant Music Configuration

```
                        BIOS SETUP UTILITY
   Advanced

 Instant Music Option                            Disable/Enable Instant
                                                 Music feature.
 Instant Music              [Disabled]




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

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```
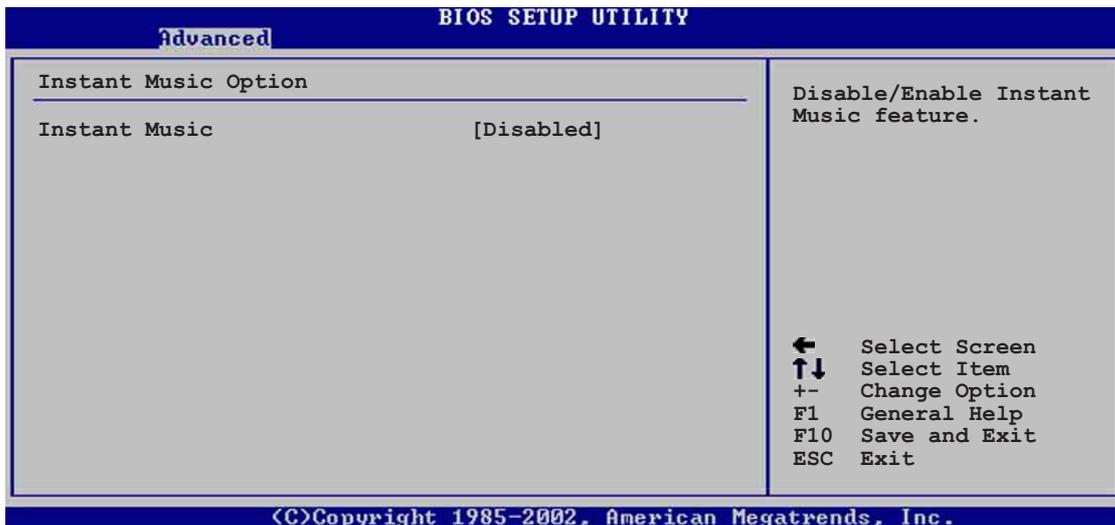
Instant Music [Disabled]

Allows you to enable or disable the Instant Music feature in BIOS.
Configuration options: [Disabled] [Enabled]

When Instant Music is enabled, the PS/2 keyboard power up feature is
automatically disabled.

Instant Music CD-ROM Drive [IDE Secondary Master]

Allows you to select the CD-ROM drive that you wish to use for the Instant
Music CD playback. Configuration options: [IDE Primary Master] [IDE
Primary Slave] [IDE Secondary Master] [IDE Secondary Slave]

The above item appears only if you enabled the Instant Music item.

4.5   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

  Suspend Mode                [S1 (POS) & S3 (STR)]    Configure CPU.
  Repost Video on S3 Resume   [No]
  ACPI 2.0 Support            [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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```
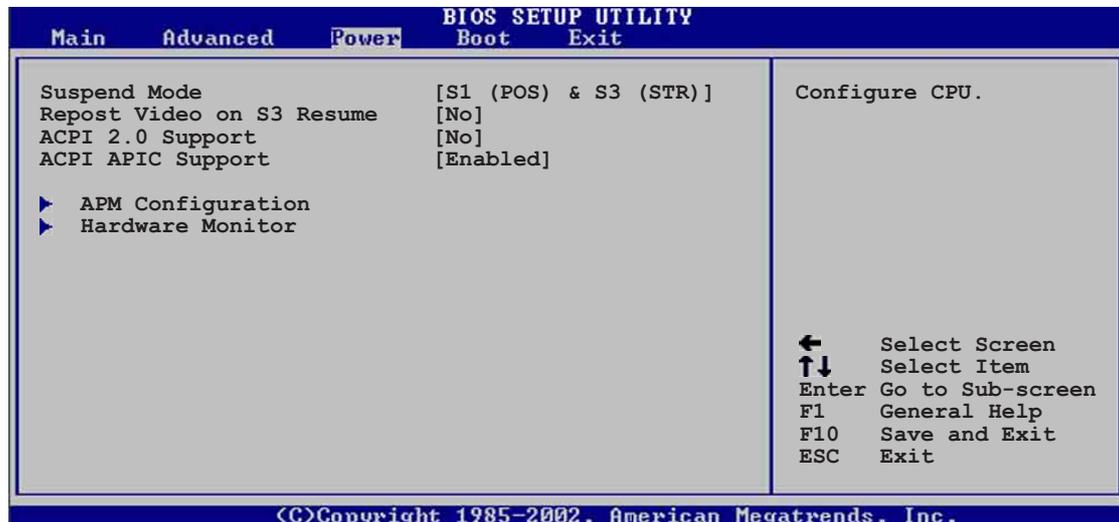
4.5.1   Suspend Mode [S1 (POS) & S3 (STR)]

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

4.5.2   Repost Video on S3 Resume [No]

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

4.5.3   ACPI 2.0 Support [No]

Allows you to add more tables for ACPI 2.0 specifications. Configuration options: [No] [Yes]

4.5.4   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]

4.5.5 APM Configuration

```
                        BIOS SETUP UTILITY
                Power

  Power Management/APM          [Enabled]
                                                    Enabled or disable
  Power Button Mode             [On/Off]            APM.
  Suspend Power Saving Type     [C3]
  Restore on AC Power Loss      [Power Off]

  Suspend Time Out              [Disabled]
  Hard Disk Time Out (Minute)   [Disabled]

  Video Power Down Mode         [Suspend]
  Hard Disk Power Down Mode     [Enabled]

  Power On By RTC Alarm         [Disabled]          ←     Select Screen
  Power On External Modems      [Disabled]          ↑↓    Select Item
  Power On PCI Device           [Disabled]          +-    Change Option
  Resume On PS/2 Keyboard       [Disabled]          F1    General Help
  Resume On PS/2 Mouse          [Disabled]          F10   Save and Exit
                                                    ESC   Exit

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```

Power Management/APM [Enabled]

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

> The following items appear only when the Power Management/APM item is set to [Enabled].

Power Button Mode [On/Off]

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

Suspend Power Saving Type [C3]

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

Restore on AC Power Loss [Last State]

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

Suspend Time Out [Disabled]

Allows you to select the specified time at which the system goes on suspend mode. Configuration options: [Disabled] [1 Min] [2 Min] [4 Min] [8 Min] [10 Min] [20 Min] [30 Min] [40 Min] [50 Min] [60 Min]

Hard Disk Time Out (Minute) [Disabled]

Allows you to select the specified time in minute at which the hard disk goes on standby mode. Configuration options: [Disabled] [1] [2] ~ [15]

Video Power Down Mode [Suspend]

Allows you to select the video power down mode. Configuration options: [Disabled] [Standby] [Suspend]

Hard Disk Power Down Mode [Enabled]

Allows you to enable or disable the hard disk power down mode. Configuration options: [Disabled] [Enabled]

Power On By RTC Alarm [Disabled]

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

Power On External Modems [Disabled]

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

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

Power On PCI Device [Disabled]

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

Power On PS/2 Keyboard [Disabled]

This parameter allows you to use specific keys on the keyboard to turn on the system. When set to [S5], the item Wake-up Key is enabled. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Resume On By PS/2 Mouse [Disabled]

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

4.5.6   Hardware Monitor

```
                         BIOS SETUP UTILITY
                  Power

 Hardware Monitor                                   CPU temperature

 CPU Temperature              [40°C/104°F]
 MB Temperature               [36°C/96.5°F]

 CPU Fan Speed                [2250RPM]
 Chassis Fan Speed            [N/A]

 Q-Fan Control                [Disabled]

 VCORE Voltage                [1.632V]
 3.3V Voltage                 [3.344V]                ←    Select Screen
 5V Voltage                   [5.107V]               ↑↓   Select Item
 12V Voltage                  [11.584V]              +-   Change Option
                                                     F1   General Help
                                                     F10  Save and Exit
                                                     ESC  Exit

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```

MB Temperature [xxxC/xxxF]
CPU 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.

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.

Q-Fan Control [Disabled]

This item 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]. Configuration options: [Disabled] [Enabled]

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

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

4.6   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                            ┌─────────────────────────┐
                                            │ Specifies the Boot      │
   ▶ Boot Device Priority                   │ Device Priority         │
   ▶ Removable Drives                       │ sequence.               │
                                            │                         │
   ▶ Boot Settings Configuration            │                         │
   ▶ Security                               │                         │
                                            │                         │
                                            │                         │
                                            │  ←    Select Screen     │
                                            │  ↑↓   Select Item       │
                                            │ Enter Go to Sub-screen  │
                                            │ F1    General Help      │
                                            │ F10   Save and Exit     │
                                            │ ESC   Exit              │
                                            └─────────────────────────┘
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```

4.6.1   Boot Device Priority

```
                        BIOS SETUP UTILITY
   Main     Advanced    Power    Boot    Exit

   Boot Device Priority                     ┌─────────────────────────┐
                                            │ Specifies the boot      │
   1st Boot Device      [1st FLOPPY DRIV]   │ sequence from the       │
   2nd Boot Device      [PM-ST320413A]      │ available devices.      │
   3rd Boot Device      [PS-ASUS CD-S340]   │                         │
                                            │ A device enclosed in    │
                                            │ parenthesis has been    │
                                            │ disabled in the         │
                                            │ corresponding type      │
                                            │ menu.                   │
                                            │                         │
                                            │  ←    Select Screen     │
                                            │  ↑↓   Select Item       │
                                            │  +-   Change Option     │
                                            │ F1    General Help      │
                                            │ F10   Save and Exit     │
                                            │ ESC   Exit              │
                                            └─────────────────────────┘
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```

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]

ASUS SK8V motherboard   **4-35**

4.6.2 Removable Drives

This item appears only when there are removable drives (like a USB flash disk) plugged in the system.

```
                         BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit
 ┌─────────────────────────────────────────────┬─────────────────────────┐
 │ Removable Drives                             │ Specifies the boot      │
 │                                              │ sequence from the       │
 │ 1st Boot Device        [1st FLOPPY DRIVE]    │ available devices.      │
 │ 2nd Boot Device        [ASUS USB Flash Disk] │                         │
 │ 3rd Boot Device        [ASUS USB Flash Disk] │ A device enclosed in    │
 │                                              │ parenthesis has been    │
 │                                              │ disabled in the         │
 │                                              │ corresponding type      │
 │                                              │ menu.                   │
 │                                              │                         │
 │                                              │                         │
 │                                              │    ←   Select Screen    │
 │                                              │   ↑↓   Select Item      │
 │                                              │   +-   Change Option    │
 │                                              │   F1   General Help     │
 │                                              │   F10  Save and Exit    │
 │                                              │   ESC  Exit             │
 └─────────────────────────────────────────────┴─────────────────────────┘
           (C)Copyright 1985-2002, American Megatrends, Inc.
```
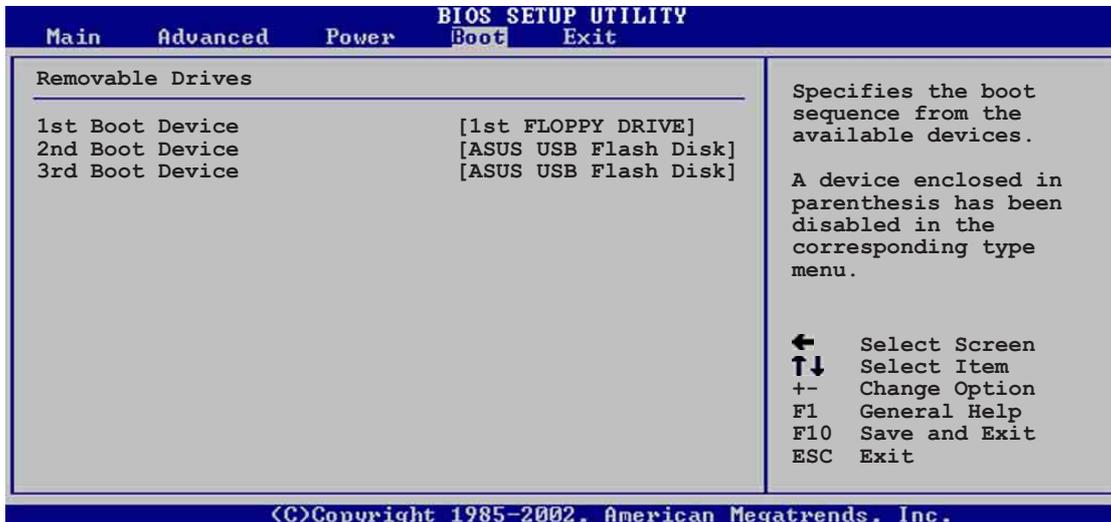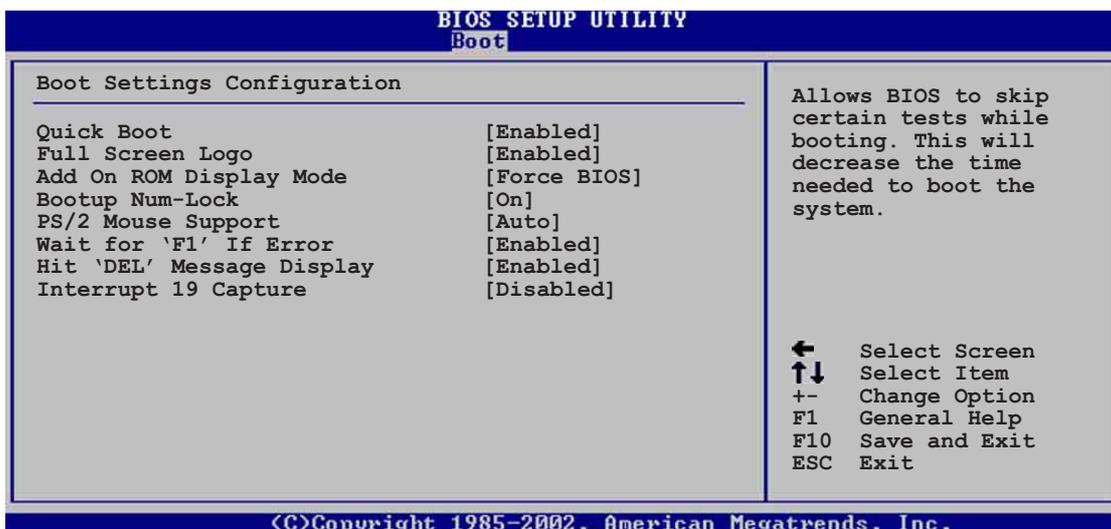
1st ~ xxth Boot Device [1st Floppy Drive]

These items specify the removable boot device priority sequence from the available removable boot devices. Configuration options: [xxxxx Drive] [Disabled]

4.6.3 Boot Settings Configuration

```
                         BIOS SETUP UTILITY
                            Boot
 ┌─────────────────────────────────────────────┬─────────────────────────┐
 │ Boot Settings Configuration                  │ Allows BIOS to skip     │
 │                                              │ certain tests while     │
 │ Quick Boot             [Enabled]             │ booting. This will      │
 │ Full Screen Logo       [Enabled]             │ decrease the time       │
 │ Add On ROM Display Mode [Force BIOS]         │ needed to boot the      │
 │ Bootup Num-Lock        [On]                  │ system.                 │
 │ PS/2 Mouse Support     [Auto]                │                         │
 │ Wait for 'F1' If Error [Enabled]             │                         │
 │ Hit 'DEL' Message Display [Enabled]          │                         │
 │ Interrupt 19 Capture   [Disabled]            │                         │
 │                                              │                         │
 │                                              │    ←   Select Screen    │
 │                                              │   ↑↓   Select Item      │
 │                                              │   +-   Change Option    │
 │                                              │   F1   General Help     │
 │                                              │   F10  Save and Exit    │
 │                                              │   ESC  Exit             │
 └─────────────────────────────────────────────┴─────────────────────────┘
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```

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 MyLogo2™ feature.

Add On ROM Display Mode [Force BIOS]

Sets the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

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

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse. Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

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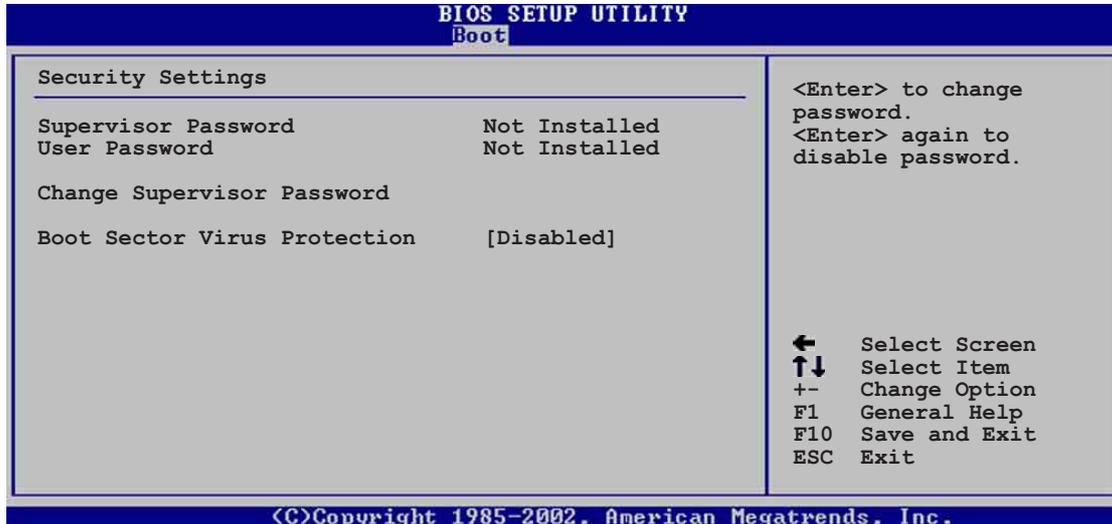
Hit 'DEL' Message Display [Enabled]

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]

4.6.4 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                           <Enter> to change
                                              password.
  Supervisor Password       Not Installed     <Enter> again to
  User Password             Not Installed     disable password.

  Change Supervisor Password

  Boot Sector Virus Protection    [Disabled]


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

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```

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. On the password box that appears, type a password composed of letters and/or numbers, then press Enter. Your password should have at least six characters.

3. Confirm the password when prompted.
   The message "Password Installed" appears after you have successfully set your password.

   The Supervisor Password item now shows **Installed**.

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 clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "2.7 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                              <Enter> to change
                                                 password.
  Supervisor Password           Installed        <Enter> again to
  User Password                 Not Installed     disable password.

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

  Boot Sector Virus Protection  [Disabled]
                                                 ←     Select Screen
                                                 ↑↓    Select Item
                                                 +-    Change Option
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```

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 composed of letters and/or numbers, then press Enter. Your password should have at least six characters.

3. Confirm the password when prompted.
   The message "Password Installed" appears after you have successfully set your password.

   The User Password item now shows **Installed**.

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

Clear User Password

Select this item if you wish to clear the user password.
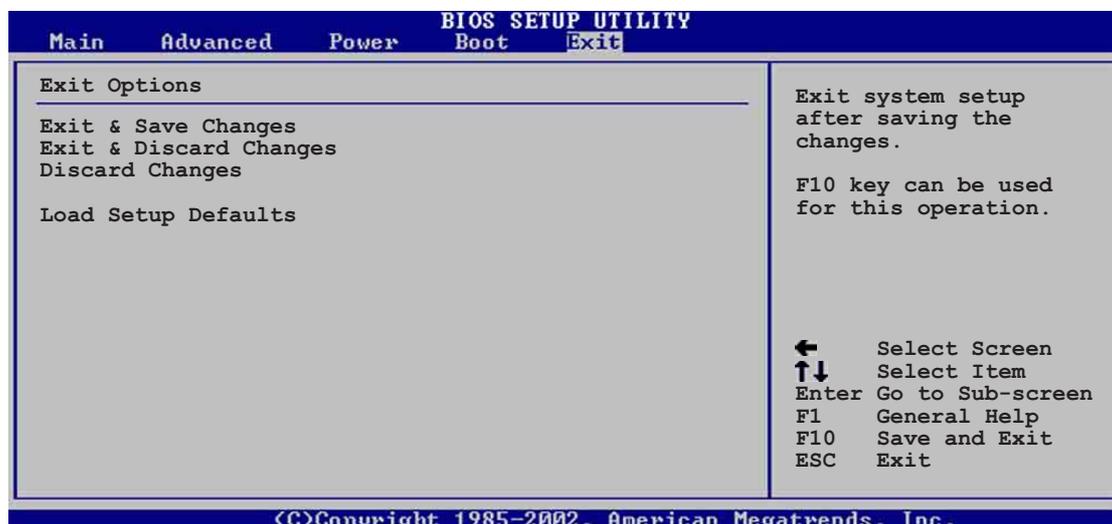
Password Check [Setup]

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

Boot Sector Virus Protection [Disabled]

Allows you to enable or disable the boot sector virus protection. Configuration options: [Disabled] [Enabled]

4.7   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 system setup
                                                     after saving the
 Exit & Save Changes                                 changes.
 Exit & Discard Changes
 Discard Changes                                     F10 key can be used
                                                     for this operation.
 Load Setup Defaults


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


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```

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 [Yes] to save changes and exit.

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

Exit & Discard Changes

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

Discard Changes

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

Load Setup Defaults

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

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

Software support

Chapter summary

5.1 Install an operating system

This motherboard supports Windows 2000/Windows 2003 Server/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.

5.2 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.

5.2.1 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.
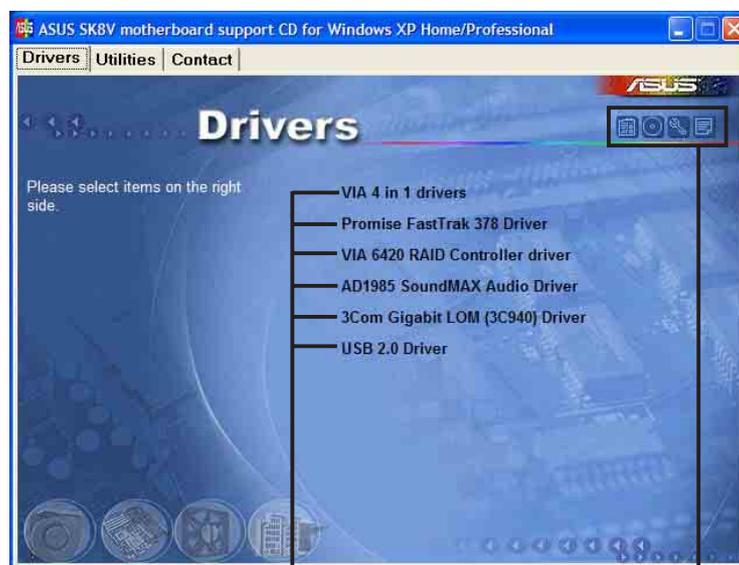
Click an item to install   **Click an icon to display more information**

> 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.

5.2.2   Drivers menu

The drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.
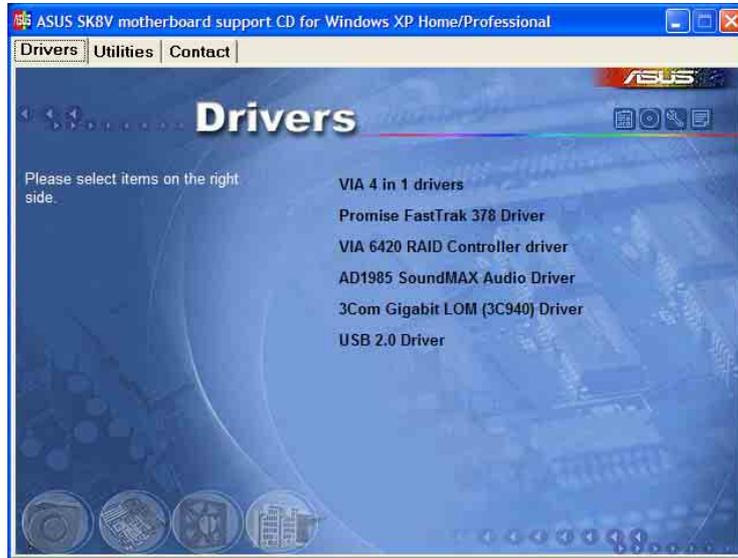
VIA 4 in 1 drivers

This item installs the following drivers:

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

Promise FastTrak 378 Driver

This item installs the Promise FastTrak 378 driver for Serial ATA and RAID features.

VIA 6420 RAID Controller driver

This item installs the VIA® 6420 RAID controller driver and application.

AD1985 SoundMAX Audio Driver

This item installs the ADI 1985 AC'97 compliant audio controller and application.

3Com Gigabit LOM (3C940) Driver

This item installs the 3Com® 3C940 LAN drivers for Gigabit LAN solution that provides up to 1000Mbps data transfer rates.

USB 2.0 Driver

This item installs the USB 2.0 driver to upgrade your USB 1.1 ports to USB 2.0.

5.2.3 Utilities menu

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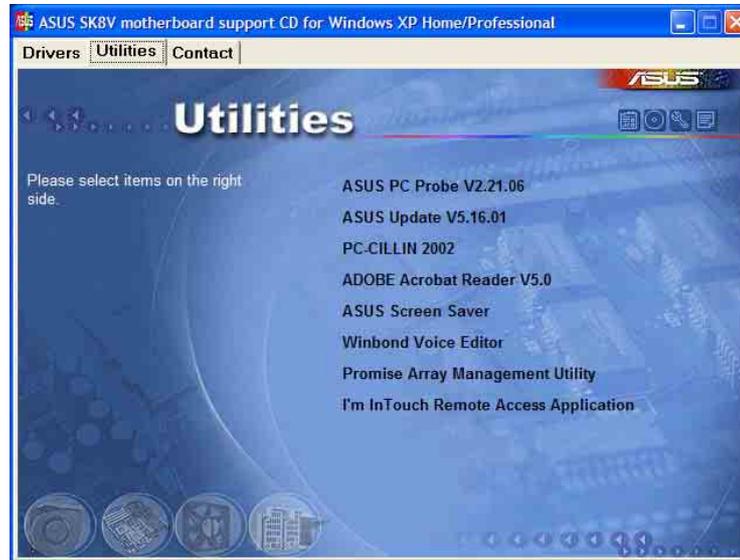
ASUS PC Probe

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

ASUS Update

This program allows you to download the latest version of the BIOS from the ASUS website.

> Before using the ASUS Update, make sure that you have an Internet connection so you can connect to the ASUS website.

PC-CILLIN 2002

This item installs the PC-cillin 2002 anti-virus program. View the PC-cillin online help for detailed information.

Adobe Acrobat Reader V5.0

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.

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

Winbond Voice Editor

This program is for recording and customizing wave files for the ASUS POST Reporter™. Use this program if you wish to change the default vocal POST messages. See section "3.2 Vocal POST Messages" for a list of the default messages.

Promise Array Management Utility

This item installs the Promise Array Management Utility. Use this utility to configure a disk array for RAID installations.

5.2.4 ASUS Contact Information

Clicking the ASUS Contact Information tab displays as stated. You may also find this information in the inside front cover of this user guide.
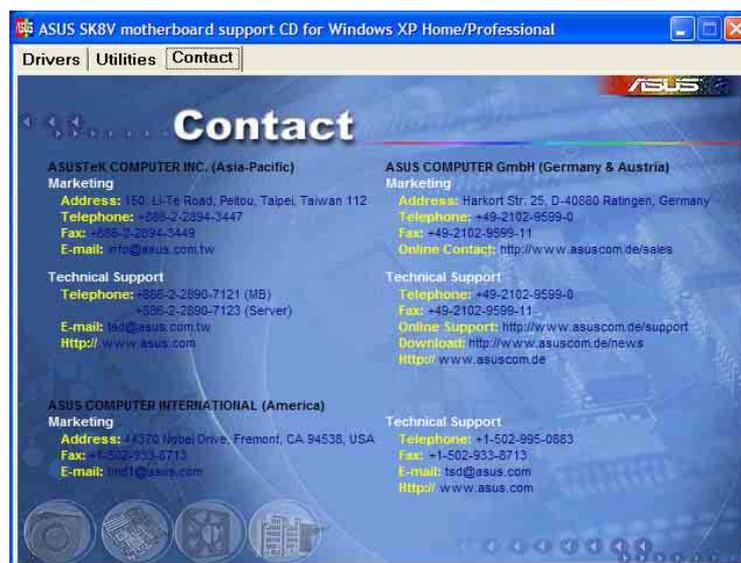
5.2.5   Other information

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

Motherboard Info

The window displays the general specifications of the SK8V motherboard.
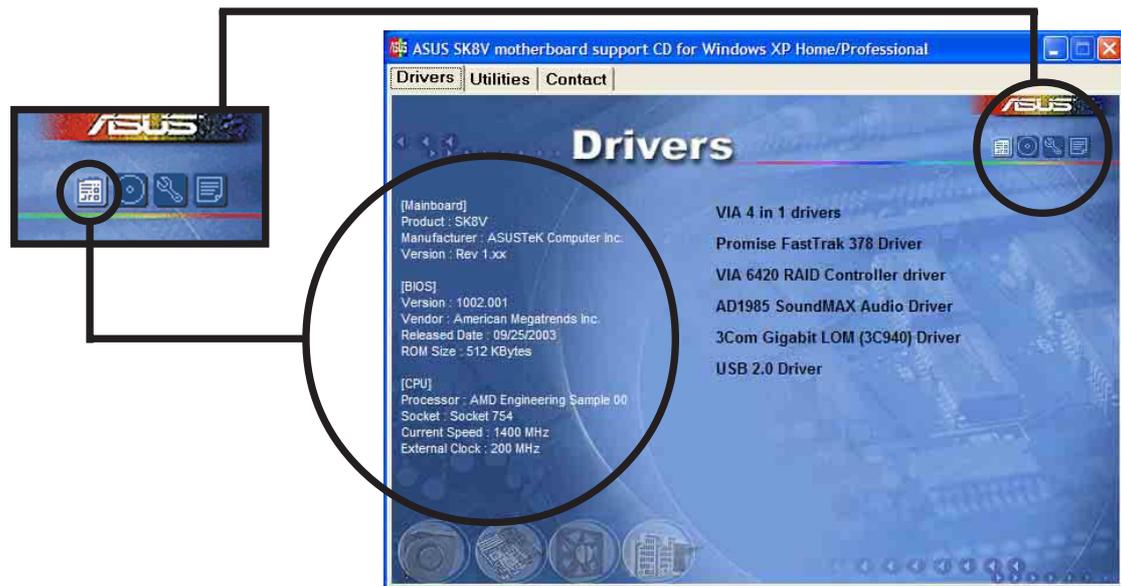
Browse this CD

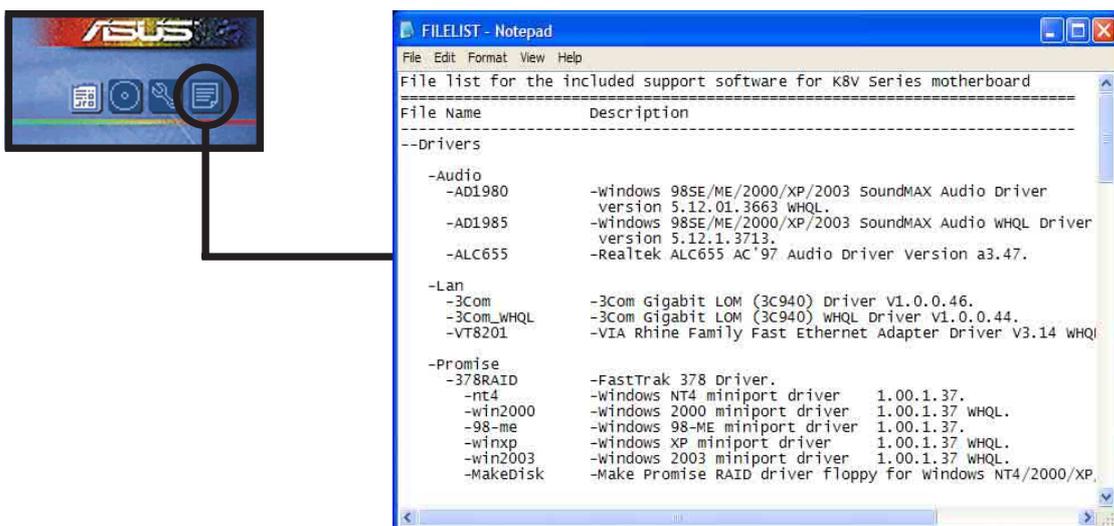The window displays the support CD contents in graphical format.
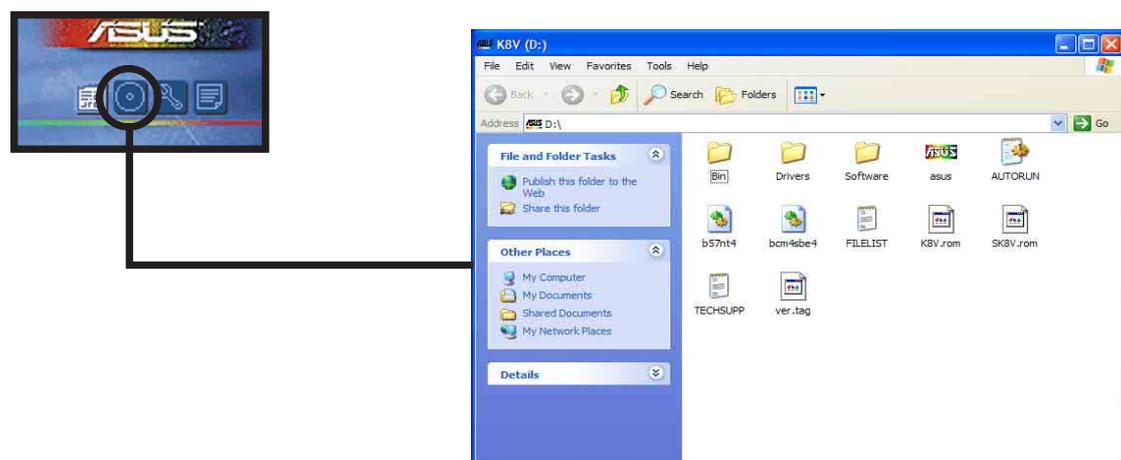
Technical Support Form

The window displays the ASUS Technical Support Request Form that you have to fill up when requesting technical support.
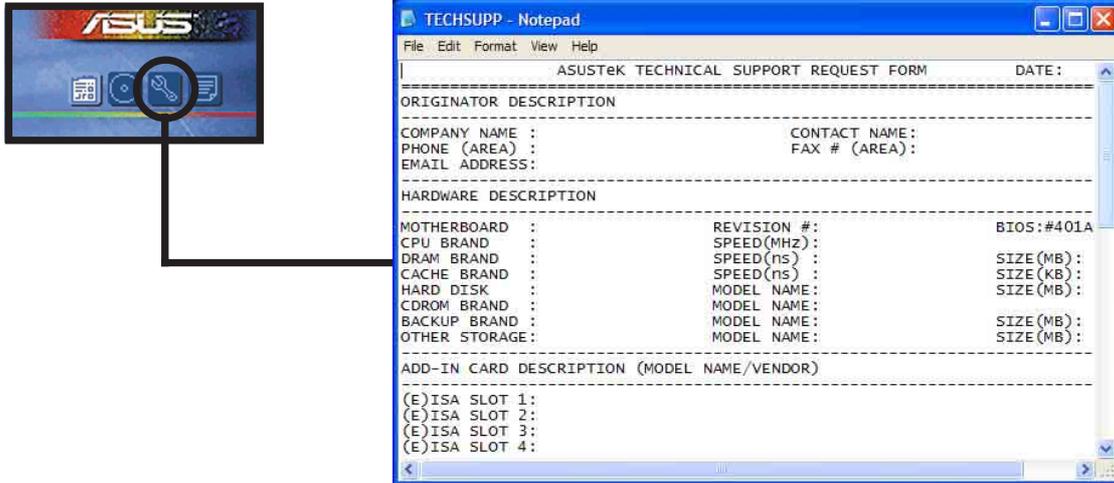
Filelist

The window displays the contents of the support CD and a brief description of each in text format.

5.3 Software Information

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

This section provides details on the software applications that the motherboard supports.

5.3.1 ASUS MyLogo2™

The ASUS MyLogo2™ is automatically installed when you install the ASUS Update utility from the software menu. See section "5.2.3 Utilities menu".

> Before using ASUS MyLogo2™ feature, use the AFUDOS utility to make a copy of your original BIOS file, or obtain the latest BIOS version from the ASUS website.

> Make sure that the BIOS Item Full Screen Logo is set to [Enabled] if you wish to use ASUS MyLogo2. See section "4.6.3 Boot Settings Configuration".

Follow these steps to use ASUS MyLogo2.

1. Launch the ASUS Update utility. See section "4.1.6 ASUS Update."

2. When prompted for the BIOS update method, select the option "Update BIOS from a file."

3. Specify the location of the BIOS file, such as from a floppy disk. Click Next.

4. From the selection that appears, choose a logo image. Click Next.

    If you wish, you may create your own boot logo image in GIF, JPG, or BMP file formats.
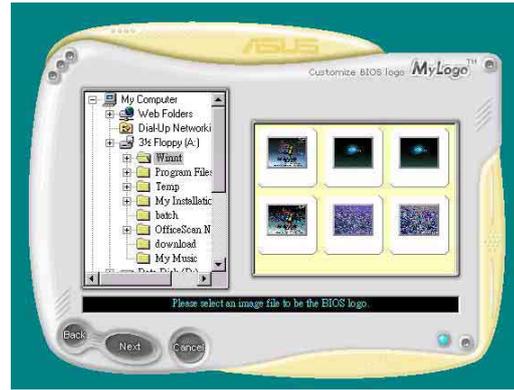
5. When you click on an image, it displays larger on the MyLogo2 screen.

    If you wish to make the logo image smaller, click on the arrow on the Ratio item and select your desired scale.

6. The next screen prompts you to flash the original BIOS to update it with the new boot logo. Click Flash to update the BIOS.

7. When finished, click Exit, then reboot your computer.
    Your system boots with the new boot logo.
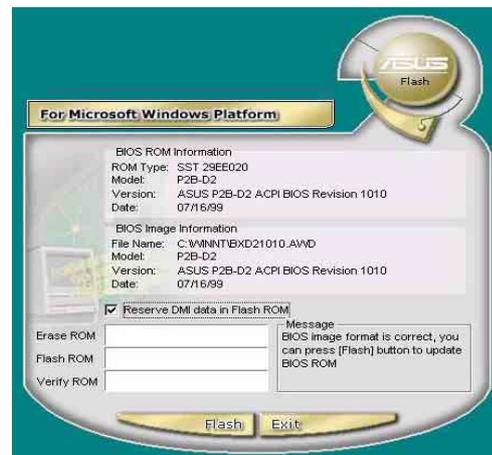
    Instead of starting from ASUS Update, you may also launch ASUS MyLogo2 directly from the Windows Start menu to change your BIOS boot logo. After you have modified the BIOS file with the new logo, use the ASUS Update utility to upload the new BIOS.

5.3.2 ASUS Instant Music

The motherboard is equipped with a BIOS-based audio playback feature called **Instant Music**. This feature is supported by the onboard audio AC'97 CODEC, and requires an optical drive (CD-ROM, DVD-ROM, or CD-RW).

1. Instant Music only supports CDs in audio format.

2. Instant Music does not work if you installed and enabled an add-on sound card.

3. Instant Music only supports PS/2 keyboard.

To enable ASUS Instant Music:

1. Connect the analog audio cable from the optical drive (CD-ROM, DVD-ROM, or CD-RW drive) to the 4-pin CD-In connector (labeled CD) on the motherboard. See section "2.7 Connectors" for the location.

Make sure to connect the CD-ROM audio cable. Otherwise, you cannot control the audio volume using the Instant Music function keys.

2. Turn on the system and enter BIOS by pressing the **Delete** key during the Power On Self-Tests (POST).

3. In the **Instant Music Configuration** menu, select the item **Instant Music** and set it to **Enabled**. See section "4.4.7 Instant Music Configuration" in the user guide.

4. The **Instant Music CD-ROM Drive** item appears if you enabled Instant Music. Highlight the item then press Enter to display the CD-ROM options.

5. Save your changes and exit BIOS Setup.

1. The Scroll Lock LED is fixed to ON after enabling Instant Music.

2. The Caps Lock LED turns ON when you pause the CD playback.

3. When set to Instant Music mode, the system wake-up features (LAN, keyboard, mouse, USB) are deactivated. In this case, power up the system using the power switch.

4. If the system lost connection or did not detect any optical drive, the Instant Music feature turns OFF (disabled) automatically. A "beep" indicates this condition.

To use ASUS Instant Music:

1. Ensure that the power cord is plugged to a grounded power source, so that the system has a standby power.

2. Use either one of the two sets of special function keys on your keyboard to play audio CDs. These keys only function as indicated if you enabled the Instant Music item in BIOS.

Instant Music function keys (Set 1)

CD ON/OFF		PLAY/PAUSE	STOP/EJECT	PREVIOUS	NEXT		VOL. DOWN	VOL. UP		
Esc		F1	F2	F3	F4		F5	F6	F7	F8
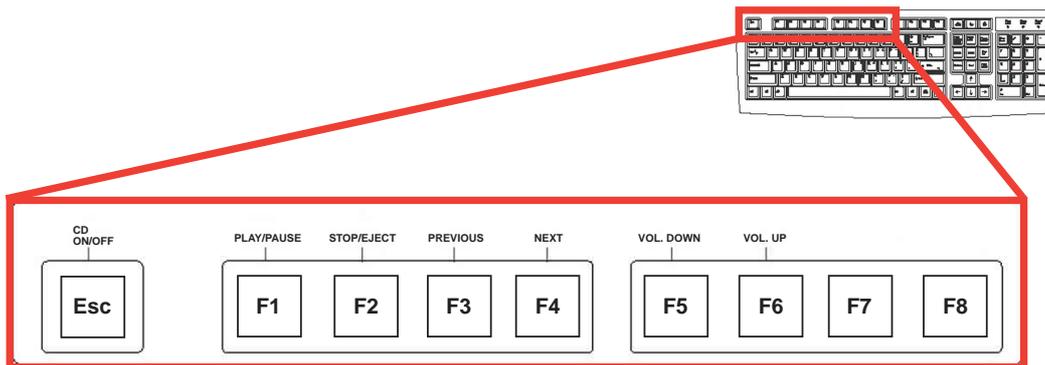
To guide you in using Instant Music, place the Instant Music label over the function keys on the keyboard. The Instant Music keyboard label comes with your motherboard package.

Instant Music function keys (Set 2)
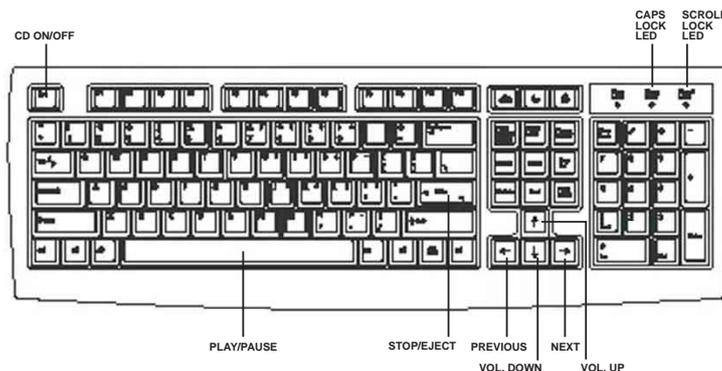
3. Connect speakers or a headphone to the Line Out (lime colored) port on the rear panel for audio output. You may also connect a headphone to the headphone jack on the CD-ROM drive front panel.

4. Place an audio CD on the drive.

5. Press **Esc** to turn ON Instant Music.

6. Press **F1** or the **Space Bar** to play the first track on the CD.

If there is no CD on the drive and you press F1 or Space Bar, the drive tray ejects.

7. Refer to the Instant Music function key definitions on the previous page to select other tracks or control the volume.

8. Press **F2** or **Enter** *once* to stop playing the CD.
    Press **F2** or **Enter** *one more time* to eject the CD.

5.4   AI Audio feature

The ADI AD1985 AC '97 audio CODEC provides 6-channel audio
capability through the SoundMAX4 XL with AudioESP™ software to
deliver the ultimate audio experience on your PC. The software
implements high quality audio synthesis/rendering, 3D sound positioning,
and advanced voice-input technologies.

Follow the installation wizard to install the **SoundMAX Audio Driver and
Application** from the support CD that came with the motherboard
package to activate the 6-channel audio feature.

> You must use 4-channel or 6-channel speakers for this setup.
>
> SoundMAX 4 XL requires Microsoft Windows 98SE/ME/2000/XP. Make
> sure that one of these operating systems is installed before installing
> SoundMAX.

If the SoundMAX4 XL software is correctly installed,
you will find the SoundMAX4 XL icon on the
taskbar.

SoundMAX4 XL icon

From the taskbar, double-click on the **SoundMAX4
XL** icon to display the **SoundMAX Control Panel**.

Setup wizards

Use the speaker and microphone setup wizards to fine tune the gain/ attenuation of the inputs/outputs for optimal audio performance. You may launch the setup wizards by clicking the Configuration button when AudioESP detects and verifies a newly connected peripheral, or by clicking on the [icon] icon from the SoundMAX control panel.

Speaker wizard

Follow the screen instructions to configure the speakers to your desired settings.
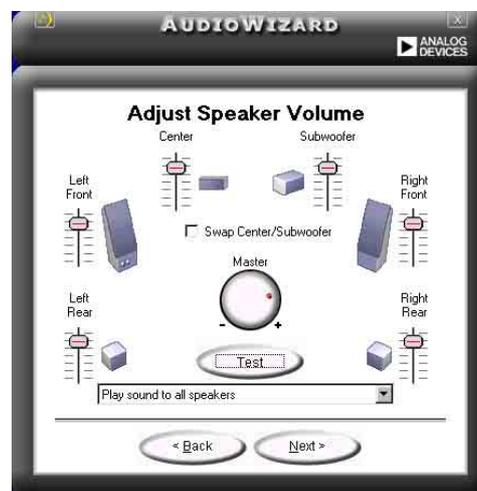
Microphone wizard

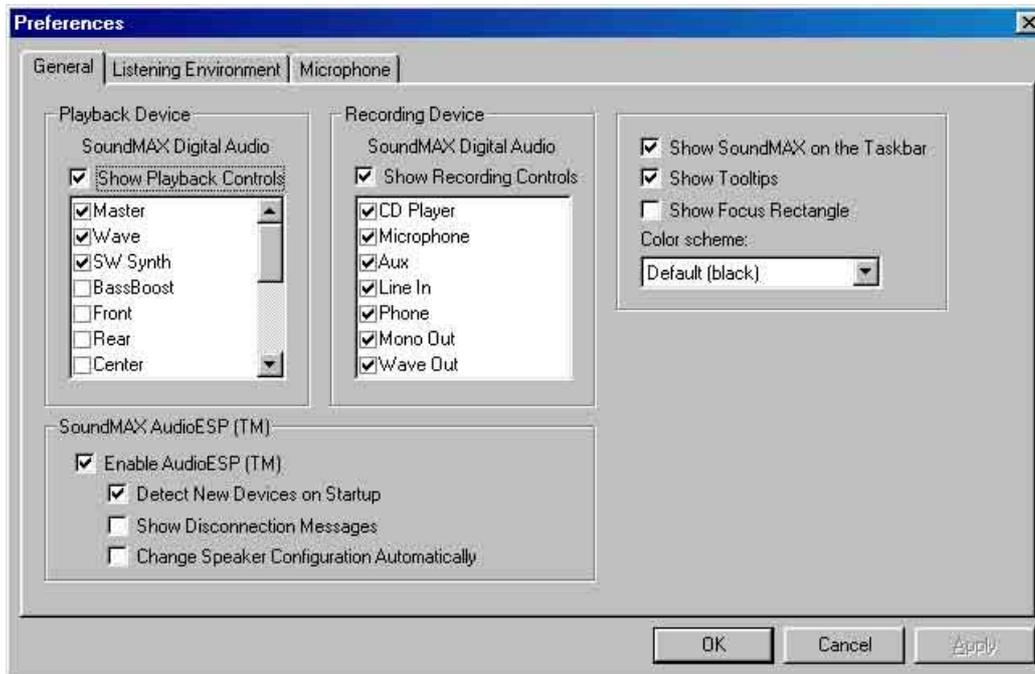Follow the screen instructions to configure the microphone to your desired settings.

Audio preferences

The Preferences page of the SoundMAX4 XL allows you to change various audio settings.

Listening environment options

The SoundMAX4 XL support several audio technologies including SoundMAX SPX™ Animated Audio, 3DPA™, MultiDrive™ 5.1, EnvironmentFC™, MacroFX/ZoomFX™, and Virtual Theater Surround.
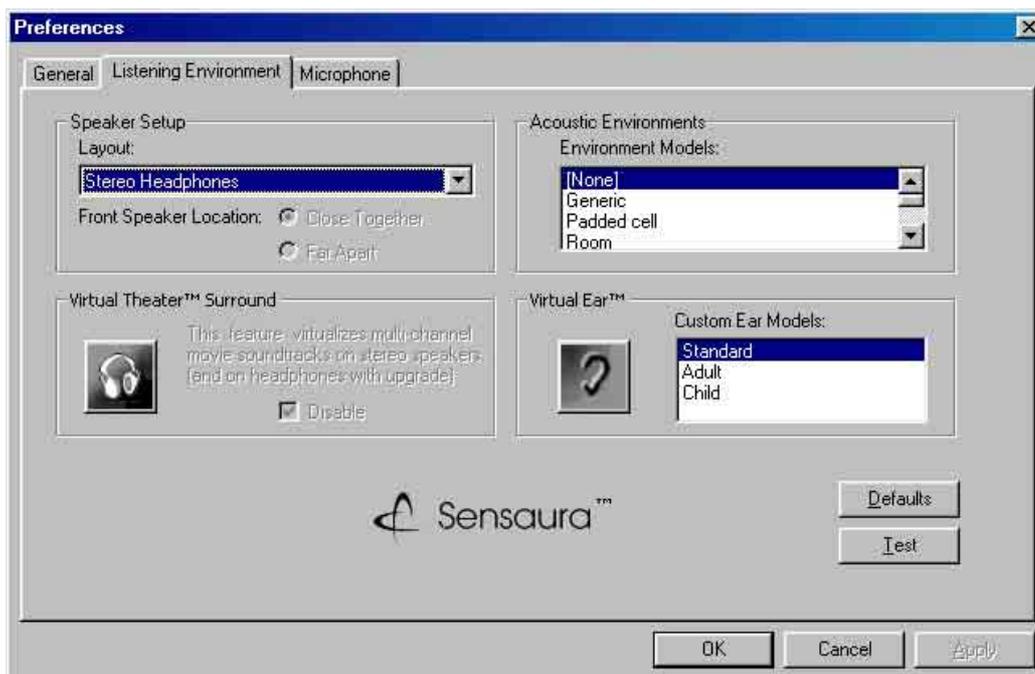
Rear panel audio ports function variation

The functions of the Line Out (lime), Line In (blue), and Mic (pink) ports on the rear panel change when you select the 4-channel or 6-channel audio configuration as shown in the following table.

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

5.5 VIA RAID configurations

The motherboard includes a high performance IDE RAID controller integrated in the VIA VT8237 southbridge chipset. It supports RAID 0 and RAID 1 with two independent Serial ATA channels.

RAID 0 (called *data striping*) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage.

RAID 1 (called *data mirroring*) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system.

5.5.1 Install the Serial ATA (SATA) hard disks

The VIA VT8237 southbridge chipset supports Serial ATA hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a RAID set.

- If you are creating a **RAID 0 (striping)** array for perfomance, use two new drives.

- If you are creating a **RAID 1 (mirroring)** array for protection, you can use two new drives or use an existing drive and a new drive (the new drive must be of the same size or larger than the existing drive). If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size. For example, one hard disk has an 80GB storage capacity and the other hard disk has 60GB storage capacity, the maximum storage capacity for the RAID 1 set is 60GB.

Follow these steps to install the SATA hard disks for RAID configuration.

- Before setting up your new RAID array, verify the status of your hard disks. Make sure the Master/Slave jumpers are configured properly.
- Both the data and power SATA cables are new cables. You cannot use older 40-pin 80-conductor IDE or regular IDE power cables with Serial ATA drives. Installing Serial ATA (SATA) hard disks require the use of new Serial ATA cable (4-conductor) which supports the Serial ATA protocol and a Serial ATA power cable.
- Either end of the Serial ATA data cable can be connected to the SATA hard disk or the SATA connector on the motherboard.

1. Install the Serial ATA hard disks into the drive bays.

2. Connect one end of the Serial ATA cable to the motherboard's primary Serial ATA connector.

3. Connect the other end of Serial ATA cable to the master Serial ATA hard disk.

4. Connect one end of the second Serial ATA cable to the motherboard's secondary Serial ATA connector.

5. Connect the other end of Serial ATA cable to the secondary Serial ATA hard disk.

6. Connect the Serial ATA power cable to the power connector on each drive.

7. Proceed to section 5.4.2 "Entering VIA Tech RAID BIOS Utility" for the next procedure.

5.5.2   Entering VIA® Tech RAID BIOS Utility

1. Boot-up your computer.
2. During POST, press **<Tab>** to enter VIA RAID configuration utility. The following menu options will appear.

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

```
                    VIA Tech. RAID BIOS Ver 1.XX


   ▶ Create Array                       Create a RAID array with
   ▶ Delete Array                       the hard disk attached to
   ▷ Create/Delete Spare                VIA IDE controller
   ▶ Select Boot Array
   ▶ Serial Number View                 F1   : View Array/Disk Status
                                        ↑,↓  : Move to next item
                                        Enter: Confirme the selection
                                        ESC  : Exit


   Channel            Drive Name    Array Name    Mode   Size(GB)   Status

   Serial_Ch0 Master  XXXXXXXXXX                  xxxxx  xxx.xx     Hdd

   Serial_Ch1 Master  XXXXXXXXXX                  xxxxx  xxx.xx     Hdd
```

On the upper-right side of the screen is the message and legend box. The keys on the legend box allows you to navigate through the setup menu options. The message describes the function of each menu item. The following lists the keys found in the legend box with their corresponding functions.

F1	:	View Array/Disk Status
↑, ↓	:	Move to the next item
Enter	:	Confirm the selection
ESC	:	Exit

5.5.3 Create Array

1. In the VIA RAID BIOS utility main menu, select **Create Array** then press **<Enter>**. The main menu items on the upper-left corner of the screen are replaced with create array menu options.

```
                     VIA Tech. RAID BIOS Ver 1.xx

  ┌─────────────────────────────────┬────────────────────────────┐
  │ ▶ Auto Setup For Data Security  │   Create a RAID array with │
  │ ▶ Array Mode RAID 1 (Mirroring) │   the hard disk attached to│
  │ ▶ Select Disk Drives            │   VIA IDE controller       │
  │ ▶ Start Create Process          │                            │
  │                                 │   F1  : View Array/Disk Status │
  │                                 │   ↑,↓ : Move to next item  │
  │                                 │   Enter: Confirm the selection │
  │                                 │   ESC  : Exit              │
  ├─────────────────────────────────┴────────────────────────────┤
  │  Channel           Drive Name    Array Name    Mode   Size(GB)  Status │
  │                                                                │
  │  Serial_Ch0 Master  XXXXXXXXXX                 xxxxx  xxx.xx   Hdd │
  │                                                                │
  │  Serial_Ch1 Master  XXXXXXXXXX                 xxxxx  xxx.xx   Hdd │
  │                                                                │
  └────────────────────────────────────────────────────────────────┘
```
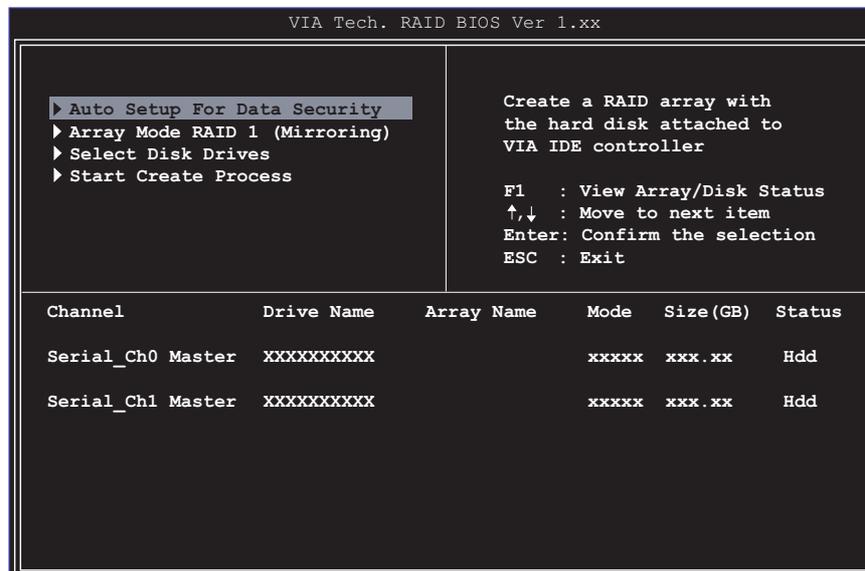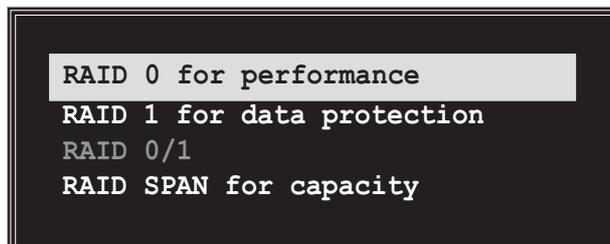
RAID 0 for performance

1. Select the second option **Array Mode**, then press **<Enter>** to display the RAID system setting pop-up menu.

```
  ┌──────────────────────────────────┐
  │                                  │
  │   RAID 0 for performance         │
  │   RAID 1 for data protection     │
  │   RAID 0/1                       │
  │   RAID SPAN for capacity         │
  │                                  │
  └──────────────────────────────────┘
```

2. Select **RAID 0 for performance** from the menu and press **<Enter>**.

   From this point, you may choose to auto-configure the RAID array by selecting **Auto Setup for Performance** or manually configure the RAID array for stripped sets. If you want to manually configure the RAID array continue with next step, otherwise, proceed to step #5.

3. Select **Select Disk Drives**, then press **<Enter>**. Use arrow keys to select disk drive/s, then press **<Enter>** to mark selected drive. An asterisk is placed before the selected drive.

4. Select **Block Size**, then press **<Enter>** to set array block size. A list of valid array block sizes are displayed on a pop-up menu.

```
4K
8K
16K
32K
64K
```
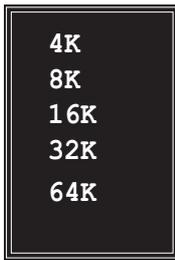
TIP: For server systems, it is recommended to use a lower array block size. For multimedia computer systems used mainly for audio and video editing, a higher array block size is recommended for optimum performance.

Use arrow keys to move selection bar on items and press **<Enter>** to select.

5. Select **Start Create Process** and press **<Enter>** to setup hard disk for RAID system. The following confirmation message appears:

The same confirmation message appears when the **Auto Setup for Performance** option is selected.

```
The data on the selected disks will
be destroyed. Continue? Press Y/N
```

Press "Y" to confirm or "N" to return to the configuration options.

RAID 1 for data protection

1. Select the second option item **Array Mode**, then press **<Enter>**. The RAID system setting pop-up menu appears.

```
RAID 0 for performance
RAID 1 for data protection
RAID 0/1
RAID SPAN for capacity
```
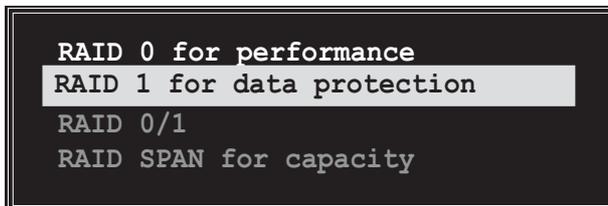
2. Select **RAID 1 for data protection** from the menu and press **<Enter>**. Select next task from pop-up menu. The task **Create only** creates the mirrored set without creating a backup. **Create and duplicate** creates both mirrored set and backup.

```
Create only
Create and duplicate
```
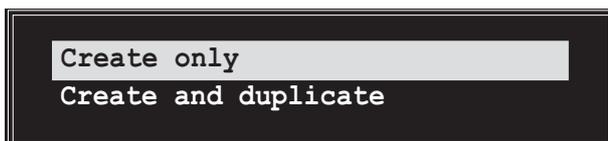
3. Select task and press **<Enter>**. The screen returns to Create Array menu items. From this point, you may choose to auto-configure the RAID array by selecting **Auto Setup for Data Security** or manually configure the RAID array for mirrored sets. If you want to manually configure the RAID array continue with next step, otherwise, proceed to step 5.

4. Select **Select Disk Drives**, then press **<Enter>**. Use arrow keys to select disk drive/s, then press **<Enter>** to mark selected drive. (*An asterisk is placed before a selected drive.*)

5. Select **Start Create Process** and press **<Enter>** to setup hard disk for RAID system. The following confirmation message appears:

The same confirmation message appears when the **Auto Setup for Data Security** option is selected.

```
The data on the selected disks will
be destroyed. Continue? Press Y/N
```

Press "Y" to confirm or "N" to return to the configuration options.

6. Select **Start Create Process** and press **<Enter>** to setup hard disk for RAID system. The following confirmation message appears:

The same confirmation message appears when the **Auto Setup for Capacity** option is selected.

```
The data on the selected disks will
be destroyed. Continue? Press Y/N
```

Press "Y" to confirm or "N" to return to the configuration options.
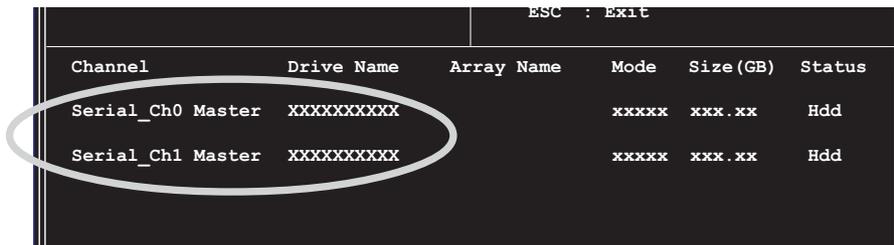
5.5.4 Delete Array

1. In the VIA RAID BIOS utility main menu, select **Delete Array** then press **<Enter>**. The focus is directed to the list of channel used for IDE RAID arrays.

2. Press **<Enter>** to select a RAID array to delete. The following confirmation message appears.

```
The selected array will be destroyed.
Are you sure? Continue? Press Y/N
```

Press "Y" to confirm or "N" to return to the configuration options.
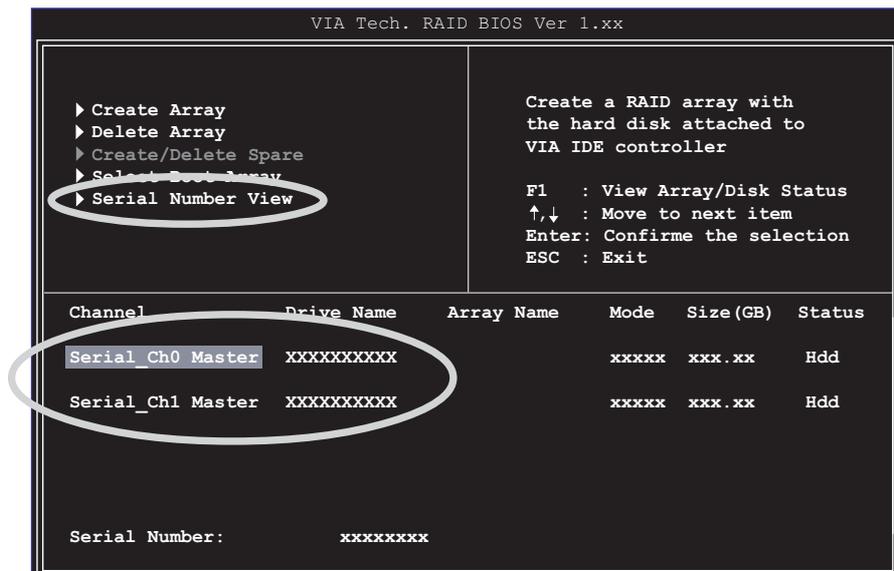
5.5.5 Select Boot Array

1. In the VIA RAID BIOS utility main menu, select **Select Boot Array** then press **<Enter>**. The focus is directed to the list of channel used for IDE RAID arrays.

2. Press **<Enter>** to select a RAID array for boot. The **Status** of the selected array will change to Boot. Press **<ESC>** to return to menu items. Follow the same procedure to deselect the the boot array.

```
                                          ESC  : Exit

   Channel           Drive Name    Array Name    Mode   Size(GB)   Status

   Serial_Ch0 Master  XXXXXXXXXX                 xxxxx  xxx.xx     Hdd

   Serial_Ch1 Master  XXXXXXXXXX                 xxxxx  xxx.xx     Hdd
```

5.5.6 Serial Number View

1. In the VIA RAID BIOS utility main menu, select **Serial Number View** then press **<Enter>**. The focus is directed to the list of channel used for IDE RAID arrays. Move the selection bar on each item and the serial number is displayed at the bottom of the screen. This option is useful for identifying same model disks.

```
                     VIA Tech. RAID BIOS Ver 1.xx

    ▶ Create Array                 Create a RAID array with
    ▶ Delete Array                 the hard disk attached to
    ▶ Create/Delete Spare          VIA IDE controller
    ▶ Select Boot Array
    ▶ Serial Number View           F1   : View Array/Disk Status
                                    ↑,↓  : Move to next item
                                    Enter: Confirme the selection
                                    ESC  : Exit

   Channel           Drive Name    Array Name    Mode   Size(GB)   Status

   Serial_Ch0 Master  XXXXXXXXXX                 xxxxx  xxx.xx     Hdd

   Serial_Ch1 Master  XXXXXXXXXX                 xxxxx  xxx.xx     Hdd


    Serial Number:          xxxxxxxx
```

5.6 Promise® RAID configurations

The motherboard includes the Promise® PDC20378 controller chipset to support Redundant Array of Independent Disks (RAID) configurations. Using two Serial ATA hard disks on the PRI_SATA / SEC_SATA interfaces, and two ATA133 hard disks on the PRI_RAID interface, you may set up RAID0, RAID1, RAID0+1, and Multi-RAID configurations. Use the MBFastTrak378™ BIOS and the FastBuild™ utility to configure a disk array.

RAID 0 (called *data striping*) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage.

RAID 1 (called *data mirroring*) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system.

RAID 0+1 is *data striping* and *data mirroring* combined without parity (redundancy data) having to be calculated and written. The advantage of RAID 0 + 1 is fast data access (like RAID 0), but with the ability to loose one drive and have a complete duplicate surviving drive or set of drives (like RAID 1).

1. If you use either Windows XP or Windows 2000 operating system (OS), copy first the **Promise FastTrak 378 Driver** from the support CD to a floppy disk before creating RAID configurations.

2. Refer to the **FastTrak 378 Quick Start Guide** and **SATA Quick Start Guide** in the support CD for detailed information on RAID configurations under different operating systems.

5.6.1 Install the hard disks

The PDC20378 chipset supports Ultra ATA/133/100/66 hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

- If you are creating a **RAID 0 (striping)** array for perfomance, use two new drives.

- If you are creating a **RAID 1 (mirroring)** array for protection, you can use two new drives or use an existing drive and a new drive (the new drive must be of the same size or larger than the existing drive).

- If you are creating a **RAID 0+1** array, you can use two new drives or use an existing drive and a new drive (the new drive must be of the same size or larger than the existing drive).

Follow these steps to install the hard disks for RAID configuration.

1. Set the jumpers of each hard disk as Master/Slave.
2. Install the hard disks into the drive bays.
3. Connect the HDD cables. These connection options are available for creating a RAID 0 or RAID 1 array:
   a) Connect two Parallel ATA HDDs to the RAID connector and one Serial ATA HDD to either one of the two Serial ATA connectors, using separate parallel ATA or serial ATA cables.
   b) Connect one Serial ATA HDD to each Serial ATA connector, using separate serial ATA cables.
4. Connect the power cable to the power connector on each drive.
5. Boot the system and enter the BIOS Setup Utility.
6. Go to the **Advanced** menu in BIOS and set the appropriate IDE configuration settings.
7. Save your changes and Exit Setup.
8. Proceed to section 5.6.2 for the next procedure.

5.6.2   Enter the MBFastBuild™ utility

1. Boot the system.

    If this is the first time you boot the system with the new hard disks installed and connected to the ATAIDE connectors on the motherboard, the MBFastTrak378™ BIOS displays the following:

```
MBFastTrak378 (tm) BIOS version 1.00
(c)2000-2005 Promise Technology, Inc. All Rights Reserved.


   No Array defined...


Press <Ctrl-F> to enter FastBuild (tm) Utility
Or press <ESC> key to continue booting.
```

2. Press **<Ctrl-F>** simultaneously to display the FastBuild™ utility main menu.

```
FastBuild (tm) Utility 2.00 (c) 2002-2005 Promise Technology, Inc.
                         [ Main Menu ]


           Auto Setup . . . . . . . . . [ 1 ]

           View Drive Assignments . . . . [ 2 ]

           Define Array . . . . . . . . [ 3 ]

           Delete Array . . . . . . . . [ 4 ]

           Rebuild Array. . . . . . . . [ 5 ]




                     [ Keys Available ]

 Press 1..5 to select Option                          [ESC] Exit
```

5.6.3 Creating a RAID 0 array (Performance)

1. In the FastBuild™ utility main menu, press "1" to select Auto Setup. The following screen appears.

```
FastBuild (tm) Utility 2.00 (c) 2002-2005 Promise Technology, Inc.
==================[ Auto Setup Options Menu ]==================

    Optimize Array for:                    Performance


==================[ Array Setup Configuration ]===============

    Mode ...................................... Stripe

    Spare Drive................................ 0

    Drive(s) Used in Array..................... 2

    Array Disk Capacity (size in MB)........... 8650




====================[ Keys Available ]========================


[ ↑ ]  Up  [ ↓ ]  Down  [ ←,→,Space]  Change Option  [ ESC]  Exit [ CTRL-Y]  Save
```

2. Use the arrow keys to go to the field **Optimize Array for** and select "*Performance*" with the space bar. The **Mode** field displays **"***Stripe***"**.

3. After making a selection, press **<Ctrl-Y>** to save and create a RAID 0 array.

4. Press any key to reboot the system. During the boot process, the MBFastTrak378 BIOS checks and displays the disk array information.

```
MBFastTrak376 (tm) BIOS Version 1.00
(c) 2000-2005 Promise Technology, Inc.  All Rights Reserved.

ID      MODE         SIZE      TRACK-MAPPING    STATUS

1*      2+0 Stripe   3257M     723/192/48       Functional


Press <Ctrl-F> to enter FastBuild (tm) Utility
```

5. Once the array is created, use the FDISK utility to format the array as a single hard drive.

6. After you have formatted the arrayed drives, install an operating system (OS). The OS will treat the RAID 0 array as a single drive unit.

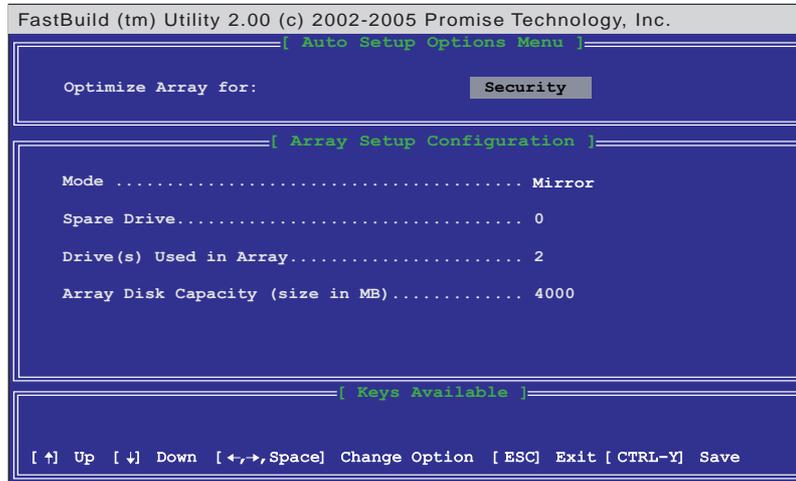7. Install the RAID driver from the support CD that came with the motherboard package.

> Depending on the operating system you are installing, you may need to install the RAID driver during or after the OS installation.

5.6.4 Creating a RAID 1 array (Security)

Creating a Security Array with New Drives

1. In the FastBuild™ utility main menu, press "1" to select Auto Setup.

```
FastBuild (tm) Utility 2.00 (c) 2002-2005 Promise Technology, Inc.
────────────────────[ Auto Setup Options Menu ]────────────────────

   Optimize Array for:                        Security


────────────────────[ Array Setup Configuration ]────────────────────

   Mode ........................................ Mirror

   Spare Drive.................................. 0

   Drive(s) Used in Array....................... 2

   Array Disk Capacity (size in MB)............. 4000



────────────────────────[ Keys Available ]────────────────────────


[ ↑] Up  [ ↓] Down  [ ←,→,Space] Change Option  [ ESC] Exit [ CTRL-Y] Save
```

2. Use the arrow keys to go to the field **Optimize Array for** and select "*Security*" with the space bar. The **Mode** field displays "*Mirror*".

3. Press **<Ctrl-Y>** to save your selection.

4. The following message appears:

```
Do you want the disk image to be duplicated to another? (Yes/No)


Y - Create and Duplicate
N - Create Only
```

5. Press **N** for the *Create Only* option. A message appears confirming that your Security array has been created.

```
Array has been created.

<Press any key to reboot>
```

6. Press any key to reboot the system. During the boot process, the MBFastTrak376 BIOS checks and displays the disk array information.

```
MBFastTrak376 (tm) BIOS Version 1.00
(c) 2000-2005 Promise Technology, Inc.  All Rights Reserved.

ID      MODE        SIZE      TRACK-MAPPING       STATUS

1*      1x2 Mirror  1628M     827/64/63           Functional


Press <Ctrl-F> to enter FastBuild (tm) Utility
```

7. Use the FDISK utility and follow the format procedure for installing a new hard drive. After you have formatted the arrayed drives, install an operating system (OS).

8. Install the RAID driver from the support CD that came with the motherboard package.

> Depending on the operating system you are installing, you may need to install the RAID driver during or after the OS installation.

Creating a Security Array with Existing Data Drive

If you would like to use an existing drive that already contains data and/or is the bootable drive in your system, make sure that the new hard drive you will use in the array has the same or larger capacity as the existing drive.

> Backup all important data before creating an array. Failure to do so may cause data loss.

1. In the FastBuild™ utility main menu, press "**1**" to select Auto Setup.

2. Use the arrow keys to go to the field **Optimize Array for** and select "*Security*" with the space bar. The **Mode** field displays "*Mirror*".

3. Press **<Ctrl-Y>** to save your selection. The following message appears:

```
Do you want the disk image to be duplicated to another? (Yes/No)


Y - Create and Duplicate
N - Create Only
```

5. Press **Y** for the *Create and Duplicate* option. The next window prompts you to select the source drive to use.

6. Use the arrow keys to select the source drive. The FastBuild utility will copy all the data from the source drive to the target drive.

7. Press **<Ctrl-Y>** to save the selection and start the duplication. The following message appears:

```
Start to duplicate the image...
Do you want to continue? (Yes/No)

Y - Continue    N - Abort
```

8. Select **Y** to continue. Select **N** to return to the main menu.

9. When the duplication process is completed, a message appears confirming that your Security array has been created.

10. Press any key to reboot the system.

11. Install the RAID driver from the support CD that came with the motherboard package.

> Depending on the operating system you are installing (or that is already installed), the RAID driver installation sequence may vary.

5.6.5 Other FastBuild Utility Commands

Command options 3-6 on the FastBuild™ Utility main menu are not required for setting up an array, but they are useful for reconfiguring an array.

View Array (3): This command allows you to view the drive assignments of hard disks in an array.

Delete Array (4): This command deletes an array to reconfigure the system. Deleting an array does not remove information on the hard disks. If an array is deleted by mistake, recover it immediately by redefining it as the deleted array.

Rebuild Array (5): This command restores the array and system data after faults on RAID 1 arrays.

Follow these steps to rebuild and restore data in the array:

1. On boot-up, an error message notifies of a system failure.

2. Press **<Ctrl-F>** to enter the FastBuild™Main Menu.

3. Select **3** for View Array to verify the ID of the defunct hard disk.

4. Power off the system and replace the hard disk with an identical model.

5. Reboot and enter the FastBuild™ Main Menu again.

6. Select **5** for Rebuild Array. The malfunctioning array is highlighted. Press <Enter> to select.

```
FastBuild (tm) Utility 2.00 (c) 2002-2005 Promise Technology, Inc.
================[ Rebuild Array Menu ]================

   Array No      RAID Mode    Total Drv      Capacity       Status


   Array  1      Mirror/Stripe     4           7999        Critical
   Array  2      -----          -----        -----        -----
   Array  3      -----          -----        -----        -----
   Array  4      -----          -----        -----        -----






=================[ Keys Available ]=================


[↑] Up  [↓] Down  [ESC] Exit  [Enter] Select
```

7. Select the replacement drive. Press **<Enter>**.

```
FastBuild (tm) Utility 2.00 (c) 2002-2005 Promise Technology, Inc.
===============[ View Array Definition Menu ] ===============

   Array No    RAID Mode    Total Drv              Status

   Array  1  Mirror/Stripe        4               Critical


   Stripe Block: Not Available        Gigabyte Boundary: ON

================[ Select Drive for Rebuild ] ================


   Channel: ID     Drive Model        Capacity  (MB)
        3:Mas FUJITSU MPD3043AT            4325



=================[ Keys Available ] =================


[↑] Up  [↓] Down  [ESC] Exit  [Enter] Select
```

8. Confirm the command to copy data from the intact source hard disk
   onto a new replacement hard disk. A progress gauge displays the
   copy progress for the duration of the task.

9. After the rebuild processis complete, the user is prompted to reboot the
   system.

Controller Configuration (6): This command shows the default for
Controller Configuration. The default value is [Enabled].

5.7 Creating a floppy with RAID driver

A floppy disk with the Promise® SATA 378, FastTrak 378 or VIA® RAID driver is required when installing Windows® XP™, Windows® 2000™ or Windows® NT™ operating systems. You can create a floppy disk with the RAID driver using Makedisk.exe utility. A floppy disk with a RAID driver is necessary when configuring RAID installations.

To create a floppy disk with RAID driver:

1. Insert the motherboard support CD into the CD-ROM drive and locate the Makedisk.exe utility for your RAID controller.

   A. The Promise® SATA 378 driver is located in **"\Drivers\Promise\378ATA\Makedisk.exe"** of the motherboard support CD. Use this utility when the **Operating Mode** setting in the BIOS is [Onboard IDE Operate Mode] (default).

   B. The Makedisk.exe utility for the FastTrak 378 driver is located in **"\Drivers\Promise\378RAID\Makedisk.exe"** of the motherboard support CD. Use this utility when the **Operating Mode** setting in the BIOS is [RAID] mode.

   C. The Makedisk.exe utility for the VIA® RAID driver is located in **"\Drivers\VIARAID\6420RAID\DriverDisk\Makedisk.exe"** of the motherboard support CD. Use this utility when configuring Serial ATA RAID 0 or RAID 1.

2. Insert a clean floppy disk into the floppy disk drive and execute Makedisk.exe. Follow succeeding screen instructions.

3. Write-protect the floppy disk to avoid computer virus infection.

To use the floppy with RAID driver:

1. During the OS installation, the system prompts to press the **F6** key to install third-party SCSI or RAID driver.

2. Insert the floppy disk with RAID driver into the floppy disk drive and press **F6**.

3. Follow succeeding screen instructions.

> For additional information on RAID installation and configuration, refer to the Promise® RAID installation guide found in **"\Drivers\Promise\Setup"** or the VIA RAID installation guide found in **"\Drivers\VIARAID\6420RAID"** of the motherboard support CD.

5.8   AI Net feature

The motherboard supports the 3COM® Virtual Cable Tester (VCT) Technology. The VCT virtually diagnose and report cable faults using the Time Domain Reflectometry (TDR). With this essential tool, installation and network diagnosis has never been easier. The VCT technology detects and reports open and shorted cables with up to 1 meter of accuracy. It also detects impedance mismatches, pair swaps, pair polarity problems and pair skew problems of up to 64ns.

VCT remarkably reduces networking and support costs complementing a highly manageable and controlled network system.Also, this tool can be incorporated in the network systems software making it ideal for field support as well as development diagnostics.

Using Virtual Cable Tester

1. Right click on **My Computer** icon on your desktop. On the pop-up menu, click on **Properties** to display the System Properties dialog box.

2. Click on **Network adapters**, and select **3Com Gigabit NIC Adapter** from the list. Click on the **Properties** button.

3. From the 3COM Gigabit NIC Properties dialog box, select the **Diagnostics** tab.
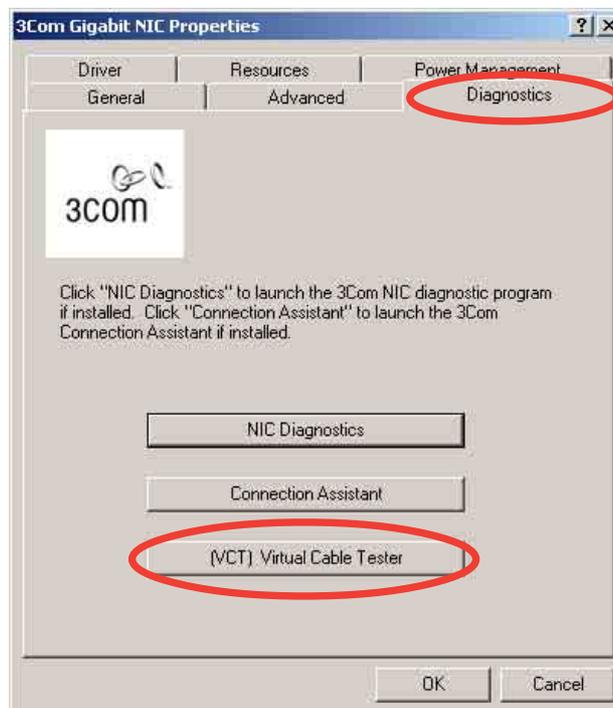
4. Click on the **(VCT) Virtual Cable Tester** button to display the following screen.
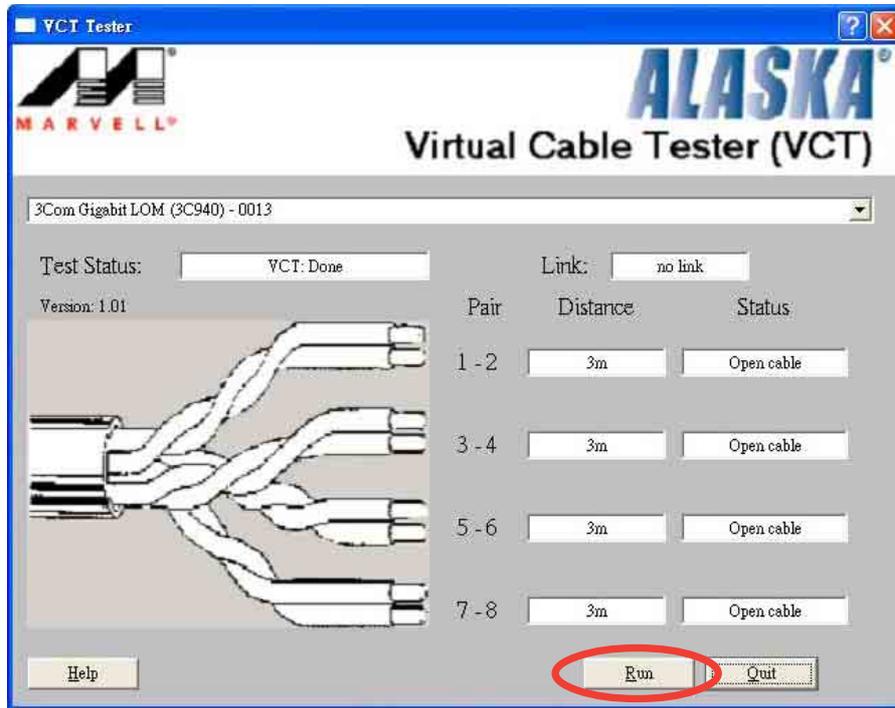
5. Click on **Run** to execute test.

> If there is no cable connection problem, the **Run** button is grayed out and not selectable.