P4G800-V

User Guide

ASUS

Motherboard

E1352

Revised Edition V2

June 2003

Contents

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Notices

Federal Communications Commission Statement

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

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

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

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

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

Canadian Department of Communications Statement

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

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

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.

- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.

- Seek professional assistance before using an adpater or extension cord. These devices could interrupt the grounding circuit.

- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.

- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.

- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.

- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.

- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.

- Place the product on a stable surface.

- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

Conventions used in this guide

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

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.

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. The ASUS websites are listed in the ASUS Contact Information on page viii.

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.

ASUS contact information

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Support Fax: +49-2102-959911
Support Email: www.asuscom.de/support (for online support)
Web Site: www.asuscom.de

P4G800-V specifications summary

CPU	Socket 478 for Intel® Pentium® 4/Northwood with speeds up to 3.4+GHz Supports Intel® Hyper-Threading technology New power design supports next generation Intel Prescott CPU
Chipset	Intel 865G GMCH Intel ICH5
Front Side Bus (FSB)	800/533/400 MHz
Memory	Dual-channel memory architecture 4 x 184-pin DDR DIMM sockets for up to 4GB memory Supports PC3200/PC2700/PC2100 unbuffered non-ECC DDR DIMMs
VGA	Intel® Extreme Graphics 2 integrated in Intel 865G chipset
Expansion slots	1 x AGP 8X/4X 6 x PCI
Storage	2 x UltraDMA 100/66/33 connectors 2 x Serial ATA connectors
Audio	Realtek ALC650 6-channel audio CODEC
LAN	Realtek 8101L Fast Ethernet controller
Special features	ASUS MyLogo2 ASUS EZ Flash Wake-on-Ring/LAN/USB/Keyboard/Mouse Suspend-to-RAM (STR) Suspend-to-Disk (STD)
HW monitoring	SMSC LPC47M192 supports fan sensors, and temperature and voltage monitoring
Rear panel I/O	1 x Parallel port 1 x Serial port 1 x VGA port 1 x PS/2 keyboard port 1 x PS/2 mouse port 4 x USB 2.0 ports 1 x RJ-45 port Line In/Line Out/Microphone ports
Internal I/O	2 x USB 2.0 connector for 4 additional USB ports CPU/Chassis fan connectors 20-pin/4-pin ATX 12V power connectors CD/AUX connectors 10-1 pin front panel connector

(continued on the next page)

P4G800-V specifications summary

BIOS features	4Mb Flash ROM, AMI BIOS, ACPI, PnP, DMI2.0, Trend Chip Away Virus (TCAV), ASUS EZ Flash, ASUS MyLogo2
Industry standard	PCI 2.2, USB 2.0/1.1
Manageability	DMI 2.0, WOL/WOR by PME, SMBus
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 24.5 cm)
Support CD contents	Device drivers ASUS PC Probe ASUS LiveUpdate Trend Micro™ PC-cillin 2002 anti-virus software

* Specifications are subject to change without notice.

Chapter 1
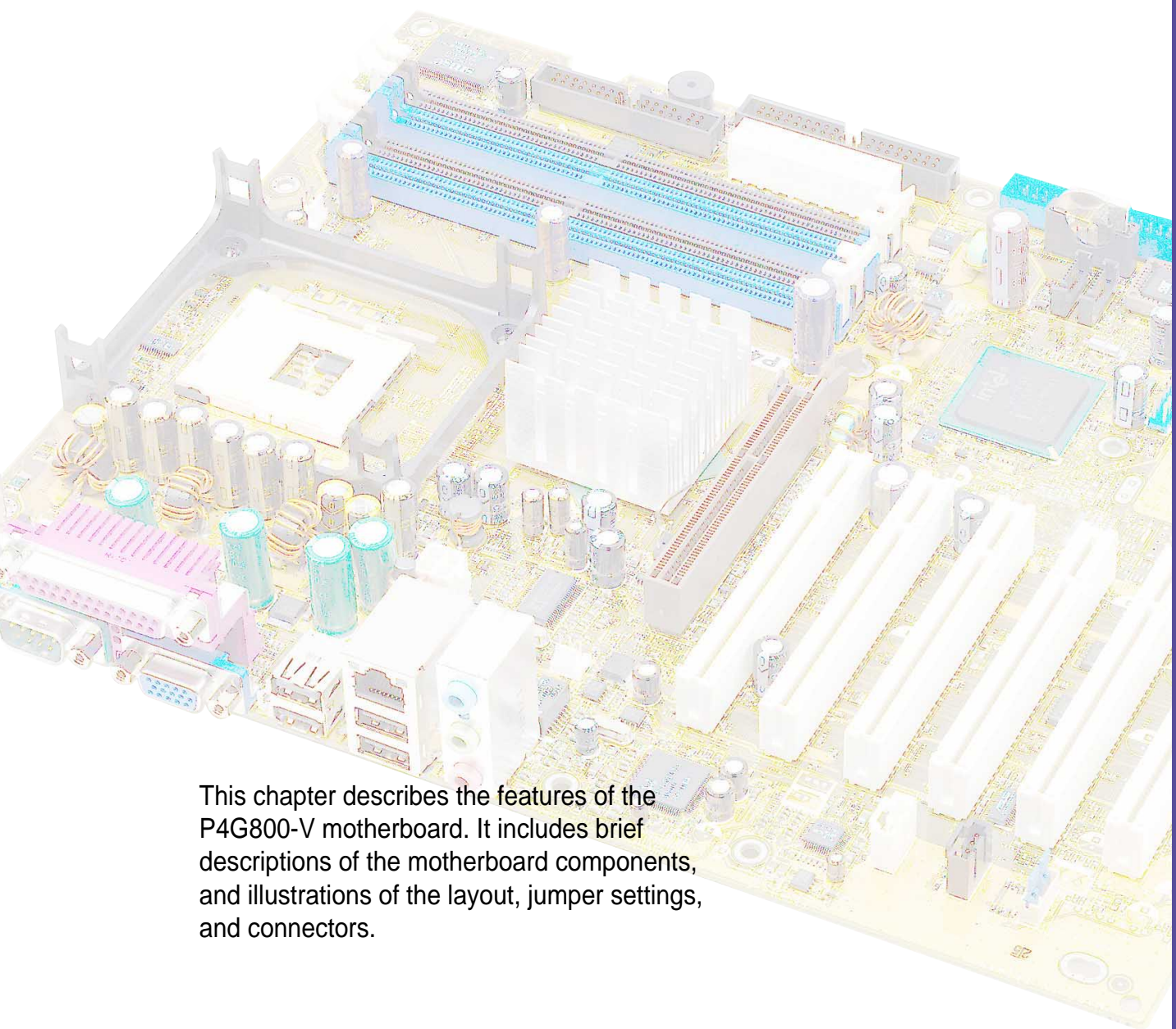
This chapter describes the features of the P4G800-V motherboard. It includes brief descriptions of the motherboard components, and illustrations of the layout, jumper settings, and connectors.

Product introduction

1.1 Welcome!

Thank you for buying the ASUS® P4G800-V motherboard!

The ASUS P4G800-V motherboard delivers a host of new features and latest technologies making it another standout in the long line of ASUS quality motherboards!

The P4G800-V incorporates the Intel® Pentium® 4 Processor in 478-pin package coupled with the Intel® 865G chipset to set a new benchmark for an effective desktop platform solution.

Supporting up to 4GB of system memory with PC3200/2700/2100/1600 DDR SDRAM, high-resolution graphics via Intel® Extreme Graphics 2 and an AGP 8X slot, Serial ATA support, USB 2.0, and 6-channel audio features, the P4G800-V is your affordable vehicle to enter the world of 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 P4G800-V package for the following items.

✓ ASUS P4G800-V motherboard
✓ ASUS P4G800-V series support CD
✓ UltraDMA 100/66 cable
✓ Floppy disk cable
✓ 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

Latest processor technology

The motherboard supports the Intel® Pentium® 4 Processor with 512KB L2 cache and an 800/533/400 MHz system bus. The CPU features the Intel Hyper-Threading Technology and a new power design that allows up to 3.4GHz core frequencies. The motherboard will also support the next generation Intel Prescott CPU when available. See page 1-11.

Dual-channel DDR400 memory support

The motherboard supports up to 4GB of system memory using PC3200/2700/2100 non-ECC DDR DIMMs to deliver up to 6.4GB/s data transfer rate for the latest 3D graphics, multimedia, and Internet applications. See page 1-13.

Serial ATA technology

The motherboard bundles the new Serial ATA technology through the SATA interfaces onboard. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, up to 150 MB/s data transfer rate, and software compatibility with the legacy Parallel ATA. See page 1-22.

Integrated Intel Extreme Graphics 2

The Intel® 865G chipset integrates the Intel® Extreme Graphics 2 architecture to deliver realistic 3D/2D graphics with sharp images, fast rendering, smooth motion, and clearly defined details. This unique architecture balances the memory usage between graphics and the system for optimal performance. See page 1-5.

AGP 8X support

The motherboard also mounts an AGP 8X interface (a.k.a. AGP 3.0), offering a 2.1GB/s bandwidth. The slot supports the ASUS DVI card that includes TV, LCD, and digital video output ports. See page 1-17.

ASUS MyLogo2

This new feature present in the motherboard allows you to personalize and add style to your system with customizable boot logos. The ASUS MyLogo2 is automatically installed when you install the ASUS Update utility from Utilities menu in the support CD. See page 3-4.

ASUS EZ Flash BIOS

With the ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-4.

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. See pages 1-5 and 1-27.

6-channel digital audio

The Realtek ALC650 AC'97 audio CODEC is onboard to provide 6-channel audio playback for 5.1 surround sound and over 90dB dynamic range.

1.4 Motherboard components

Before you install the motherboard, learn about its major components and available features to facilitate the installation and future upgrades. Refer to the succeeding pages for the component descriptions.

Chapter 1: Product introduction
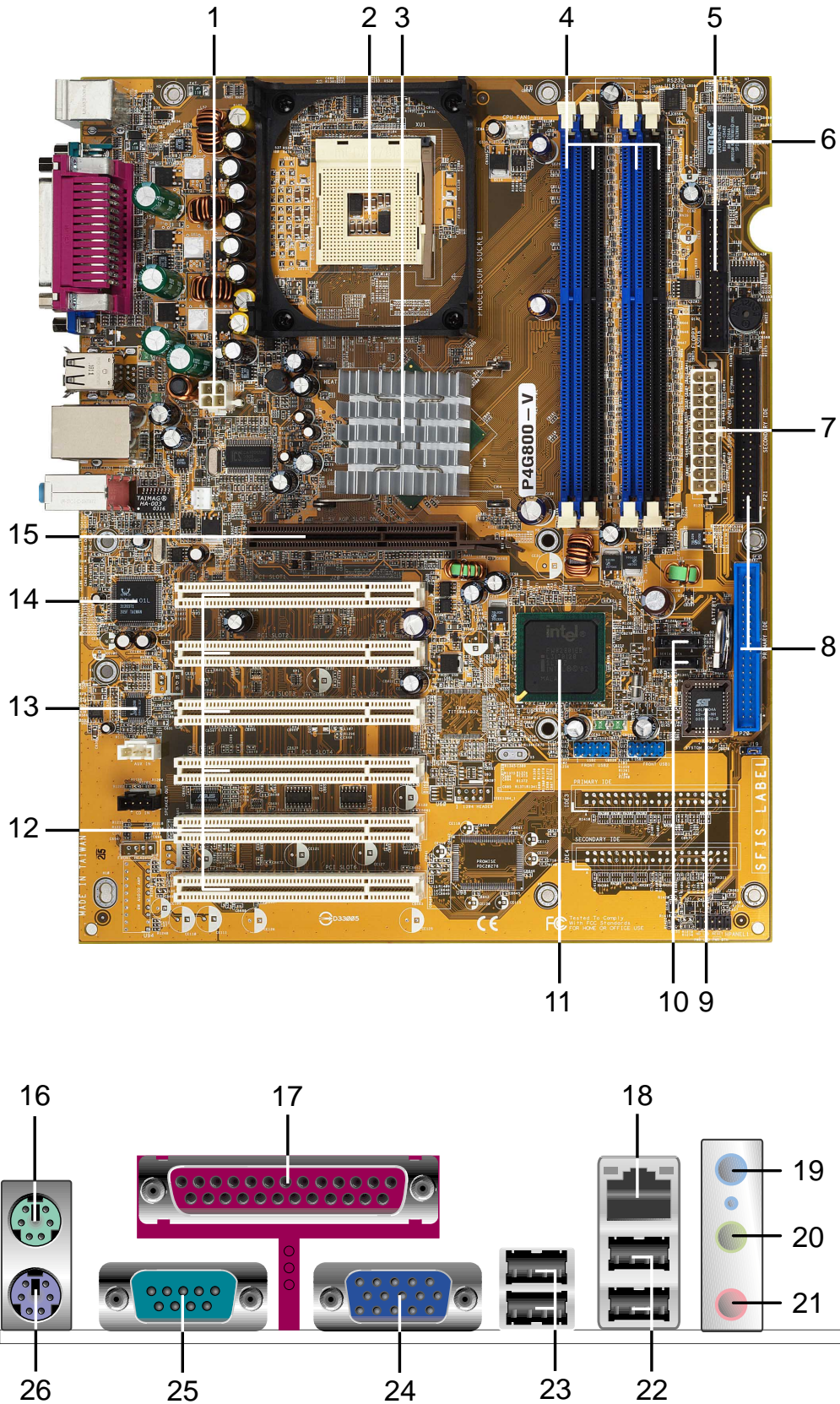
1   **ATX 12V connector.** This power connector connects the 4-pin 12V plug from the ATX 12V power supply.

2   **CPU socket.** A 478-pin surface mount, Zero Insertion Force (ZIF) socket for the Intel® Pentium® 4 Processor, with 800/533/400 MHz system bus that allows 6.4GB/s, 4.3GB/s, and 3.2GB/s data transfer rates, respectively.

3   **North bridge controller.** The Intel® 865G Graphics Memory Controller Hub (GMCH) provides the processor interface with 800/533/400 MHz frequency, system memory interface at 400/333/266MHz operation, and 1.5V AGP interface that supports AGP 3.0 specification including 8X Fast Write protocol. The GMCH interconnects to the south bridge ICH5 via the Intel® proprietary Hub Interface.

4   **DDR DIMM sockets.** These four 184-pin DIMM sockets support up to 4GB system memory using unbuffered non-ECC PC3200/2700/2100 DDR DIMMs.

5   **Floppy disk connector.** This connector accommodates the provided ribbon cable for the floppy disk drive. One side of the connector is slotted to prevent incorrect insertion of the floppy disk cable.

6   **Super I/O controller.** This SMSC Low Pin Count (LPC) interface provides the commonly used Super I/O functionality. The chipset supports a high-performance floppy disk controller for a 360K/720K/1.44M/2.88M floppy disk drive, a multi-mode parallel port, two standard compatible UARTs, and a Flash ROM interface.

7   **ATX power connector.** This 20-pin connector connects to an ATX power supply. The power supply must have at least 1A on the +5V standby lead (+5VSB).

8   **IDE connectors.** These dual-channel bus master IDE connectors support Ultra DMA100/66, PIO Modes 3 & 4 IDE devices. Both the primary (blue) and secondary (black) connectors are slotted to prevent incorrect insertion of the IDE ribbon cable.

9   **Flash ROM.** This 4Mb firmware contains the programmable BIOS program.

10   **SATA connectors.** These connectors support Serial ATA HDDs and allow up to 150MB/s data transfer rate using thin 4-conductor SATA cables.

11   **South bridge controller.** The fifth-generation Intel I/O Controller Hub (ICH5) is a subsystem that integrates various I/O functions including 2-channel ATA100 bus master IDE controller, SATA controller, up to eight USB 2.0/1.1 ports, I/O APIC, SMBus 2.0 controller, LPC interface, AC'97 2.2 interface, and PCI 2.2 interface. The ICH5 also contains the necessary arbitration and buffering for efficient utilization of these interfaces.

12   **PCI slots.** These 32-bit PCI 2.2 expansion slots support bus master PCI cards like SCSI or LAN cards with 133MB/s maximum throughput.

13   **Audio CODEC.** The Realtek ALC650 is an AC'97 CODEC that allows 6-channel audio playback.

14   **LAN controller.** This Realtek RTL8101L LAN controller supports 10BASE-T/100BASE-TX networking.

15   **AGP 8X slot.** This Accelerated Graphics Port (AGP) slot supports 1.5V AGP 8X/4X mode graphics cards for 3D graphical applications.

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

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

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

19   **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.

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

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

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

Audio 2, 4 or 6-channel configuration

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

22   **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

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

24   **Video port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

25   **Serial port.** This 9-pin COM1 port is for pointing devices or other serial devices.

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

1.5   Motherboard layout

24.5cm (9.6in)

PS/2 T: Mouse B: Keyboard	
COM1	
PARALLEL PORT	
VGA	
USB12	
Bottom: USB3 USB4	Top: RJ-45
Top:Line In Center:Line Out Below:Mic In	

Socket 478

CPU_FAN1

Super I/O

DDR DIMM1 (64-bit, 184-pin module)
DDR DIMM2 (64-bit, 184-pin module)
DDR DIMM3 (64-bit, 184-pin module)
DDR DIMM4 (64-bit, 184-pin module)

FLOPPY1

BUZZ1

ATX12V1

Intel
865G
GMCH

P4G800-V

ATX Power Connector

SECONDARY IDE

0 1   2 3   4 5   6 7

CHA_FAN1

Accelerated Graphics Port

Realtek
RTL8101L

PCI 1

PCI 2

Intel
ICH5

BATTERY1

PRIMARY IDE

P31

P30

Audio
Codec

PCI 3

AUX IN

PCI 4

4Mb
BIOS

CD IN

PCI 5

USB2   USB1

J19

PCI 6

HPANEL1

30.5cm (12.0in)

1.6   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.

1.7 Motherboard installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. The motherboard uses the ATX form factor that measures 12 inches x 9.6 inches (30.5 cm x 24.5 cm).

> 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.

1.7.1 Placement direction

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

1.7.2 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
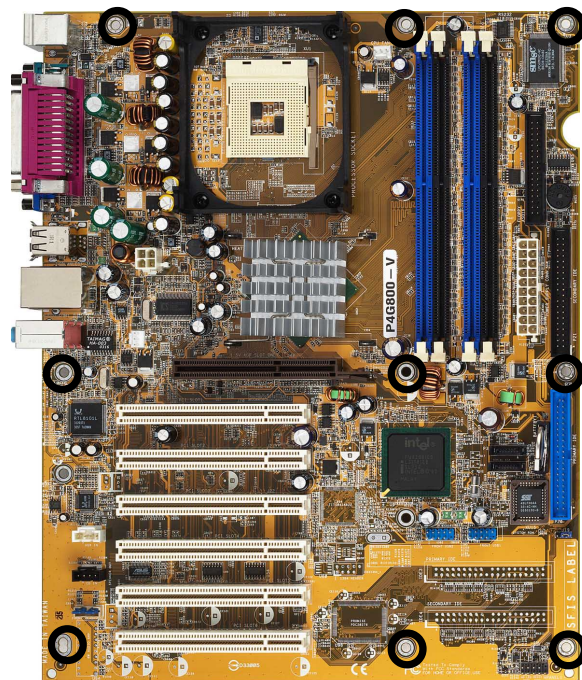
1.8   Central Processing Unit (CPU)

1.8.1   Overview

The motherboard comes with a surface mount 478-pin Zero Insertion Force (ZIF) socket. The socket is designed for the Intel® Pentium® 4 Processor in the 478-pin package with 512KB L2 cache. This processor supports 800/533/400MHz front side bus (FSB), and allows data transfer rates of up to 6.4GB/s. The socket will also support the Intel Prescott CPU when available.

Note in the illustration that the CPU has a gold triangular mark on one corner. This mark indicates the processor Pin 1 that should match a specific corner of the CPU socket.

Gold Mark
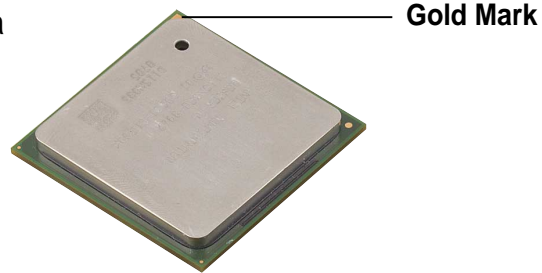
> Incorrect installation of the CPU into the socket may bend the pins and severely damage the CPU!

Notes on Intel® Hyper-Threading Technology

1.   This motherboard supports Intel Pentium 4 CPUs with Hyper-Threading Technology.

2.   Hyper-Threading Technology is supported under **Windows XP** and later versions only. If you are using any other operating systems, disable the Hyper-Threading Techonology item in BIOS to ensure system stability and performance.

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

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

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

To use the Hyper-Threading Technology on this motherboard:

1.   Buy an Intel Pentium 4 CPU that supports Hyper-Threading Technology. Install the CPU.

2.   Power up the system and enter BIOS Setup (see Chapter 2). Under the Advanced Menu, make sure that the item **Hyper-Threading Technology** is set to Enabled. The item appears only if you installed a CPU that supports Hyper-Threading Techonology.

3.   Reboot the computer.

1.8.2 Installing the CPU

Follow these steps to install a CPU.

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

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

Socket Lever

90° - 100°

Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely.
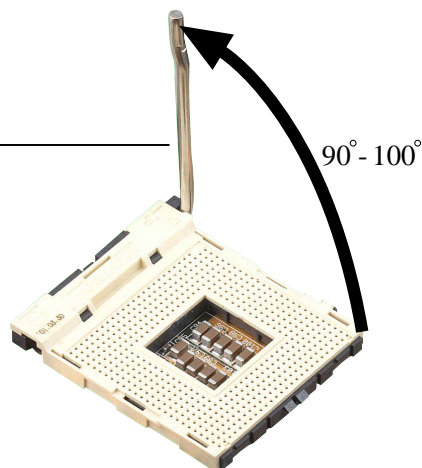
3. Position the CPU above the socket such that its marked corner matches the base of the socket lever.

Gold Mark

4. Carefully insert the CPU into the socket until it fits in place.
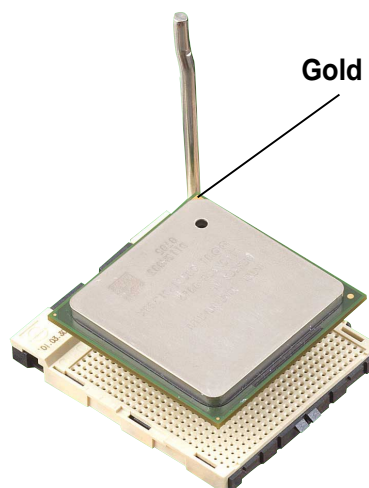
The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to prevent bending the pins and damaging the CPU!

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

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

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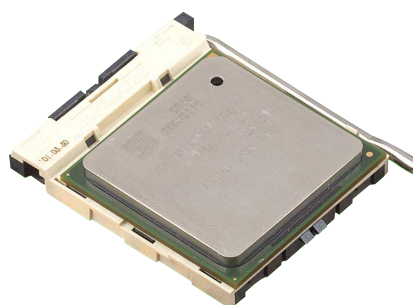
1.9   System memory

The motherboard comes with four Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets. These sockets support up to 4GB system memory using 184-pin unbuffered non-ECC PC3200/PC2700/PC2100 DDR DIMMs. The following figure shows the location of the DDR DIMM sockets.

P4G800-V 184-Pin DDR DIMM Sockets

104 Pins

80 Pins

DIMM1 DIMM2 DIMM3 DIMM4
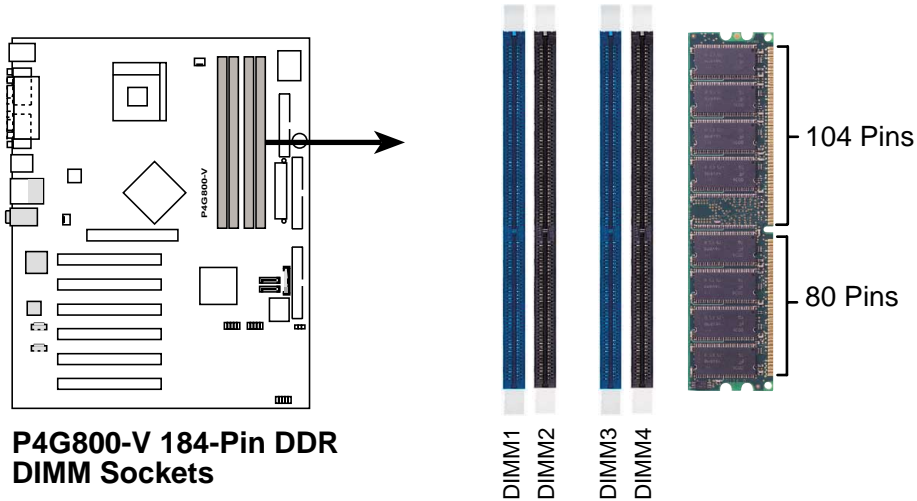
1.9.1   Memory configurations

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

Important notes

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.

4. Make sure that the memory frequency matches the CPU FSB (Front Side Bus). Refer to Table 2.

5. DIMMs installed into **any three** sockets will function in single-channel mode.

6. 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 ICH5 resource allocation.

Table 1 Recommended memory configurations

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

* *For dual-channel configuration (3), you may:*

- *install identical DIMMs in all four sockets, or*
- *install identical DIMMs in DIMM_A1 and DIMM_B1 (blue sockets) and identical DIMMs in DIMM_A2 and DIMM_B2 (black sockets)*

Table 2 Memory frequency/CPU FSB synchronization

This motherboard supports different memory frequencies depending on the CPU FSB (Front Side Bus) and the type of DDR DIMM.

CPU FSB	DDR DIMM Type	Memory Frequency
800 MHz	PC3200/PC2700*/PC2100	400/333*/266 MHz
533 MHz	PC2700/PC2100	333/266 MHz
400 MHz	PC2100	266 MHz

*When using 800MHz CPU FSB, PC2700 DDR DIMMs may run only at 320MHz (not 333MHz) due to chipset limitation.

Table 3   DDR400 Qualified Vendor List (QVL)

Size	Vendor	Model	Brand	Component	Max. DIMMs
256MB	Apacer	77.10636.465	Samsung	K4H560838D-TCC4	2
256MB	Samsung	M368L3223ETM-CCC	Samsung	K4H560838E-TCCC	2
256MB	Winbond	W9425GCDB-5	Winbond	W942508CH-5	2
512MB	ATP	AG32L64T8SQC4S	Samsung	K4H560838D-TCC4	1
128MB	NANYA	NT128D64SH4B1G-5T	NANYA	NT5DS16M16BT-5T	2
256MB	TwinMos	M2G9I08AFATT9F081AA4T	TwinMos	TMD7608F8E50D	1 or 2
128MB	Infineon	HYS64D16301GU-5-B	Infineon	HYB25D256160BT-5B	1 or 4

Obtain DDR DIMMs only from ASUS qualified vendors for better system performance. Visit the ASUS website (www.asus.com) for the latest QVL.

1.9.2   Installing a DIMM

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

Follow these steps to install a DIMM.

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

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

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

DDR DIMM notch

Unlocked Retaining Clip
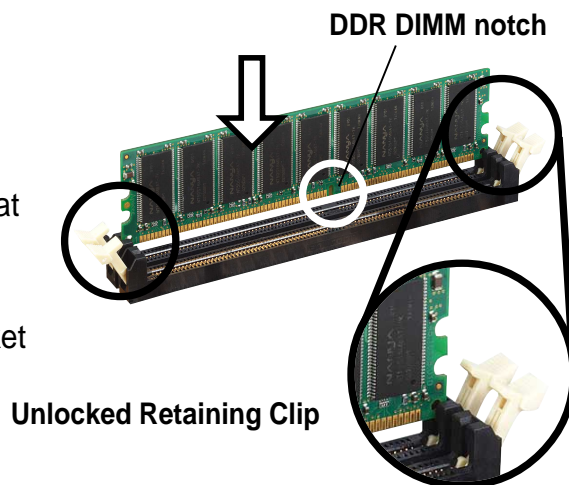
1.10 Expansion slots

The motherboard has six PCI slots and one Accelerated Graphics Port (AGP) slot.

To install and configure an expansion card:

1. Install an expansion card following the instructions that came with the chassis. NOTE: The AGP slot supports only 1.5V AGP cards.
2. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for BIOS information.
3. Assign an IRQ to the card. Refer to the tables below.
4. Install the drivers and/or software applications for the expansion card according to the card documentation.

1.10.1 Standard interrupt assignments

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

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

1.10.2 IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCI slot 1	—	—	—	—	—	shared	—	—
PCI slot 2	—	—	—	—	—	—	shared	—
PCI slot 3	—	—	—	—	—	—	—	shared
PCI slot 4	shared	—	—	—	—	—	—	—
PCI slot 5	—	—	shared	—	—	—	—	—
PCI slot 6	—	—	—	—	—	shared	—	—
AGP slot	shared	—	—	—	—	—	—	—
Onboard USB controller HC0	shared	—	—	—	—	—	—	—
Onboard USB controller HC1	—	—	—	shared	—	—	—	—
Onboard USB controller HC2	—	—	shared	—	—	—	—	—
Onboard USB controller HC3	shared	—	—	—	—	—	—	—
Onboard USB 2.0 controller	—	—	—	—	—	—	—	shared
Onboard LAN	—	—	—	shared	—	—	—	—
Onboard audio	—	—	shared	—	—	—	—	—

1.10.3 PCI slots

There are six 32-bit PCI slots on this motherboard. The slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications.
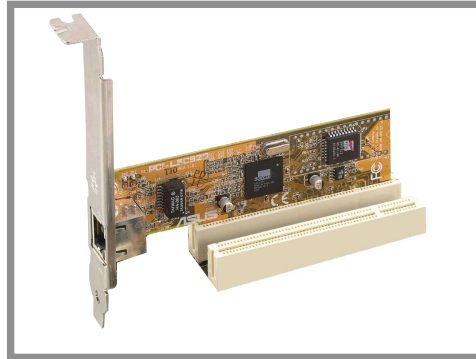
1.10.4 AGP slot

This motherboard has an Accelerated Graphics Port (AGP) slot that supports AGP 8X/4X (+1.5V) cards. When you buy an AGP card, make sure that you ask for one with +1.5V specification.

Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.

Install only +1.5V AGP cards. This motherboard does not support 3.3V AGP cards.
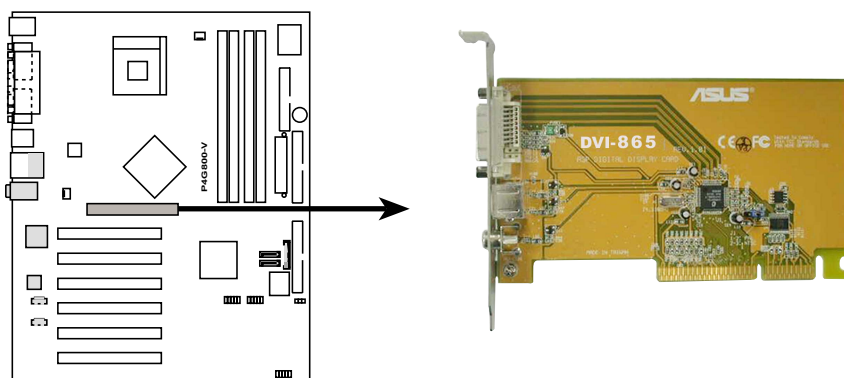
P4G800-V Accelerated Graphics Port (AGP)

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.

1.11   Jumper

Clear RTC RAM (CLRTC1)

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

To erase the RTC RAM:

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

> ⚠ Except when clearing the RTC RAM, never remove the cap on CLRTC1 jumper default position. Removing the cap will cause system boot failure!

P4G800-V Clear RTC RAM

J19

Clear CMOS   Normal (Default)
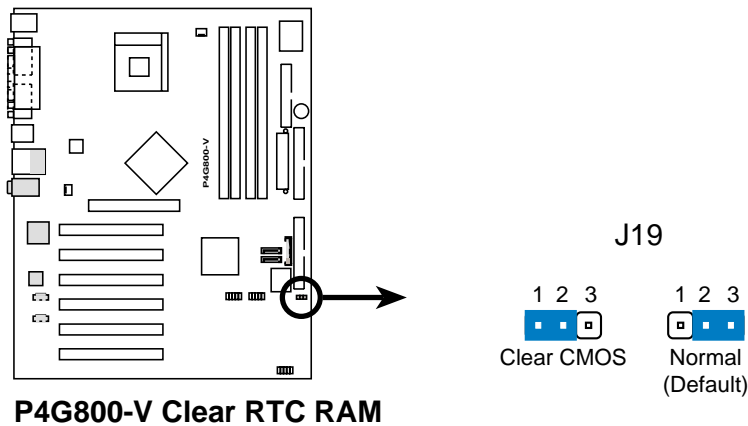
1.12   Connectors

This section describes and illustrates the internal connectors on the motherboard.

1. **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).

    FLOPPY

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

    PIN 1
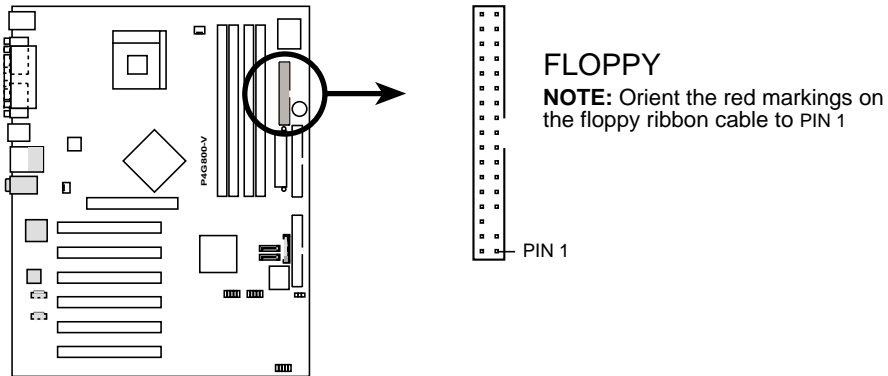
    P4G800-V Floppy Disk Drive Connector

2. **Serial ATA connectors (7-pin P31, P30)**

    These next generation connectors support the thin Serial ATA cables for Serial ATA hard disks. The current Serial ATA interface allows up to 150 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (Ultra ATA/133).
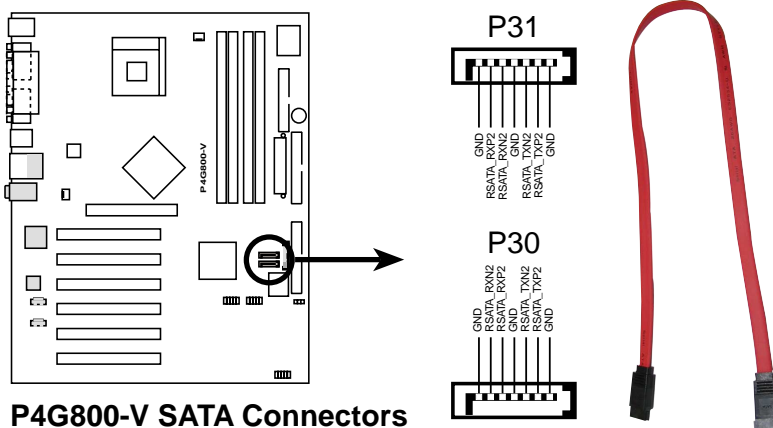
    P4G800-V SATA Connectors

    P31

    GND
    RSATA_RXP2
    RSATA_RXN2
    GND
    RSATA_TXN2
    RSATA_TXP2
    GND

    P30

    GND
    RSATA_RXN2
    RSATA_RXP2
    GND
    RSATA_TXN2
    RSATA_TXP2
    GND

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

This connector supports the provided UltraDMA100/66 IDE ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraDMA100/66 slave device (hard disk drive) and the black connector to the UltraDMA100/66 master device. It is recommended that you connect non-UltraDMA100/66 devices to the secondary IDE connector. If you install two hard disks, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings. BIOS supports specific device bootup. If you have more than two UltraDMA100/66/33 devices, purchase another UltraDMA100/66/33 cable. You may configure two hard disks to be both master devices with two ribbon cables – one for the primary IDE connector and another for the secondary IDE connector.

1. Pin 20 on each IDE connector is removed to match the covered hole on the UltraDMA cable connector. This prevents incorrect orientation when you connect the cables.

2. The hole near the blue connector on the UltraDMA100/66 cable is intentional.

3. For UltraDMA100/66 IDE devices, use the 80-conductor IDE cable.

P4G800-V IDE Connectors

SECONDARY IDE

PRIMARY IDE
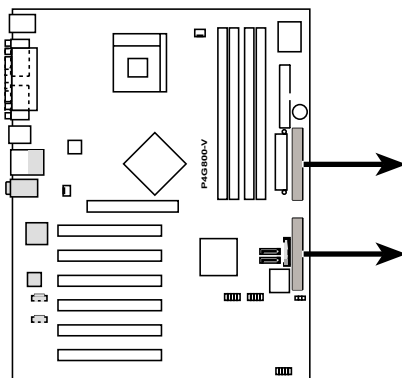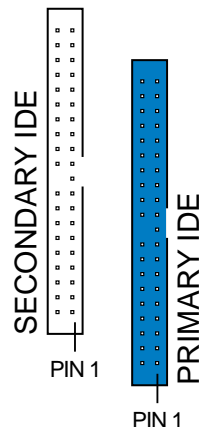
PIN 1

PIN 1

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

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

These connectors connect to an ATX 12V power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

In addition to the 20-pin ATXPWR1 connector, connect the 4-pin ATX +12V power plug to provide sufficient power to the CPU.

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

ATX12V1

GND	GND
+12V DC	+12V DC

ATXPWR1

+12.0VDC	+5.0VDC
+5VSB	+5.0VDC
PWR_OK	-5.0VDC
COM	COM
+5.0VDC	COM
COM	COM
+5.0VDC	PS_ON#
COM	COM
+3.3VDC	-12.0VDC
+3.3VDC	+3.3VDC
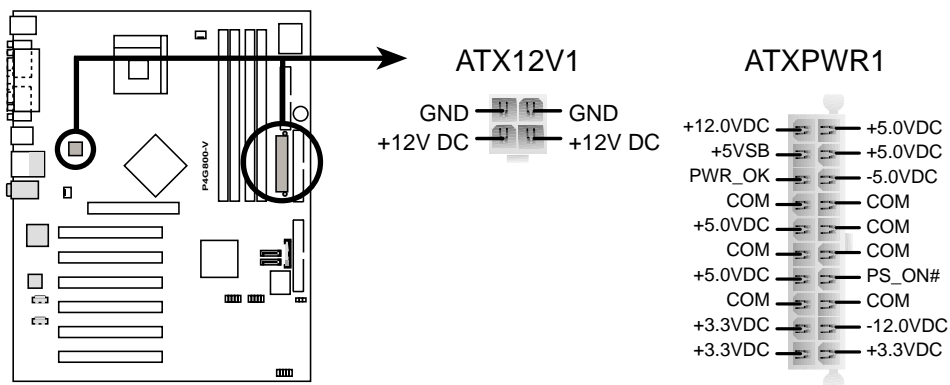
P4G800-V ATX Power Connector

5. CPU and chassis fan connectors (3-pin CPU_FAN1, CHA_FAN1)

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

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

CPU_FAN1

GND
+12V
Rotation

CHA_FAN1

GND
+12V
Rotation
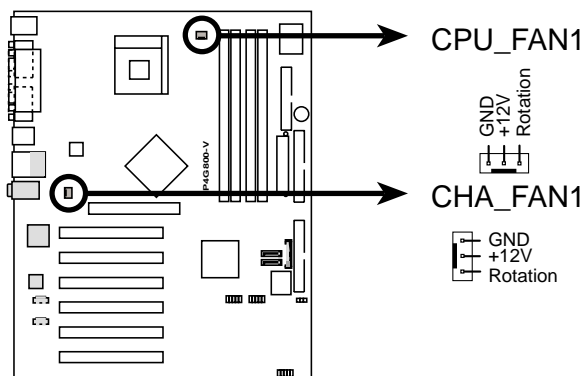
P4G800-V 12-Volt Cooling Fan Power

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

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

AUX IN(White)

CD IN (Black)

Right Audio Channel

Ground

Left Audio Channel

P4G800-V Internal Audio Connectors
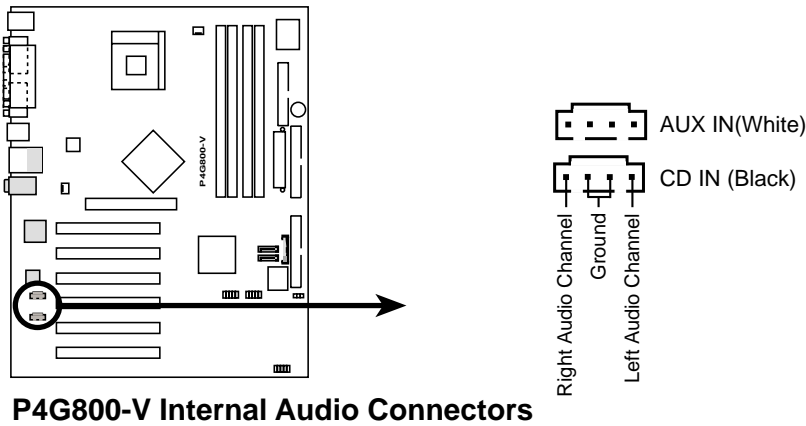
7. USB header (10-1 pin USB1, USB2)

If the USB ports on the rear panel are inadequate, two USB headers are 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.

Connect an optional USB 2.0/GAME module to this header. The module has two USB 2.0 ports that support the next generation USB peripherals such as high resolution cameras, scanners, and printers.

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

P4G800-V USB 2.0 Header

USB2

1   USB+5V   LDM3   LDP3   GND   NC   5

6   USB+5V   LDM4   LDP4   GND   10

USB1

1   USB+5V   LDM1   LDP1   GND   NC   5

6   USB+5V   LDM2   LDP2   GND   10
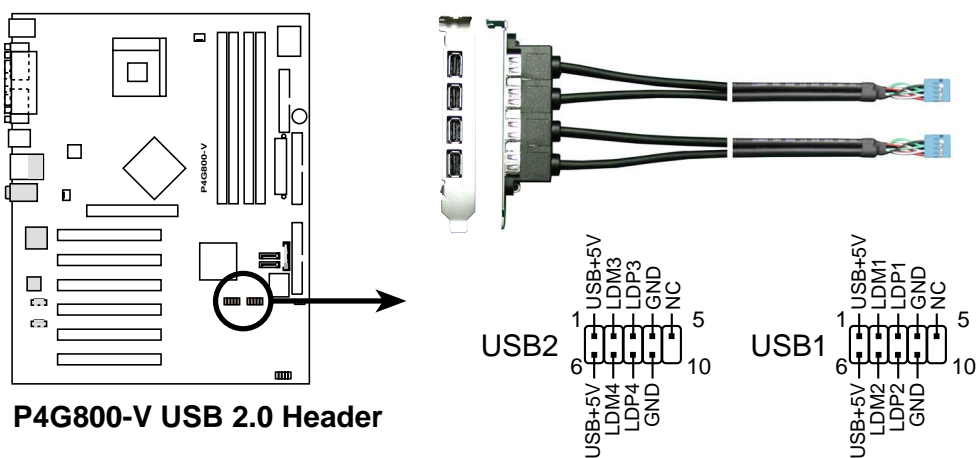
> The USB2.0 module is purchased separately.

ASUS P4G800-V motherboard user guide

8. System panel connector (10-1 pin HPANEL1)

This connector accommodates several system front panel functions.

P4G800-V Front Panel Audio Connector
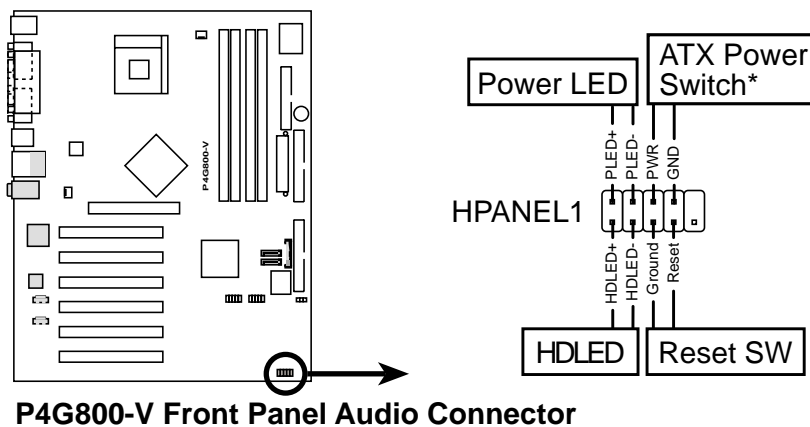
- **System Power LED Lead (2-1 pin PWR LED)**

  This 2-1 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.

- **Hard disk activity LED (2-pin HD LED)**

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

- **ATX Power Switch / Soft-Off Switch Lead (2-pin PWR BTN)**

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

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

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

Chapter 2
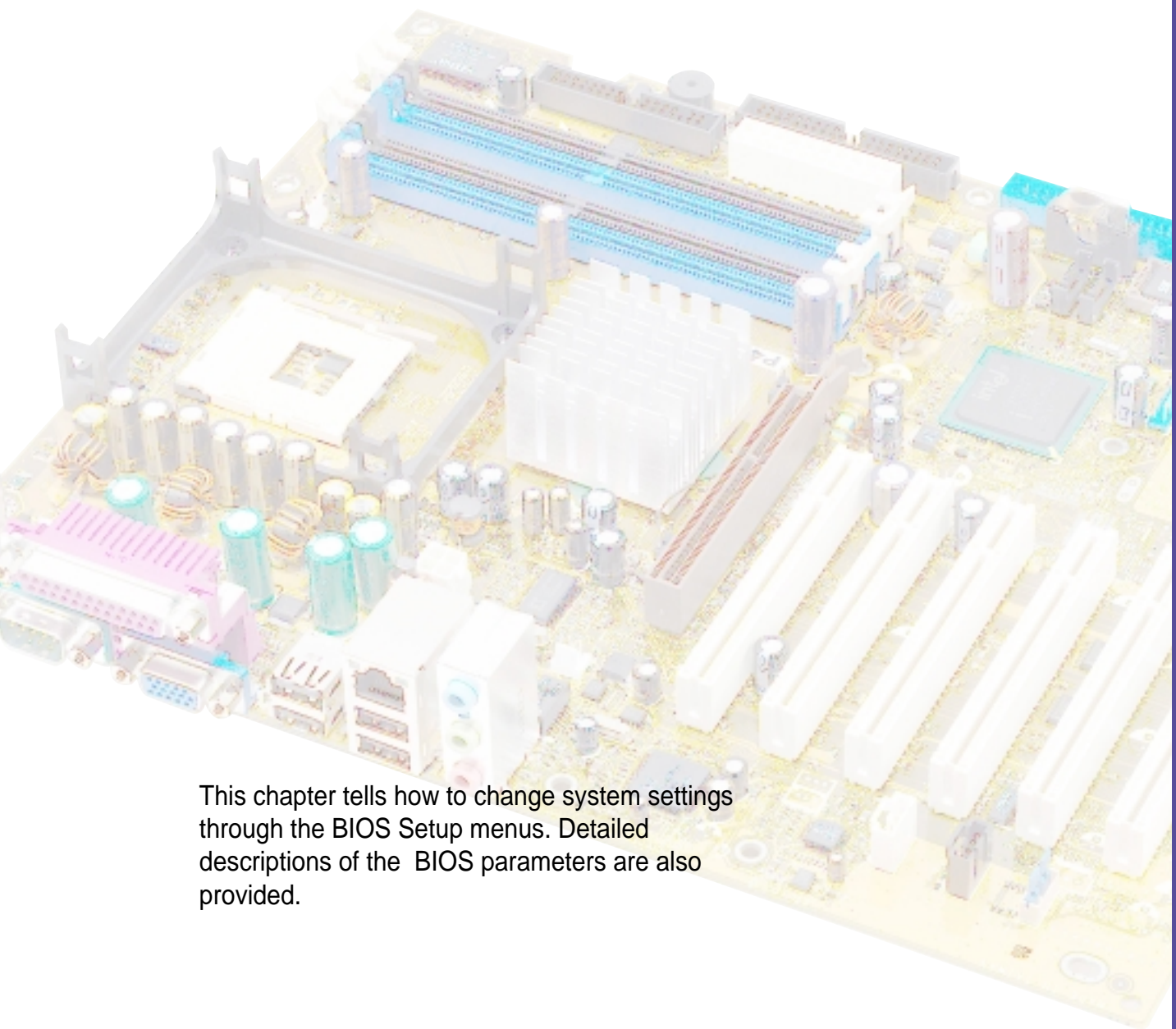
This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

BIOS information

2.1 Managing and updating your BIOS

> The **original BIOS file** for this motherboard is in the support CD.
>
> Copy the original BIOS to a **bootable floppy disk** in case you need to restore the BIOS in the future.

2.1.1 Creating a bootable floppy disk

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

    DOS environment

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

    > **format A:/S**   <Enter>

    Windows environment

    a. From your Windows desktop, click on **Start**, point to **Settings**, then click on **Control Panel**.

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

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

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

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

2.1.2 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.rom>

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

    The screen displays the status of the update process.

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

```
A:\>afudos /ip4g800v.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 /ip4g800v.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    Reading file ..... done
    Erasing flash .... done
    Writing flash .... 0x0008CC00 (9%)
    Verifying flash .. done

A:\>
```

5. Reboot the system from the hard disk.

2.1.3   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 it to **P4G800V.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 "**P4G800V.ROM not found!**"

4. Insert the floppy disk that contains the BIOS file. If the **P4G800V.ROM** file is found in the floppy disk, EZ Flash performs the BIOS update process and automatically reboots the system when done.

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

```
User recovery requested. Starting BIOS recovery...

Checking for floppy...

Floppy found!

Reading file "p4g800v.rom". Completed.

Start flashing...

Flashed successfully. Rebooting.
```

2.2 BIOS Setup program

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

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

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

The firmware hub on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <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.

If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system stability. Select the **Load Default Settings** item under the Exit Menu. See section "2.7 Exit Menu."

The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

Visit the ASUS website (www.asus.com) to download the latest product and BIOS information.

2.2.1   BIOS menu screen

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

```
            BIOS SETUP UTILITY
  Main   Advanced   Power   Boot   Exit

  System Time              [11:10:19]              Use [ENTER], [TAB]
  System Date              [Thu 05/27/2003]        or [SHIFT-TAB] to
  Legacy Diskette A        [1.44M, 3.5 in]         select a field.

     Primary IDE Master    :[ST320413A]            Use [+] or [-] to
     Primary IDE Slave     :[ASUS CD-S340]         configure system time.
     Secondary IDE Master  :[Not Detected]
     Secondary IDE Slave   :[Not Detected]
     Third IDE Master      :[Not Detected]
     Fourth IDE Master     :[Not Detected]
     IDE Configuration                             ←→    Select Screen
                                                   ↑↓    Select Item
     System Information                            +-    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**

2.2.2   Menu bar

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

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

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

2.2.3   Navigation keys

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

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

2.2.4 Menu items

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

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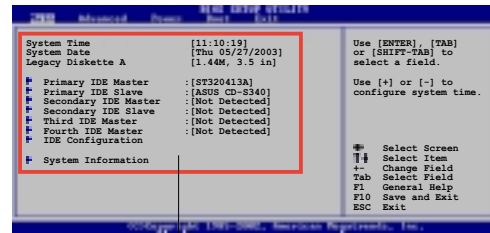
Main menu items

2.2.5 Sub-menu items

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

2.2.6 Configuration fields

These fields show the values for the menu items. If an item is user- configurable, you may change the value of the field opposite the item. You can not select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press Enter to display a list of options. Refer to "2.2.7 Pop-up window."

2.2.7 Pop-up window

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

2.2.8 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press **Up/Down arrow keys** or **PageUp/PageDown keys** to display the other items on the screen.
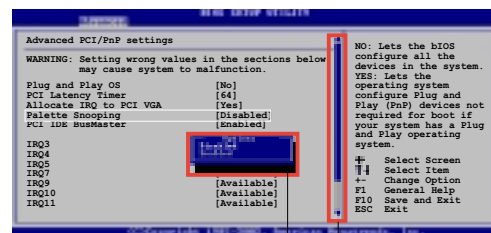
Pop-up window

Scroll bar

2.2.9 General help

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

2.3 Main menu

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

✎ Refer to section "2.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                          BIOS SETUP UTILITY
 Main   Advanced    Power    Boot    Exit

 System Time                [11:10:19]              Use [ENTER], [TAB]
 System Date                [Thu 05/27/2003]        or [SHIFT-TAB] to
 Legacy Diskette A          [1.44M, 3.5 in]         select a field.

 ▶ Primary IDE Master       :[ST320413A]            Use [+] or [-] to
 ▶ Primary IDE Slave        :[ASUS CD-S340]         configure system time.
 ▶ Secondary IDE Master     :[Not Detected]
 ▶ Secondary IDE Slave      :[Not Detected]
 ▶ Third IDE Master         :[Not Detected]
 ▶ Fourth IDE Master        :[Not Detected]
 ▶ IDE Configuration                                ←     Select Screen
                                                    ↑↓    Select Item
 ▶ System Information                               +-    Change Field
                                                    Tab   Select Field
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

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```

2.3.1 System Time [xx:xx:xxxx]

This item allows you to set the system time.

2.3.2 System Date [Day xx/xx/xxxx]

This item allows you to set the system date.

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

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

2.3.4 Primary/Secondary/Third/Fourth 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      : 4
  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]

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

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. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

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

Block (Multi-sector Transfer) [Auto]

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

PIO Mode [Auto]

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

DMA Mode [Auto]

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

SMART Monitoring [Auto]

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

32Bit Data Transfer [Disabled]

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

2.3.5   IDE Configuration

The items in this menu allows you to change the settings for the IDE devices installed in the system. Select an item then press Enter if you wish to configure the item.

```
                        BIOS SETUP UTILITY
  Main

  IDE Configuration

  Onboard IDE Operate Mode          [Enhanced Mode]
     Enhanced Mode Support On       [S-ATA]
  IDE Detect Time Out (Sec)         [35]




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


              (C)Copyright 1985-2002, American Megatrends, Inc.
```
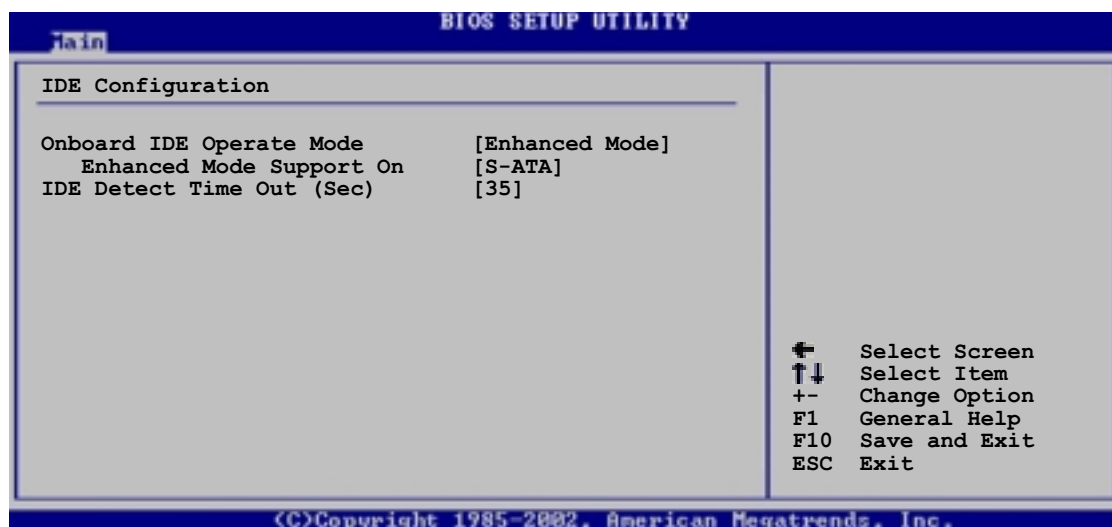
Onboard IDE Operate Mode [Enhanced Mode]

Allows selection of the IDE operation mode depending on the operating system (OS) that you installed. Set to Enhanced Mode if you are using native OS, such as Windows 2000/XP. Set to Compatible Mode if you are using legacy OS including MS-DOS, Windows ME/98/NT4.0.
Configuration options: [Compatible Mode] [Enhanced Mode]

Enhanced Mode Support On [S-ATA]

The default setting S-ATA allows you to use native OS on Serial ATA and Parallel ATA ports. We recommend that you do not change the default setting for better OS compatibility. In this setting, you may use legacy OS on the Parallel ATA ports **only if** you did not install any Serial ATA device.

The P-ATA+S-ATA and P-ATA options are for advanced users only. If you set to any of these options and encounter problems, revert to the default setting **S-ATA**. Configuration options: [P-ATA+S-ATA] [S-ATA] [P-ATA]

> The **Enhanced Mode Support On** appears only when the item **Onboard IDE Operate Mode** is set to **Enhanced Mode**.

Combined Mode Option [Primary P-ATA+S-ATA]

Allows selection of the IDE ports to activate if you are using a **legacy** operating system. Set to [Primary P-ATA+S-ATA] if you wish to use the primary Parallel ATA and Serial ATA ports, or set to [Secondary P-ATA+SATA] to enable the secondary P-ATA port instead. Setting to [P-ATA Ports Only] disables the two Serial ATA ports supported by ICH5. Configuration options: [Primary P-ATA+S-ATA] [Secondary P-ATA+S-ATA] [P-ATA Ports Only]

> The **IDE Port Settings** appears only when the item **Onboard IDE Operate Mode** is set to **Compatible Mode**.

IDE Detect Time Out [35]
Selects the time out value for detecting ATA/ATAPI devices. Confgiuration options: [0] [5] [10] [15] [20] [25] [30] [35]

2.3.6 System Information

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

```
                        BIOS SETUP UTILITY
 Main

   AMI BIOS
   Version    : 08.00.09
   Build Date : 05/27/03

   Processor
   Type       : Intel(R) Pentium(R) 4 CPU 2.53GHz
   Speed      : 2530 MHz
   Count      : 1

   System Memory
   Size       : 256MB
                                             ←→   Select Screen
                                             ↑↓   Select Item
                                             +-   Change Option
                                             F1   General Help
                                             F10  Save and Exit
                                             ESC  Exit

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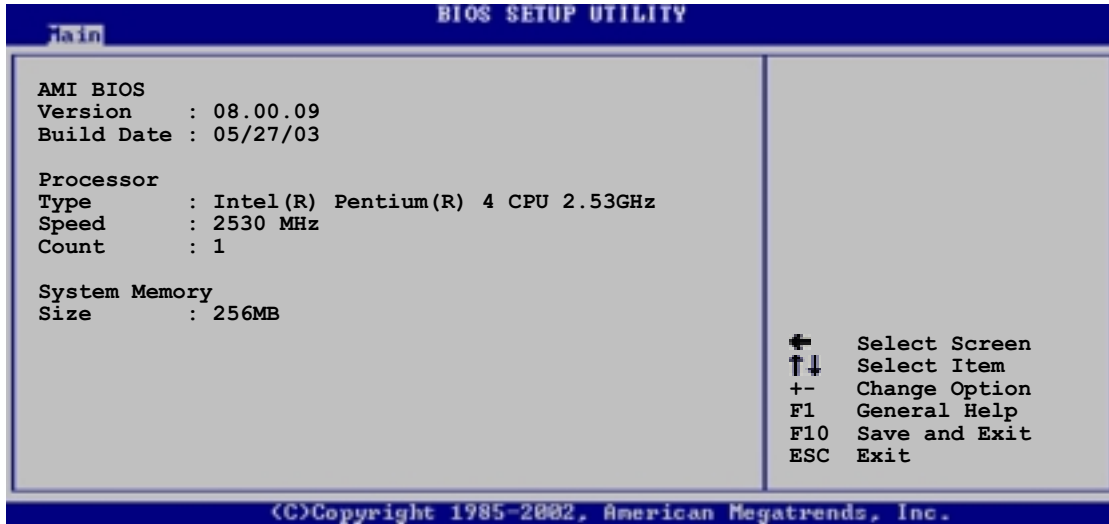
AMI BIOS

This item displays the auto-detected BIOS information.

Processor

This item displays the auto-detected CPU specification.

System Memory

This item displays the auto-detected system memory.

2.4 Advanced menu

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

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

```
                          BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit

    ▶  CPU Configuration                         Configure CPU.
    ▶  Chipset
    ▶  Onboard Devices Configuration
    ▶  PCI PnP
    ▶  USB Configuration




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


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```
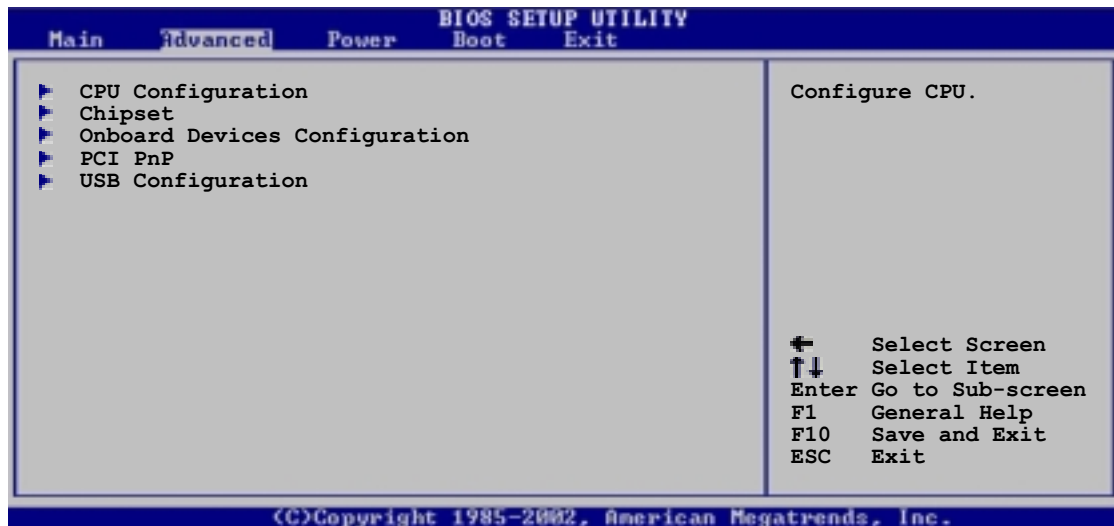
2.4.1 CPU Configuration

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

```
                          BIOS SETUP UTILITY
      Advanced

   Configure advanced CPU settings

   Manufacturer  : Intel(R)
   Brand String  : Intel(R) Pentium(R) 4 CPU 2.53GHz
   Frequency     : 2530 MHz

   Ratio Status  : Locked
   Ratio Actual Value : 18

   Hyper Threading Technology      [Enabled]


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


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```

Hyper-Threading Technology [Enabled]

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

✏️ The item **Hyper-Threading Technology** appears only if you installed an Intel Pentium 4 CPU that supports this feature.

2.4.2 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

  Advanced Chipset settings                          Set the CPU external
                                                     frequency for next
  WARNING: Setting wrong values in the sections below  boot.
           may cause system to malfunction.

  Configure DRAM Timing by SPD      [Enabled]

  Graphic Adapter Priority          [AGP/Int. VGA]
  Onboard Video Memory              [Enabled, 8MB]
  Graphics Aperture Size            [ 64 MB]
  Spread Spectrum                   [Enabled]

  Boot Display Device               [Auto]           ←     Select Screen
  Flat Panel Type                   [640x480 LVDS]    ↑↓    Select Item
  TV Standard                       [Auto]            +-    Change Option
                                                      F1    General Help
  MPS Revision                      [1.4]             F10   Save and Exit
                                                      ESC   Exit

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```

Configure DRAM Timing by SPD [Enabled]

When this item is enabled, the DRAM timing parameters are set according to the DRAM SPD (Serial Presence Detect). When disabled, you can manually set the DRAM timing parameters through the DRAM sub-items. Configuration options: [Disabled] [Enabled]

The following sub-items appear when the item **Configure DRAM Timing by SPD** is set to Disabled.

DRAM CAS# Latency [2.5 Clocks]

This item controls the latency between the SDRAM read command and the time the data actually becomes available. Configuration options: [2.0 Clocks] [2.5 Clocks] [3.0 Clocks]

DRAM RAS# Precharge [4 Clocks]

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

DRAM RAS# to CAS# Delay [4 Clocks]

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

DRAM Precharge Delay [8 Clocks]

Configuration options: [8 Clocks] [7 Clocks] [6 Clocks] [5 Clocks]

DRAM Burst Length [8 Clocks]

Configuration options: [4 Clocks] [8 Clocks]

Graphic Adapter Priority [AGP/Int-VGA]

Allows selection of the graphics controller to use as primary boot device.
Configuration options: [Internal VGA] [AGP/Int-VGA] [AGP/PCI] [PCI/AGP]
[PCI/Int-VGA]

Onboard Video Memory [Enabled, 8MB]

Allows selection of the amount of system memory for use of the internal grpahic
device. Configuration options: [Disabled] [Enabled, 1MB] [Enabled, 4MB]
[Enabled, 8MB] [Enabled, 16MB] [Enabled, 32MB]

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]

Spread Spectrum [Enabled]

Enabled this item to conduce reduction of EMI. Configuration options: [Disabled]
[Enabled]

Boot Display Device [Auto]

Allows selection of the boot display device. Configuration options: [Auto] [CRT]
[TV] [EFP] [LFP] [CRT+EFP] [CRT+LFP]

Flat Panel Type [640x480 LVDS]

Allows selection of flat panel type.

Configuration options: [640x480 LVDS]   [640x480 CMOS]
                        [800x600 LVDS]   [800x600 CMOS]
                        [1024x768 LVDS]   [1024x768 CMOS]
                        [1280x1024 LVDS]   [1280x1024 CMOS]
                        [1400x1050 LVDS]   [1400x1050 CMOS]
                        [1600x1200 LVDS]   [1600x1200 CMOS]

TV Standard [Auto]

Allows selection of the TV output standard.

Configuration options: [Auto]   [PAL_B]   [SECAM_L]
                                   [NTSC_M]   [PAL_G]   [SECAM_L1]
                                   [NTSC_M_J]   [PAL_D]   [SECAM_B]
                                   [NTSC_433]   [PAL_H]
                                   [NTSC_N]   [PAL_I]
                                                   [PAL_M]
                                                   [PAL_N]
                                                   [PAL_60]

MPS Revision [1.4]

Configuration options: [1.1] [1.4]

2.4.3   Onboard Devices Configuration

```
                          BIOS SETUP UTILITY
        Advanced

   OnBoard Audio                 [Auto]
   OnBoard LAN                   [Enabled]
   OnBoard LAN Boot ROM          [Disabled]

   Serial Port1 Address          [3F8/IRQ4]
   Parallel Port Address         [378]
   Parallel Port Mode            [ECP]
       ECP Mode DMA Channel      [DMA3]
     Parallel Port IRQ           [IRQ7]


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

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```
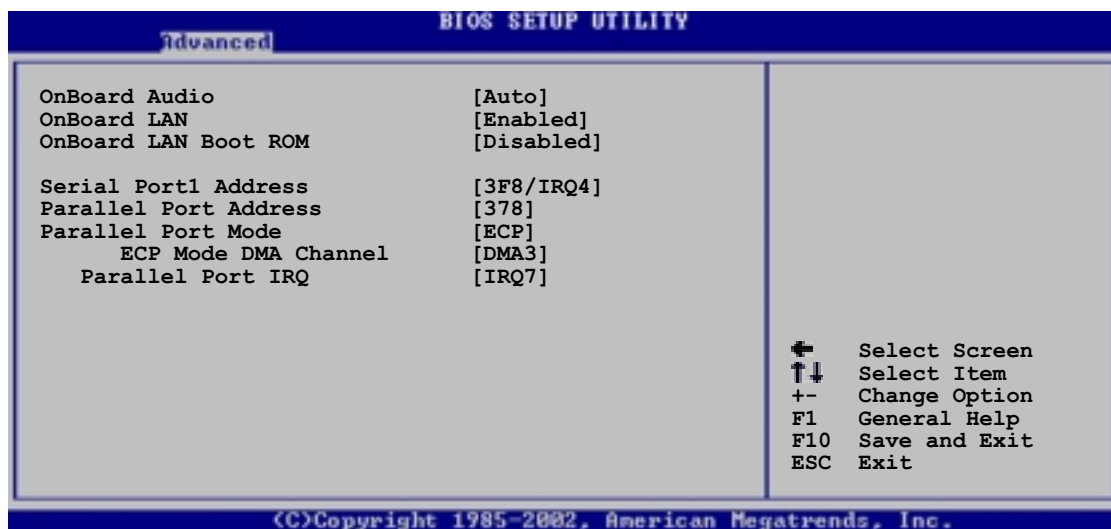
OnBoard Audio [Auto]

[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: [Auto] [Disabled]

OnBoard LAN [Enabled]

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

OnBoard LAN Boot ROM [Disabled]

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

Serial Port1 Address [3F8/IRQ4]

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

Parallel Port Address [378]

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

Parallel Port Mode [ECP]

Allows you to select the Parallel Port mode. Configuration options: [Bi-directional] [EPP] [ECP]

ECP Mode DMA Channel [DMA3]

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

EPP Version [1.9]

Allows selection of the Parallel Port EPP version. This item appears only when the **Parallel Port Mode** is set to **EPP**. Configuration options: [1.9] [1.7]

Parallel Port IRQ [IRQ7]

Allows you to select the Parallel Port IRQ. Configuration options: [IRQ5] [IRQ7]

2.4.4 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.

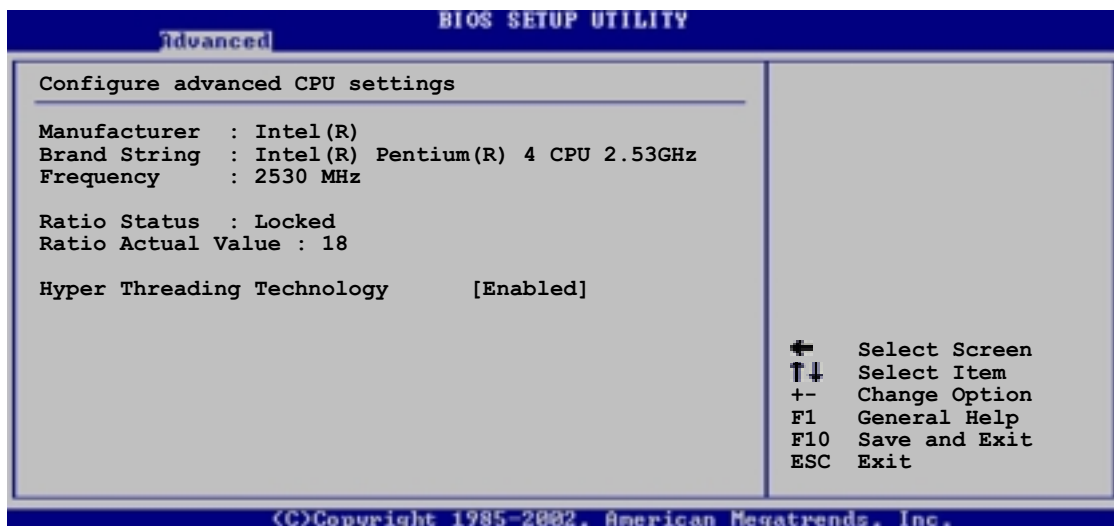⚠ Take caution when changing the settings of the PCI PnP menu items. Incorrect field values may cause the system to malfunction.

```
                        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
                                                      operating system
    Plug and Play OS              [No]                configure Plug and
    PCI Latency Timer            [64]                Play (PnP) devices not
    Allocate IRQ to PCI VGA     [Yes]               required for boot if
    Palette Snooping             [Disabled]          your system has a Plug
    PCI IDE BusMaster           [Enabled]            and Play operating
                                                      system.
    IRQ3                         [Available]
    IRQ4                         [Available]         ←    Select Screen
    IRQ5                         [Available]         ↑↓   Select Item
    IRQ7                         [Available]         +-   Change Option
    IRQ9                         [Available]         F1   General Help
    IRQ10                        [Available]         F10  Save and Exit
    IRQ11                        [Available]         ESC  Exit

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```

Scroll down to display the rest of the menu items

```
    IRQ11                        [Available]
    IRQ14                        [Available]
    IRQ15                        [Available]

    DMA Channel 0                [Available]
    DMA Channel 1                [Available]         ←    Select Screen
    DMA Channel 3                [Available]         ↑↓   Select Item
    DMA Channel 5                [Available]         +-   Change Option
    DMA Channel 6                [Available]         F1   General Help
    DMA Channel 7                [Available]         F10  Save and Exit
                                                      ESC  Exit
    Reserved Memory Size         [Disabled]

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```
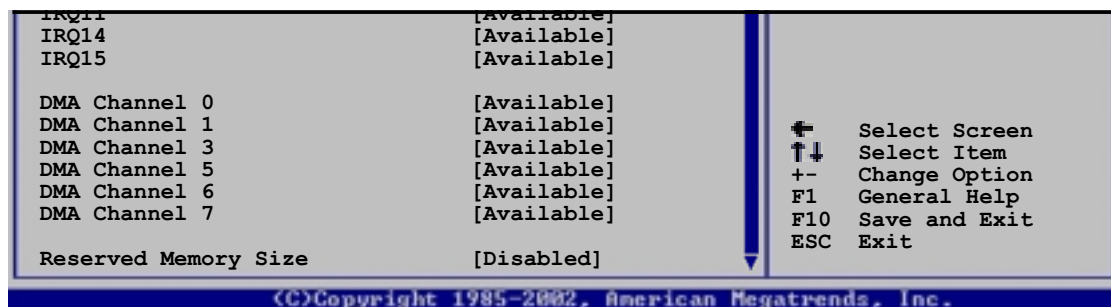
Plug and Play O/S [No]
When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you installed a Plug & Play operating system, the operating system configures the Plug & Play devices not required for boot. Configuration options: [No] [Yes]

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: [Yes] [No]

Pallete 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]

PCI IDE BusMaster [Enabled]

Allows BIOS to use PCI bus mastering when reading/writing to IDE devices. 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]

DMA Channel xx [Available]

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

Reserved Memory Size [Disabled]

Sets the size of memory block reserved for legacy ISA devices. Configuration options: [Disabled] [16K] [32K] [64K]

2.4.5   USB Configuration

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

```
                         BIOS SETUP UTILITY
  Advanced

  USB Configuration                                    Enables USB host
                                                       controllers.
  Module Version  : 2.22.4-5.3

  USB Devices Enabled : None

  USB Function                    [8 USB Ports]
  Legacy USB Support              [Auto]
  USB 2.0 Controller              [Enabled]
  USB 2.0 Controller Mode         [HiSpeed]
  ► USB Mass Storage Device Configuration
                                                    ←    Select Screen
                                                    ↑↓   Select Item
                                                    +-   Change Option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit

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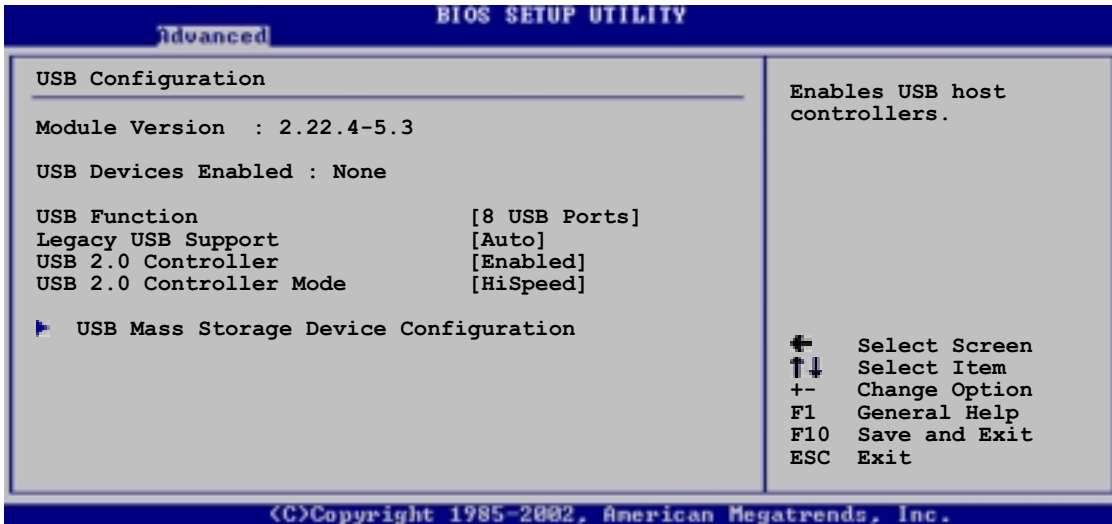
> The Module Version and USB Devices Enabled items show the auto-detected
> values. If no USB device is detected, the item shows None.

USB Function [8 USB Ports]

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

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 [Enabled]

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

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: [Full Speed] [HiSpeed]

USB Mass Storage Device Configuration

```
                          BIOS SETUP UTILITY
   Advanced

   USB Mass Storage Device Configuration           Number of seconds
                                                    POST waits for the USB
   USB Mass Storage Reset Delay    [20 Sec]         mass storage device
                                                    after that start unit
   No USB Mass Storage device detected              command.

     Device #1                    N/A
     Emulation Type               [N/A]
     Device #2                    N/A
     Emulation Type               [N/A]
     Device #3                    N/A
     Emulation Type               [N/A]              ←    Select Screen
     Device #4                    N/A               ↑↓    Select Item
     Emulation Type               [N/A]             +-    Change Option
     Device #5                    N/A               F1    General Help
     Emulation Type               [N/A]             F10   Save and Exit
     Device #6                    N/A               ESC   Exit
     Emulation Type               [N/A]

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```

USB Mass Storage Reset Delay [20 Sec]

Allows you to select the number of seconds POST waits for the USB mass
storage device after the start unit command. The message "No USB mass
storage device detected" appears if none is installed in the system.
Configuration options: [10 Sec] [20 Sec] [30 Sec] [40 Sec]

> The Device items appear only when there are installed USB devices.

Emulation Type [N/A]

When set to Auto, USB devices less than 530MB will be emulated as floppy
drive, and the remaining drives as hard drives. Forced FDD option can be used
to force an HDD formatted drive to boot as FDD (for example, ZIP drive).

2.5 Power menu

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

```
                         BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit

  Suspend Mode              [Auto]              Configure CPU.
  Repost Video on S3 Resume [No]
  ACPI 2.0 Support          [No]
  ACPI APIC Support         [Enabled]
  BIOS -> AML ACPI table    [Enabled]

  ▶ APM Configuration
  ▶ Hardware Monitor


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

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```
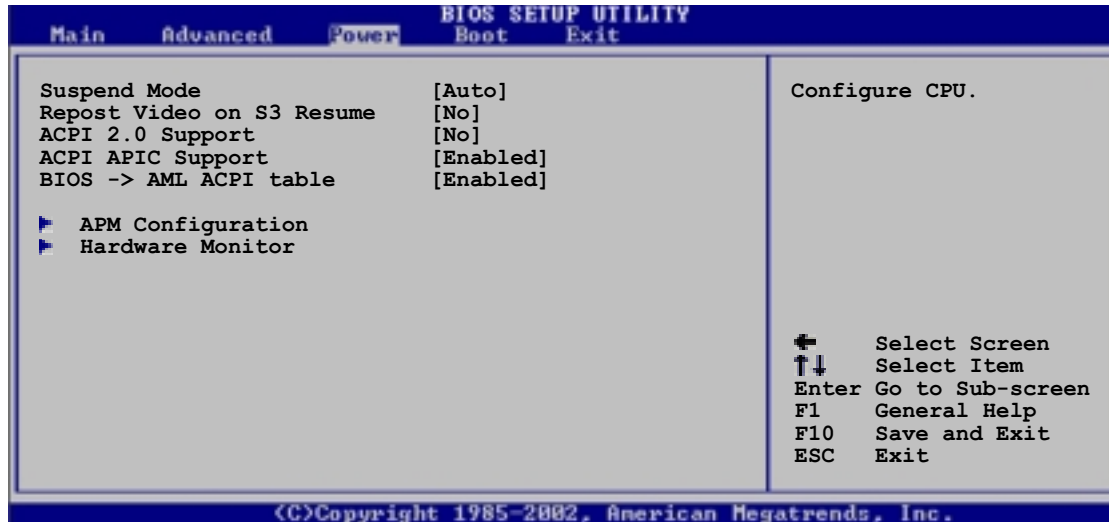
2.5.1 Suspend Mode [Auto]

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

2.5.2 Repost Video on S3 Resume [No]

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

2.5.3 ACPI 2.0 Support [No]

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

2.5.4 ACPI APIC Support [Enabled]

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

2.5.5 BIOS -> AML ACPI Table [Enabled]

Allows you to enable or disable the inclusion of the BIOS ->AML exchange pointer to (X)RSDT pointer list. Configuration options: [Disabled] [Enabled]

2.5.6 APM Configuration

```
                        BIOS SETUP UTILITY
                 Power

 APM Configuration                                     Enabled or disable
                                                       APM.
 Power Management/APM           [Enabled]
 Video Power Down Mode          [Suspend]
 Hard Disk Power Down Mode      [Suspend]
 Suspend Time Out               [Disabled]
 Throttle Slow Clock Ratio      [50%]

 System Thermal                 [Disabled]

 Power Button Mode              [On/Off]
 Restore on AC Power Loss       [Power Off]
                                                       →←   Select Screen
 Resume on RTC Alarm            [Disabled]             ↑↓   Select Item
 Resume on Ring                 [Disabled]             +-   Change Option
 Resume on PME#                 [Disabled]             F1   General Help
                                                       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: [Disbaled] [Enabled]

Video Power Down Mode [Suspend]

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

Hard Disk Power Down Mode [Suspend]

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

Suspend Time Out [Disabled]

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

Throttle Slow Clock Ratio [50%]

Allows you to select the duty cycle in throttle mode. Configuration options: [87.5%] [75.0%] [62.5%] [50%] [37.5%] [25%] [12.5%]

System Thermal [Disabled]

Allows you to enable or disable the system thermal feature to generate a power management event. Configuration options: [Disabled] [Enabled]

Power Button Mode [On/Off]

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

Restore on AC Power Loss [Power Off]

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

Resume on RTC Alarm [Disabled]

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

Resume on Ring [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.

Resume on PME# [Disabled]

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

2.5.7 Hardware Monitor

```
                           BIOS SETUP UTILITY
                  Power

 Hardware Monitor                                    CPU temperature

 CPU Temperature             [44°C/111°F]
 MB Temperature              [36°C/96.5°F]

 CPU Fan Speed               [2250RPM]
 Chassis Fan Speed           [XXX RPM]

 VCORE Voltage               [1.550V]
 3.3V Voltage                [3.386V]
 5V Voltage                  [4.890V]
 12V Voltage                 [11.900V]
                                                ←      Select Screen
                                                ↑↓     Select Item
                                                +-     Change Option
                                                F1     General Help
                                                F10    Save and Exit
                                                ESC    Exit


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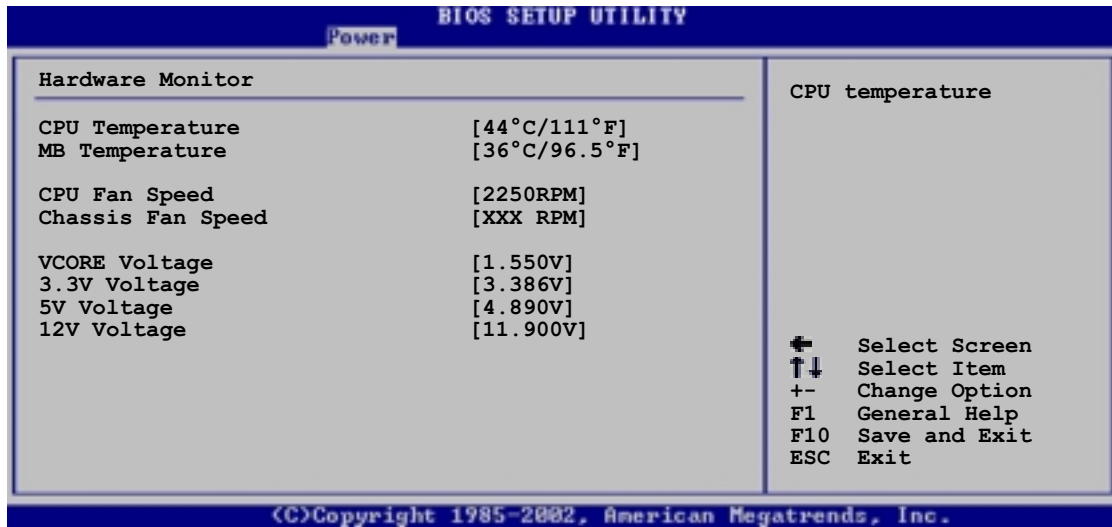
MB Temperature [xxxC/xxxF]
CPU Temperature [xxxC/xxxF]

The onboard hardware monitor automatically detects and displays the
motherboard and CPU temperatures.

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.

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

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

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

2.6   Boot menu

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
                                              Device Priority
   ▶  Boot Device Priority                    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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```

2.6.1   Boot Device Priority

```
                         BIOS SETUP UTILITY
                             Boot

   Boot Device Priority                       Specifies the boot
                                              sequence from the
   1st Boot Device        [First Floppy Drive] available devices.
   2nd Boot Device        [PM-ST320413A]
   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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```
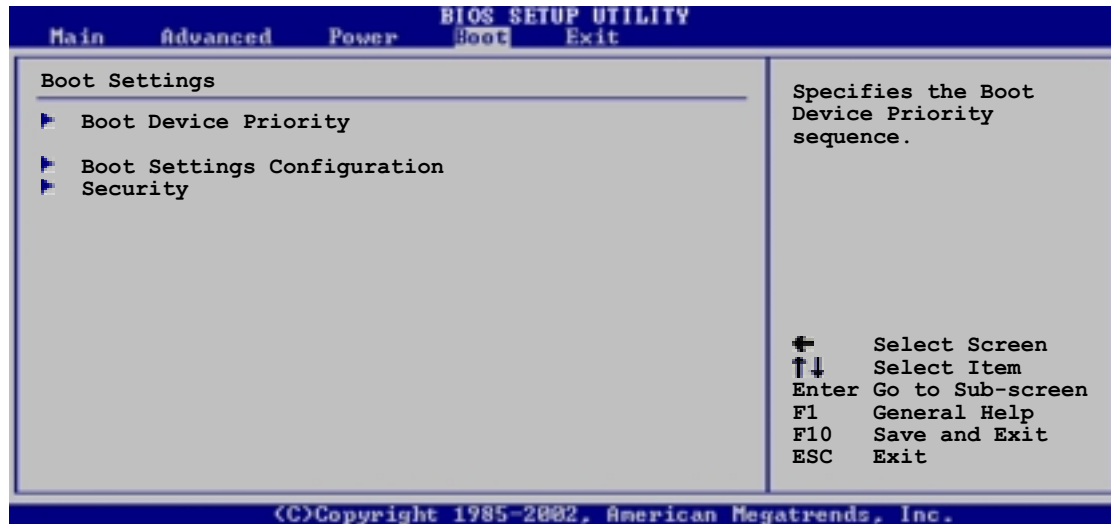
1st ~ xxth Boot Device [1st Floppy Drive]

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]

2.6.2 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]
 Typematic Rate          [Fast]
 Boot to OS/2            [No]
 Wait for 'F1' If Error  [Enabled]
 Hit 'DEL' Message Display [Enabled]
                                                 ←   Select Screen
                                                 ↑↓  Select Item
                                                 +-  Change Option
                                                 F1  General Help
                                                 F10 Save and Exit
                                                 ESC Exit

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```
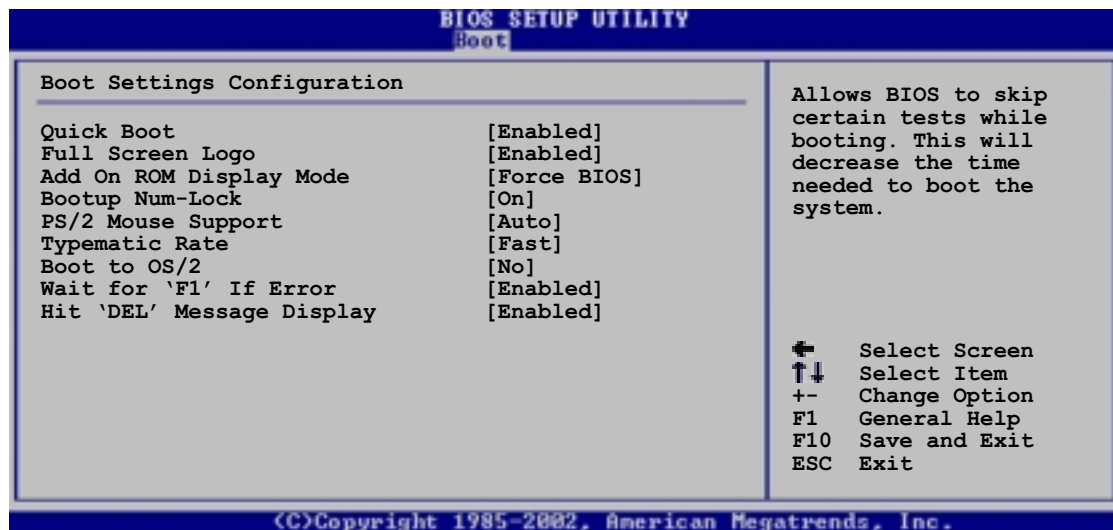
Quick Boot [Enabled]

Enabling this item allows 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]

Setting to [Disabled] displays the normal POST messages. Setting to [Enabled] displays the OEM logo instead of the POST messages. Configuration options: [Disabled] [Enabled]

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]

Typematic Rate [Fast]

Allows you to select the keyboard typematic rate. Configuration options: [Slow] [Fast]

Boot to OS/2 [No]

Allows you to specify the OS/2 compatibility mode. Configuration options: [No] [Yes]
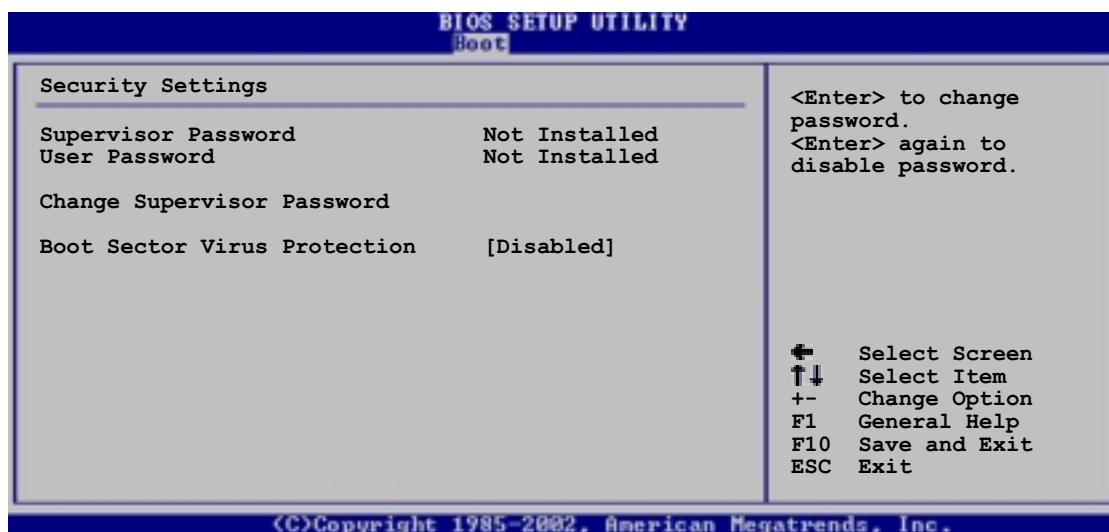
Wait for 'F1' If Error [Enabled]

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]

2.6.3   Security

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

```
                         BIOS SETUP UTILITY
                            Boot

    Security Settings                              <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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```

Set a 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**.
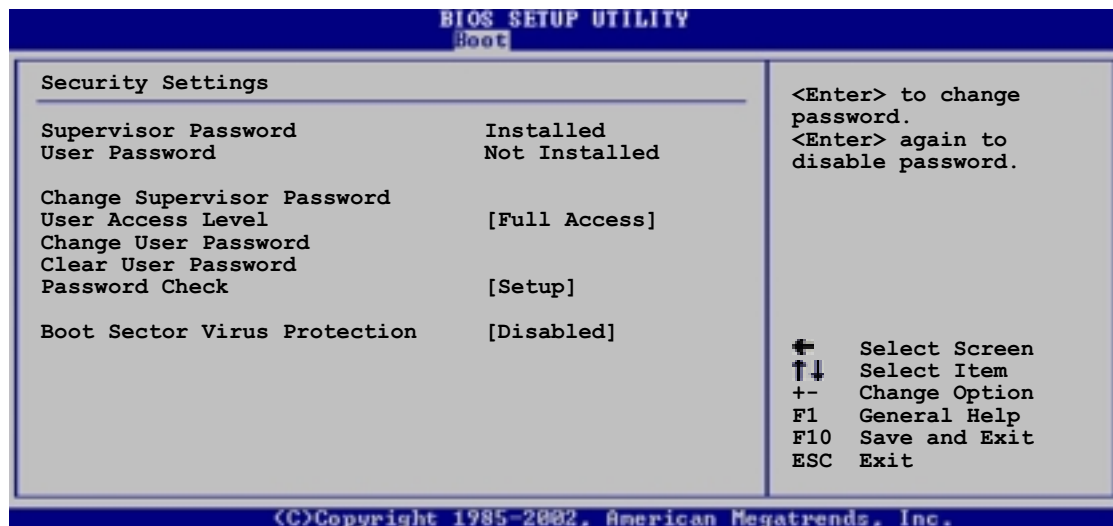
To set a Supervisor Password:

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**.

Change the Supervisor Password

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

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

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.
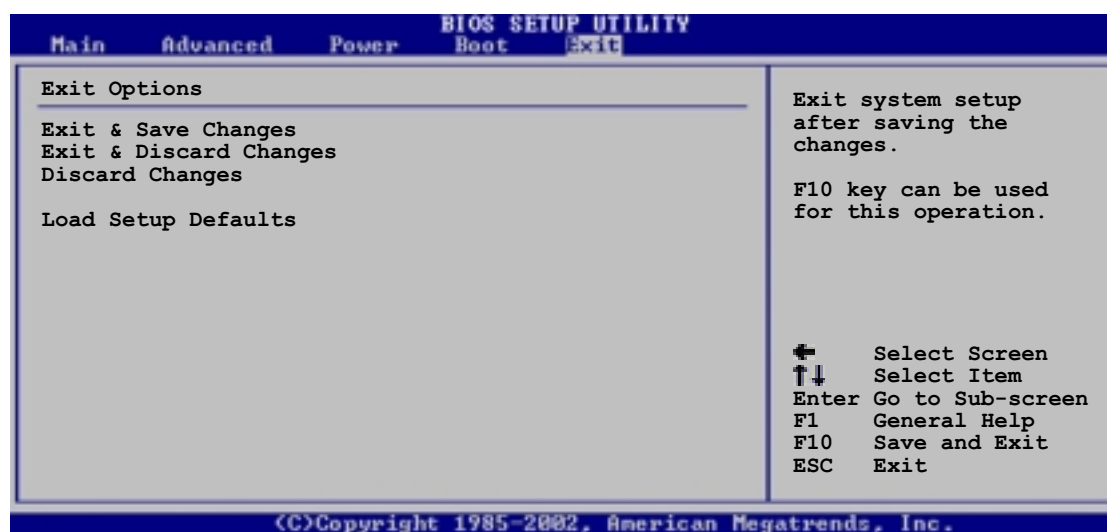
Password Check [Setup]

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]

2.7   Exit menu

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

```
                          BIOS SETUP UTILITY
   Main     Advanced     Power     Boot     Exit

  Exit Options                                      Exit 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.
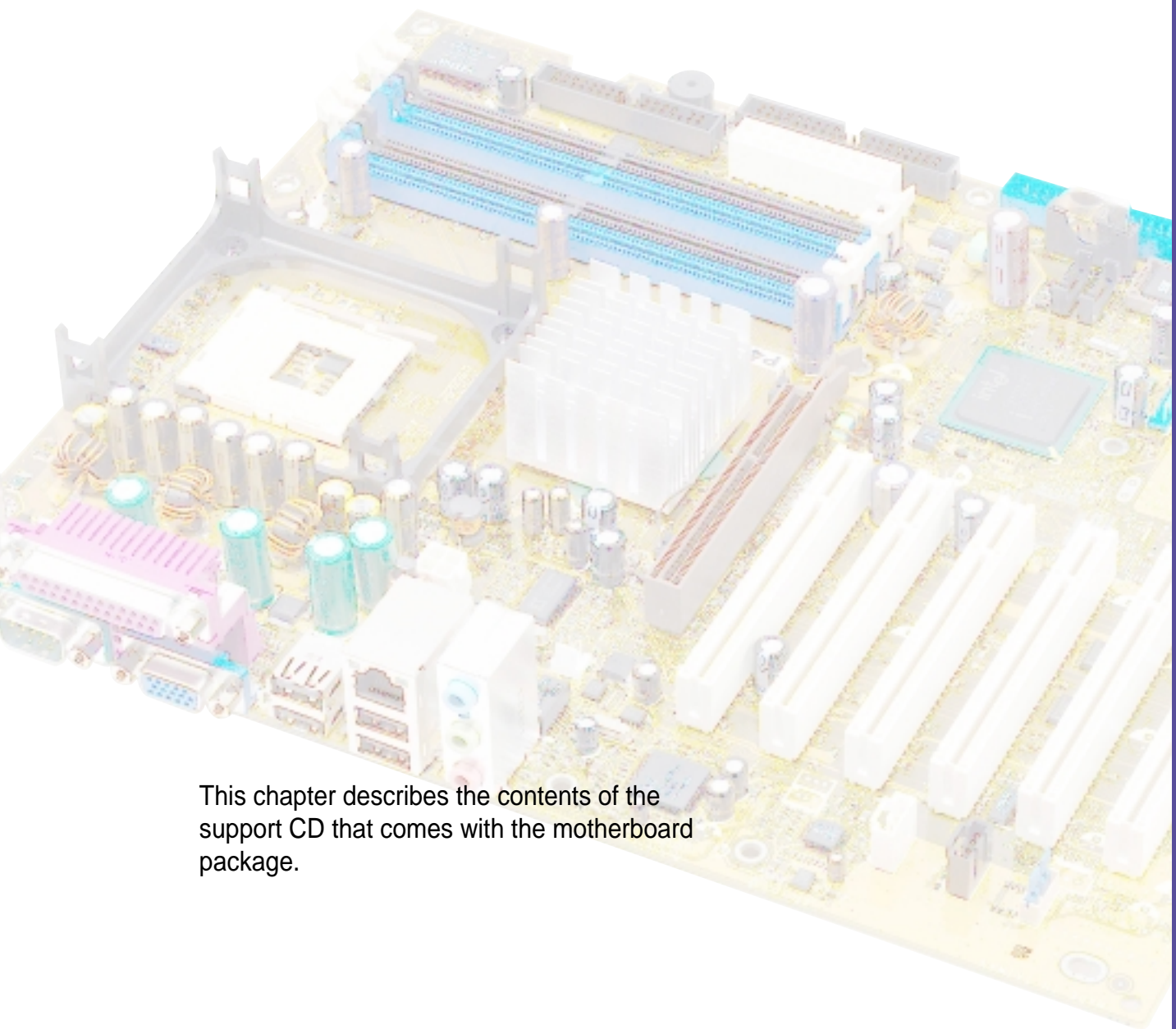
Load Setup Defaults

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

3.1 Install an operating system

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

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

3.2 Support CD information

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

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

3.2.1 Running the support CD

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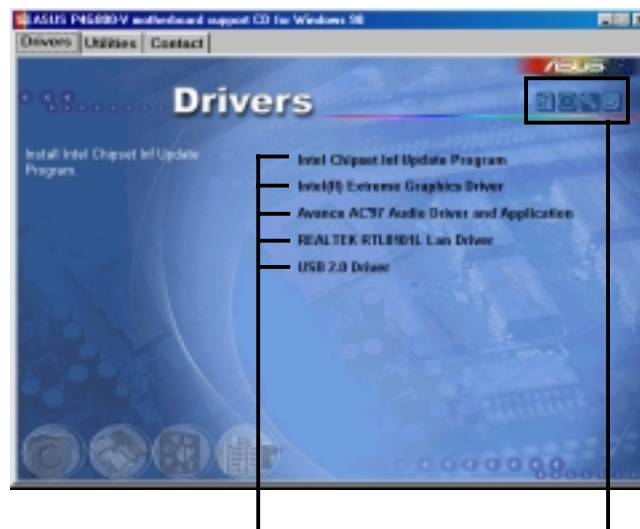
Click an item to install   **Click an icon to display more information**

> 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.

3.2.2 Drivers menu

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

Intel® Chipset Inf Update program

This item installs the Intel® Chipset INF Update Program that enables Plug-n-Play INF support for Intel chipset components. This utility installs to the target system the Windows INF files that outline to the operating system how the chipset components will be configured. Refer to the online help or readme file that came with the utility.

Intel® Extreme Graphics 2 Driver

This item installs the Intel Extreme Graphics 2 driver to support 3D graphical applications.

Avance AC'97 Audio Driver and Application

This item installs the Avance AC'97 audio driver and application to activate the 6-channel audio feature.
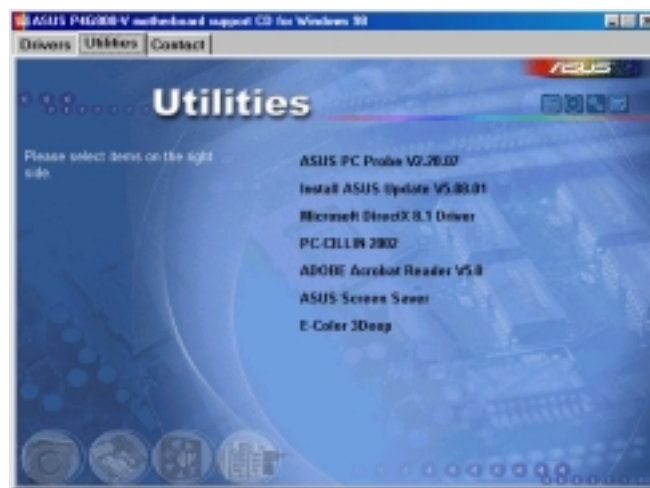
Realtek RTL8101L LAN Driver

This item installs the Realtek 8101L Fast Ethernet driver to support 10/100 Mbps networking.

USB 2.0 Driver

This item installs the USB 2.0 driver.

3.2.3 Utilities menu

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

ASUS PC Probe

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

Install ASUS Update

This program allows you to download the latest version of the BIOS from the ASUS website. Before using the ASUS Update, make sure that you have an Internet connection so you can connect to the ASUS website. Installing ASUS Update also installs ASUS Mylogo2™.

Microsoft Direct X Driver

This item installs the Microsoft Direct X driver.

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

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.

E-Color 3Deep

This item installs the 3Deep software. 3Deep is the first application that gives online gamers the competitive edge in multi-player skirmishes. This application removes dark washed-out graphics to deliver true vibrant colors.

3.2.4   ASUS Contact Information

Clicking the ASUS Contact Information tab displays as stated. You may also find this information on page viii of this user guide.