P4B533-X

Motherboard

User Guide

E1458

First Edition
November 2003

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Notices

Federal Communications Commission Statement

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

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

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

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

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

Canadian Department of Communications Statement

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

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

Safety information

Electrical safety

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

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

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

- Seek professional assistance before using an 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 the inside front cover.

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.

P4B533-X specification summary

CPU	Socket 478 for Intel® Pentium® 4 / Celeron processors with speeds up to 3.06GHz+ Intel® Hyper-Threading technology ready
Chipset	Intel 845E MCH Intel ICH4
Front Side Bus (FSB)	800*/533/400 MHz * Overclocking mode
Memory	2 x 184-pin DDR DIMM sockets for up to 2GB memory Supports PC3200*/PC2700*/PC2100/PC1600 unbuffered non-ECC DDR DIMMs * Overclocking feature support PC3200/PC2700
Expansion slots	1 x AGP 4X (1.5V only) 4 x PCI
Storage	2 x UltraDMA 100/66/33
Audio	ADI AD1888 SoundMAX 6-channel audio CODEC S/PDIF out interface
LAN	Realtek 10/100 Mbps Ethernet LAN controller
USB	Supports 6 USB 2.0 ports
Special features	ASUS EZ Flash ASUS CrashFree BIOS2 ASUS MyLogo ASUS C.P.R (CPU Parameter Recall) STR (Suspend-To-RAM) STD (Suspend-To-Disk) Wake-On-Ring, Wake-On-LAN Wake-On-Keyboard, Wake-On-Mouse Support for S/PDIF-out on back of I/O port
Extreme Overclocking	ASUS JumperFree ASUS C.P.R. (CPU Parameter Recall) SFS (Stepless Frequency Selection) from 100MHz up to 266MHz at 1MHz increment Adjustable FSB/DDR ratio AGP/PCI Asynchronous Mode with FSB
Rear panel I/O	1 x Parallel port 1 x Serial port 1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x S/PDIF out port 1 x RJ-45 port 4 x USB 2.0/1.1 ports Line In/Line Out/Microphone ports

P4B533-X specification summary

Internal I/O connectors	CPU/Chassis FAN connectors 20-pin ATX power connector 4-pin ATX 12V power connector GAME/MIDI connector CD/AUX audio in Front panel audio connector 1 x USB 2.0 connector supports additional 2 USB 2.0 ports 20-pin Panel connector
BIOS features	3Mb Flash ROM, AMI BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.3, ACPI, ASUS EZ Flash, ASUS MyLogo, ASUS CrashFree BIOS2, ASUS C.P.R.
Industry standard	PCI 2.2, USB 2.0/1.1
Manageability	WfM2.0, DMI2.0, WOR by PME, WOL by PME
Form Factor	ATX form factor: 12 in x 7 in (30.5 cm x 17.8 cm)
Support CD contents	Device drivers ASUS PC Probe ASUS LiveUpdate Trend Micro™ PC-cillin 2002 anti-virus software (OEM version)

* Specifications are subject to change without notice.

Chapter 1

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

Product introduction

1.1   Welcome!

Thank you for buying the ASUS® P4B533-X motherboard!

The motherboard incorporates the Intel® Pentium® 4 processor in a 478-pin package coupled with the Intel® 845E chipset to set a new benchmark for an effective desktop platform solution.

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

1.2   Package contents

Check your motherboard package for the following items.

- ✓ ASUS motherboard
- ✓ ASUS motherboard support CD
- ✓ 80-conductor UltraATA IDE cable
- ✓ Ribbon cable for a 3.5-inch floppy drive
- ✓ I/O shield
- ✓ Bag of extra jumper caps
- ✓ User Guide

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

1.3 Special features

1.3.1 Product highlights

Latest processor technology

The motherboard supports the latest Intel® Pentium® 4 or Celeron processor via a 478-pin surface mount ZIF socket. The Pentium 4 processor with 512KB L2 cache on 0.13 micron processor includes a 800*/533/400 MHz system bus, Intel® Hyper-Threading Technology and the FMB2 power design that allows up to 3.06+ GHz core frequencies for up to 6.4GB/s data transfer rates. (* Overclocking mode) See page 1-8.

Integrated 10/100 LAN

The onboard LAN controller is a highly integrated Fast Ethernet controller. It is enhanced with an ACPI management function to provide efficient power management for advanced operating systems. See page 1-16.

Extreme Overclocking

The motherboard offers robust overclocking options to maximize your system performance. Overclocking features include: the SFS (Stepless Frequency Selection) feature, an adjustable FSB/DDR ratio and the ASUS C.P.R. (CPU Parameter Recall).

6 USB 2.0 ports

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. The higher bandwidth of USB 2.0 allows connection of devices such as high resolution video conferencing cameras, next generation scanners and printers, and fast storage units. USB 2.0 is backward compatible with USB 1.1. See page 1-19.

6-channel audio

The ADI AD1888 SoundMAX AC '97 audio CODEC is onboard to provide 6-channel audio playback for 5.1 surround sound, over 90dB dynamic range, and stereo Mic PREAMP. See pages 1-16, 3-3.

S/PDIF out

The motherboard supports S/PDIF out function turns your computer into a high-end entertainment system with digital connectivity to powerful sound systems. See page 1-16, 3-3.

1.3.2   Unique ASUS features

CrashFree BIOS 2

This feature allows you to restore the original BIOS data from a floppy disk or support CD in case when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. Page 2-6.

ASUS MyLogo™

This new feature present in the motherboard allows you to personalize and add style to your system with customizable boot logos. To use the MyLogo feature, enable the **Quick Boot** item in the BIOS. See page 3-4.

C.P.R. (CPU Parameter Recall)

The C.P.R. feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and BIOS automatically restores the CPU's previous setting for each parameter. See page 1-14.

ASUS EZ Flash BIOS

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

1.4 Before you proceed

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

⚠️

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

Onboard LED

The motherboad comes with a stand-by power LED. When lit, the green LED indicates that the system is ON, in sleep mode, or in soft-off mode, a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.

SB_PWR1

ON
Standby
Power

OFF
Powered
Off
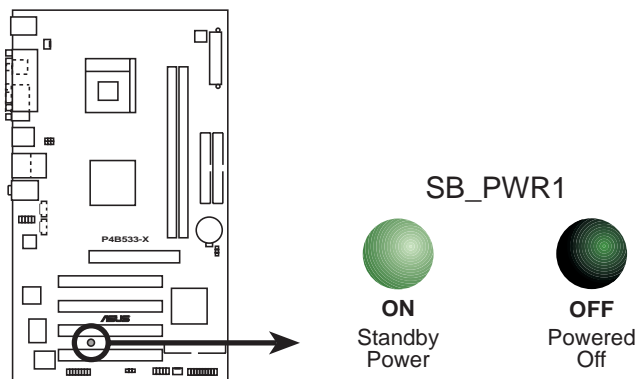
P4B533-X Onboard LED

1.5 Motherboard overview

1.5.1 Motherboard layout

The motherboard layout diagram for the P4B533-X with the following labeled components:

- PS/2KBMS — T: Mouse, B: Keyboard
- CPU_FAN1
- ATX12V1
- ATX Power Connector
- SPDIF_O
- PARALLEL PORT
- COM1
- Socket 478
- DDR DIMM1 (64 bit,184-pin module)
- DDR DIMM2 (64 bit,184-pin module)
- SEC_IDE
- PRI_IDE
- USB1 USB2
- USBPW12 USBPW34
- USB2.0 — T: USB4, B: USB3, Top: RJ-45
- Intel 82845E MCH
- Top:Line In, Center:Line Out, Below:Mic In
- CD1
- AUX1
- FP_AUDIO1
- CR2032 3V Lithium Cell CMOS Power
- AD1888
- P4B533-X
- CLRTC
- Accelerated Graphics Port (AGP)
- PCI1
- RTL 8101L
- PCI2
- Intel 82801DE ICH4
- Super I/O
- PCI3
- SB_PWR1
- 3Mbit BIOS
- PCI4
- FLOPPY1
- GAME1
- CHA_FAN1
- USBPW56
- USB56
- PANEL1

1.5.2 Placement direction

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

1.5.3 Screw holes

Place seven (7) screws into the holes indicated by circles to secure the motherboard to the chassis.

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

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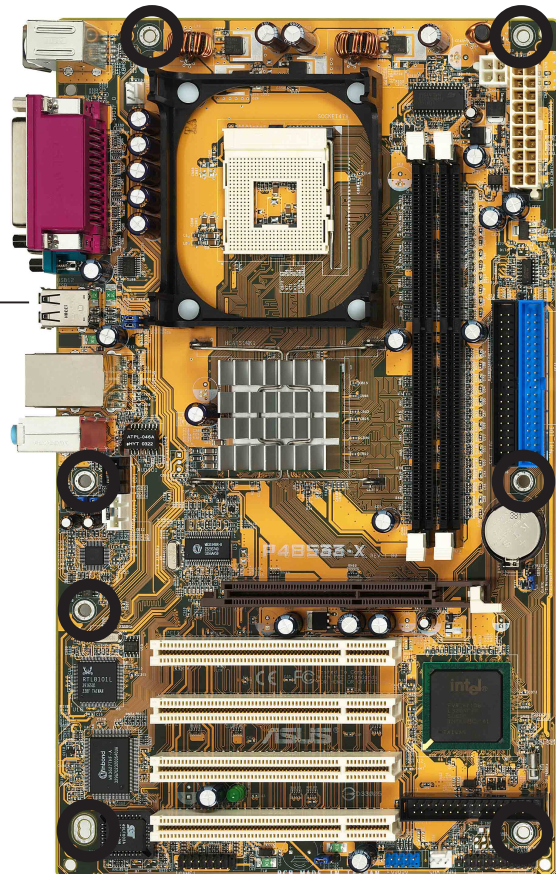
1.6   Central Processing Unit (CPU)

1.6.1   Overview

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

← Gold Arrow
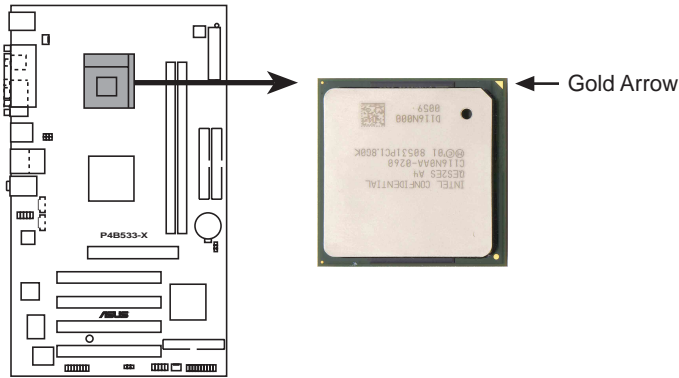
P4B533-X Socket 478

⚠️ 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. The motherboard automatically detects an installed Intel Pentium 4 CPU with Hyper-Threading Technology support.

2. To verify the Hyper-Threading feature, go to the Windows OS **System Properties -> Hardware -> Device Manager -> Processors**. The list should display two existing processors.

3. Hyper-Threading Technology is supported under **Windows® XP™** and later versions only.

4. It is recommended that you install Windows® XP™ Service Pack 1.

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

1.6.2 Installing the CPU

Follow these steps to install a CPU.

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

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

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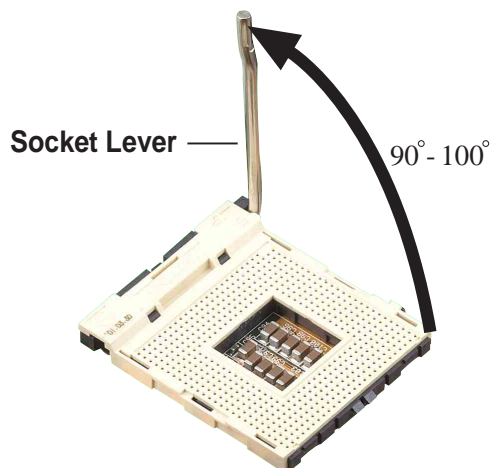
Socket Lever —— $90° - 100°$

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

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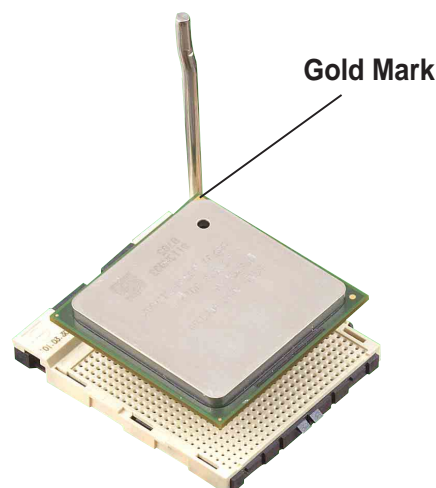
5. When the CPU is in place, push down
    the socket lever to secure the CPU.
    The lever clicks on the side tab to
    indicate that it is locked.

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.

1.7   System memory

1.7.1   DIMM sockets location

The following figure illustrates the location of the DDR DIMM sockets. You may install 64MB, 128MB, 256MB, 512MB, and 1GB unbuffered DDR DIMMs into this motherboard.
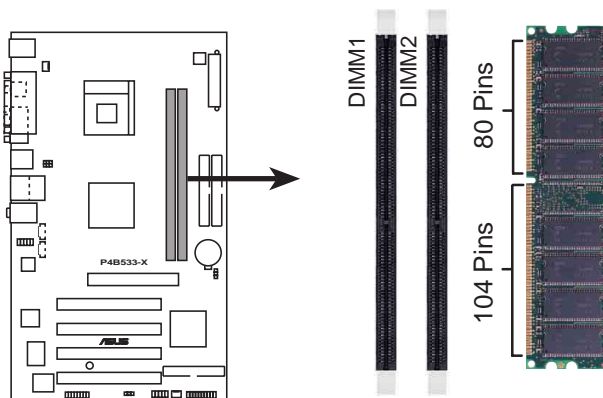
P4B533-X 184-Pin DDR DIMM Sockets

1. 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.
2. When installing long AGP cards, it is recommended to install the memory modules first. Long AGP cards, when installed, may interfere with the memory sockets.

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

Table 1   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*	400/333* MHz
533 MHz	PC3200**/PC2700**/PC2100/PC1600	400**/333**/266/200 MHz
400 MHz	PC2100/PC1600	266/200 MHz

* When using 800MHz CPU FSB, PC2700 DDR DIMMs run only at 300MHz (not 333MHz)
** When using 533MHz CPU FSB, PC3200/2700 DDR DIMMs may run only at 355MHz/ 266MHz (not 400/333MHz) due to chipset limitation.

It is recommended to populate only one DIMM slot when using FSB800/DDR400, FSB800/DDR300 and FSB533/DDR355 overlocking mode features.

1.7.2   Installing a DIMM

Follow these steps to install a DIMM.

DDR DIMM notch

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.

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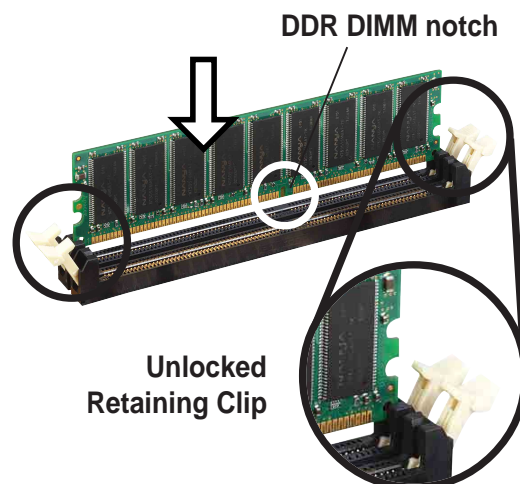
> A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT
> force a DIMM into a socket to avoid damaging the DIMM.

1.8   Expansion slots

To install and configure an expansion card:

1. Install an expansion card following the instructions that came with the chassis.

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 next page.

4. Install the drivers and/or software applications for the expansion card
    according to the card documentation.

1.8.1   Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
3*	11	IRQ holder for PCI steering
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.

1.8.2   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	—	—	—	—	—	—	—
AGP slot	shared	—	—	—	—	—	—	—
Onboard USB controller	shared	—	shared	shared	—	—	—	used
Onboard LAN	—	shared	—	—	—	—	—	—
Onboard Audio	—	shared	—	—	—	—	—	—

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

1.8.3   PCI slots

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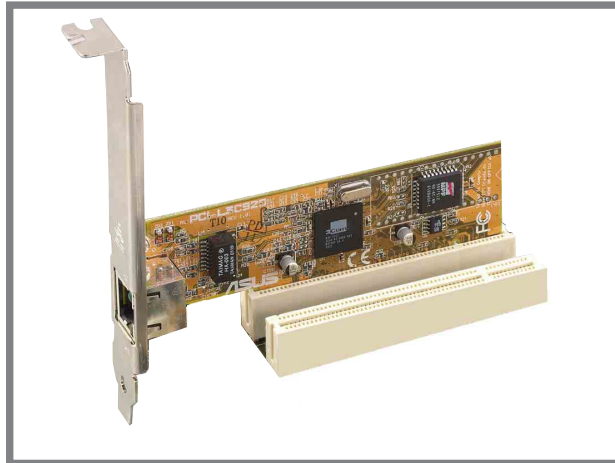
1.8.4   AGP slot

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

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

Install only +1.5V AGP cards.
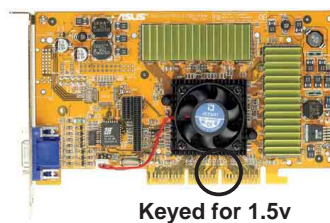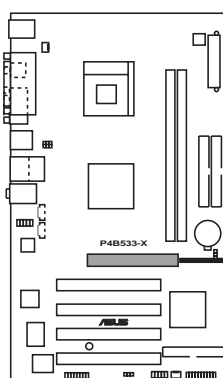
Keyed for 1.5v

P4B533-X Accelerated Graphics Port (AGP)

1.9 Jumpers

1. Clear RTC RAM (CLRTC)

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.

2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.

3. Plug the power cord and turn ON the computer.

4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

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

CLRTC

2 1 Normal (Default)

3 2 Clear CMOS
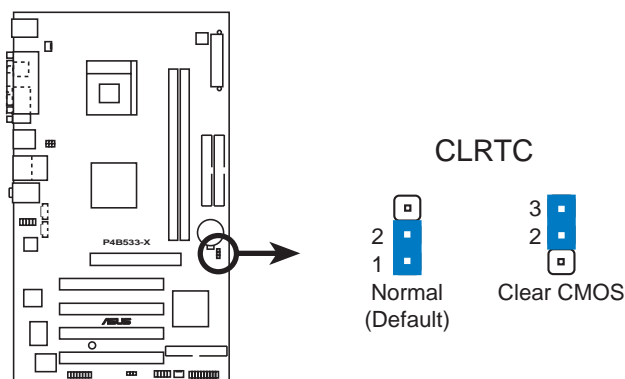
P4B533-X Clear RTC RAM

> You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so BIOS can automatically reset parameter settings to default values.

2. USB device wake-up (3-pin USBPW12, USBPW34, USBPW56)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 sleep mode (no power to CPU, DRAM in slow refresh, power supply in reduced power mode). Both jumpers are set to pins 1-2 (+5V) by default because not all computers have the appropriate power supply to support this feature.

The USBPW12, USBPW34 and USBPW56 jumpers are for the rear USB ports. USBPW12 is also for the PS/2 keyboard or mouse power.

See section "2.5.8 APM Configuration" for proper BIOS settings.

1. This feature requires a power supply that can provide at least 2A on the +5VSB lead when these jumpers are set to +5VSB. Otherwise, the system would not power up.

2. Set the USBPW12 jumper pin to 2-3(+5VSB) if you want to use the Wake-On-PS/2 keyboard or mouse feature.

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

4. The USB ports do not support device wake-up from S4 sleep mode.

P4B533-X USB Device Wake Up
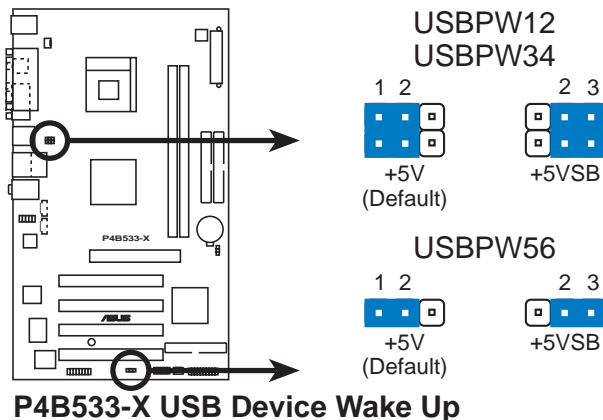
1.10   Connectors

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

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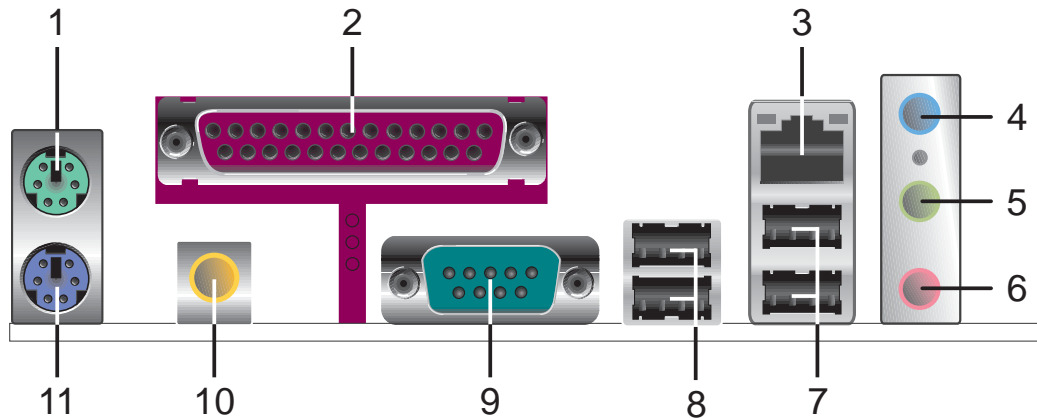
1. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.

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

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

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

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

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

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

Audio 2, 4 or 6-channel configuration

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

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

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

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

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

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

1.10.2 Internal connectors

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

This connector supports the provided UltraATA100 IDE hard disk ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraATA100 slave device (hard disk drive) and the black connector to the UltraATA100 master device.

1. Follow the hard disk drive documentation when setting the device in master or slave mode.

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

3. The hole near the blue connector on the UltraATA cable is intentional.

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

SEC_IDE   PRI_IDE

PIN 1   PIN 1
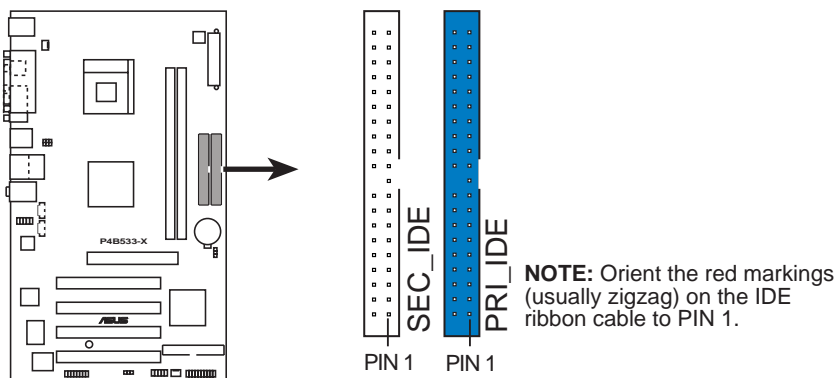
P4B533-X IDE Connectors

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

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

FLOPPY

PIN 1

NOTE: Orient the red markings on the floppy ribbon cable to PIN 1.
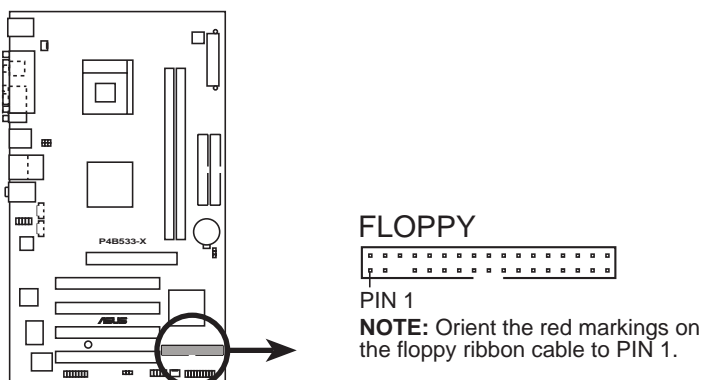
P4B533-X Floppy Disk Drive Connector

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

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

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

> Make sure that your ATX 12V power supply can provide 12A on the +12V lead and at least 2A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 250W, or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

P4B533-X ATX Power Connector
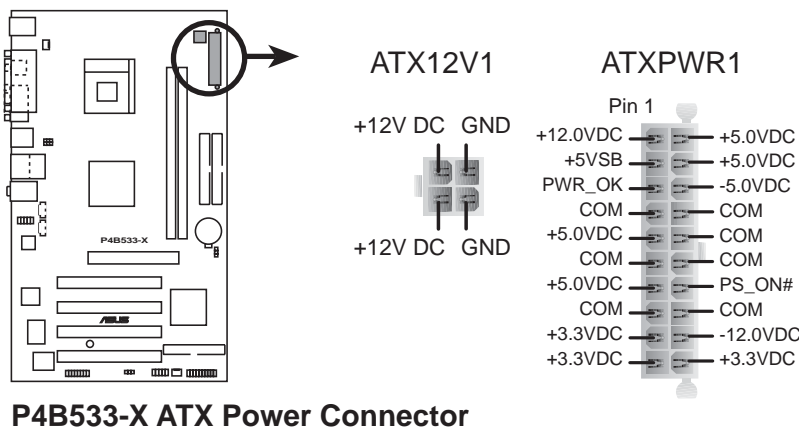
4. Internal audio connectors (4-pin CD1, AUX1)

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

P4B533-X Internal Audio Connectors
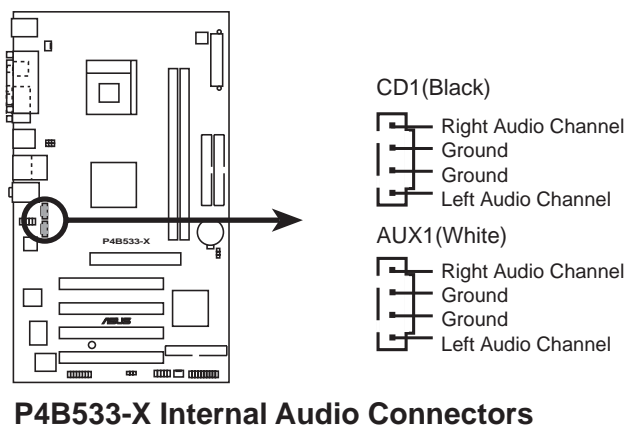
5. CPU and chassis fan connectors (3-pin CPU_FAN1, CHA_FAN1)

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

Rotation
+12V
GND

CHA_FAN1

Rotation
+12V
GND

P4B533-X 12-Volt Fan Connectors
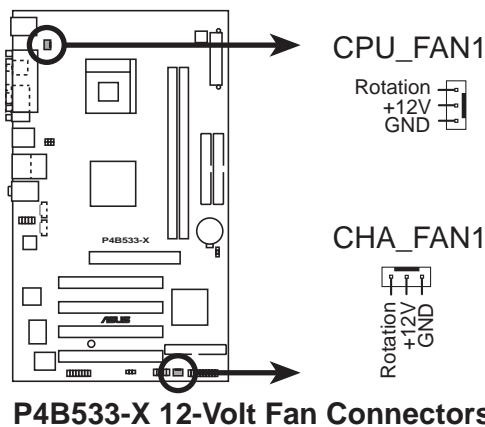
6. USB header (10-1 pin USB56)

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

USB56

USB+5V
USB_P6-
USB_P6+
GND
NC

USB+5V
USB_P5-
USB_P5+
GND

P4B533-X USB 2.0 Header
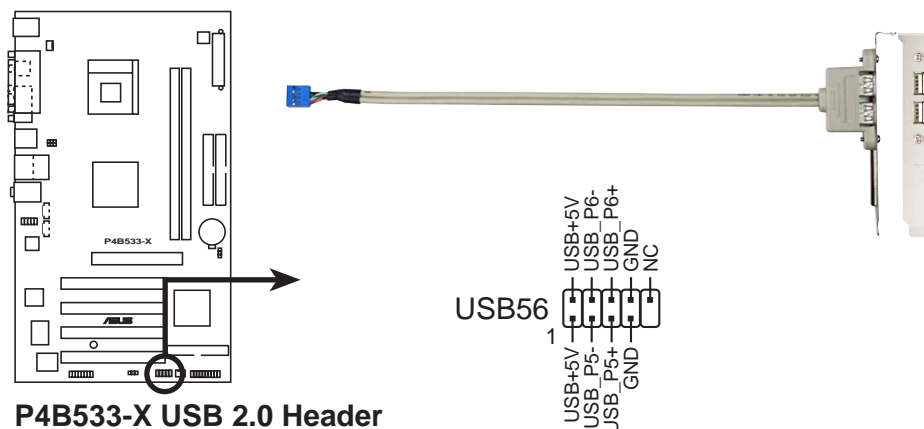
> - NEVER connect a **1394 cable** to the USB_56 connectors. Doing so will damage the motherboard!
> - The USB 2.0 module is purchased separately.

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

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

Be default, the pins labeled LINE OUT_R/BLINE_OUT_R and the pins LINE OUT_L/BLINE_OUT_L are shorted with jumper caps. Remove the caps only when you are connecting the front panel audio cable.
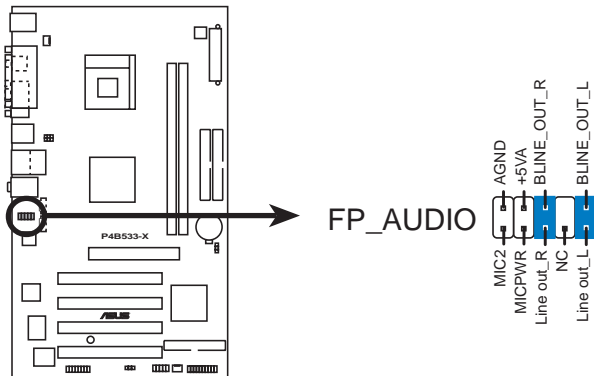
P4B533-X Front Panel Audio Connector

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

This connector supports a GAME/MIDI module. If a GAME/MIDI module is available, connect the GAME/MIDI cable to this connector. The GAME/MIDI port on the module connects a joystick or a game pad for playing games, and MIDI devices for playing or editing audio files.
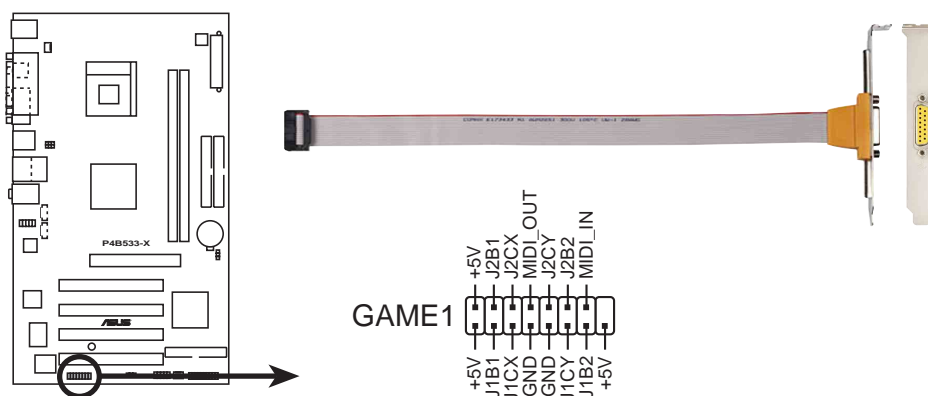
P4B533-X Game Connector

The GAME/MIDI module is purchased separately.

9. System panel connector (20-pin PANEL)

This connector accommodates several system front panel functions.
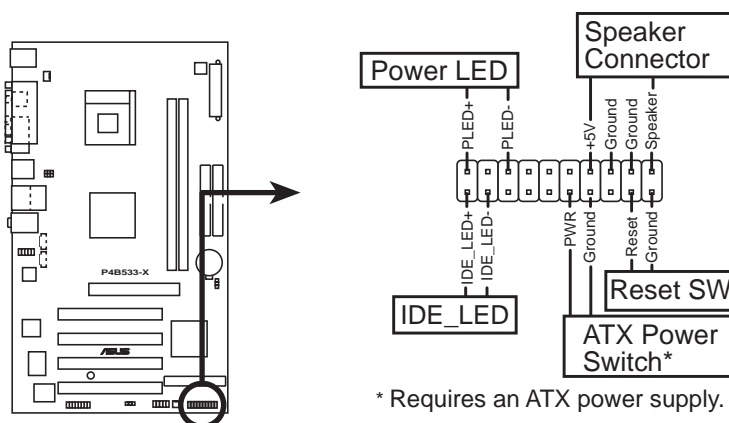
P4B533-X System Panel Connectors

* Requires an ATX power supply.

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

  This 3-1 pin connector connects to the system power LED. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

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

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

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

  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.

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

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

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

BIOS information

2.1   Managing and updating your BIOS

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

1. **AFUDOS** *(Updates the BIOS in DOS mode using a bootable floppy disk.)*
2. **ASUS EZ Flash** *(Updates the BIOS using a floppy disk during POST.)*
3. **CrashFree BIOS 2** *(Updates the BIOS using a bootable floppy disk or the motherboard support CD.)*
4. **ASUS Update** *(Updates the BIOS in a Windows® environment.)*

Refer to the corresponding section for each utility.

Important notes

It is recommended that you save a copy of the **original motherboard BIOS file** to a **bootable floppy disk** in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the AFUDOS or the ASUS Update utilities.

A **working BIOS file** for this motherboard is in the support CD. Use this file only when you do not have a copy of the original motherboard BIOS file in a floppy disk.

Visit the ASUS website and download the latest BIOS file for this motherboard using the ASUS Update utility.

2.1.1   Creating a bootable floppy disk

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

   DOS environment

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

   > **format A:/S**   then press <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 copy the current BIOS

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

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

    afudos /o**<filename>**

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

    Press the **Enter** key.

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

    Main filename   Extension name

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

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

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

    A:\>
    ```

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

2.1.3 Using AFUDOS to update the BIOS

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

To update the BIOS using the AFUDOS.EXE:

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

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

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

3. Boot the system from the floppy disk.

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

   afudos /i<filename>

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

   The screen displays the status of the update process.

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

```
A:\>afudos /iP4B533X.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 /iP4B533X.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
    Reading file ..... done
    Erasing flash .... done
    Writing flash .... 0x0008CC00 (9%)
    Verifying flash .. done

A:\>
```

5. Reboot the system from the hard disk.

2.1.4   Using ASUS EZ Flash to update the BIOS

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

To update the BIOS using ASUS EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for your motherboard and rename it to **P4B533X.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 "**P4B533X.ROM not found!**"

4. Insert the floppy disk that contains the BIOS file. If the **P4B533X.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 "P4B533X.rom". Completed.

Start flashing...

Flashed successfully. Rebooting.
```

> If the Checksum error message appears, load the setup default in the BIOS.

2.1.5   Recovering the BIOS with CrashFree BIOS 2

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

1. Prepare the **support CD** that came with the motherboard or a **floppy disk that contains the motherboard BIOS** (P4B533X.ROM) before proceeding with the BIOS update process.

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

To recover the BIOS from a floppy disk:

1. Boot the system.

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

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

Checking for floppy...
```

3. Insert a floppy disk that contains the original, or the latest, BIOS file for this motherboard (P4B533X.ROM). If the BIOS file that you downloaded from the ASUS website has a different filename (e.g. P4B533-X2.ROM), rename it to **P4B533X.ROM**. The BIOS update process continues when the P4B533X.ROM is found.

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

Checking for floppy...

Floppy found!

Reading file "P4B533X.rom". Completed.

Start flashing...
```

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

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

To recover the BIOS from the support CD:

1. Boot the system.

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

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

Checking for floppy...
```

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

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

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

Checking for floppy...

Floppy not found!

Checking for CD-ROM...

CD-ROM found.

Reading file "P4B533X.rom". Completed.

Start flashing...
```

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

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

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

2.2 BIOS Setup program

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

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

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

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

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

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

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

2.2.1 BIOS menu 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 03/27/2003]        or [SHIFT-TAB] to
    Legacy Diskette A           [1.44M, 3.5 in]         select a field.

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

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

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```

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.

```
                         BIOS SETUP UTILITY
   Main    Advanced   Power    Boot    Exit
  System Time            [11:10:19]               Use [ENTER], [TAB]
  System Date            [Thu 03/27/2003]         or [SHIFT-TAB] to
  Legacy Diskette A      [1.44M, 3.5 in]          select a field.

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

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```

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.

```
                         BIOS SETUP UTILITY
   Advanced
  Advanced Chipset settings
  WARNING: Setting wrong values in the sections below
           may cause system to malfunction.
  Configure DRAM Timing by SPD    [Enabled]
  Performance Acceleration Mode   [Auto]
  DRAM Idle Timer                 ┌──── Options ────┐
  DRAm Refresh Rate               │ Disabled        │
                                  │ Enabled         │
  Graphic Adapter Priority        └─────────────────┘
  Graphics Aperture Size
  Spread Spectrum                 [Enabled]         ←→   Select Screen
                                                    ↑↓   Select Item
  ICH Delayed Transaction         [Enabled]         +-   Change Option
                                                    F1   General Help
  MPS Revision                    [1.1]             F10  Save and Exit
                                                    ESC  Exit

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```

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 03/27/2003]      or [SHIFT-TAB] to
  Legacy Diskette A       [1.44M, 3.5 in]       select a field.

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

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

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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, 3.5in.]

2.3.4   Primary and Secondary IDE Master/Slave

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

```
                          BIOS SETUP UTILITY
  Main

  Primary IDE Master                            Select the type
                                                of device connected
  Device       : Hard Disk                      to the system.
  Vendor       : ST320413A
  Size         : 20.0GB
  LBA Mode     : Supported
  Block Mode   : 16 Sectors
  PIO Mode     : Supported
  Async DMA    : MultiWord DMA-2
  Ultra DMA    : Ultra DMA-5
  SMART Monitoring: Supported

  Type                       [Auto]          ←    Select Screen
  LBA/Large Mode             [Auto]          ↑↓   Select Item
  Block (Multi-sector Transfer)  [Auto]      +-   Change Option
  PIO Mode                   [Auto]          F1   General Help
  DMA Mode                   [Auto]          F10  Save and Exit
  Smart Monitoring           [Auto]          ESC  Exit
  32Bit Data Transfer        [Disabled]

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```

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

Type [Auto]

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

LBA/Large Mode [Auto]

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

Block (Multi-sector Transfer) [Auto]

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

PIO Mode [Auto]

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

DMA Mode [Auto]

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

SMART Monitoring [Auto]

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

32Bit Data Transfer [Disabled]

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

2.3.5   System Information

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

```
                         BIOS SETUP UTILITY
  Main

 AMI BIOS
 Version    : 08.00.08
 Build Date : 11/04/03


 Processor
 Type     : Intel(R) Pentium(R) 4 CPU 1.73GHz
 Speed    : 1733 MHz
 Count    : 1

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

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```
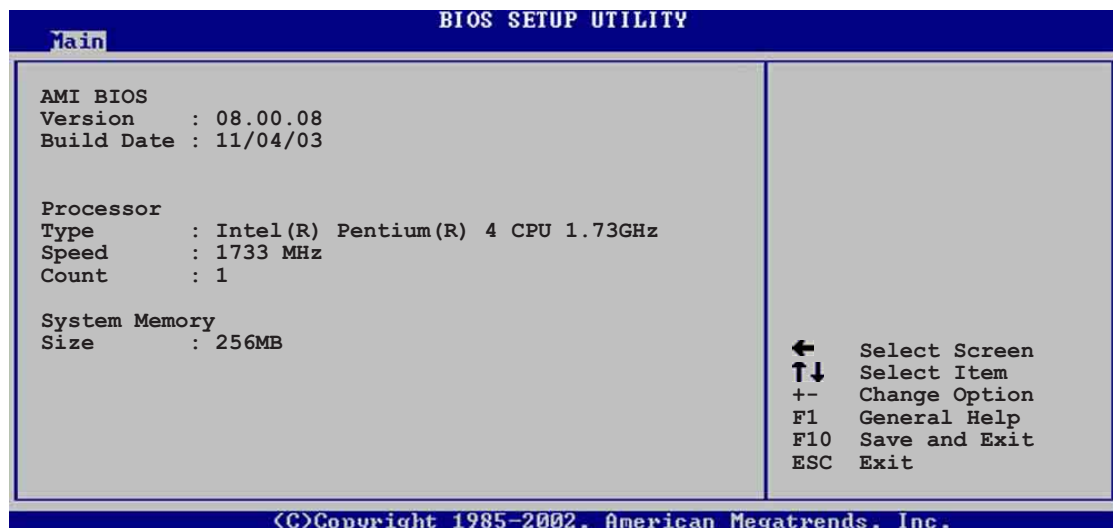
AMI BIOS
This item displays the auto-detected BIOS information.

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
┌─────────────────────────────────────────────┬──────────────────────────┐
│                                               │  Configure CPU.          │
│  ▶  JumperFree Configuration                  │                          │
│                                               │                          │
│  ▶  CPU Configuration                         │                          │
│  ▶  Chipset                                   │                          │
│  ▶  Onboard Devices Configuration             │                          │
│  ▶  PCI PnP                                    │                          │
│                                               │                          │
│                                               │                          │
│                                               │                          │
│                                               │  ←      Select Screen    │
│                                               │  ↑↓     Select Item      │
│                                               │  Enter  Go to Sub-screen │
│                                               │  F1     General Help     │
│                                               │  F10    Save and Exit    │
│                                               │  ESC    Exit             │
└─────────────────────────────────────────────┴──────────────────────────┘
           (C)Copyright 1985-2002, American Megatrends, Inc.
```

2.4.1   JumperFree Configuration

```
                        BIOS SETUP UTILITY
  Advanced
┌─────────────────────────────────────────────┬──────────────────────────┐
│  Configure System Frequency/Voltage           │                          │
│                                               │                          │
│  Overclock Tuner             [Manual]          │                          │
│  CPU Frequency               [133]             │                          │
│  RAM Frequency               [Auto]            │                          │
│  AGP/PCI Frequency           [Auto]            │                          │
│  CPU Over voltage            [Auto]            │                          │
│  AGP Over voltage            [Auto]            │                          │
│  DDR Over voltage            [Auto]            │                          │
│                                               │                          │
│                                               │                          │
│                                               │  ←      Select Screen    │
│                                               │  ↑↓     Select Item      │
│                                               │  +-     Change Option    │
│                                               │  F1     General Help     │
│                                               │  F10    Save and Exit    │
│                                               │  ESC    Exit             │
└─────────────────────────────────────────────┴──────────────────────────┘
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```

Overclock Tuner [Manual]

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

⚠️   Selecting a very high CPU frequency may cause the system to become unstable! If this happens, revert to the default setting.

CPU Frequency [133]   (value is auto-detected)

Indicates the frequency sent by the clock generator to the system bus and PCI bus. The bus frequency (external frequency) multiplied by the bus multiple equals the CPU speed. The value of this item is auto-detected by BIOS and is not manually configurable. The values range from 100 to 266.

RAM Frequency [Auto]

Allows you to set the DDR operating frequency. See BIOS screen for valid input values. Configuration options: [Auto] [4:3] [1:1] [3:4]

AGP/PCI Frequency [Auto]

Allows you to adjust to a higher AGP/PCI frequency for better system performance and overclocking capability. Configuration options: [Auto] [AGP66MHZ/PCI33MHZ] [AGP72MHZ/PCI36MHZ] [AGP76MHZ/PCI38MHZ]

> ⚠ Selecting a very high AGP/PCI frequency may cause the system to become unstable! If this happens, revert to the default setting.

CPU Over Voltage [Auto]

Allows you to enable or set to auto the CPU over voltage feature.
Configuration options: [Auto] [Enabled]

AGP Over Voltage [Auto]

Allows you to enable or set to auto the AGP over voltage feature.
Configuration options: [Auto] [Enabled]

DDR Over Voltage [Auto]

Allows you to enable or set to auto the DDR over voltage feature.
Configuration options: [Auto] [Enabled]

2.4.2   CPU Configuration

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

```
                       BIOS SETUP UTILITY
      Advanced

 Configure advanced CPU settings

 Manufacturer  : Intel(R)
 Brand String  : Intel(R) Pentium(R) 4 CPU 1.73GHz
 Frequency     : 1733 MHz
 FSB Speed     : 533 MHz


 Ratio Status  : Locked
 Ratio Actual Value : 13

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

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```
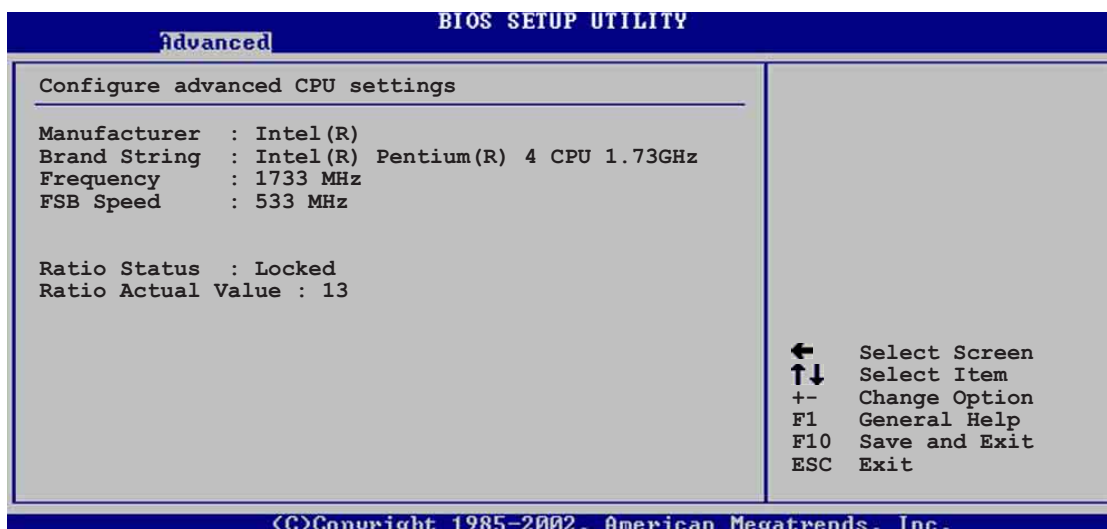
2.4.3   Chipset

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

```
                       BIOS SETUP UTILITY
      Advanced

 Advanced Chipset Settings

 Primary Video Device          [Auto]
 Graphics Aperture Size        [ 64MB]
 Search for MDA Resources      [No]
 Fast Timing                   [Auto]




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

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```
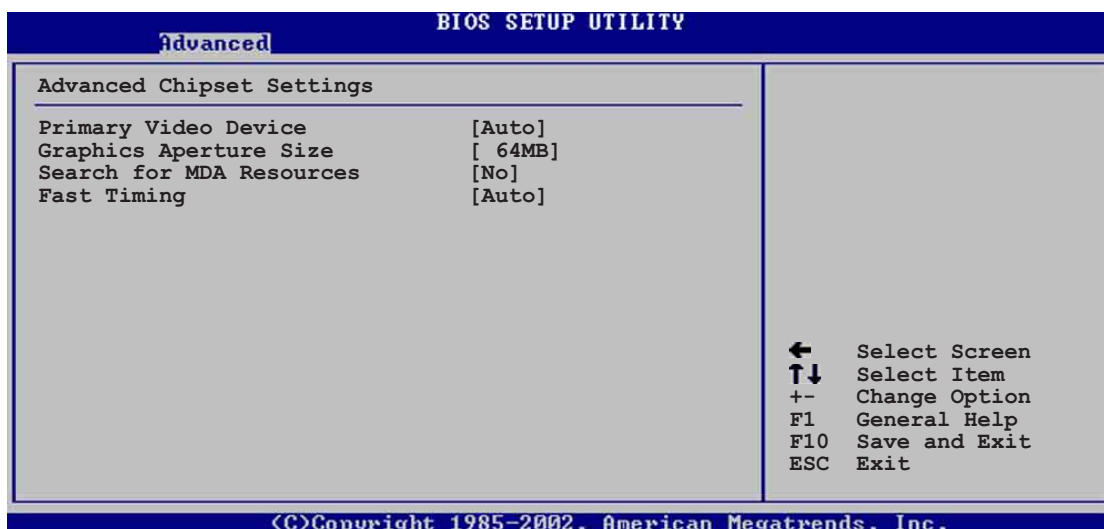
Primary Video Device [Auto]

Allows you to select the Primary Video device.
Configuration options: [External PCI] [External AGP] [Auto]

Graphics Aperture Size [64 MB]

Allows you to set the size of the AGP aperture.
Configuration options: [4MB] [8MB] [16MB] [32MB] [64MB] [128MB] [256MB]

Search for MDA Resources [Auto]

This item allows search for MDA (Monochrome Display Adapter) resources.
Configuration options: [No] [Yes]

Fast Timing [Auto]

This item allows you to set the Fast Timing feature.
Configuration options: [Auto] [Enabled] [Disabled]

2.4.4 Onboard Devices Configuration

```
                      BIOS SETUP UTILITY
    Advanced

    _____
    Onboard AC'97 Audio          [Enabled]
    Onboard LAN                  [Enabled]
     Onboard LAN Boot ROM        [Disabled]
    MPS Revision                 [1.1]
    ▶ USB Configuration

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

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```
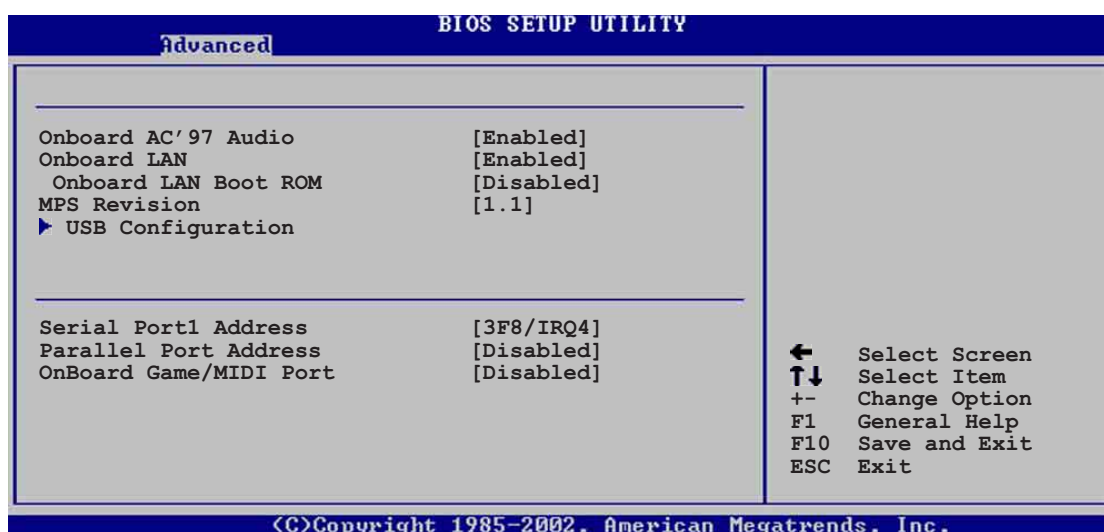
Onboard AC'97 Audio [Auto]

[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: [Enabled]
[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: [Enabled] [Disabled]

MPS Revision [1.1]

Allows you to set the MPS revision value. Configuration options: [1.1] [1.4]

USB Configuration

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

```
                          BIOS SETUP UTILITY
  Advanced

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

  USB Devices Enabled : None

  USB Function                 [Enabled]
  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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```
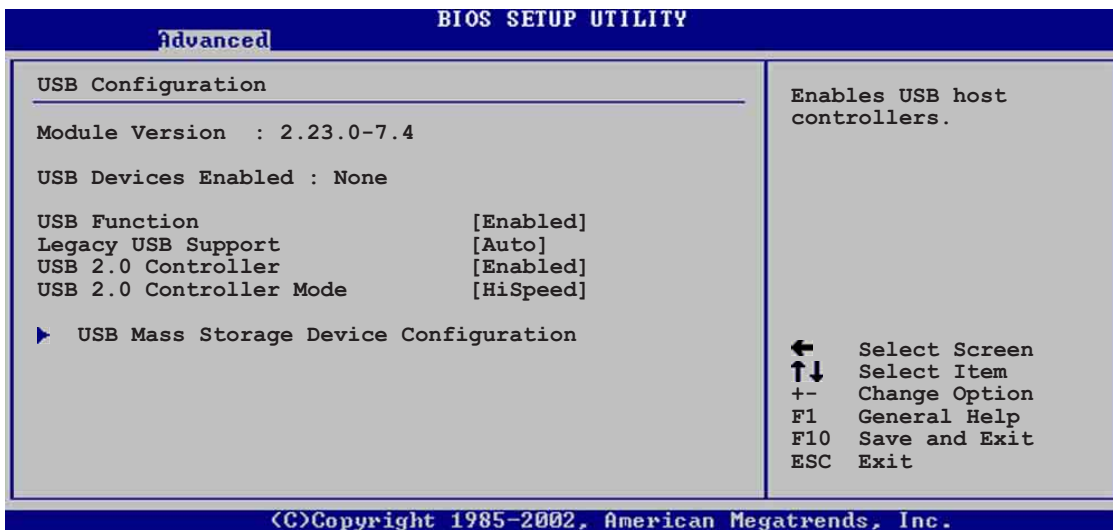
USB Function[Enabled]

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

Legacy USB Support [Auto]

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

USB 2.0 Controller [Enabled]

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

USB 2.0 Controller Mode [HiSpeed]

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

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.




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

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```
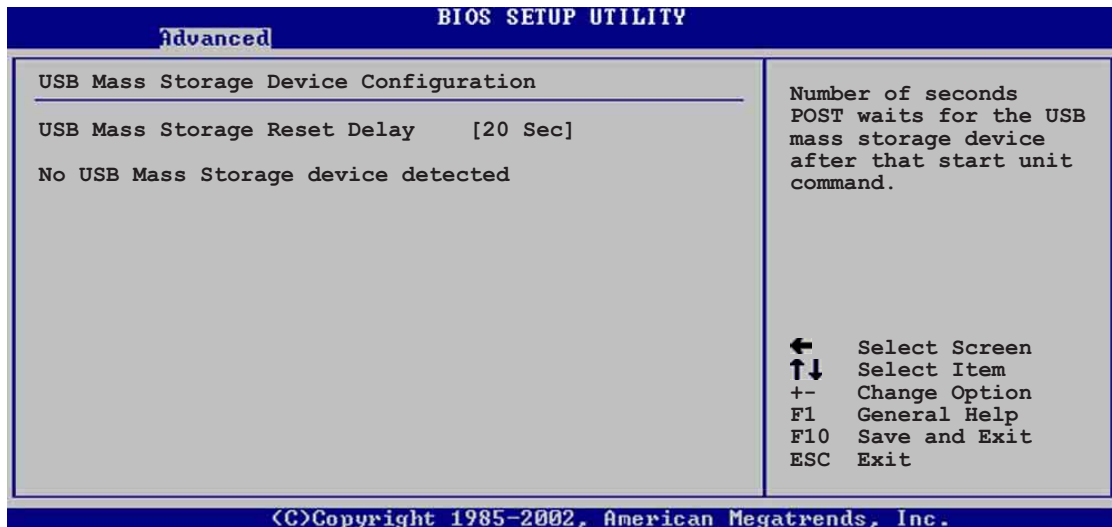
USB Mass Storage Reset Delay [20 Sec]

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]

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).

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

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

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

Parallel Port Mode [Normal]
Allows you to select the Parallel Port mode. This item appears only when the Parallel Port Address is not set to Disabled. When the item **Parallel Port Address** is set to **3BC**, the Parallel Port Mode options are only Normal, Bi-directional, and ECP. Configuration options: [Normal] [Bi-directional] [EPP] [ECP]

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]

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]

Parallel Port IRQ [IRQ7]

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

Onboard Game/MIDI Port [Disabled]

Allows you to select the Game Port address or to disable the port. Configuration options: [Disabled] [200/300] [200/330] [208/300] [208/330]

2.4.5   PCI PnP

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

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

```
                        BIOS SETUP UTILITY
     Advanced

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

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                                                 F1   General Help
                                                 F10  Save and Exit
 Reserved Memory Size           [Disabled]       ESC  Exit

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```

Plug and Play O/S [No]

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

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [No] [Yes]

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]

Reserved Memory Size [Disabled]

This item allows you to disable or set the size of the memory block to reserve for legacy ISA devices. Configuration options: [Disabled] [16k] [32k] [64k]

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]

 ▶ 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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```
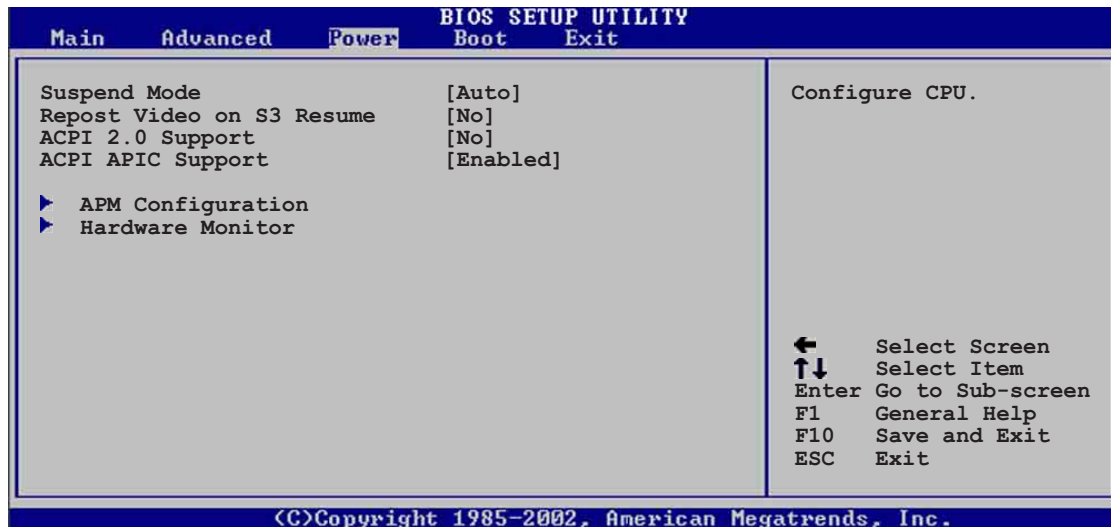
2.5.1   Suspend Mode [Auto]

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]

> ⚠ Do not change the APIC support settings after OS installation, otherwise, a system boot failure may occur.

2.5.5 APM Configuration

```
                         BIOS SETUP UTILITY
      Power

 APM Configuration                              Enabled or disable
                                                APM.
 Power Management/APM          [Enabled]

 Power Button Mode            [On/Off]
 Restore on AC Power Loss     [Power Off]

 Power On RTC Alarm           [Disabled]
 Power On Ring                [Disabled]
 Power On PME#                [Disabled]
 Power On by PS/2 Device      [Disabled]

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

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```

Power Management/APM [Enabled]

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

Power Button Mode [On/Off]

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

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]

Power On By RTC Alarm [Disabled]

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

Power On 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]

Power On PME# [Disabled]

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

Power On By PS/2 Device [Disabled]

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

2.5.6 Hardware Monitor

```
                       BIOS SETUP UTILITY
               Power

  Hardware Monitor

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

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```

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

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

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

The onboard hardware monitor automatically detects and displays the CPU, chassis, and power 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
                                                 available devices.
  1st Boot Device          [First Floppy Drive]
  2nd Boot Device          [PM-ST320413A]        A device enclosed in
  3rd Boot Device          [PS-ASUS CD-S340]     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 Removable Drives

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

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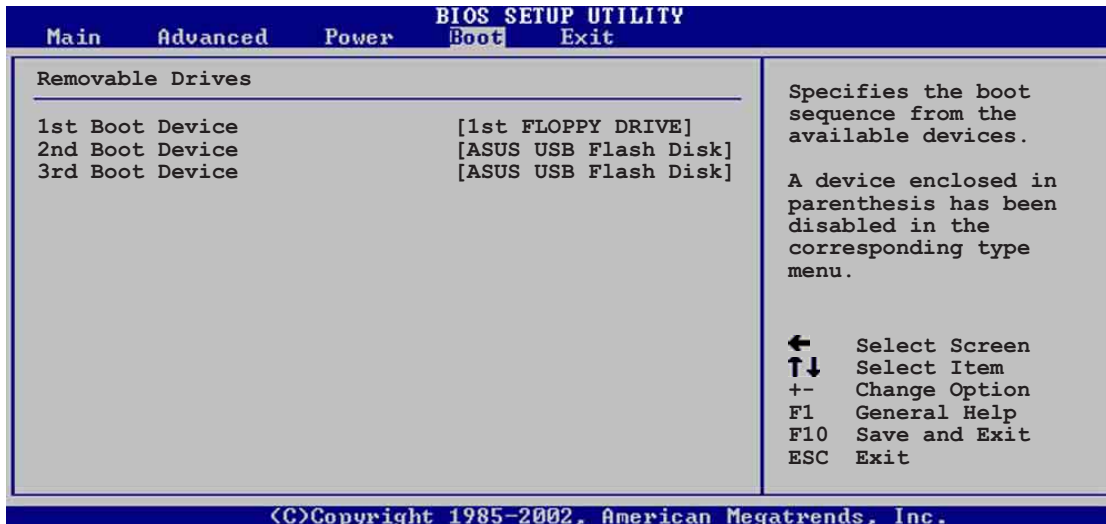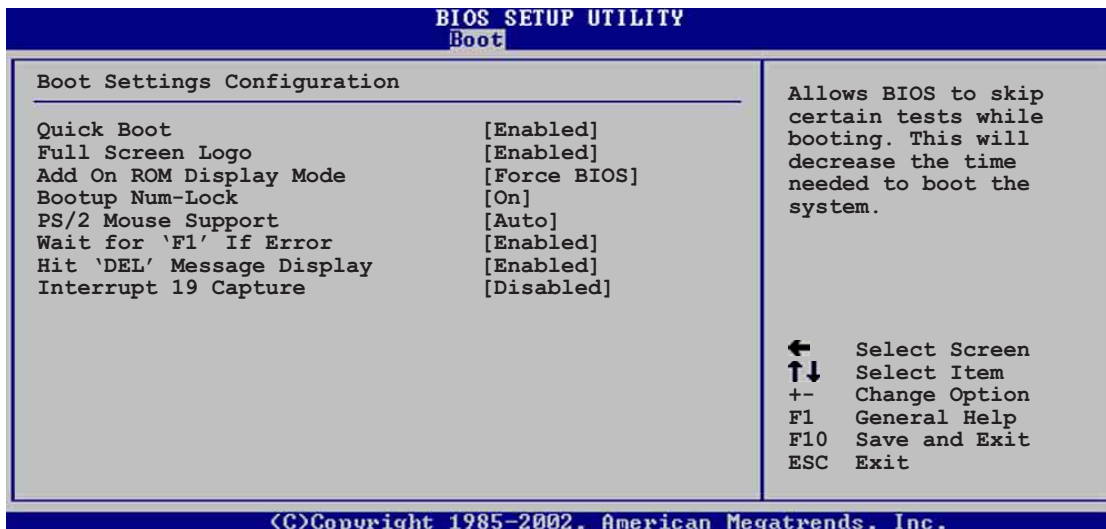
1st ~ xxth Boot Device [1st Floppy Drive]

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

2.6.3 Boot Settings Configuration

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

Quick Boot [Enabled]

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

Full Screen Logo[Enabled]

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

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

Add On ROM Display Mode [Force BIOS]

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

Bootup Num-Lock [On]

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

PS/2 Mouse Support [Auto]

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

Wait for 'F1' If Error [Enabled]

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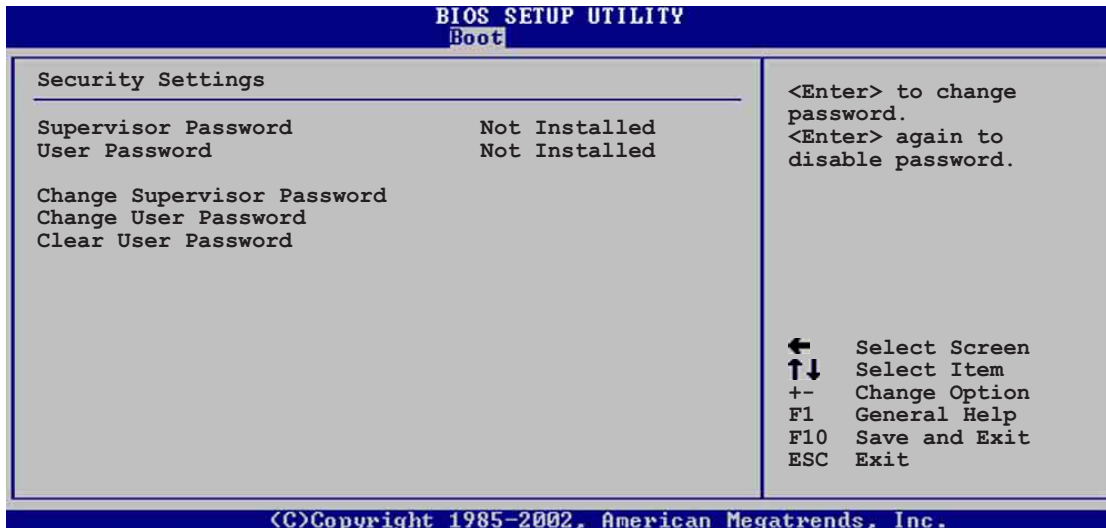
Hit 'DEL' Message Display [Enabled]

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

Interrupt 19 Capture [Disabled]

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

2.6.4 Security

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

```
                    BIOS SETUP UTILITY
                          Boot

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

 Change Supervisor Password
 Change User Password
 Clear User Password



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

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```

Change Supervisor Password

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

To set a Supervisor Password:

1. Select the Change Supervisor Password item and press Enter.

2. On the password box that appears, type a password composed of letters and/ or numbers, then press Enter. The password supports only a maximum of 6 characters.

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

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

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

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

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

User Access Level (Full Access]

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

No Access prevents user access to the Setup utility.

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

Limited allows 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.
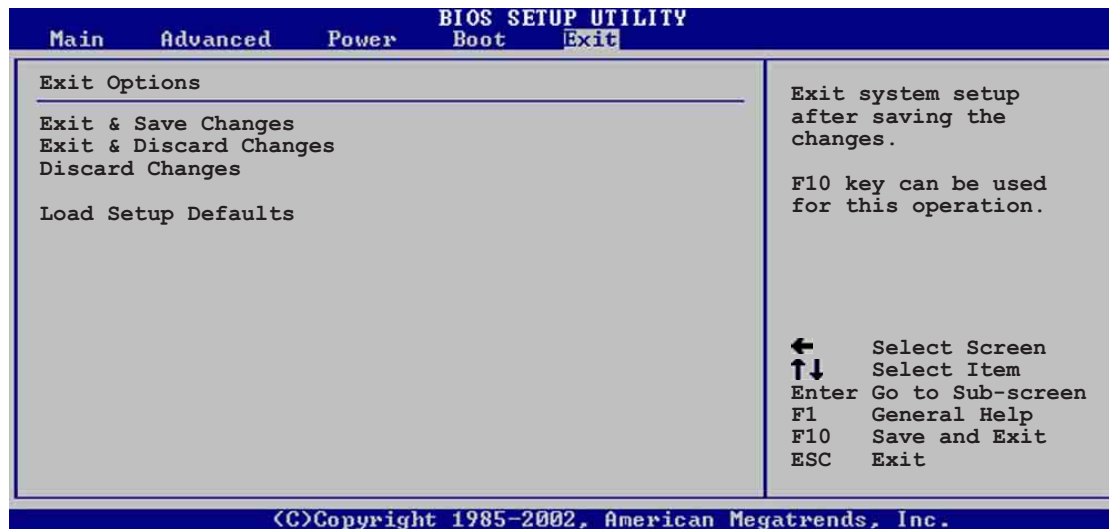
Clear User Password

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]

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.

Chapter 3

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

Software support

3.1 Install an operating system®

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

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

3.2 Support CD information

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

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

3.2.1 Running the support CD

To begin using the support CD, simply insert the CD into your CD-ROM drive. The CD automatically displays the **Drivers** menu if Autorun is enabled in your computer. Click on an item to install.
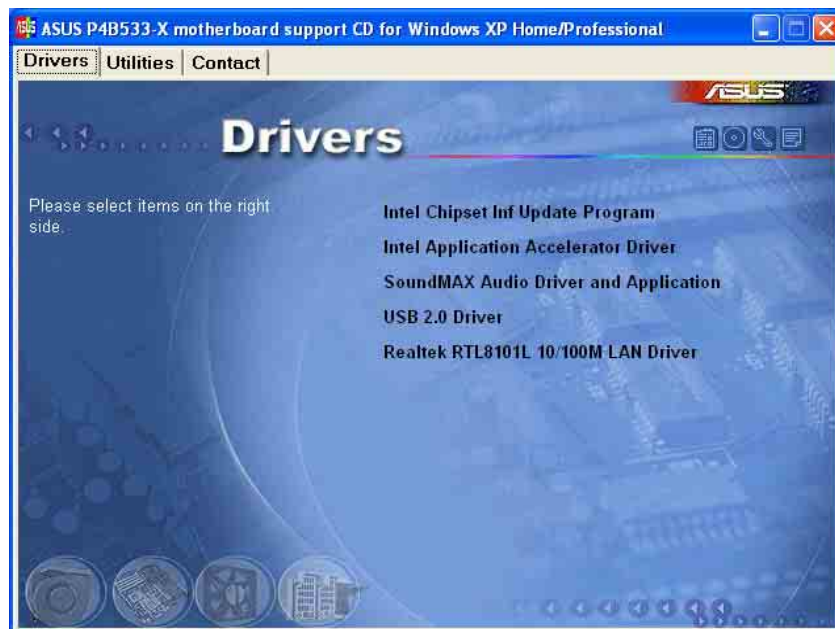
> If **Autorun** is NOT enabled in your computer, browse the contents of the support CD to locate the file ASSETUP.EXE from the BIN folder. Double-click the **ASSETUP.EXE** to run the CD.

3.2.2 Drivers menu

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

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 Application Accelerator Driver

This item installs the Intel Application Accelerator Driver.

> If your HDD or CD-RW drive becomes unstable after installing this driver, it is recommended to uninstall the IAA driver.

SoundMAX Audio Driver and Application

SoundMAX Integrated Audio icon

This item installs the AC'97 audio driver and applications to activate the 6-channel audio feature. After installing the driver and applications, the **SoundMAX Integrated Audio** icon appears on the taskbar. Double-click the icon to display the **SoundMAX Control Panel** from which you can adjust to 6-channel audio settings.

> Windows® NT supports 2-channel audio only.

USB 2.0 Driver

This item installs the USB 2.0 driver.

REALTEK RTL 8101L 10/100M LAN Driver
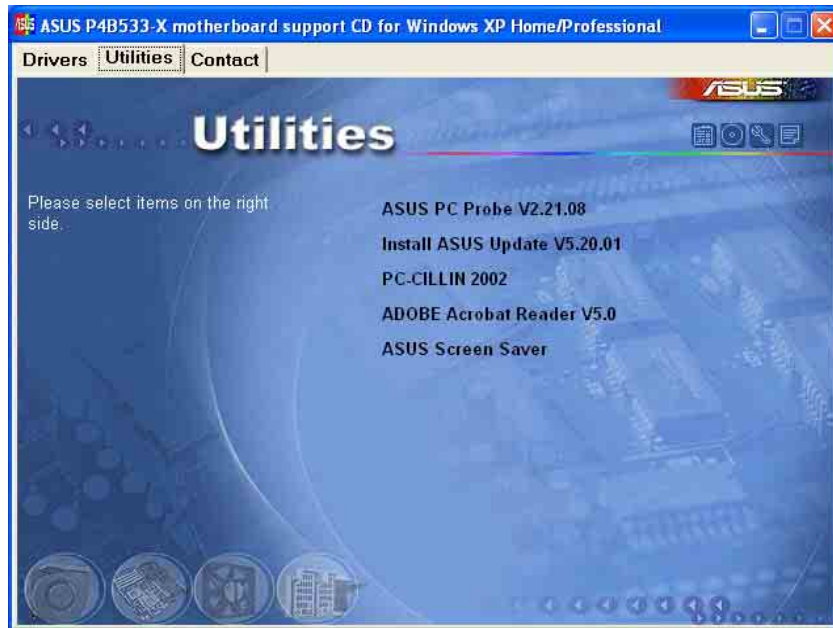
This item installs the Realtek LAN driver to support 10/100 Mbps networking.

> The Realtek RTL8101L LAN driver is required for Windows® 98SE only.

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 Mylogo™.

> To use the ASUS MyLogo feature, make sure to enable the **QuickBoot** item in the BIOS. See page 2-26.

PC-CILLIN 2002

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

Adobe Acrobat Reader

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

ASUS Screen Saver

This item installs the ASUS screen saver.

3.2.4 ASUS Contact Information

Clicking the ASUS Contact Information tab displays as stated. You may also find this information on the inside front cover of this user guide.
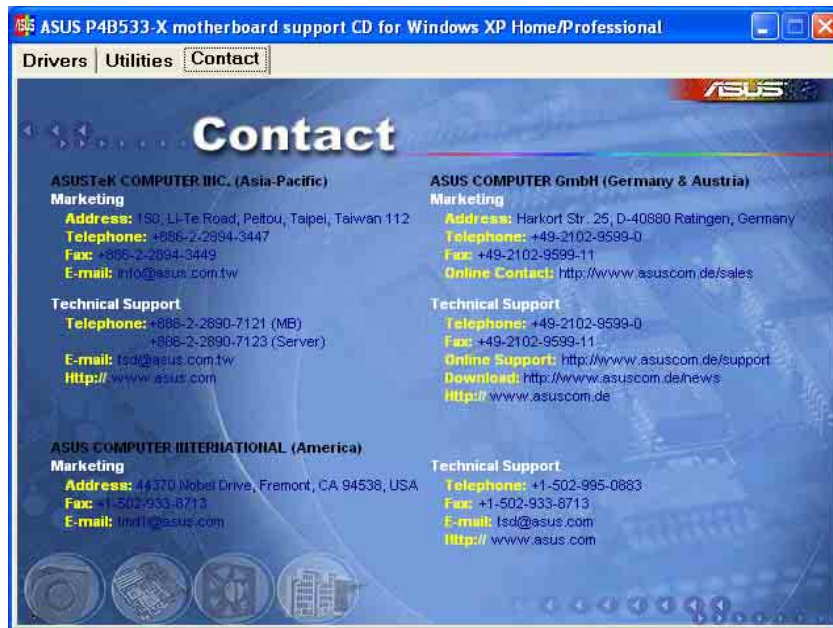
Screen display and utilities option may not be the same for other operating system version.