

P4V800D-X

User Guide

ASUS[®]

Motherboard

E2221

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Notices

Federal Communications Commission Statement

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

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

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

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



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

Canadian Department of Communications Statement

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

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

Safety Information

Electrical safety

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

Operation safety

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

About This Guide

How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product Introduction**
This chapter describes the features of the motherboard and the new technology it supports. It also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.
- **Chapter 2: BIOS Information**
This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.
- **Chapter 3: Software Support**
This chapter describes the contents of the support CD that comes with the motherboard package.

Conventions used in this guide

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



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



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



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



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

Where to find more information

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

1. **ASUS websites**
The ASUS websites worldwide provide updated information on ASUS hardware and software products. Refer to the ASUS contact information.
2. **Optional documentation**
Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

P4V800D-X Specifications Summary

CPU	Socket 478 for Intel Pentium 4/Celeron up to 3.4GHz+ Intel Hyper-Threading Technology ready
Chipset	VIA PT880 Ultra VIA VT8237R PLUS
Front Side Bus (FSB)	800/533/400 MHz
Memory	Dual Channel Memory Architecture 4 x 184-pin DIMM Sockets for up to 4GB, support PC3200/ PC2700/PC2100, non-ECC DDR SDRAM memory
Expansion Slots	1 x AGP 8X 1 x PCI Express x16 (x4 mode only) 3 x PCI
Storage	2 x UltraDMA 133/100/66/33 2 x Serial ATA with RAID 0, 1 and JBOD function
Audio	ADI AD1888 SoundMAX 6-channel audio CODEC Support S/PDIF out interface
LAN	Realtek 10/100 Mbps Ethernet LAN
USB	Supports up to eight USB 2.0 ports
Special features	Wake on Ring, LAN, USB, Keyboard & Mouse STR (Suspend-to-RAM) STD (Suspend-to-Disk) S/PDIF out interface ASUS C.P.R. (CPU Parameter Recall) ASUS MyLogo ASUS EZ Flash ASUS CrashFree BIOS 2
Back panel I/O ports	1 x Parallel port 1 x Serial (COM2) port 1 x PS/2 Keyboard port (purple) 1 x PS/2 Mouse port (green) 1 x Audio I/O port 1 x S/PDIF Out (Coaxial) port 1 x LAN (RJ-45) port 4 x USB 2.0 ports
Internal I/O connectors	2 x USB 2.0 connectors support additional 4 USB 2.0 ports CPU/Chassis FAN connectors Front panel audio connector CD/AUX audio in connectors 20-pin ATX power connector 4-pin ATX 12V power connector 20-pin panel connector

(continued next page)

P4V800D-X Specifications Summary

BIOS features	4 Mb Flash ROM, AMI BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.3, ACPI, ASUS EZ Flash, ASUS CrashFree BIOS 2, C.P.R. MyLogo
Industry standard	PCI 2.2, USB 2.0/1.1
Manageability	WfM 2.0, DMI 2.0, WOL by PME, WOR by PME
Power Requirement	ATX power supply (with 4-pin 12V plug)
Support CD	Drivers ASUS PC Probe Anti-Virus Software (OEM Version)
Accessory	User's Manual 1 x UltraDMA 133/100/66 cable 1 x SATA cable 1 x SATA power cable 1 x FDD cable I/O shield
Form factor	ATX Form Factor, 12" x 8.2" (30.5cm x 20.8cm)

* Note: The specifications are subject to change without notice.

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

1 Product Introduction

1.1 Welcome!

Thank you for buying an ASUS® P4V800D-X motherboard!

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

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

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	ASUS P4V800D-X motherboard
Cables	1 x Ultra 133/100/66 DMA cable 1 x Serial ATA cable 1 x Serial ATA power cable 1 x Floppy Disk Drive cable
Accessories	I/O shield
Application CDs	ASUS motherboard support CD
Documentation	User guide



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

1.3 Special features

1.3.1 Product highlights

Dual-Channel DDR 400

The 128-bit TwinBank DDR Memory architecture doubles the DDR 400 (PC3200) bandwidth. System bottlenecks are eliminated with balanced architecture and peak bandwidths up to 6.4 GB/s. See page 1-9 for details.

Serial ATA technology

Serial ATA is the next generation ATA specification that provides scalable performance for today and tomorrow. With up to 150MB/s data transfer rate, Serial ATA is faster than current Parallel ATA, while providing 100% software compatibility. P4V800D-X supports RAID 0, RAID 1 and JBOD. See page 1-19 for details.

Integrated 10/100 LAN controller

A 10/100Mbps Fast Ethernet controller is embedded in this motherboard to give you a fast and reliable connection to a local area network (LAN) and the Internet.

Coaxial S/PDIF out

This motherboard provides convenient connectivity to external home theater audio systems via an coaxial S/PDIF-out (SONY-PHILIPS Digital Interface) jack. It allows to transfer digital audio without converting to analog format and keeps the best signal quality. See page 1-17 for details.

USB 2.0 technology

USB 2.0 is the latest connectivity standard for next generation components and peripherals. Backwards compatible with current USB 1.1 peripherals, USB 2.0 delivers transfer speeds up to 40 times faster at 480 MB/s, for easy connectivity and ultra-fast data transfer rate. See pages 1-17 & 1-20 for details.

AGP8X

AGP8X (AGP 3.0) is the mainstream VGA interface specification that enables enhanced graphics performance with high bandwidth up to 2.13 GB/s. See page 1-14 for details.

PCI Express Interface

The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clockspeeds by carrying data in packets. This high speed interface is software compatible with existing PCI specifications.

1.3.2 Innovative ASUS features

ASUS CrashFree BIOS 2

The CrashFree BIOS2 feature now includes the BIOS auto-recovery function in a support CD. Users can reboot their system through the support CD when a bootable disk is not available, and go through the simple BIOS auto-recovery process. ASUS motherboards now enable users to enjoy this protection feature without the need to pay for an optional ROM.

ASUS EZ Flash BIOS

With ASUS EZ Flash, you can update BIOS before entering operating system. No more DOS-based flash utility and bootable diskette required. See page 2-6 for details.

C.P.R. (CPU Parameter Recall)

When the system hangs due to overclocking failure, there is no need to open the case to clear CMOS data. Just simply restart the system, the BIOS would show the previous setting and then users can amend the CPU setting again.

ASUS MyLogo™

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

1.4 Before you proceed

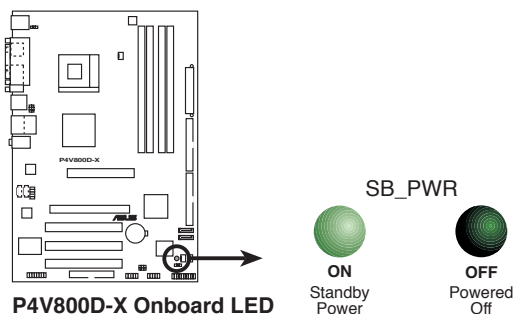
Take note of the following precautions before you install motherboard components or change any motherboard settings.



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

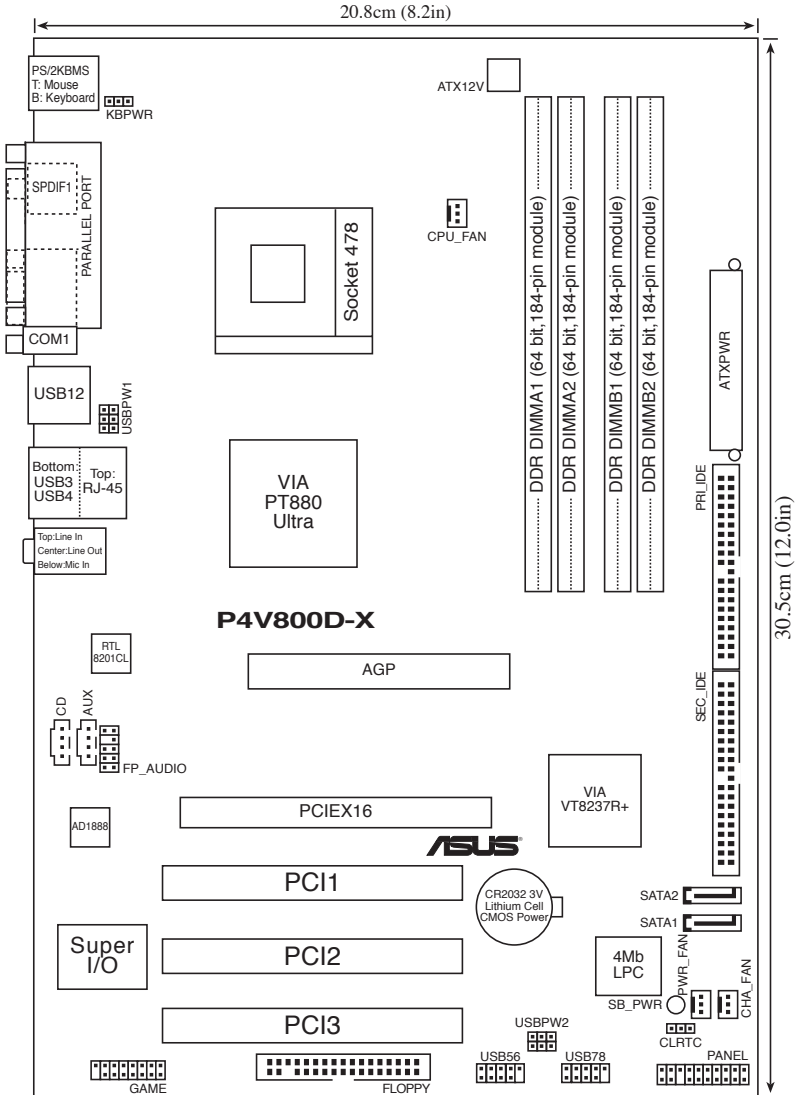
Onboard LED

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



1.5 Motherboard overview

1.5.1 Motherboard layout



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.

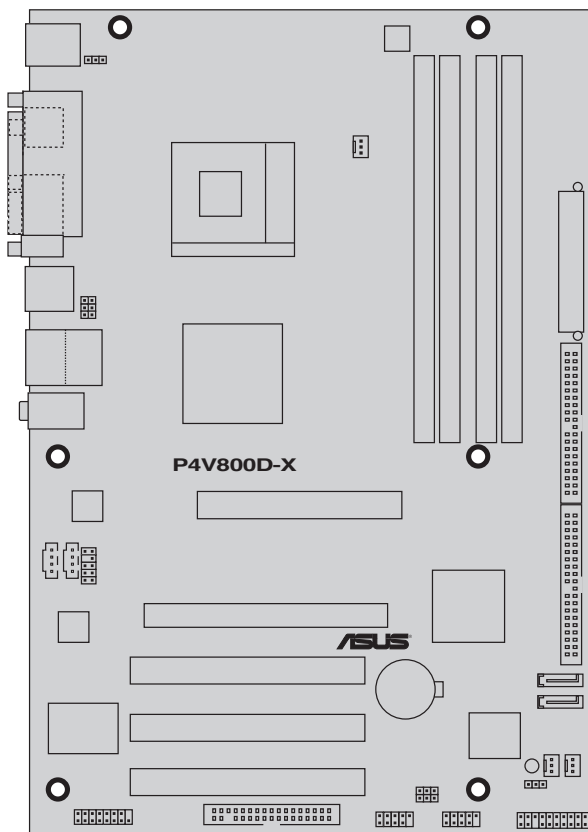
1.5.3 Screw holes

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



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

Place this side towards--
the rear of the chassis



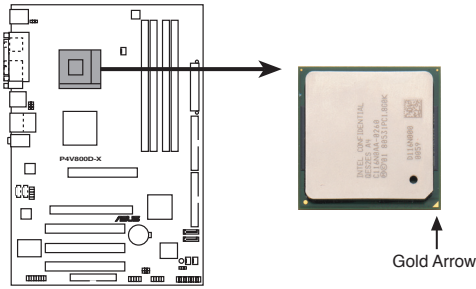
1.6 Central Processing Unit (CPU)

1.6.1 Overview

The motherboard has a Socket 478 for installation. The Intel Pentium 4 / Celeron CPU has a “marked” corner. This corner is usually indicated with a notch, and/or a golden square or triangle. Refer to this indicator when orienting the CPU. A fan and heat sink should be installed on top of the CPU to prevent overheating.



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



P4V800D-X Socket 478

1.6.2 Installing the CPU

Follow these steps to install a CPU:

1. Locate the CPU socket. Open the socket by pulling the lever gently sideways away from the socket, then lift the lever upwards to a 90 to 100-degree angle.
2. Insert the CPU with the correct orientation. The notched or golden corner of the CPU must be oriented toward the inner corner of the socket base nearest to the lever hinge.

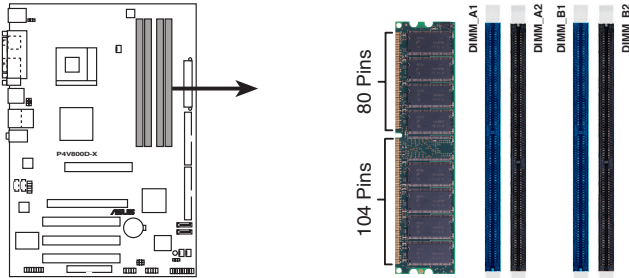


The CPU should drop easily into place. Do not force the CPU into the socket to avoid bending the pins. If the CPU does not fit, check its alignment and look for bent pins.

1.7 System memory

1.7.1 Overview

The motherboard has four Double Data Rate (DDR) DIMM sockets that support up to 4 GB unbuffered non-ECC DDR400/333/266 DDR SDRAM DIMMs.



P4V800D-X 184-Pin DDR DIMM Sockets

1.7.2 Memory configurations

You may install single or double-sided 64 MB, 128 MB, 256 MB, 512 MB, and 1 GB DDR DIMMs to the sockets.



1. DIMMs with more than 8 devices on each side of the module are not supported.
2. Make sure the memory frequency and bus frequency setting in the BIOS are the same or set to [Auto] ensure system stability.
3. 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.
4. For optimum compatibility, it is recommended that you obtain memory modules from qualified vendors. See the next page for a list of qualified DIMM vendors.
5. Visit ASUS website (www.asus.com) for latest Qualified Vendor List.

Qualified Vendors List

Size	Vendor	Model	CL	Brand	SS/DS	Component
256MB	Kingston	KVR333X64C25/256	N/A	Kingston	SS	D3208DH1T-6
256MB	Kingston	KVR333X64C25/256	N/A	Hynix	DS	HY5DU56822BT-D43
512MB	Kingston	KVR333X64C25/512	N/A	Kingston	DS	D3208DH1T-6
512MB	Kingston	KVR400X64C3A/512	N/A	Hynix	DS	HY5DU56822BT-D43
512MB	Kingston	KVR400X64C3A/512	N/A	Kingston	SS	HY5DU12822BT-D43
256MB	Kingston	KVR400X64C3A/256	N/A	Hynix	SS	HY5DU56822BT-D43
256MB	Kingston	KVR400X64C3A/256	N/A	Kingston	SS	D3208DL3T-5A
256MB	Kingston	KVR400X64C3A/256	N/A	PSC	SS	A2S56D30BTP
1G	Kingston	KVR400X64C3A/1G	N/A	Infineon	DS	HYB25D512800BE-5B
256MB	Infineon	HYS64D32300GU-5-C		Infineon	SS	HYB25D256800CE-5C
512MB	Infineon	HYS64D64320GU-5-C		Infineon	SS	HYB25D512800BE-5B
512MB	Infineon	HYS64D64320GU-5-C		Infineon	DS	HYB25D256800CE-5C
256MB	Infineon	HYS64D32300GU-5-C	N/A	Infineon	SS	HYB25D256800CE-5C
512MB	Infineon	HYS64D64320GU-6-C	N/A	Infineon	DS	HYB25D256800CE-6C
256MB	HY	HYMD232646D8J-D43	N/A	Hynix	SS	HY5DU56822BT-D43
512MB	HY	HYMD264646D8J-D43	N/A	Hynix	DS	HY5DU56822BT-D43
256MB	HY	HYMD232646B8J-J	N/A	Hynix	SS	HY5DU56822BT-J
512MB	HY	HYMD264646B8J-J	N/A	Hynix	DS	HY5DU56822BT-J
256MB	Corsair	VS256MB400	N/A	Value select	SS	VS32M8-5 2B0409
256MB	Corsair	XMS3202v3.1		Infineon	SS	HYB25D256807BT-5B
512MB	Corsair	XMS3205v1.2	N/A	Winbond	DS	W942508CH-5
512MB	Corsair	VS512MB400	N/A	Value select	DS	VS32M8-5 2B0402
256MB	Corsair	VS256MB333	N/A	Samsung	SS	K4H5608380-TCB3
512MB	Corsair	XMS2702v3.1		Mosel	DS	V58C2256804SAT6
512MB	Micron	MT16VDDT6464AG-335GB	N/A	Micron	DS	MT46V32M8TG-6TG
256MB	Micron	MT8VDDT3264AG-335GB		Micron	SS	MT46V32M8TG-6TG
256MB	Micron	MT8VDDT3264AG-40BGB		Micron	SS	MT46V32M8TG-5BG
512MB	Micron	MT16VDDT6464AG-40BCB		Micron	DS	MT46V32M8TG-5BC
256MB	Samsung	M368L3223FTN-CCC		Samsung	SS	K4H560838F-TCCC
512MB	Samsung	M368L6423FTN-CCC		Samsung	DS	K4H560838F-TCCC
256MB	Samsung	M368L3223FTN-CB3		Samsung	SS	K4H560838F-TCB3
512MB	Samsung	M368L6423FTN-CB3		Samsung	DS	K4H560838F-TCB3
256MB	Winbond	U24256ADWBG6H20	N/A	Winbond	SS	W942508CH-5
512MB	Winbond	DDR333-512	N/A	Winbond	DS	W942508BH-6
256MB	Transcend	DDR400-256	N/A	Samsung	SS	K4H560838F-TCCC
512MB	Transcend	DDR400-512	N/A	Mosel	DS	V58C2256804SAT5B
256MB	Pmi	3208GATA07-04A7	N/A	Pmi	SS	PM4D328D50406EU
256MB	Kingmax	MPXB62D-38KT3R	N/A	Kingmax	SS	KDL388P4LA-50
256MB	Nanya	NT256D64S88B1G-5T		Nanya	SS	NT5DS32M8BT-5T
512MB	Apacer	77.90728.U1G		Apacer	DS	AM3A568AJT-6B
256MB	Smart	U24256ADSRG6H20	N/A	Smart	SS	D32M8XS60HBX4AMV
512MB	BiaoXing	BXXC22D-38KT3B	N/A	BiaoXing	DS	VM256D328BT-5

A*: Supports one module inserted in any slot as Single-channel memory configuration

B*: Supports one pair of modules inserted into either the blue slots or the black slots as one pair of Dual-channel memory configuration

C*: Supports 4 modules inserted into both the blue and black slots as two pairs of Dual-channel memory configuration

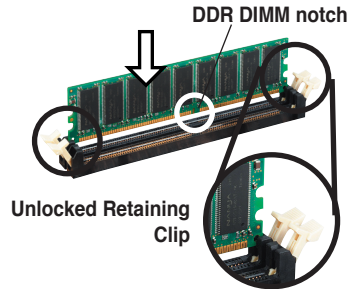
1.7.3 Installing a DIMM



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

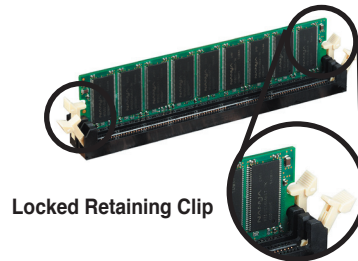
Follow these steps to install a DIMM.

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



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

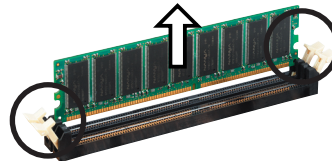
4. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



1.7.4 Removing a DIMM

Follow these steps to remove a DIMM.

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



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

2. Remove the DIMM from the socket.

1.8 Expansion slots

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



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

1.8.1 Installing an expansion card

To install an expansion card:

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

1.8.2 Configuring an expansion card

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

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

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Key board Controller
2	N/A	Re-Direct to IRQ#9
3	11	Communications Port (COM2)
4	12	IRQ holder for PCI steering
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	IRQ holder for PCI steering
11	6	IRQ holder for PCI steering
12	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

IRQ assignments for this motherboard

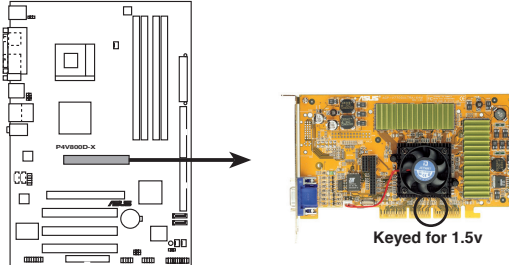
	A	B	C	D	E	F	G	H
PCI slot 1	shared	—	—	—	—	—	—	—
PCI slot 2	—	shared	—	—	—	—	—	—
PCI slot 3	—	—	shared	—	—	—	—	—
AGP	shared	—	—	—	—	—	—	—
Onboard AC97 Audio	—	—	—	—	—	—	used	—
Onboard LAN	—	—	—	—	—	—	—	used



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

1.8.3 AGP slot

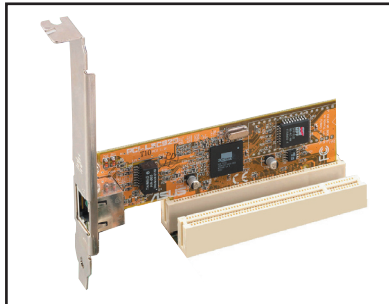
The motherboard has an Accelerated Graphics Port (AGP) slot that supports +1.5 V 8X AGP graphics card. Note the notches on the card golden fingers to ensure that they fit into the AGP slot.



P4V800D-X Accelerated Graphics Port (AGP)

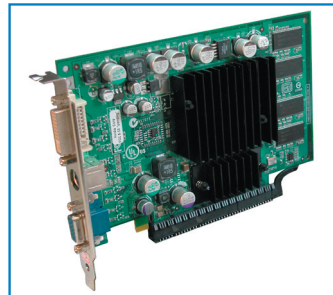
1.8.4 PCI slots

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



1.8.5 PCI Express x16 slot

This motherboard supports universal PCI Express x16 graphic cards that comply with the PCI Express specifications. The figure shows a graphics card installed on the universal PCI Express x16 slot.



1.9 Jumpers

1. Clear RTC RAM (CLRRTC)

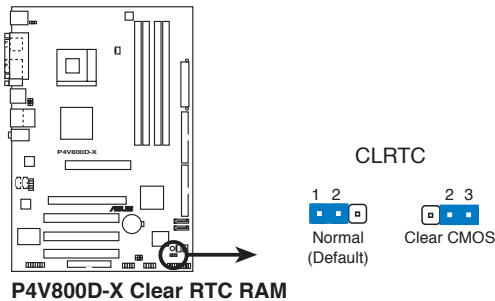
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

- a. Turn OFF the computer and unplug the power cord.
- b. Remove the onboard battery.
- c. 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.
- d. Reinstall the battery.
- e. Plug the power cord and turn ON the computer.
- f. Hold down the key during the boot process and enter BIOS setup to re-enter data. Please save all data before you exist.



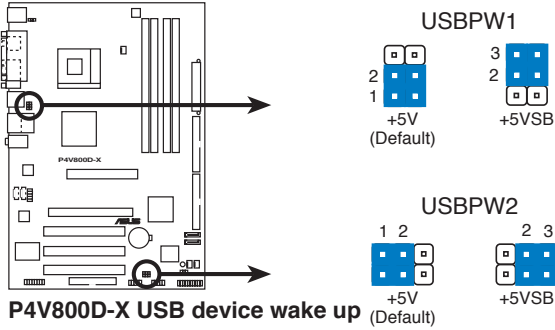
Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!



2. USB device wake-up (3-pin USBPW12, USBPW34, USBPW56, USBPW78)

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

The USBPW12 and USBPW34 jumpers are for the rear USB ports. The USBPW56 and USBPW78 jumper is for the internal USB connectors that you can connect to additional USB ports.



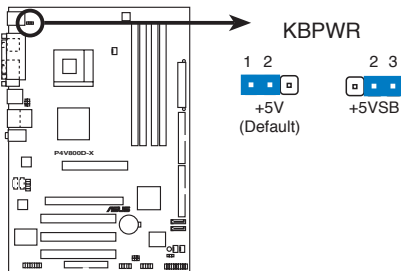
P4V800D-X USB device wake up



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

3. Keyboard power (3-pin KBPWR)

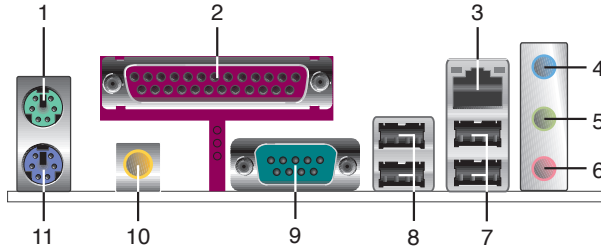
This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default value is [Disabled]). This feature requires an ATX power supply that can supply at least 1A on the +5VSB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



P4V800D-X Keyboard power setting

1.10 Connectors

1.10.1 Rear panel connectors



1. PS/2 mouse port (green). This port is for a PS/2 mouse.
2. Parallel port. This 25-pin port connects a parallel printer, a scanner, or other devices.
3. LAN (RJ-45) port. This port allows 10/100 Mbps connection to a Local Area Network (LAN) through a network hub.
4. Line In port (light blue). This port connects a tape, CD, DVD player or other audio sources. In 4/6-channel mode, the function of this port becomes Surround (Rear Speaker) Out.
5. Line Out port (lime). This port connects a headphone or a speaker. In 4/6-channel mode, the function of this port becomes Front Speaker Out.
6. Microphone port (pink). This port connects a microphone. In 6-channel mode, the function of this port becomes Bass/Center.



The functions of the Line Out, Line In, and Microphone ports change when you select the 4 or 6-channel audio configuration as shown in the following table.

Audio 2, 4, or 6-channel configuration

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

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 COM2 port is for pointing devices or other serial devices.
10. S/PDIF Coaxial out jack. This jack connects to external audio output devices with coaxial cable connectors.
11. PS/2 keyboard port (purple). This port is for a PS/2 keyboard.

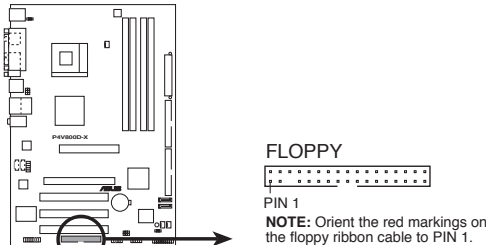
1.10.2 Internal connectors

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

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



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



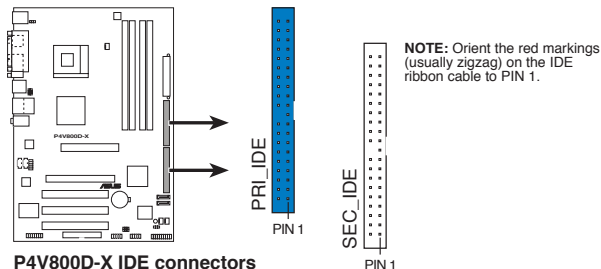
P4V800D-X Floppy disk drive connector

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

This connector is for an Ultra DMA 133 signal cable. The Ultra DMA 133 signal cable has three connectors: a blue connector for the IDE connector on the motherboard, a black connector for an Ultra DMA 133/100/66 IDE slave device (optical drive/hard disk drive), and a gray connector for an Ultra DMA 133/100/66 IDE master device (hard disk drive). If you install two hard disk drives, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings.



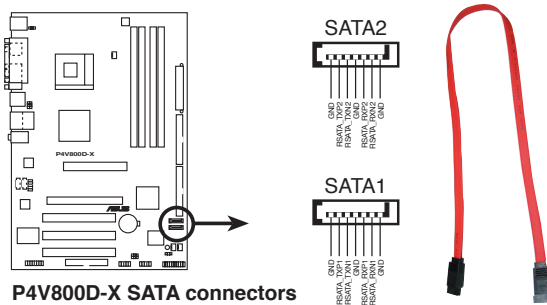
- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 133/100/66 IDE devices.



P4V800D-X IDE connectors

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

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



P4V800D-X SATA connectors



Important notes on Serial ATA

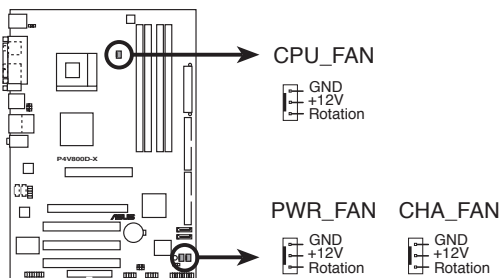
- You must install Windows[®] 2000 SP4, Windows[®] XP SP1, Windows[®] 2003, or newer OS versions before using Serial ATA hard disk drives.
- The Serial ATA interface is not supported when using Windows[®] 98SE/Me operating system.

4. CPU, power and chassis fan connectors (3-pin CPU_FAN, PWR_FAN, CHA_FAN)

The fan connectors support cooling fans of 350 mA~740 mA (8.88 W max.) or a total of 1 A~2.22 A (26.64 W max.) at +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. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



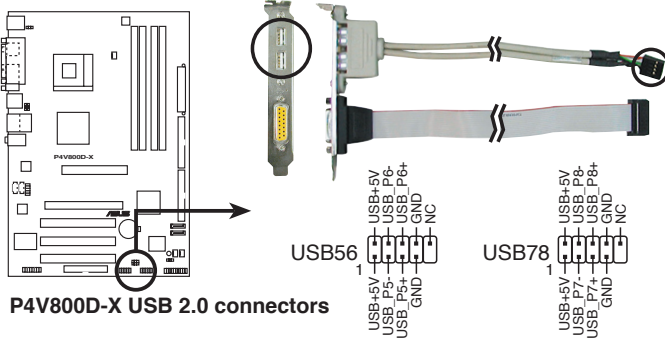
P4V800D-X Fan connectors

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

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis.



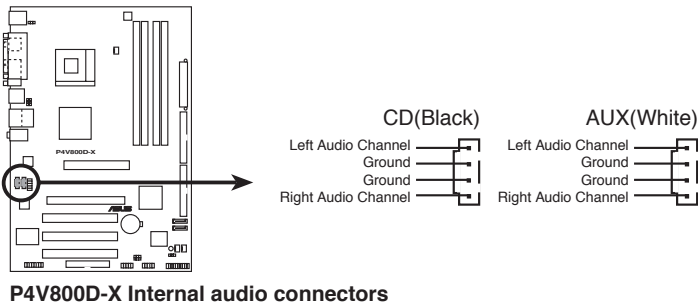
The USB module is purchased separately.



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

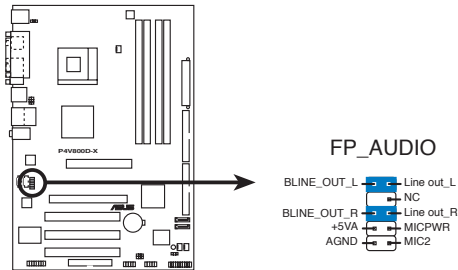
6. Internal audio connectors (4-pin CD, AUX)

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



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

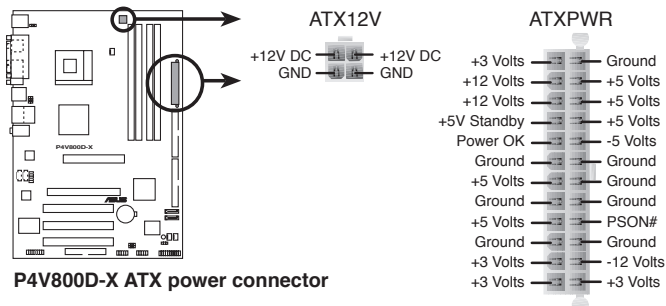
This connector is for the front panel audio cable. This connector supports the front panel audio I/O ports.



P4V800D-X Front Panel Audio Connector

8. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

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



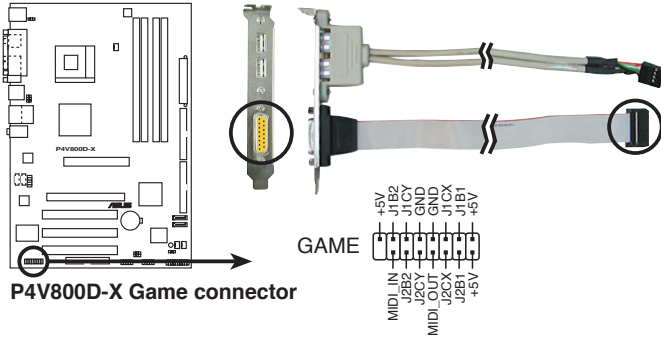
P4V800D-X ATX power connector



If you will need to replace the power supply in the future, make sure that your new ATX 12V power supply can provide 8 A on the +12 V lead and at least 1 A on the +5 V standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

9. GAME port connector (16-1 pin GAME)

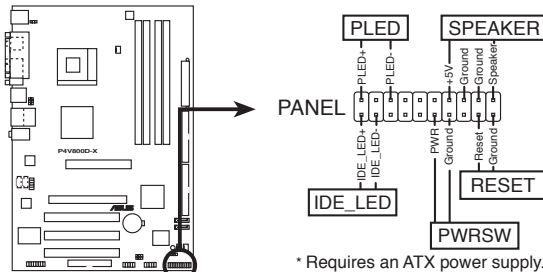
This connector is for a GAME/MIDI port. Connect the USB/GAME module cable to this connector, then install the module to a slot opening at the back of the system chassis. The GAME/MIDI port connects a joystick or game pad for playing games, and MIDI devices for playing or editing audio files.



The GAME/MIDI port module is purchased separately.

10. System panel connector (20-pin PANEL)

This connector supports several chassis-mounted functions.



P4V800D-X System Panel connector

- **System power LED (3-1 pin PLED)**

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

- **System warning speaker (4-pin SPEAKER)**

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

- **Reset button (2-pin RESET)**

This connector is for the chassis-mounted reset button for system reboot without turning off the system power.

- **ATX power button/soft-off button (2-pin PWRBTN)**

This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **System Management Interrupt (2-pin SMI)**

This connector is for the chassis-mounted suspend switch that allows you to manually place the system into a suspend mode, or “green” mode. When in suspend mode, the system activity is instantly decreased to save power and to expand the life of certain system components.

- **Hard disk drive activity LED (2-pin HDLED)**

This connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

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

BIOS Setup **2**

2.1 Managing and Updating Your BIOS

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

1. **AFUDOS** (Updates the BIOS in DOS mode using a bootable floppy disk.)
2. **ASUS EZ Flash** (Updates the BIOS using a floppy disk during POST.)
3. **ASUS CrashFree BIOS 2** - Updates the BIOS using a bootable floppy disk or the mother board support CD.

Refer to the corresponding section for each utility.



- Save a copy of the original motherboard BIOS file to a bootable floppy disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the AFUDOS utility.
- Refer to the system builder's website for details about updating the BIOS.

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

format A:/S then press <Enter>.

Windows® XP environment

- a. Insert a 1.44MB floppy disk into the floppy disk drive.
 - b. From your Windows® desktop, click on **Start**, then select **My Computer**.
 - c. Select the **3 1/2 Floppy Drive** icon.
 - d. Click **File** from the menu, then select **Format. A Format 3 1/2 Floppy Disk** window appears.
 - e. Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.
2. Copy the original (or the latest) motherboard BIOS to the bootable floppy disk.

2.1.2 Using AFUDOS to copy the current BIOS

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

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

afudos /o[filename]

where "filename" can be any user-provided filename of not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

Press <Enter>.



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

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 has 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. Download the latest BIOS file from the website provided by the system builder.



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

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

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

afudos /i[filename.rom]

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

5. Press <Enter>. 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 /iP4V800D-X.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 shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

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

```
A:\>afudos /iP4V800D-X.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:\>
```

6. 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 system builder website to download the latest BIOS file for your motherboard and rename it to **P4V800D-X.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 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 "P4V800D-X.ROM not found!" is displayed.

4. Insert the floppy disk that contains the BIOS file. If the **P4V800D-X** file is found in the floppy disk, EZ Flash performs the BIOS update process and automatically reboots the system when done.



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

```
User recovery requested. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "p4v800d-x.rom". Completed.
Start flashing...
Flashed successfully. Rebooting.
```

2.2 BIOS Setup Program



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

This motherboard supports a programmable Low Pin Count (LPC) 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.

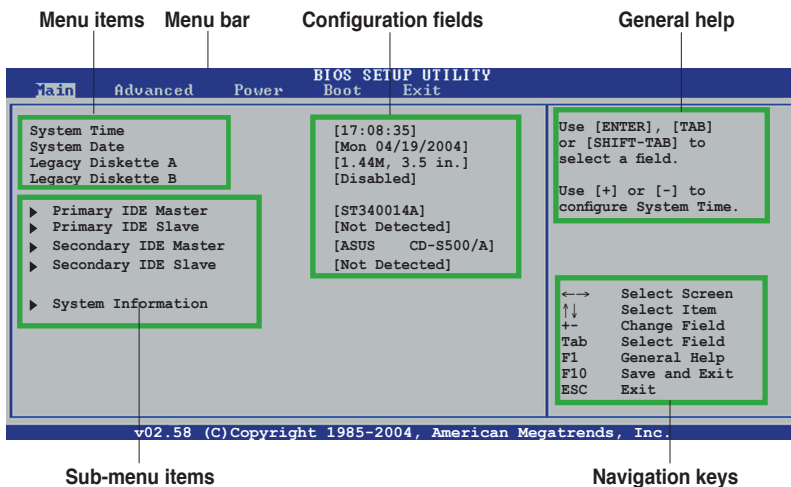
Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or make changes to the power management settings. This requires you to reconfigure your system using the BIOS Setup program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

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 fail.

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

2.2.1 BIOS menu screen



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.

2.2.5 Sub-menu items

A solid triangle before each item on any menu screen means that the item has a sub-menu. To display the sub-menu, select the item, then press <Enter>.

2.2.6 Configuration fields

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

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

2.2.7 Pop-up window

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

2.2.8 Scroll bar

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

2.2.9 General help

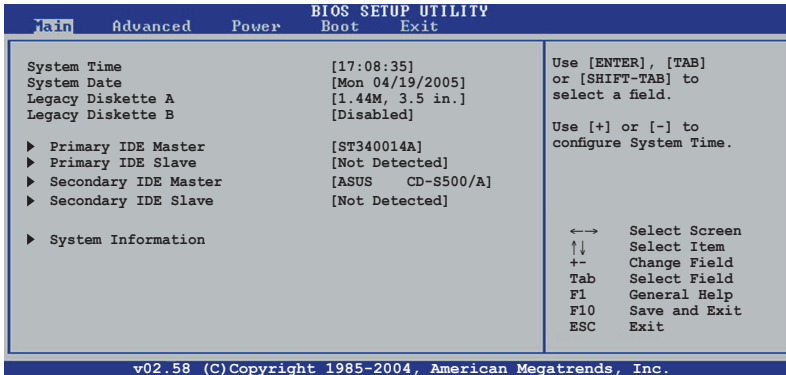
At the top right corner of the menu screen is a brief description of the selected item.

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.



2.3.1 System Time [xx:xx:xxxx]

Allows you to set the system time.

2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

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

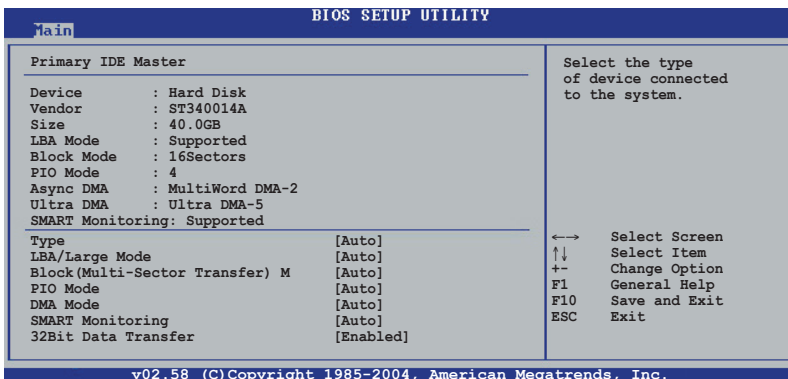
Sets the type of floppy drive installed. Configuration options: [Disabled] [360K, 5.25 in.] [1.2M, 5.25 in.] [720K, 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

2.3.4 Legacy Diskette B [Disabled]

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

2.3.5 Primary/Secondary IDE Master/Slave

While entering Setup, BIOS automatically 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.



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

Type [Auto]

Selects the type of IDE drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA/Large mode. Setting to Auto enables the LBA/Large 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) M [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] [UDMA6]

SMART Monitoring [Auto]

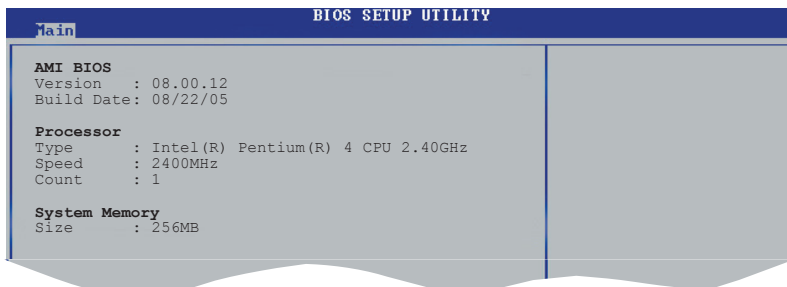
Sets the Smart Monitoring, Analysis, and Reporting Technology. Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

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

2.3.6 System Information

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



AMI BIOS

Displays the auto-detected BIOS information.

System Memory

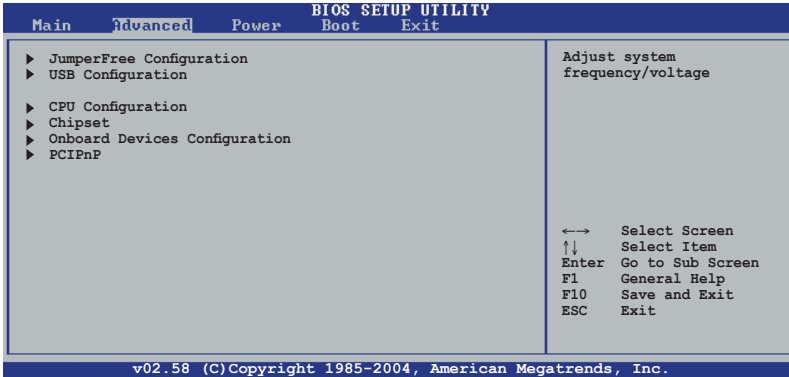
Displays the auto-detected system memory.

2.4 Advanced menu

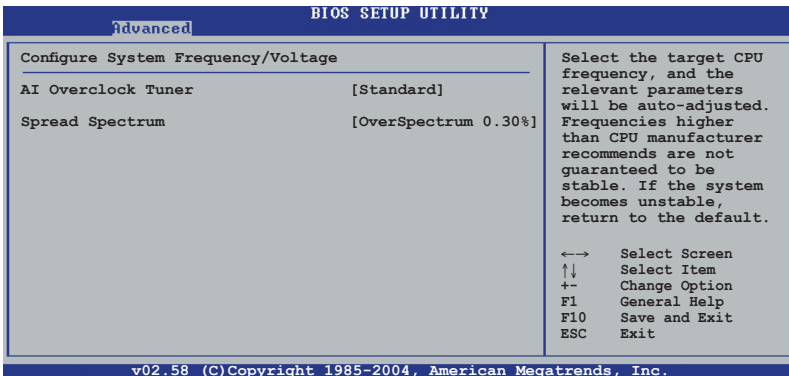
The Advanced menu items allow you to change the settings for the CPU and other system devices.



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



2.4.1 JumperFree Configuration



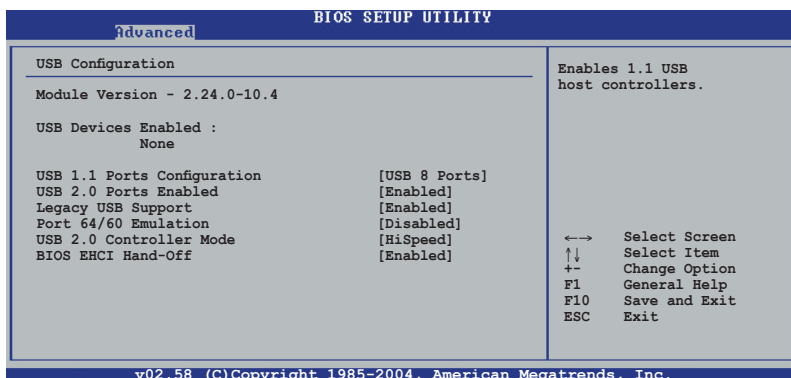
AI Overclock Tuner [Standard]

Configuration options: [Manual] [Standard] [Overclock 5%] [Overclock 10%] [Overclock 20%] [Overclock 30%]

Spread Spectrum [OverSpectrum 0.30%]

Configuration options: [Disabled] [OverSpectrum 0.20%] [OverSpectrum 0.30%] [OverSpectrum 0.40%] [OverSpectrum 0.50%]

2.4.2 USB Configuration



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

USB 1.1 Ports Configuration [USB 8 Ports]

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

USB 2.0 Ports Enable [Enabled]

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

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]

Port 64/60 Emulation [Disabled]

Allows you to enable or disable the port 64/60 emulation. Configuration options: [Disabled] [Enabled]

USB 2.0 Controller Mode [HiSpeed]

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

BIOS EHCI Hand-Off [Disabled]

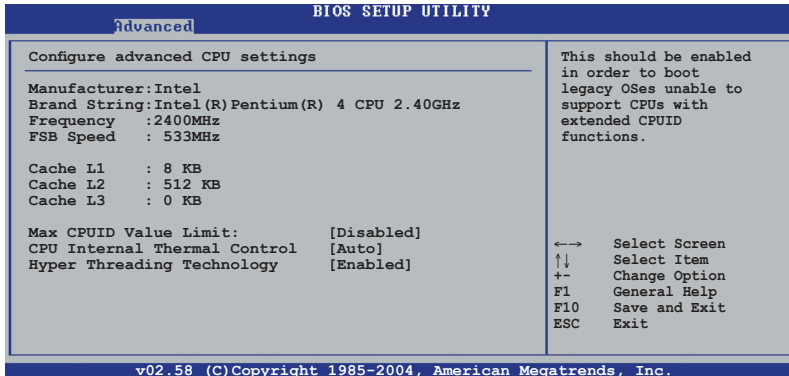
Allows you to enable or disable the port 64/60 emulation. Configuration options: [Disabled] [Enabled]



When you use a USB mass storage device, a USB mass storage device configuration option will display. And this option is hidden if no USB mass storage detected.

2.4.3 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.



Max CPUID Value Limit [Disabled]

Allows you to enable or disable the max CPUID value limit function. Configuration options: [Disabled] [Enabled]

CPU Internal Thermal Control [Auto]

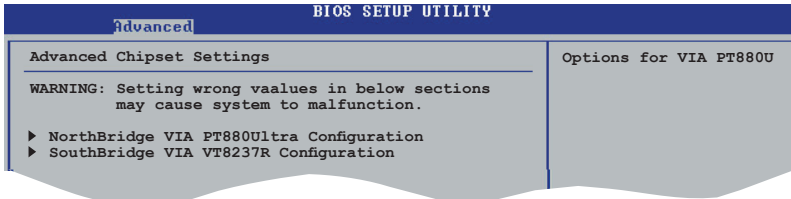
Allows you to set the CPU internal thermal control. Configuration options: [Auto] [Disabled]

Hyper Threading Technology [Enabled]

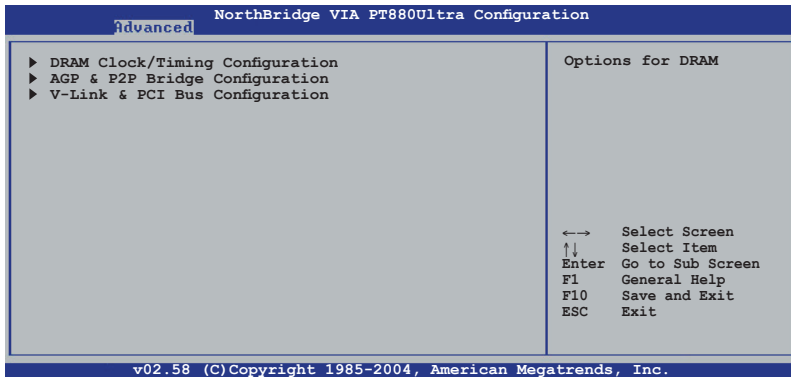
Allows you to enable or disable the Hyper Threading technology. Configuration options: [Disabled] [Enabled]

2.4.4 Chipset

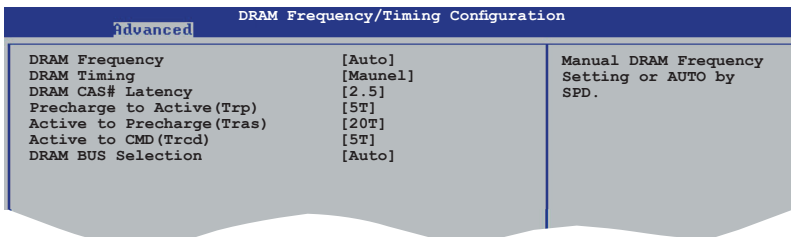
The Chipset menu allows you to change the advanced chipset settings. Select an item then press <Enter> to display the sub-menu.



NorthBridge VIA PT880Ultra Configuration



DRAM Clock/Timing Configuration



DRAM Frequency [Auto]

Configuration options: [Auto] [200MHz] [266MHz] [333MHz] [400MHz] [533MHz] [666MHz]

DRAM Timing [Manual]

Configuration options: [Manual] [Auto] [Turbo] [Ultra]

DRAM CAS# Latency [2.5]

Configuration options: [1.5] [2.0] [2.5] [3.0]

Precharge to Active(Trp) [5T]

Configuration options: [2T] [3T] [4T] [5T]

Active to Precharge(Tras) [20T]

Configuration options: [5T] [6T] [7T] [8T] [9T] [10T] [11T] [12T] [13T] [14T] [15T] [16T] [17T] [18T] [19T] [20T]

Active to CMD(Trcd) [5T]

Configuration options: [2T] [3T] [4T] [5T]

DRAM BUS Selection [Auto]

Configuration options: [Auto] [Single Channel] [Dual Channel]

AGP & P2P Bridge Configuration

AGP & P2P Bridge Configuration		
Advanced		
AGP 3.0 Mode	[4x]	Select Option To Set AGP MODE.
AGP Fast Write	[Enabled]	
AGP Aperture Size	[128MB]	
Primary Graphics Adapter	[PCI Express]	

AGP 3.0 Mode [4x]

Configuration options: [4x] [2x] [1x]

AGP Fast Write [Enabled]

Configuration options: [Disabled] [Enabled]

AGP Aperture Size [128MB]

Configuration options: [32MB] [64MB] [128MB] [256MB]

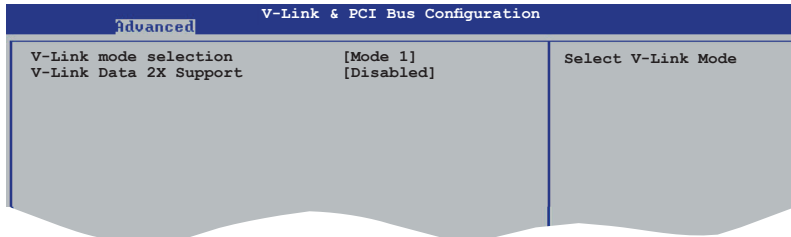
Primary Graphics Adapter [PCI Express]

Configuration options: [PCI] [AGP] [PCI Express]



Allows you to insert the PCI Express VGA into both AGP slot and PCI Express x 16 slot at the same time, but you cannot use both of them at one time. In BIOS, the default configuration of Primary Graphics Adapter is [PCI Express]. You can select [AGP] if you want use it.

V-Link & PCI Bus Configuration



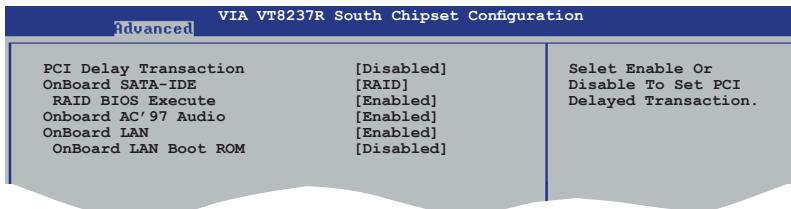
V-Link mode selection [Mode 1]

Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

V-Link Data 2X Support [Disabled]

Configuration options: [Disabled] [Enabled]

SouthBridge VIA VT8237R Configuration



PCI Delay Transaction [Disabled]

Configuration options: [Disabled] [Enabled]

OnBoard SATA-IDE [RAID]

Allows you to set the OnBoard SATA-IDE mode. Configuration options: [Disabled] [SATA] [RAID]

RAID BIOS Execute [Enabled]

Configuration options: [Disabled] [Enabled]

OnBoard AC'97 Audio [Enabled]

Selecting [Enabled] 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]

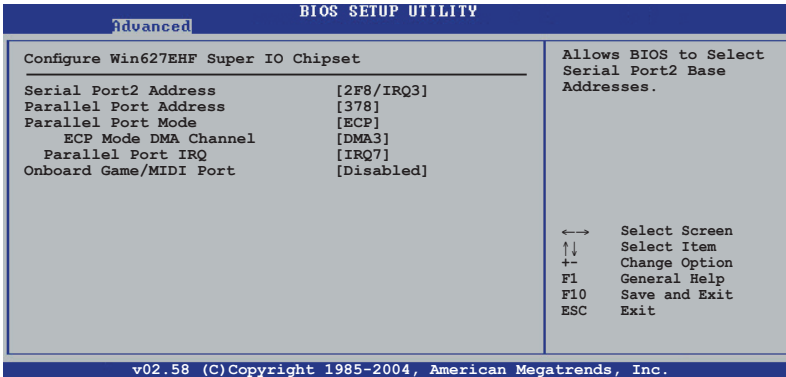
OnBoard LAN [Enabled]

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

OnBoard LAN Boot ROM [Disabled]

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

2.4.5 Onboard Devices Configuration



Serial Port2 Address [2F8/IRQ3]

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

Parallel Port Address [378]

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

Parallel Port Mode [ECP]

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

ECP Mode DMA Channel [DMA3]

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

Parallel Port IRQ [IRQ7]

Configuration options: [IRQ5] [IRQ7]

Onboard Game/MIDI Port [Disabled]

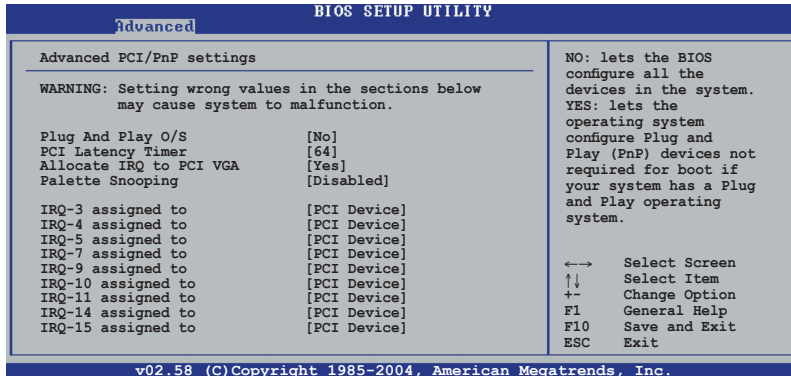
Allows you to select the Game Port address or to disable the port. Configuration options: [Disabled] [200/300] [200/330] [208/300] [208/330]

2.4.6 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.



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



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 and Play operating system, the operating system configures the Plug and Play devices not required for boot. Configuration options: [No] [Yes]

PCI Latency Timer [64]

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

Allocate IRQ to PCI VGA [Yes]

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

Palette Snooping [Disabled]

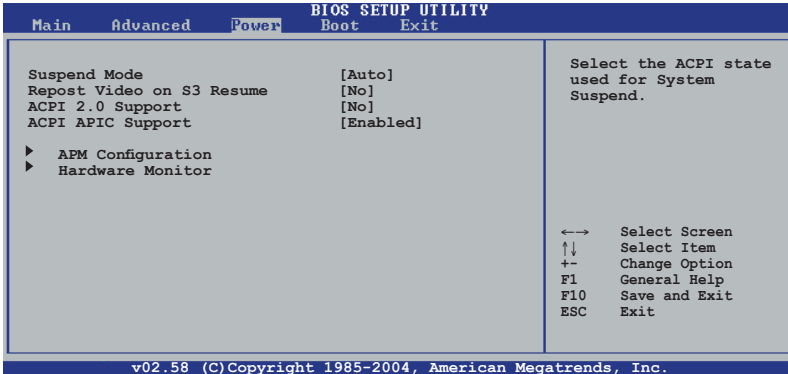
When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

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: [PCI Device] [Reserved]

2.5 Power menu

The Power menu items allow you to change the power settings. Select an item then press <Enter> to display the configuration options.



Suspend Mode [Auto]

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

Repost Video on S3 Resume [No]

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

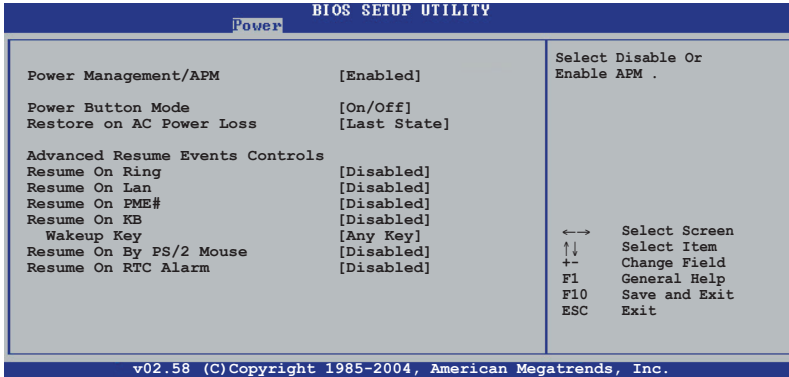
ACPI 2.0 Support [Yes]

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

ACPI APIC Support [Enabled]

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

2.5.1 APM Configuration



Power Management/APM [Enabled]

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



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

Power Button Mode [On/Off]

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

Restore on AC Power Loss [Last State]

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

Resume On Ring [Disabled]

Allows you to enable or disable Resume On Ring. Configuration options: [Disabled] [Enabled]

Resume On Lan [Disabled]

Allows you to enable or disable the Resume On Lan. Configuration options: [Disabled] [Enabled]

Resume On PME# [Disabled]

Allows you to enable or disable the Resume On PEM. Configuration options: [Disabled] [Enabled]

Resume On KB [Disabled]

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

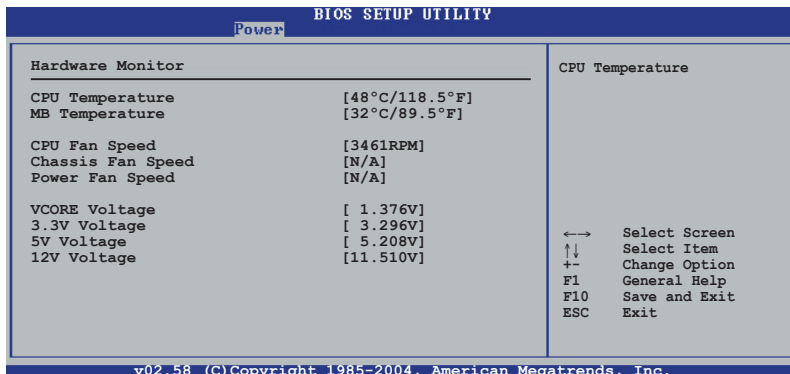
Resume On PS/2 Mouse [Disabled]

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

Resume On By RTC Alarm [Disabled]

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

2.5.2 Hardware Monitor



CPU Temperature [xxx°C/xxx°F]

MB Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the CPU and motherboard temperatures. Configuration options: [Ignored] [xxx°C/xxx°F]

CPU Fan Speed [xxxxRPM]

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

Chassis Fan Speed [N/A]

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

Power Fan Speed [N/A]

The onboard hardware monitor automatically detects and displays the power fan speed in rotations per minute (RPM). If the fan is not connected to the power, the specific field shows N/A. Configuration options: [Ignored] [N/A]



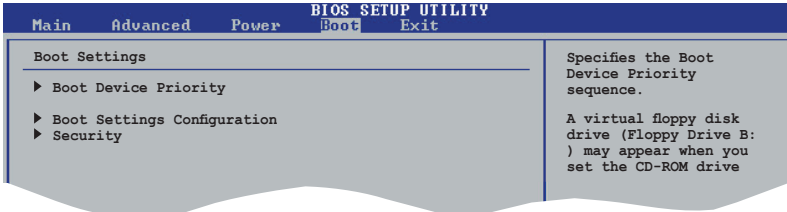
Some CPU fans with a 4-pin cable do not comply with Intel[®]'s PWM fan specification. When using this type of CPU fan, you can not reduce the CPU fan speed even if you set the CPU Q-Fan Mode to [PWM].

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

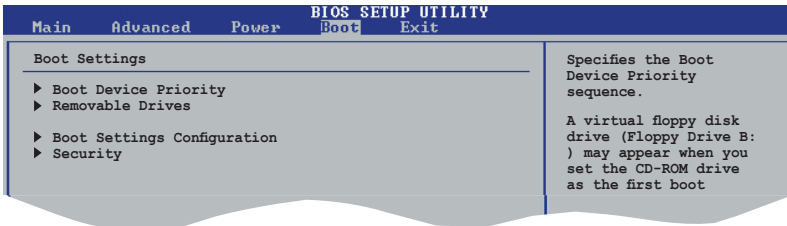
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

2.6 Boot menu

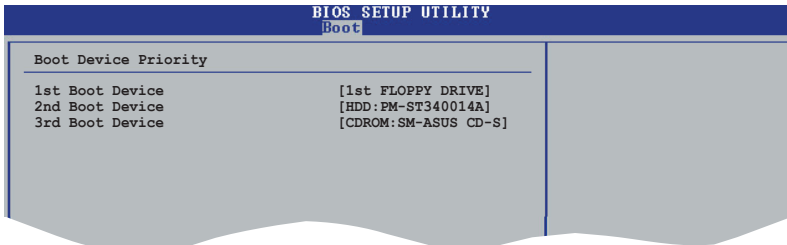
The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.



A Hide option will display if removable boot device is detected.



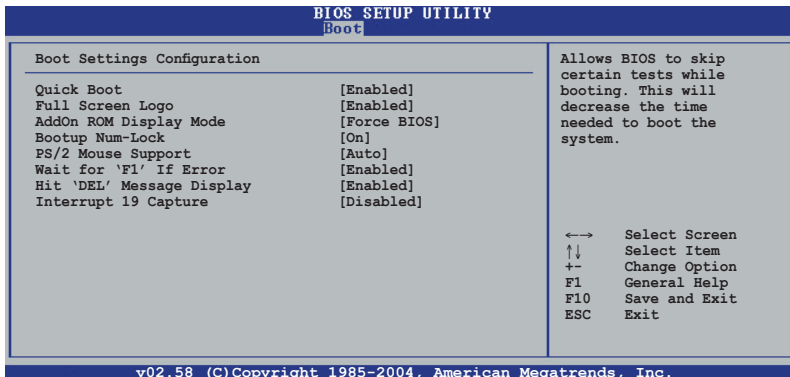
2.6.1 Boot Device Priority



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 number of devices installed in the system. Configuration options: [xxxxx Drive] [Disabled]

2.6.2 Boot Settings Configuration



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]

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



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

AddOn ROM Display Mode [Force BIOS]

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

Bootup Num-Lock [On]

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

PS/2 Mouse Support [Auto]

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

Wait for 'F1' If Error [Enabled]

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

Hit 'DEL' Message Display [Enabled]

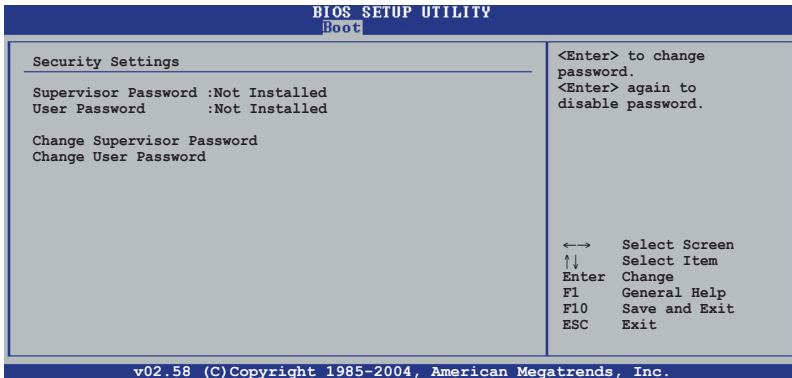
When set to [Enabled], the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

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

2.6.3 Security

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



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 at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

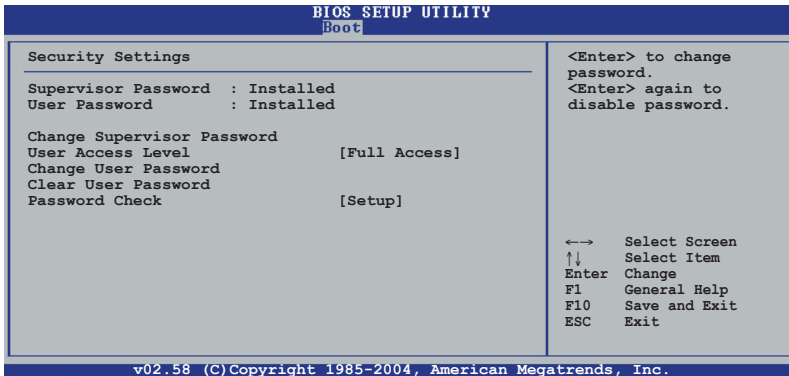
The message "Password Installed" appears after you successfully set your password. The Supervisor Password item now shows "Installed". To change the supervisor password, follow the same steps as in setting a user password.

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



If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "2.6 Jumpers" for information on how to erase the RTC RAM.

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



User Access Level [Full Access]

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 only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

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

To set a User Password:

1. Select the Change User Password item and press **<Enter>**.
2. On the password box that appears, type a password combination of at least six (6) letters and/or numbers, then press **<Enter>**.
3. Confirm the password when prompted. The message "Password Installed" appears after you have successfully set your password. 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

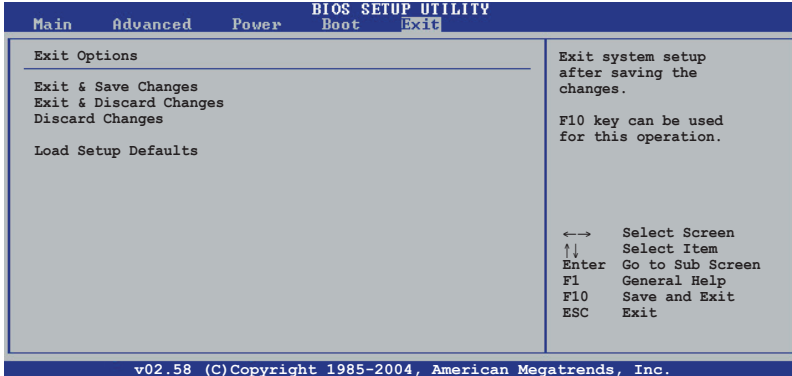
Select this item if you wish to clear the user password.

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.



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 the default values. Select Exit & Save Changes or make other changes before saving the values to the non-volatile RAM.

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

Software Support **3**

3.1 Installing an operating system

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



Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.

3.2 Support CD information

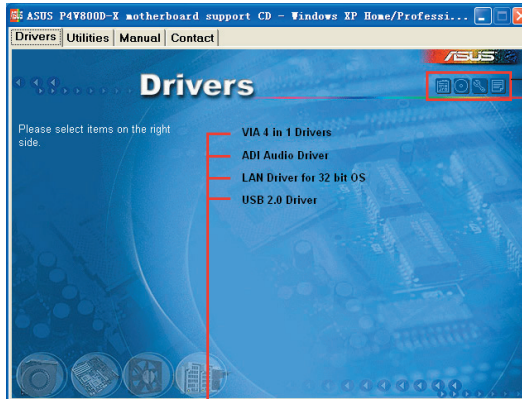
The support CD that came with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.



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

3.2.1 Running the support CD

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



Click an icon to display support CD/motherboard information

Click 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.

VIA 4 in 1 Driver

Install VIA in 1 Driver.

ADI Audio Driver

Install ADI Audio Driver.

LAN Driver for 32 bit OS

LAN Driver for 32 OS.

USB 2.0 Driver

Install USB 2.0 driver.



The screen display and drivers option may not be the same for different operating system versions.

3.2.3 Utilities menu

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



ASUS PC Probe

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

ASUS Update

ASUS Update can help user to download and flash BIOS. Please install Network Card and TCP/IP network driver first, otherwise ASUS Update can not work properly.

ASUS Screen Saver

Bring life to your idle screen by installing the ASUS screen saver.

ADOBE Acrobat Reader V7.0

The Adobe Acrobat® Reader V7.0 is for opening, viewing, and printing documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c

The Microsoft DirectX® 9.0c is a multimedia technology that enhances computer graphics and sounds. DirectX® improves the multimedia features of your computer so you can enjoy watching TV and movies, capturing videos, or playing games in your computer.

Anti-Virus Utility

The anti-virus application scans, identifies, and removes computer viruses. View the online help for detailed information.

Raid User's Manual

Please install first Adobe Acrobat, then open Raid User's Manual.

3.2.4 Contacts menu

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.



3.3 VIA RAID configurations

The motherboard includes a high performance IDE RAID controller integrated in the VIA VT8237R+ southbridge chipset. It supports RAID 0, RAID 1 and JBOD with two independent Serial ATA channels.

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

RAID 1 (called Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

JBOD (Spanning) stands for Just a Bunch of Disks and refers to hard disk drives that are not yet configured as a RAID set. This configuration stores the same data redundantly on multiple disks that appear as a single disk on the operating system. Spanning does not deliver any advantage over using separate disks independently and does not provide fault tolerance or other RAID performance benefits.



If you use either Windows® XP or Windows® 2000 operating system (OS), copy first the RAID driver from the support CD to a floppy disk before creating RAID configurations. Refer to section “5.5 Creating a RAID driver disk” for details.

3.3.1 Installing hard disks

The motherboard supports Ultra DMA 133/100/66/33 and Serial ATA hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

Installing Serial ATA (SATA) hard disks

To install the SATA hard disks for a RAID configuration:

1. Install the SATA hard disks into the drive bays.
2. Connect the SATA signal cables.
3. Connect a SATA power cable to the power connector on each drive.

3.3.2 VIA RAID configurations

The motherboard includes a high performance IDE RAID controller integrated in the VIA VT8237R PLUS southbridge chipset. It supports RAID 0 and RAID 1 with two independent Serial ATA channels.

Setting the BIOS RAID items

After installing the hard disk drives, make sure to set the necessary RAID items in the BIOS before setting your RAID configuration.

To set the BIOS RAID items:

1. Boot the system and press during the Power-On Self-Test (POST) to enter the BIOS Setup Utility.
2. From the Advanced >Chipset>SouthBridge VIA VT8237R Configuration menu in the BIOS, then Set the OnBoard SATA-IDE item as Enabled.
3. Save your changes and exit Setup.

Entering the VIA Tech RAID BIOS Utility

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



The RAID BIOS setup screens shown in this section are for reference only, and may not exactly match the items on your screen.

Create Array

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

```
VIA Tech. VT8237 Series SATA RAID BIOS Ver x.xx

▶ Auto Setup For Data Security
▶ Array Mode RAID 1 (Mirroring)
▶ Select Disk Drives
▶ Start Create Process

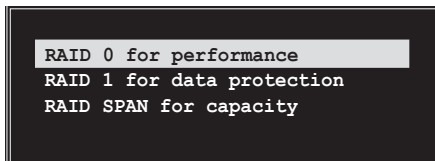
Create a RAID array with
the hard disks attached to
VIA RAID controller

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

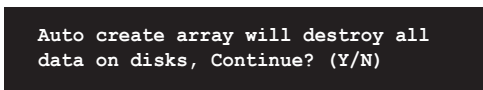
Channel	Drive Name	Array Name	Mode	Size (GB)	Status
Serial_Ch0	Master XXXXXXXXXXXX	ARRAY 0	SATA	999.99	XXXXXXXX
Serial_Ch1	Master XXXXXXXXXXXX	ARRAY 0	SATA	999.99	XXXXXXXX

RAID 0 for performance

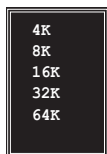
1. From the create array menu, select Array Mode, then press <Enter>. The supported RAID configurations appear on a pop-up menu.



2. Select RAID 0 for performance then press <Enter>. From this point, you may choose to auto-configure the RAID array by selecting Auto Setup for Performance or manually configure the RAID array for striped sets. If you want to auto-configure, proceed to the next step, otherwise, skip to step 5.
3. Select Auto Setup for Performance and press <Enter>. The following confirmation message appears.

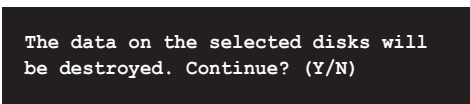


4. Press <Y> to confirm or <N> to return to the configuration options. If you selected <Y>, proceed to step 9.
5. Select Select Disk Drives, then press <Enter>. Use arrow keys to select disk drive, then press <Enter> to mark selected drive. An asterisk appears before a selected drive.
6. Select Block Size, then press <Enter> to set array block size. A list of valid array block sizes are displayed on a pop-up menu.



TIP: For server systems, use of a lower array block size is recommended. For multimedia computer systems used mainly for audio and video editing, a higher array block size is recommended for optimum performance.

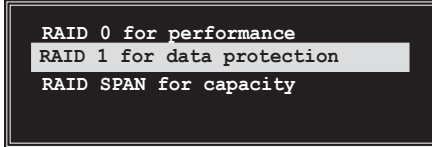
- Use arrow keys to move selection bar on items and press <Enter> to select.
7. Select Start Create Process and press <Enter> to set up hard disk for RAID system. The following confirmation message appears:



8. Press <Y> to confirm or <N> to return to the configuration options.
9. Press <Esc> to go back to main menu.

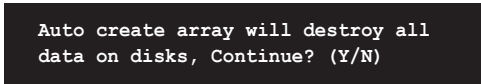
RAID 1 for data protection

1. From the create array menu, select Array Mode, then press <Enter>. The supported RAID configurations appear on a pop-up menu.

A screenshot of a terminal window showing a RAID configuration menu. The menu has three options: "RAID 0 for performance", "RAID 1 for data protection" (which is highlighted with a grey bar), and "RAID SPAN for capacity".

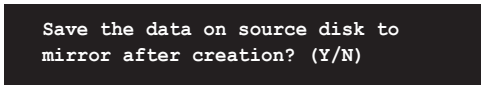
```
RAID 0 for performance
RAID 1 for data protection
RAID SPAN for capacity
```

2. Select RAID 1 for data protection then press <Enter>.
3. From this point, you can auto-configure the RAID array by selecting Auto Setup for Data Security or manually configure the RAID array for mirrored sets. If you want to auto-configure, proceed to the next step, otherwise, skip to step 6.
4. Select Auto Setup for Data Security and press <Enter>. The following confirmation message appears.

A screenshot of a terminal window showing a confirmation message: "Auto create array will destroy all data on disks, Continue? (Y/N)".

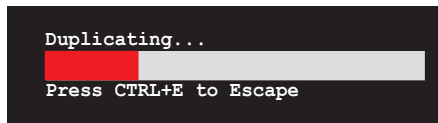
```
Auto create array will destroy all
data on disks, Continue? (Y/N)
```

5. Press <Y> to confirm or <N> to return to the configuration options. If you selected <Y>, proceed to step 11.
6. Select Disk Drives, then press <Enter>. Use arrow keys to select disk drive/s, then press <Enter>. An asterisk appears before a selected drive.
7. Select Start Create Process and press <Enter> to setup hard disk for RAID system. The following inquiry appears:

A screenshot of a terminal window showing a confirmation message: "Save the data on source disk to mirror after creation? (Y/N)".

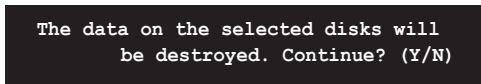
```
Save the data on source disk to
mirror after creation? (Y/N)
```

8. If you select <Y> the utility will duplicate your data. Press <Y> anytime if you want to exit the duplication process.

A screenshot of a terminal window showing a progress bar for duplication. The text "Duplicating..." is at the top. Below it is a progress bar with a red segment on the left and a grey segment on the right. At the bottom, it says "Press CTRL+E to Escape".

```
Duplicating...
Press CTRL+E to Escape
```

9. If you select <N>, the following confirmation message appears.

A screenshot of a terminal window showing a confirmation message: "The data on the selected disks will be destroyed. Continue? (Y/N)".

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

10. Press <Y> to confirm or <N> to return to the configuration options.
11. Press <Esc> to go back to main menu.

3.4 Creating a RAID driver disk

A floppy disk with the RAID driver is required when installing Windows® 2000/XP operating system on a hard disk drive that is included in a RAID set. You can create a RAID driver disk using your motherboard support CD.

To create a RAID driver disk:

1. Insert the motherboard support CD into the CD-ROM drive.
2. When the Drivers menu appears, click MakeDisk to create a VIA 8237 RAID Driver Disk

Or

Browse the contents of the support CD to locate the driver disk utility and go to \Drivers\Chipset\MakeDisk\MakeDisk for the VIA RAID driver disk utility.



Refer to section “3.2.2 Drivers menu” for details.

3. Insert floppy disk to floppy disk drive.
4. Follow succeeding screen information to complete process.
5. Write-protect the floppy disk to avoid computer virus infection.

To install the RAID driver:

1. During the OS installation, the system prompts you to press the F6 key to install third-party SCSI or RAID driver.
2. Press <F6> then insert the floppy disk with RAID driver into the floppy disk drive.
3. Follow the succeeding screen instructions to complete the installation.