V-Series P5P43

ASUS PC (Desktop Barebone)

User Manual
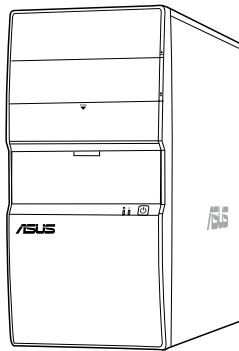
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Notices

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 electric 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 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 devices into the system, carefully read all the documentation that came with the package.
- Before using the product, ensure that 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 extreme temperatures. Do not place the product in any area where it may become wet. Place the product on a stable surface.
- When using the product, do not block any air inlet/outlet in the chassis.
- The maximum environmental temperature is 35ºC.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT: Explosionsgetahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnljchen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

About this guide

Audience

This guide provides general information and installation instructions about the ASUS Vintage V4-Series P5P43 barebone system. This guide is intended for experienced users and integrators with hardware knowledge of personal computers.

How this guide is organized

This guide contains the following parts:

1. **Chapter 1: System introduction**

    This chapter gives a general description of the ASUS V4-Series P5P43. The chapter lists the system features, including introduction on the front and rear panel, and internal components.

2. **Chapter 2: Basic installation**

    This chapter provides step-by-step instructions on how to install components in the system.

3. **Chapter 3: Starting up**

    This chapter helps you power up the system and install drivers and utilities from the support DVD.

4. **Chapter 4: Motherboard introduction**

    This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

5. **Chapter 5: BIOS setup**

    This chapter tells you how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

Conventions used in this guide

To ensure 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: Instructions 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.

System package contents

Check your V4-Series P5P43 system package for the following items.

Item description
1. ASUS V4-Series P5P43 barebone system with
• ASUS motherboatd
• Power supply unit
• ASUS chassis
2. Cable
• AC power cable
3. Support DVD
4. User guide
5. Telecom Adapter Card (Optional)

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

Chapter 1

This chapter gives you a general description of the ASUS V4-Series P5P43. The chapter lists the system features including introduction on the front and rear panel, and internal components.
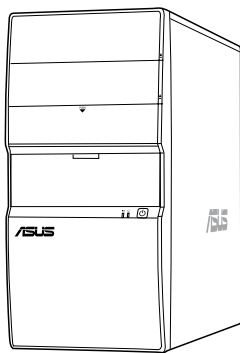
1.1 Welcome!

Thank you for buying the ASUS V4-Series P5P43!

The ASUS V4-Series P5P43 is an all-in-one barebone system with a versatile home entertainment feature.

The system comes in a stylish casing and powered by the ASUS motherboard that supports the Intel® Core™2 Extreme / Core™2 Duo / Core™2 Quad / Pentium® D / Pentium® 4 / Celeron® D processors in the 775-land package.

The system supports up to 8 GB of system memory using DDR2-1066/800/667 DIMMs. High-resolution graphics via integrated graphics controller or PCI Express x16 slot, Serial ATA, USB 2.0, and
8-channel audio feature the system and take you ahead in the world of power computing.

1.2 Front panel

The front panel includes the optical drive bays, hard disk drive bay, power button, and I/O ports.

1. 5.25-inch drive bay cover
2. 3.5-inch drive bay cover
3. 2.5-inch portable hard disk drive*
4. MemoryStick®/Memory Stick Pro™ card slot
5. Secure Digital™/ Multimedia Card slot
6. Card reader LED
7. Infrared window*
8. CompactFlash®/ Microdrive™ card slot
9. Microphone port
10. Headphone port
11. USB 2.0 ports**
12. HDD LED
13. Power LED
14. Power button
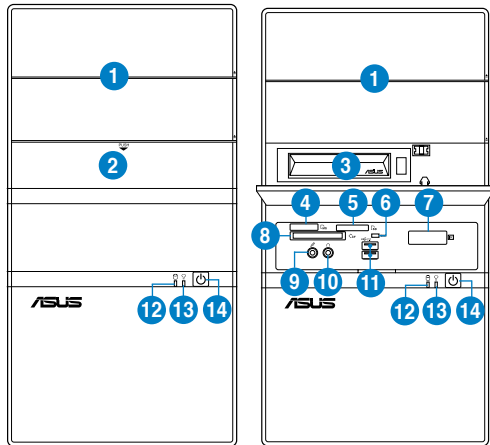
• The portable hard disk drive and the Infrared function are optional.

• Some models may have two additional USB 2.0 ports and/or one IEEE 1394a port.

1.3 Rear panel

The system rear panel includes the power connector and several I/O ports that allow convenient connection of devices.
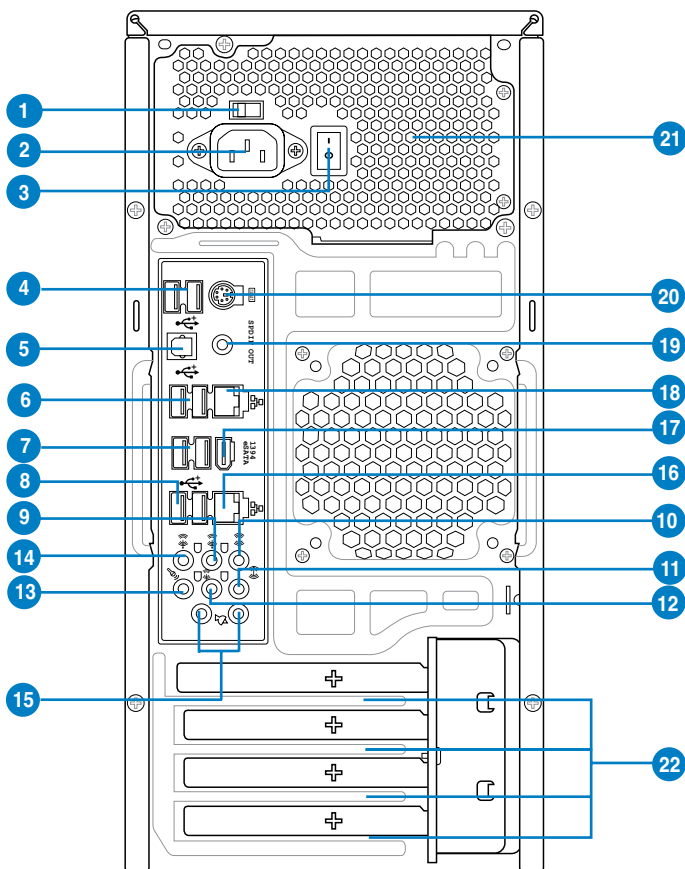
1. **Voltage selector.** This switch allows you to adjust the system input voltage according to the voltage supply in your area. See the section "Voltage selector" on page 1-6 before adjusting this switch.

2. **Power connector.** This connector is for the power cable and plug.

3. **Power Switch.** This switch is for switching on/off the power supply unit.

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

5.	**Optical S/PDIF Out port.** This port connects an external audio output device via an optical S/PDIF cable.

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

7.	**External SATA ports**. This port connects to an external Serial ATA hard disk drive.

> DO NOT insert different connectors to the external SATA port.

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

9.	**Rear Speaker Out port (black).** This port connects the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration..

10.	**Center / Subwoofer port (orange).** This port connects the center / subwoofer speakers.11**. Line In port (light blue)**. This port connects the tape, CD, DVD player, or other audio sources.

12.	**Line Out port (green)**. This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.

13	**Microphone port (pink).** This port connects a microphone.

14.	**Side Speaker Out port (gray)**. This port connects the side speakers in an 8-channel audio configuration.

> Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, or 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Green	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Subwoofer	Center/Subwoofer
Black	–	Rear Speaker Out	Rear Speaker Ou	Rear Speaker Out
Gray	–	–	–	Side Speaker Out

15.	**Antenna jack**. This jack is on the onboard wireless LAN module that allows you to set up a wireless network and exchange information with other wireless devices without tangling cables and wires. Connect the moveable omni-directional antenna to this jack.

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

17. **IEEE 1394a port.** This 6-pin IEEE 1394a port provides high-speed connectivity for audio/video devices, storage peripherals, PCs, or portable devices.

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

19. **Coaxial S/PDIF Out port.** This port connects an external audio output device via a coaxial S/PDIF cable.

20. **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.

21. **Power supply unit fan vent.** This vent is for the PSU fan that provides ventilation inside the power supply unit.

22. **Expansion slot covers.** Remove these covers when installing expansion cards.

Voltage selector

The PSU has a 115 V/230 V voltage selector switch located beside the power connector. Use this switch to select the appropriate system input voltage according to the voltage supply in your area.

If the voltage supply in your area is 100-127 V, set this switch to 115 V.

If the voltage supply in your area is 200-240 V, set this switch to 230 V.
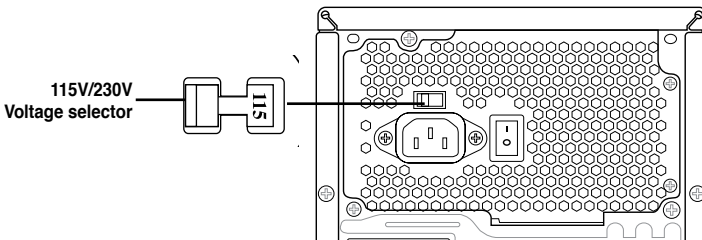
Setting the switch to 115V in a 230V environment or 230V in a 115V environment will seriously damage the system!

1.4   Internal components
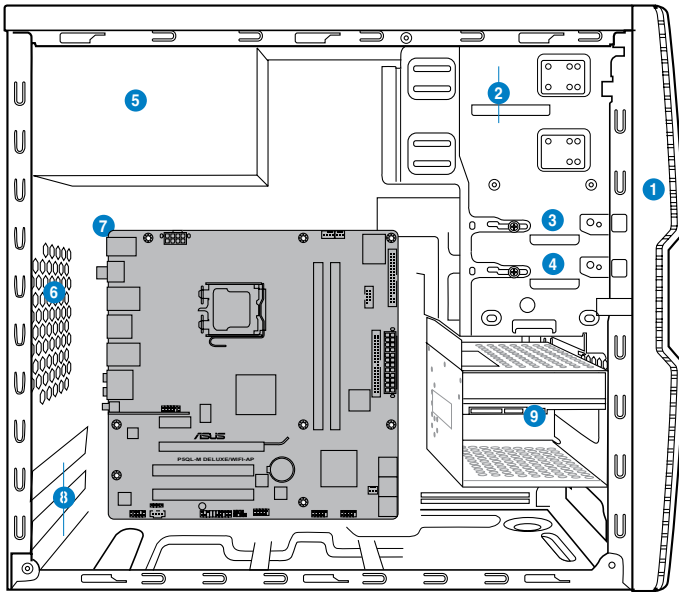
1.   Front panel cover
2.   5.25-inch optical drive bays
3.   2.5-inch portable hard disk drive bay
     (optional)
4.   3.5-inch hard disk drive bay

5.   Power supply unit
6.   Chassis fan slot
7.   ASUS motherboard
8.   Expansion slot metal brackets
9.   3.5-inch hard disk drive holder
     (optional)

Chapter 2

This chapter provides step-by-step instructions on how to install components into the system.
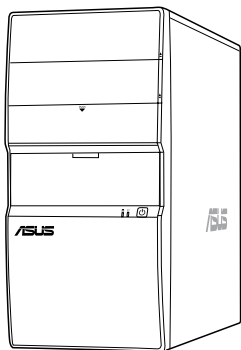
Basic installation

2.1   Preparation

Before you proceed, ensure that you have all the components you plan to install into the system.

Basic components to install

1. Central Processing Unit (CPU)
2. DDR2 Dual Inline Memory Module (DIMM)
3. Expansion cards
4. Hard disk drive
5. Optical disk drive

Tool

Phillips (cross) screw driver

2.2 Before you proceed

Take note of the following precautions before you install components into the system.

- Unplug the power cables before you touch any component in the system.

- 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 cable is detached from the power supply. Failure to do so may lead to personal injury and cause severe damage to the motherboard, peripherals, and components.

Onboard LED

The system 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 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.

P5QL-M DELUXE/WIFI-AP Onboard LED
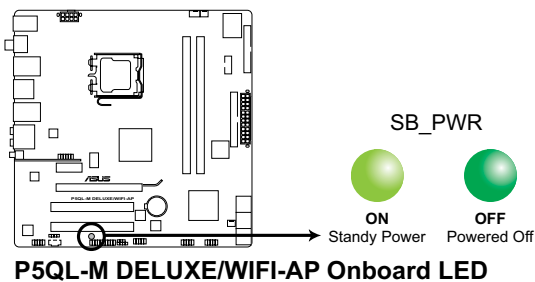
2.3 Removing the side cover and front panel assembly

Follow the steps below to remove the side cover and front panel assembly.

1. Remove the cover screws on the rear panel.
2. Pull the side cover toward the rear panel until its hooks disengage from the chassis tab holes. Set the side cover aside.
3. Locate the front panel assembly hooks, then lift them until they disengage from the chassis.
4. Swing the front panel assembly to the right, until the hinge-like tabs on the right side of the assembly are exposed.
5. Remove the front panel assembly, then set it aside.

Air duct

Chassis tab holes
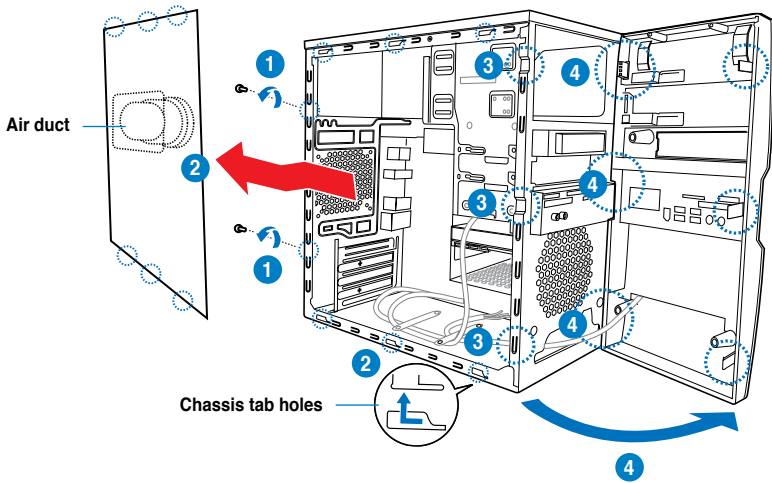
2.4   Central Processing Unit (CPU)

2.4.1   Overview

The motherboard comes with a surface mount LGA775 socket designed for the Intel® Core™2 Quad / Intel® Core™2 Extreme / Core™2 Duo / Pentium® Extreme / Pentium® D/ Pentium® 4 / Celeon® processors.

> • Make sure that all power cables are unplugged before installing the CPU.
>
> • Connect the chassis fan cable to the CHA_FAN connector to ensure system stability.

> • Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
>
> • Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket.
>
> • The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

2.4.2   Installing CPU

To install a CPU:

1.   Locate the CPU socket on the motherboard.

> Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.
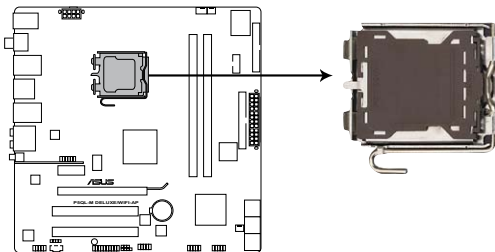
P5QL-M DELUXE/WIFI-AP CPU socket 775

2. Press the load lever with your thumb
    (A), then move it to the left (B) until it
    is released from the retention tab.

⚠ To prevent damage to the
   socket pins, do not remove
   the PnP cap unless you are
   installing a CPU.

Retention tab

A

B
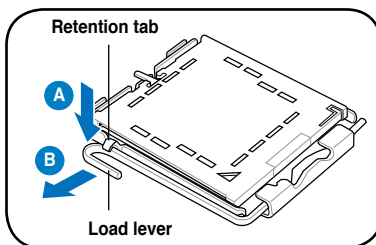
Load lever

3. Lift the load lever in the direction of
    the arrow to a 135º angle.

4. Lift the load plate with your thumb
    and forefinger to a 100º angle (4A),
    then push the PnP cap from the
    load plate window to remove (4B).

PnP cap

Load plate

4B

4A

3
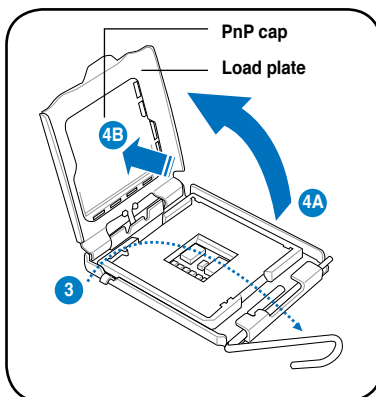
5. Position the CPU over the socket,
    ensuring that the gold triangle is on
    the bottom-left corner of the socket
    then fit the socket alignment key
    into the CPU notch.

CPU notch

**Gold
triangle
mark**

Alignment key
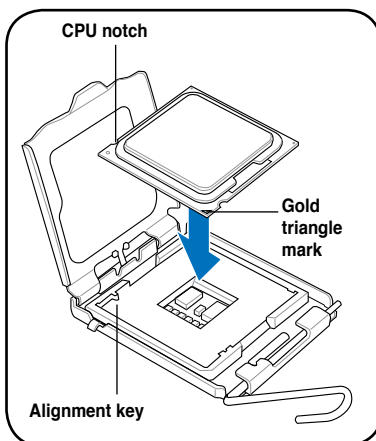
6. Apply several drops of Thermal Interface Material to the exposed area of the CPU that the heatsink will be in contact with, ensuring that it is spread in an even thin layer.

Some heatsinks come with preapplied thermal paste. If so, skip this step.
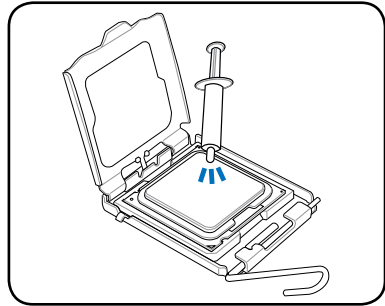
DO NOT eat the Thermal Interface Material. If it gets into your eyes or touches your skin, ensure that you wash it off immediately, and seek professional medical help.

To prevent contaminating the thermal paste, **DO NOT** spread it with your finger directly.

7. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.
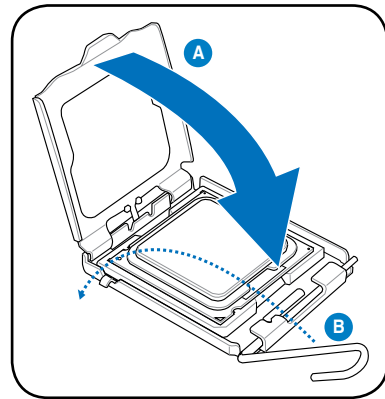
The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Intel SpeedStep® Technology (EIST) and Hyper-Threading Technology.

2.4.3   Installing the CPU fan and heatsink assembly

The Intel® Pentium® 4 LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

> • When you buy a boxed Intel® Pentium® 4 processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
>
> • Your Intel® Pentium® 4 LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install.

> If you purchased a separate CPU heatsink and fan assembly, make sure that the Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.

To install the CPU heatsink and fan:

1. Place the heatsink on top of the installed CPU, ensuring that the four fasteners match the holes on the motherboard.

2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.
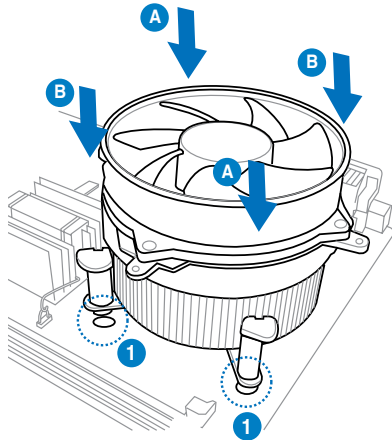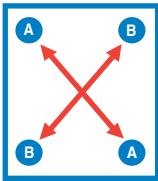
> Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.

3. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard.

CPU_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND

A

P5QL-M DELUXE/WIFI-AP CPU fan connector
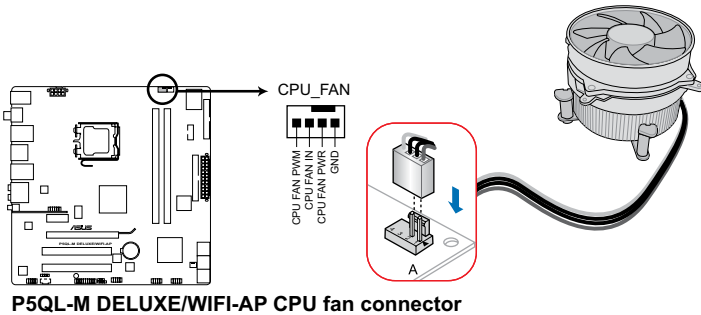
Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

2.4.4 Uninstalling the CPU heatsink and fan assembly

To uninstall the CPU heatsink and fan:

1. Disconnect the CPU fan cable from the CPU_FAN connector on the motherboard.

2. Rotate each fastener counterclockwise.

3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.
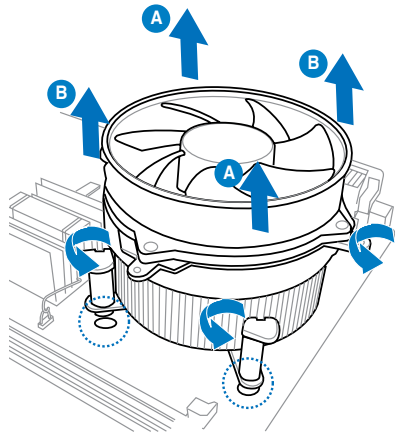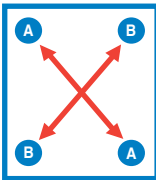
4. Remove the heatsink and fan assembly from the motherboard.

2.5 Installing a DIMM

The motherboard comes with four Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

The figure illustrates the location of the DDR2 DIMM sockets:
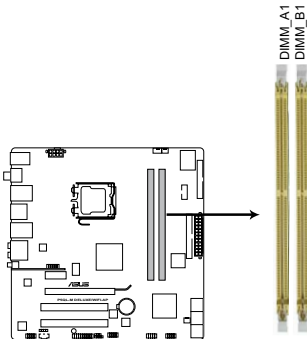
P5QL-M DELUXE/WIFI-AP 240-pin DDR2 DIMM sockets

Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1

• This chipset officially supports DDR2-800 MHz. With the ASUS Super Memspeed Technology, this motherboard natively supports up to DDR2-1066 MHz. See the table below.

FSB	DDR2
1333	1066*
1333	800
1333	667
1066	1066*
1066	800
1066	667

• *If you install a DDR2-1066 memory module whose SPD is DDR2-800, make sure that you set the **DRAM Frequency** item in BIOS to [DDR2-1066MHz]. See section **5.4.1 Jumperfree Configuration** for details.

2.5.1 Memory configurations

You may install 256 MB, 512 MB, 1 GB, and 2 GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.

Recommended Memory Configurations

- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.

- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

- Due to the memory address limitation on 32-bit Windows OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you install a 64-bit Windows OS when having 4GB or more memory installed on the motherboard.

- This motherboard does not support DIMMs made up of 256 megabit (Mb) chips or less.

Notes on memory limitations

- Due to chipset limitation, this motherboard can only support up to 8 GB on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot.

64-bit
Windows® XP Professional x64 Edition
Windows® Vista x64 Edition

- Some old-version DDR2-800/667 DIMMs may not match Intel®'s On-Die-Termination (ODT) requirement and will automatically downgrade to run at DDR2-533. If this happens, contact your memory vendor to check the ODT value.

- Due to chipset limitation, DDR2-800 with CL=4 will be downgraded to run at DDR2-667 by default setting. If you want to operate with lower latency, adjust the memory timing manually.

- Due to chipset limitation, DDR2-667 with CL=3 will be downgraded to run at DDR2-533 by default setting. If you want to operate with lower latency, adjust the memory timing manually.

P5QL-M Delux/WiFi-AP Motherboard Qualified Vendors Lists (QVL)
DDR2 667 Qualified Vendors List

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	DIMM support B*
Kingston	KVR667D2N5/512	512MB	SS	N/A	HY5PS12821EFP-Y5	Hynix	•	•
Kingston	KVR667D2N5/1G	1G	DS	N/A	HY5PS12821EFP-Y5	Hynix	•	•
Kingston	KVR667D2N5/2G	2G	DS	N/A	7RE22 D9HNL	Micron	•	•
Kingston	KVR667D2N5/512	512MB	SS	N/A	SO1237650821 SBP D6408TR4C GL25USL074905PECNB	Kingston	•	•
Kingston	KVR667D2N5/2G	2G	DS	N/A	E1108ACBG-8E-E 0813A90CC	Elpida	•	•
Kingston	KVR667D2N5/1G	1G	DS	N/A	SO1280420822 SOP D6408TR4 CGL25USL156304PECXA	Kingston	•	•
Qimonda	HYS64T64000EU-3S-B2	512MB	SS	5	HYB18T512B00B2F3SFSS28171	Qimonda	•	•
Qimonda	HYS64T128020EU-3S-B2	1G	DS	5	HYB18T512B00B2F3SFSS28171	Qimonda	•	•
Corsair	VS512MB667D2	512MB	DS	N/A	MIII0052532M8CEC	Corsair	•	•
Corsair	VS1GB667D2	1G	DS	N/A	MID095D62864M8CEC	Corsair	•	•
Corsair	XMS2-5400	1G	DS	4	Heat-Sink Package	Corsair	•	•
Micron	MT8HTF12864AY-667E1	1G	SS	5	D9HNL 7ZE17	Micron	•	•
HY	HYMP512U64CP8-Y5 AB	1G	DS	5	HY5PS12521CFP-Y5	Hynix	•	•
Kingmax	KLCC28F-A8KB5	512MB	SS	N/A	KKEA88B4LAUG-29DX	Kingmax	•	•
Kingmax	KLCD48F-A8KB5	1G	DS	N/A	KKEA88B4LAUG-29DX	Kingmax	•	•
Apacer	AU512E667C5KBGC	512MB	SS	5	AM4B5708MIJS7E0627B	Apacer	•	•
Apacer	AU512E667C5KBGC	512MB	SS	5	AM4B5708GQJS7E06332F	Apacer	•	•
Apacer	78.91G92.9K5	512MB	SS	5	AM4B5708JQJS7E0751C	Apacer	•	•
Apacer	78.01G9O.9K5	1G	SS	5	AM4B5808CQJS7E0751C	Apacer	•	•
Apacer	AU01GE667C5KBGC	1G	DS	N/A	AM4B5708GQJS7E0636B	Apacer	•	•
Apacer	AU01GE667C5KBGC	1G	DS	5	AM4B5708MIJS7E0627B	Apacer	•	•
Apacer	78.A1G9O.9K4	2G	DS	5	AM4B5808CQJS7E0749B	Apacer	•	•
Transcend	506010-4894	1G	DS	5	E5108AJBG-6E-E	Elpida	•	•
ADATA	M2OAD5G3H3160Q1C52	512MB	SS	N/A	AD29608A8A-3EG20813	ADATA	•	•
ADATA	M2OAD5G314170Q1C58	1G	DS	N/A	AD29608A8A-3EG80814	ADATA	•	•
ADATA	M2OAD5H3J4170I1C53	2G	DS	N/A	AD20908A8A-3EG 30724	ADATA	•	•
PSC	AL6E8E63J-6E1	512MB	SS	5	A3R12E3JFF717B9A00	PSC	•	•
PSC	AL7E8E63J-6E1	1G	DS	5	A3R12E3JFF717B9A01	PSC	•	•
PSC	AL7E8F73C-6E1	1G	SS	5	A3R1GE3CFF734MAA0J	PSC	•	•
Nanya	NT512T64U88A1BY-3C	512MB	SS	N/A	NT5TU64M8AE-3C	Nanya	•	•
Nanya	NT1GT64U8HB0BY-3C	1G	DS	5	NT5TU64M8BE-3C72155700CP	Nanya	•	•
GEIL	GX21GB5300SX	1G	DS	3	Heat-Sink Package	GEIL	•	•
GEIL	GX22GB5300LX	2G	DS	5	Heat-Sink Package	GEIL	•	•

(continued on the next page)

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support	
							A*	B*
GEIL	GX24GB5300LDC	2G	DS	5	Heat-Sink Package	GEIL	•	•
G.SKILL	F2-5400PHU2-2GBNT	2G(kit of 2)	DS	5-5-5-15	D2 64M8CCF 0815 C7173S	G.SKILL	•	•
G.SKILL	F2-5300CL5D-4GBMQ	4G(kit of 2)	DS	5-5-5-15	Heat-Sink Package	G.SKILL	•	•
Super Talent	T667UB1GV	1G	DS	5	PG 64M8-800 0750	Super Talent	•	•
Twinmos	8D-A3JK5MPETP	512MB	SS	5	A3R12E3GEF633ACAOY	PSC	•	•
Samsung	M378T5263AZ3-CE6	4G	DS	N/A	K4T2G084QA-HCE6	Samsung	•	•
ELIXIR	M2Y1G64TU8HA2B-3C	1G	DS	5	M2TU51280AE-3C717095R28F	ELIXIR	•	•
ELIXIR	M2Y1G64TU8HBOB-3C	1G	DS	5	N2TU51280BE-3C639009W1CF	ELIXIR	•	•
Leadmax	LRMP512U64A8-Y5	1G	DS	N/A	HY5PS12821CFP-Y5 C 702AA	Hynix	•	•
MDT	DDRII 512 PC667	512MB	DS	4	18D51201D-30726E	MDT	•	•
MDT	MDT 1024MB	1G	DS	4	18D51280D-30646E	MDT	•	•
AENEON	AET660UD00-30DB97X	512MB	SS	5	AET93R300B 0634	AENEON	•	•
AENEON	AET760UD00-30DB97X	1G	DS	5	AET93R300B 0639	AENEON	•	
AENEON	AET860UD00-30DB08X	2G	DS	5	AET03F30DB 0730	AENEON	•	
TAKEMS	TMS51B264C081-665QI	512MB	SS	5	MS18T51280-3	takeMS	•	•
TAKEMS	TMS51B264C081-665AP	512MB	SS	5	MS18T51280-3S0627D	takeMS	•	•
TAKEMS	TMS1GB264C081-665QI	1G	DS	5	MS18T51280-3	takeMS	•	•
TAKEMS	TMS1GB264C081-665AE	1G	DS	5	MS18T51280-3SEA07100	takeMS	•	•
TAKEMS	TMS1GB264C081-665AP	1G	DS	5	MS18T51280-3SP0717A	takeMS	•	•
TEAM	TVDD512M667C5	512MB	SS	N/A	T2D648MT-6	TEAM	•	
TEAM	TVDD1.02M667C4	1G	DS	N/A	T2D648PT-6	TEAM	•	
ASINT	SLX264M8-J6E	512MB	SS	N/A	DDRII6408-6E	ASINT	•	
ASINT	SLY2128M8-J6E	1G	SS	N/A	DDRII1208-6E 8115	ASINT	•	
Century	CENTURY 512MB	512MB	SS	N/A	NT5TU64M8AE-3C	Nanya	•	
Century	CENTURY 512MB	512MB	SS	N/A	HY5PS12821AFP-Y5	Hynix	•	•
Century	CENTURY 1G	1G	DS	N/A	HY5PS12821AFP-Y5	Hynix	•	
Century	CENTURY 1G	1G	DS	N/A	NT5TU64M8AE-3C	Nanya	•	
UMAX	D46701GP3-63BJU	1G	DS	N/A	U2S12D30YP-6E	UMAX	•	•
UMAX	D46702GP0-73BCU	2G	DS	5	U2S24D30TP-6E	UMAX	•	•
PQI	DDR2-667U 1G	1G	DS	N/A	HY5PS12821BFP-E3 A	Hynix	•	•
KINGBOX	512MB 667MHz	512MB	SS	N/A	EPD264082200-4	KINGBOX	•	•
KINGBOX	DDRII 1G 667MHz	1G	DS	N/A	EPD264082200-4	KINGBOX	•	•

DDR2 800 Qualified Vendors List

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	DIMM support B*
Kingston	KHX6400D2LL/1G	1G	DS	N/A	Heat-Sink Package	Kingston	•	•
Kingston	KHX6400D2LLK2/1GN	512MB	SS	N/A	Heat-Sink Package	Kingston	•	•
Kingston	KVR800D2N5/512	512MB	SS	N/A	V59C1512804QCF25SY032 406PECPA	Promos	•	•
Kingston	KVR800D2N5/1G	1G	DS	N/A	V59C1512804QCF25S0061 904PECJA	Promos	•	•
Kingston	KHX6400D2K2/2G	1G(Kit of 2)	DS	N/A	Heat-Sink Package	Kingston	•	•
Kingston	KVR800D2N6/512	512MB	SS	N/A	E5108AJBG-8E-E	Elpida	•	•
Kingston	KVR800D2N5/1G	1G	DS	N/A	E5108AJBG-8E-E	Elpida	•	•
Kingston	KVR800D2N6/1G	1G	DS	N/A	E5108AJBG-8E-E	Elpida	•	•
Kingston	KVR800D2N5/2G	2G	DS	N/A	E1108ACBG-8E-E	Elpida	•	•
Kingston	KHX6400D2/2G	2G	DS	N/A	Heat-Sink Package	Kingston	•	•
Kingston	KVR800D2N6/4G	4G	DS	N/A	E2108ABSE-8G-E	Elpida	•	•
Kingston	KVR800D2N5/512	512MB	SS	N/A	E5108AJBG-8E-E 0803A9082	Kingston	•	•
Samsung	M378T6553GZS-CF7	512MB	SS	6	K4T51083QG-HCF7	Samsung	•	•
Samsung	M378T2863QZS-CF7	1G	SS	6	K4T1G084QQ-HCF7	Samsung	•	•
Samsung	M378T2953GZ3-CF7	1G	DS	6	K4T51083QG-HCF7	Samsung	•	•
Samsung	M37875663QZ3-CF7	2G	DS	6	K4T1G084QQ-HCF7	Samsung	•	•
Samsung	M378T5263AZ3-CF7	4G	DS	N/A	K4T2G084QA-HCF7	Samsung	•	•
Qimonda	HYS64T64000EU-2.5-B2	512MB	SS	6	HYB18T512800B2F25FS S28380	Qimonda	•	•
Qimonda	HYS64T128020EU-2.5-B2	1G	DS	6	HYB18T512800B2F25FS S28380	Qimonda	•	•
Corsair	CM2X1024-6400	1G	DS	4	Heat-Sink Package	Corsair	•	•
Corsair	XMS2-6400	1G	DS	4	Heat-Sink Package	Corsair	•	•
Corsair	XMS2-6400	1G	DS	5	Heat-Sink Package	Corsair	•	•
Corsair	CM2X2048-6400C5DHX	2G(Kit of 2)	DS	5	Heat-Sink Package	Corsair	•	•
Corsair	CM2X2048-6400C5	2G(Kit of 2)	DS	5	Heat-Sink Package	Corsair	•	•
Crucial	BL12864AL804.8FE5	2G(Kit of 2)(EPP)	SS	4	Heat-Sink Package	N/A	•	•
Crucial	BL12864AA804.8FE5	2G(Kit of 2)(EPP)	SS	N/A	Heat-Sink Package	N/A	•	•
HY	HYMP564U64CP8-S5 AB	512MB	SS	5	HY5PS12821CFP-S5	Hynix	•	•
HY	HYMP512U64CP8-S5 AB	1G	DS	5	HY5PS12821CFPS5	Hynix	•	•
Kingmax	KLDC28F-A8KI5	512MB	SS	N/A	KKA8FF1XF-JFS-25A	Kingmax	•	•
Apacer	78.91G91.9K5	512MB	SS	5	AM4B5708JQJS8E0751C	Apacer	•	•
Apacer	78.01GA0.9K5	1G	SS	5	AM4B5808CQJS8E0749D	Apacer	•	•
Apacer	78.A1GA0.9K4	2G	DS	5	AM4B5808CQJS8E0740E	Apacer	•	•
Apacer	78.A1GA0.9K4	2G	DS	5	AM4B5808CQJS8E0747D	Apacer	•	•
Transcend	503499-7280	1G	DS	5	7NB32 D9DCL	Mircon	•	•
Transcend	TS128MLQ64V8J	1G	DS	5	7HD22D9GMH	Mircon	•	•

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	DIMM support B*
Transcend	TS64MLQ64V8J512MB	512MB	SS	5	7HD22 D9GMH	Micron	•	•
Transcend	TS128MLQ64V8J	1G	DS	5	TQ123PJF8F0801	Transcend	•	•
ADATA	M2OAD6G3H3160Q1E58	512MB	SS	N/A	AD29608A8A-25EG80812	ADATA	•	•
VDATA	M2GVD6G3H3160Q1E52	512MB	SS	N/A	VD29608A8A-25EG20813	VDATA	•	•
ADATA	M2OAD6G314170Q1E58	1G	DS	N/A	AD29608A8A-25EG80810	ADATA	•	•
VDATA	M2GVD6G314170Q1E58	1G	DS	N/A	VD29608A8A-25EG80813	VDATA	•	•
PSC	AL7E8F73C-8E1	1G	SS	5	A3R1GE3CFF734MAA0E	PSC	•	•
PSC	AL8E8F73C-8E1	2G	DS	5	A3R1GE3CFF734MAA0E	PSC	•	•
GEIL	GB22GB6400C4DC	1G	DS	4	GL2L64M088BA30EB	GEIL	•	•
GEIL	GB24GB6400C4QC	1G	DS	4	GL2L64M088BA30EB	GEIL	•	•
GEIL	GB22GB6400C5DC	1G	DS	5	GL2L64M088BA30EB	GEIL	•	•
GEIL	GB24GB6400C5QC	1G	DS	5	GL2L64M088BA30EB	GEIL	•	•
GEIL	GX22GB6400DC	1G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GE22GB800C4DC	1G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GE24GB800C4QC	1G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GX22GB6400UDC	1G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GE22GB800C5DC	1G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GE24GB800C5QC	1G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GB24GB6400C4DC	2G	DS	4	GL2L128M88BA25AB	GEIL	•	•
GEIL	GB24GB6400C5DC	2G	DS	5	GL2L128M88BA25AB	GEIL	•	•
GEIL	GB28GB6400C5QC	2G	DS	5	GL2L128M88BA25AB	GEIL	•	•
GEIL	GB28GB6400C4QC	2G	DS	4	GL2L128M88BA25AB	GEIL	•	•
GEIL	GX22GB6400LX	2G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GX24GB6400DC	2G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GE28GB800C5QC	2G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GE28GB800C4QC	2G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GX22GB6400CUSC	2G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GE24GB800C4DC	2G	DS	4	Heat-Sink Package	GEIL	•	•
GEIL	GE24GB800C5DC	2G	DS	5	Heat-Sink Package	GEIL	•	•
Super Talent	T800UB1GC4	1G	DS	4	Heat-Sink Package	Super Talent	•	•
G.SKILL	F2-6400CL5D-2GBNQ	1G	DS	5	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL4D-2GBPK	1G	DS	4	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL4D-2GBHK	1G	DS	4	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL5D-4GBPQ	2G	DS	5	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL4D-4GBPK	2G	DS	4	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL5Q-16GNQ	4G	DS	5	Heat-Sink Package	G.SKILL	•	•
G.SKILL	F2-6400CL5D-1GBNQ	512MB(Kit of 2)	SS	5-5-5-15	Heat-Sink Package	G.SKILL	•	•
OCZ	OCZ2RPR8002GK	1G	DS	4	Heat-Sink Package	OCZ	•	•
OCZ	OCZ2G800R22GK	1G	DS	5	Heat-Sink Package	OCZ	•	•

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	DIMM support B*
OCZ	OCZ2P800R22GK	1G	DS	4	Heat-Sink Package	OCZ	•	•
OCZ	OCZ2VU8004GK	1G	DS	6	Heat-Sink Package	OCZ	•	•
OCZ	OCZ2P8004GK	2G	DS	5	Heat-Sink Package	OCZ	•	•
Elixir	M2Y1G64TU8HB0B-25C	1G	DS	5	N2TU51280BE-25C802006Z1DV	Elixir	•	•
AENEON	AET660UD00-25DB98X	512MB	SS	N/A	AET93F25DB 0621	AENEON	•	•
AENEON	AET760UD00-25DB97X	1G	DS	5	AET93R25DB 0640	AENEON		
AENEON	AET760UD00-25DC08X	1G	SS	5	AET03R250C 0732	AENEON	•	•
AENEON	AET860UD00-25DC08X	2G	DS	5	AET03R250C 0732	AENEON	•	•
MDT	MDT 512MB	512MB	SS	5	18D51280D-2.50726F	MDT	•	•
MDT	MDT 1024MB	1G	DS	5	18D51280D-2.50726E	MDT	•	•
Century	28V0H8	1G	DS	5	HY5PS12821CFP-S5	Hynix	•	
TAKEMS	TMS51B264C081-805EP	512MB	SS	5	MS18T51280-2.5P0710	takeMS	•	•
TAKEMS	TMS1GB264C081-805EP	1G	DS	5	MS18T51280-2.5P0716	takeMS	•	•
ASINT	SLY2128M8-JGE	1G	SS	N/A	DDRII1208-GE 8115	ASINT	•	•
ASINT	SLZ2128M8-JGE	2G	DS	N/A	DDRII1208-GE 8115	ASINT	•	•
UMAX	D48001GP3-63BJU	1G	DS	N/A	U2S12D30TP-8E	UMAX	•	
UMAX	D48002GP0-73BCU	2G	DS	5	U2S24D30TP-8E	UMAX	•	

DDR2 1066 Qualified Vendors List

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	DIMM support B*
Kingston	KHX8500D2/512	512MB	SS	N/A	Heat-Sink Package	Kingston	•	
Kingston	KVR1066D2N7/512	512MB	SS	N/A	E5108AJBG-1J-E	Elpida	•	•
Kingston	KHX8500D2K2/1GN	512MB	SS	N/A	Heat-Sink Package	Kingston	•	•
Kingston	KHX8500D2K2/2GN	1G	DS	N/A	Heat-Sink Package	Kingston		
Kingston	KHX8500D2/1G	1G	DS	N/A	Heat-Sink Package	Kingston		
Qimonda	HYS64T128020EU-19F-C	1G	DS	6	HYB18T512800CF19FFSS24313	Qimonda	•	•
Kingmax	KLED48F-A8K15	1G	DS	N/A	KKA8FFIXF-JFS-18A	Kingmax	•	
Corsair	CM2X1024-8500C5	1G	DS	N/A	Heat-Sink Package	N/A	•	•
Corsair	CM2X1024-8500C5D	1G	SS	5-5-5-15	Heat-Sink Package	NA	•	•
Transcend	TX1066QLJ-2GK1GB	1G	DS	5	Heat-Sink Package	Transced		•
Transcend	TX1066QLU-2GK	4G(kit of 2)	SS	5	Heat-Sink Package	Transced	•	•
OCZ	OCZ2N1066SR2DK	2G(kit of 2)	DS	5-5-5-15	Heat-Sink Package(EPP)	OCZ		
GEIL	GB22GB8500C5DC	1G	SS	5	GL2L128M88BA25AB	GEIL		
GEIL	GB24GB8500C5QC	1G	SS	5	GL2L128M88BA25AB	GEIL	•	•

(continued on the next page)

Vendor	Part No.	Size	SS/DS	CL	Chip No.	Chip Brand	DIMM support A*	B*
GEIL	GE22GB1066C5DC	1G	SS	5	Heat-Sink Package	GEIL	•	
GEIL	GE24GB1066C5QC	1G	SS	5	Heat-Sink Package	GEIL		
GEIL	GB24GB8500C5DC	2G	DS	5	GL2L128M88BA25AB	GEIL		•
GEIL	GE24GB1066C5DC	2G	DS	5	Heat-Sink Package	GEIL	•	•
GEIL	GX24GB8500C5UDC	4G(kit of 2)	DS	5	Heat-Sink Package	N/A		
G.SKILL	F2-8500CL5D-2GBPK	2G(kit of 2)	DS	5-5-5-15	Heat-Sink Package	N/A	•	•
G.SKILL	F2-8500CL5D-4GBPK	4G(kit of 2)	DS	5-5-5-15	Heat-Sink Package	N/A	•	
G.SKILL	F2-8500CL5S-1GBPK	1G	DS	5-5-5-15	Heat-Sink Package	G.SKILL	•	•
Kingbox	EP512D21066PS	512MB	SS	N/A	6QD22D9GCT	Micron	•	•
AENEON	AXT760UD00-19DC97X	1G	DS	5	Heat-Sink Package	AENEON		
AENEON	AXT860UD20-19E	2G	DS	5	Heat-Sink Package	AENEON	•	

SS - Single-sided / DS - Double - sided
DIMM support:
· **A*:** Supports one module inserted into any slot as Single-channel memory configuration.
· **B*:** Supports one pair of modules inserted into the yellow slot as one pair of Dual-channel memory configuration.

Visit the ASUS website for the latest DDR2-667/800/1066 MHz QVL.

2.5.2 Installing a DDR2 DIMM

Ensure 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.

To install a DDR2 DIMM:

1. Unlock a DDR2 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.

DDR2 DIMM notch

Unlocked retaining clip
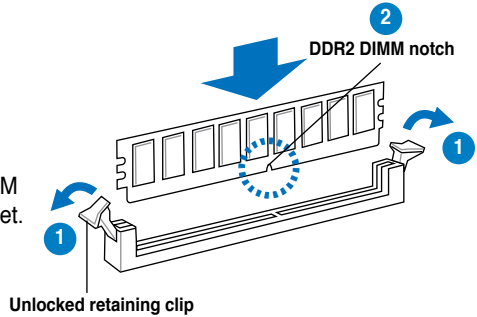
A DDR2 DIMM is keyed with a notch so that it fits in only one direction. **DO NOT** force a DIMM into a socket to avoid damaging the DIMM.

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

Locked Retaining Clip
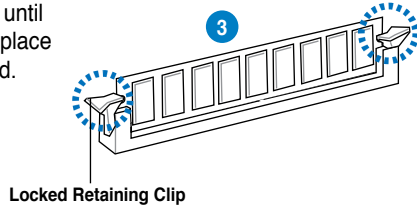
2.5.3 Removing a DIMM

Follow these steps to remove a DDR2 DIMM.

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

DDR2 DIMM notch
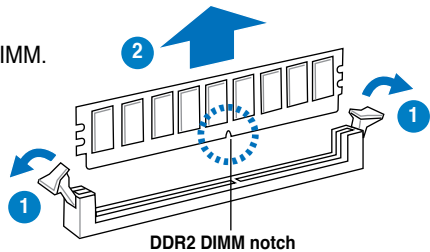
Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2. Remove the DIMM from the socket.

2.6   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.

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

2.6.1   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.
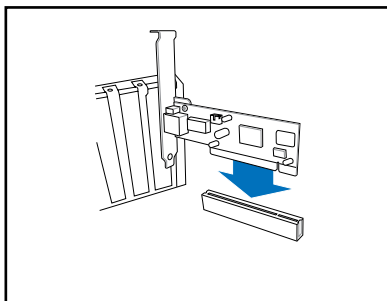
2.6.2   PCI Express x1 slot

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications. The figure shows a network card installed on the PCI Express x1 slot.
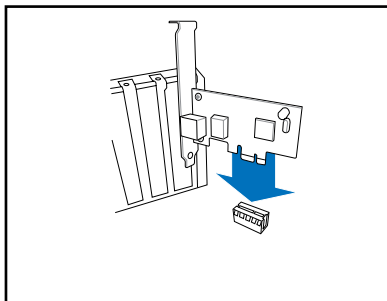
2.6.3   PCI Express x16 slot

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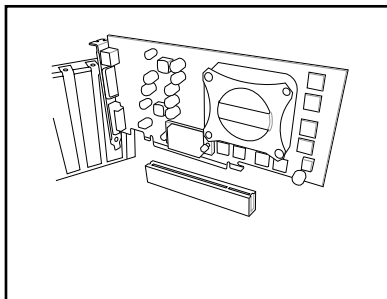
2.6.4 Installing an expansion card

To install an expansion card:

1. Remove the metal cover opposite the slot that you intend to use.

2. Remove the metal bracket lock.
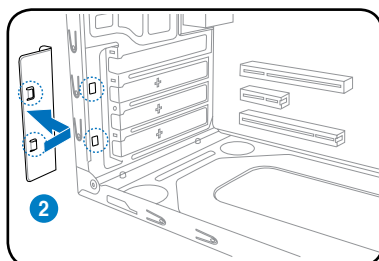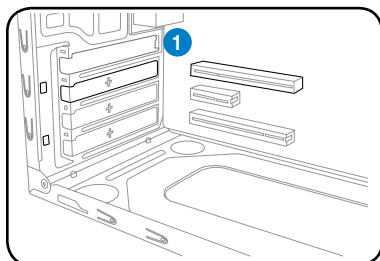
3. Insert the card connector to the slot, then press the card firmly until it fits in place.

4. Replace the metal bracket lock.
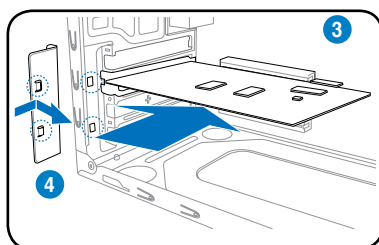
2.6.5 Configuring an expansion card

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

1. Turn on the system and change the necessary BIOS settings.

2. Assign an IRQ to the card. Refer to the tables on the next page.

3. Install the software drivers for the expansion card.

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. Refer to the table on the next page for details.

2.6.6   Interrupt assignments

Standard interrupt assignments

IRQ	Standard Function
0	System Timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Free
3	Free
4	Communications Port (COM1)
5	Free
6	Standard floppy
7	Free
8	System CMOS/real time clock
9	Microsoft acpi-Compliant system
10	Free
11	Free
12	Free
13	Numeric data processor
14	Free
15	Intel® ICH10Family SMBus Controller-3A30

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCIE X 1 slot	shared	shared	shared	shared	—	—	—	—
PCIE X 16 slot	shared	shared	shared	shared	—	—	—	—
Onboard USB 1.1 controller 1	—	—	—	—	—	—	—	shared
Onboard USB 1.1 controller 2	—	—	—	shared	—	—	—	—
Onboard USB 1.1 controller 3	—	—	shared	—	—	—	—	—
Onboard USB 1.1 controller 4	shared	—	—	—	—	—	—	—
Onboard USB 1.1 controller 5	shared	—	—	—	—	—	—	—
Onboard USB 1.1 controller 6	—	—	—	—	—	shared	—	—
Onboard USB 1.1 controller 7	—	—	shared	—	—	—	—	—
Onboard USB 2.0 controller 1	—	—	—	—	—	—	—	shared
Onboard USB 2.0 controller 2	—	—	shared	—	—	—	—	—
PCIe Stroage Controller	shared	—	—	—	—	—	—	—
Onboard HD audio	—	—	—	—	—	—	shared	—
Onboard LAN 1	—	used	—	—	—	—	—	—
Onboard LAN 2	—	—	used	—	—	—	—	—
Onboard 1394 controller	—	—	—	used	—	—	—	—
Onchip SATA 1	—	—	used	used	—	—	—	—
Onchip SATA 2	—	—	—	used	—	—	—	—
PCI slot 1	shared	shared	shared	shared	—	—	—	—
PCI slot 2	shared	shared	shared	shared	—	—	—	—

2.7 Installing storage drives

2.7.1 Installing an optical drive

1. Place the chassis upright, then remove the upper 5.25" drive bay metal plate cover.

2. Insert the optical drive to the bay, then carefully push the drive until its screw holes align with the holes on the bay.

3. Secure the optical drive with two screws on both sides of the bay.

4. Connect the IDE (A) and power (B) plugs to connectors at the back of the drive.
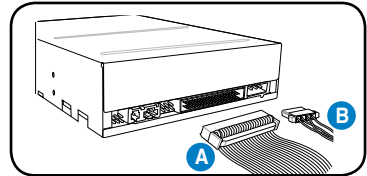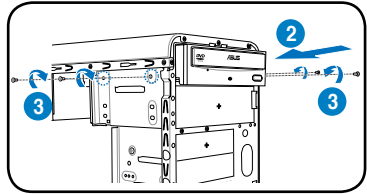
2.7.2 Installing a floppy disk drive

If the system comes without a portable hard disk (optional), then you may install a floppy disk drive into the 3.5-inch drive bay.

1. Place the chassis upright, then remove the upper 3.5" drive bay metal plate cover.

2. Insert the floppy disk drive to the bay, then carefully push the drive until its screw holes align with the holes on the bay.

3. Secure the floppy disk drive with two screws on both sides of the bay.

4. Connect the signal (A) and power (B) plugs to connectors at the back of the drive.
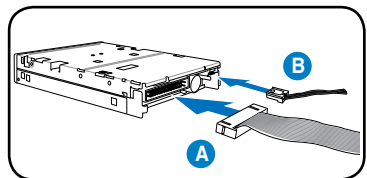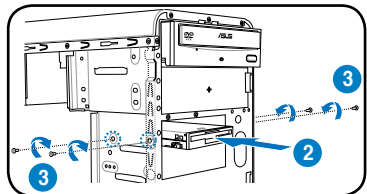
2.7.3   Installing a hard disk drive

1.   Remove the 3.5-inch hard drive holder out of the chassis.

The 3.5-inch hard drive holder is optional.
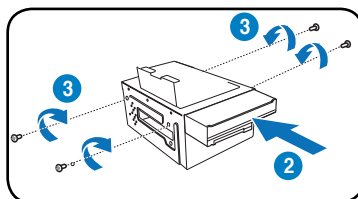
2.   Insert the hard disk drive to the 3.5-inch hard drive holder, then carefully push the drive until its screw holes align with the holes on the holder.

3.   Secure the hard disk drive with two screws on both sides of the bay.

4.   Replace the hard drive holder to the chassis and secure the screws.

For SATA HDD: Connect the SATA signal and power plugs to the connectors at the back of the drive.

For IDE HDD: Connect the IDE and power plugs to the connectors at the back of the drive.
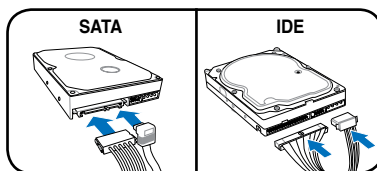
2.8   Reinstalling the front panel assembly and side cover

To reinstall the front panel assembly and side cover:

1.   Insert the front panel assembly hinge-like tabs to the holes on the right side of the chassis.

2.   Swing the front panel assembly to the left, then insert the hooks to the chassis until the front panel assembly fits in place.

3.   Insert the six side cover hooks into the chassis tab holes .

4.   Push the side cover to the direction of the front panel until it fits in place.

5.   Secure the cover with two screws you removed earlier.

Air duct

Chassis tab holes
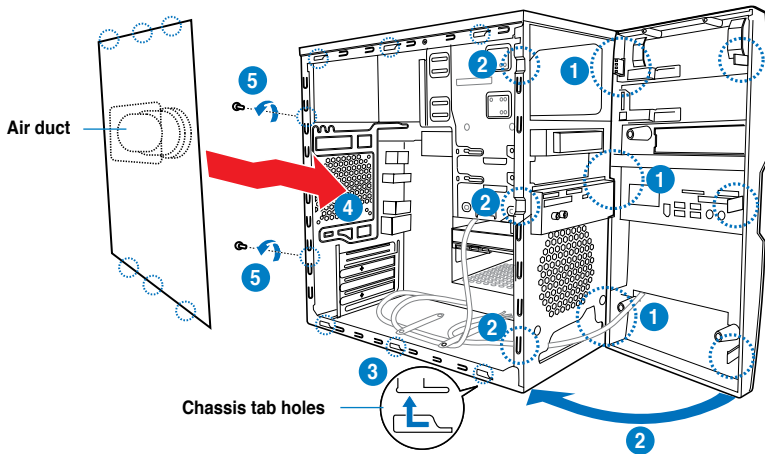
Chapter 3

This chapter helps you power up the system and install drivers and utilities from the support DVD.
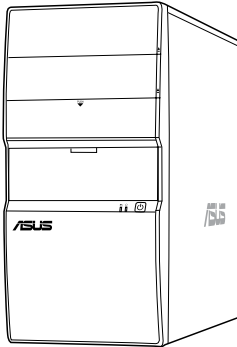
3.1 Installing an operating system

The barebone system supports Windows® XP/Vista operating systems (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.

> • If Windows XP OS setup cannot recognize Serial ATA hard drives without the necessary drivers. Use the bundled floppy disk when installing Windows XP OS to a Serial ATA hard drive.
>
> • From the Windows XP setup screen, press F6 when prompted then follow succeeding screen instructions to install the SATA drivers.

3.2 Powering up

Press the system power button (⏻) to enter the OS.
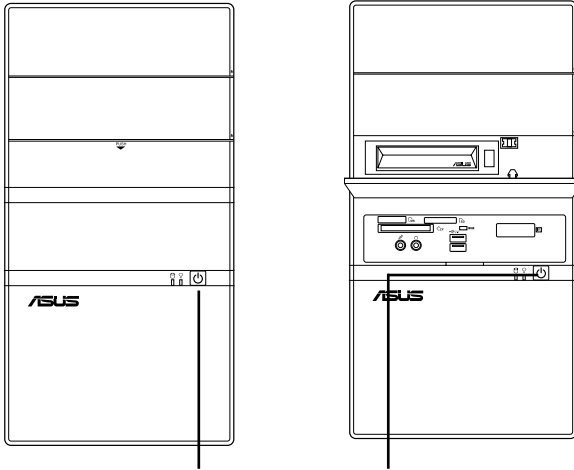
Press to turn ON the system

3.3 Support DVD information

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

> • Screen display and driver options may not be the same for different operating system versions.
>
> • The contents of the support DVD are subject to change at any time without notice. Visit the ASUS website for updates.

3.3.1   Running the support DVD

To begin using the support DVD, place the DVD in your optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.
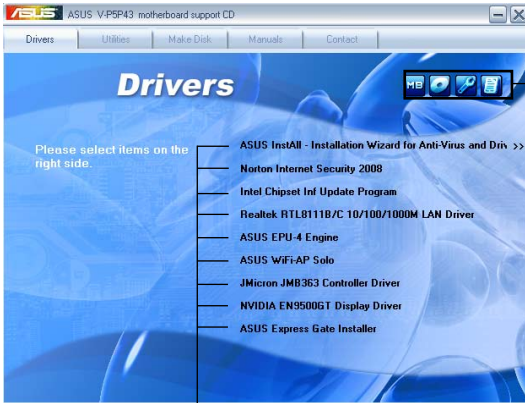
Click an icon to display support DVD/motherboard information

Click an item to install

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

ASUS InstAll-Installation Wizard for Anti-Virus and Drivers Utility

Launches the ASUS InstAll driver installation wizard.

Norton Internet Security 2008

Installs the Norton Internet Security 2008.

Intel Chipset Inf Update Program

Installs the Intel® chipset Inf update program.

Realtek RTL8111B/C 10/100/1000M LAN Driver

Installs the Realtek® RTL8111B/C 10/100/1000M LAN Driver.

ASUS EPU-4 Engine

Installs the ASUS EPU-4 Engine.

ASUS WiFi-AP Solo

Installs the ASUS WiFi-AP Solo.

JMicron JMB363 Controller Driver

Installs the JMcron JM363 Controller Driver.

NVIDIA EN9500GT Display Driver

Installs the NVIDIA EN9500GT display Driver.

ASUS Express Gate Installer

Installs ASUS Express Gate Installer.

3.3.2   Utilities menu

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

ASUS InstAll-Installation Wizard for Utilities

Installs all of the utilities through the Installation Wizard.

ASUS Update

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.

ASUS PC Probe II

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.

Adobe Acrobat Reader 8

Installs the Adobe® Acrobat® Reader that allows you to open, view, and print documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX® 9.0c driver. The Microsoft DirectX® 9.0c is a multimedia technology that enhances computer graphics and sound. DirectX® improves the multimedia features of you computer so you can enjoy watching TV and movies, capturing videos, or playing games in your computer. Visit the Microsoft website (www.microsoft.com) for updates.

Corel MediaOne Starter

Installs the Corel MediaOne Starter application to easily manage, edit share and protect your multimedia data.

CyberLink PowerBackup

Installs CyberLink PowerBackup to back up and restore your data easily.

Realtek Diagnostics Utility

Installs the Realtek® diagnostics utility

WinZip 11

Installs the Winzip utility for easy file-compression and protection.

Ulead Burn. Now

Installs the Ulead Burn. Now application for Audio DVD,CD and data disc creation.

> You can also install the following utilities from the ASUS Superb Software Library DVD.
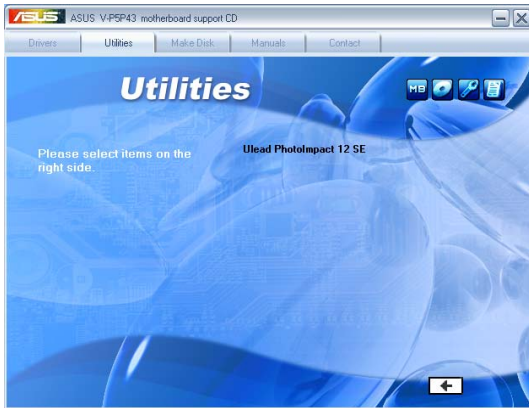
Ulead PhotoImpact 12 SE

Installs the PhotoImpact image editing software.

3.3.3　Manual menu

The Manual menu contains a list of supplementary user manuals. Click an item to open the folder of the user manual.

Most user manual files are in Portable Document Format (PDF). Install the Adobe® Acrobat® Reader from the ASUS Superb Software Library DVD before opening a user manual file.
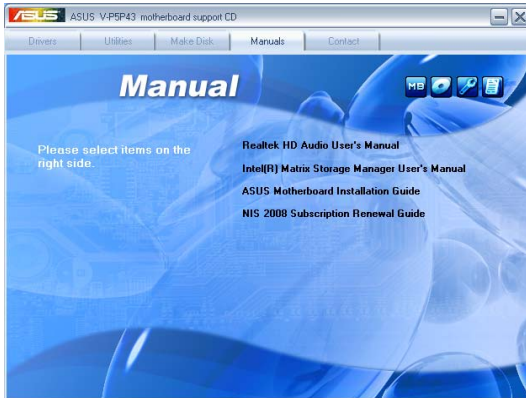
Realtek HD Audio User's Manual

Allows you to open the Realtek HD audio user's manual.

Intel® Matrix Stroage Manager User's Manual

Allows you to open the Intel® Matrix stroage manager user's manual.

ASUS Motherboard Installation Guide

Allows you to open the ASUS Motherboard Installation Guide.

NIS 2008 Subscription Renewal Guide

Allows you to open the NIS 2008 Subscription Renewal Guide.

3.3.4   Make Disk menu

The Make Disk menu allows you to make a RAID driver disk.
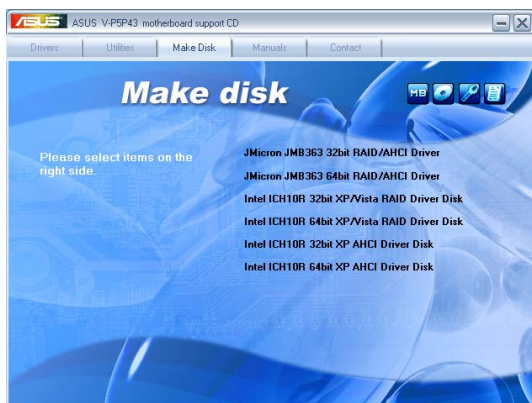
Make JMicron JMB363 RAID/AHCI Controller Driver disk

Allows you to create a JMicron JMB363 RAID/AHCI Controller driver disk

Make Intel® ICH10R RAID/AHCI Controller Driver disk

Allows you to create a JMicron JMB363 RAID/AHCI Controller driver disk

3.3.5   ASUS Contact information

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.
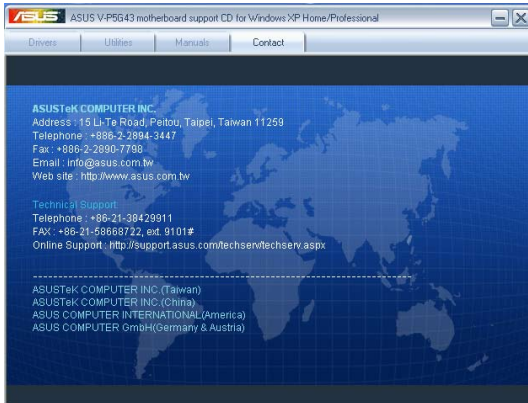
3.3.5 Other information

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

Motherboard Info

Displays the general specifications of the motherboard.
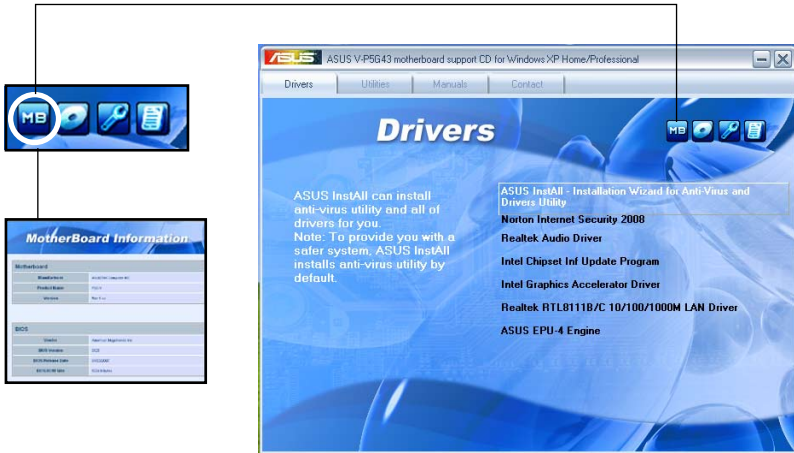
Browse this DVD

Displays the support DVD contents in graphical format.
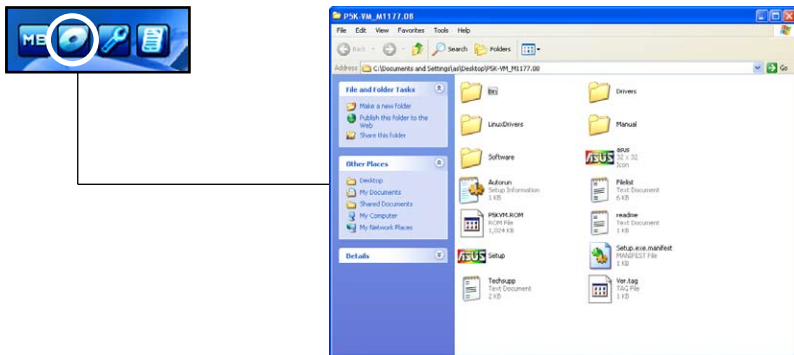
Technical support Form

Displays the ASUS Technical Support Request Form that you have to fill out when requesting technical support.

Filelist

Displays the contents of the support DVD and a brief description of each in text format.

3.4 Software information

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

ASUS PC Probe II

PC Probe II is a utility that monitors the computer's vital components and alerts you of any problem with these components. PC Probe II senses fan rotations, CPU temperature, and system voltages, among others. PC Probe II is software-based, allowing you to start monitoring your computer the moment you turn it on. With this utility, you are assured that your computer is always at a healthy operating condition.

Installing PC Probe II

To install PC Probe II on your computer:

1.   Place the support DVD to the optical drive. The Drivers installation tab appears if your computer has an enabled Autorun feature.

> If Autorun is not enabled in your computer, browse the contents of the support CD to locate the setup.exe file from the ASUS PC Probe II folder. Double-click the setup.exe file to start installation.

2.   Click the **Utilities** tab, then click **ASUS PC Probe II**.

3.   Follow the screen instructions to complete installation.

Launching PC Probe II

You can launch the PC Probe II right after installation or anytime from the Windows® desktop.

To launch the PC Probe II from the Windows® desktop, click **Start > All Programs > ASUS > PC Probe II**. The PC Probe II main window appears.

After launching the application, the PC Probe II icon appears in the Windows® taskbar. Click this icon to close or restore the application.

Click to close the Preference panel

Using PC Probe II

Main window

The PC Probe II main window allows you to view the current status of your system and change the utility configuration. By default, the main window displays the **Preference** section. You can close or restore the **Preference** section by clicking on the triangle on the main window right handle.

Button	Function
CONFIG	Opens the **Configuration** window
	Opens the **Report** window
DMI	Opens the **Desktop Management Interface** window
PCI	Opens the **Peripheral Component Interconnect** window
WMI	Opens the **Windows Management Instrumentation** window
USAGE	Opens the hard disk drive, memory, CPU usage window
	Shows/Hides the **Preference** section
	Minimizes the application
	Closes the application

Sensor alert
When a system sensor detects a problem, the main window right handle turns red, as the illustrations below show.
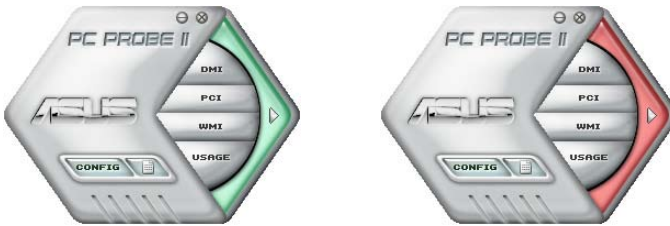
When displayed, the monitor panel for that sensor also turns red. Refer to the **Monitor panels** section for details.

Preferences

You can customize the application using the Preference section in the main window. Click the box before each preference to activate or deactivate.
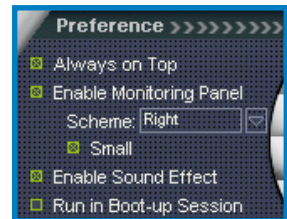
Hardware monitor panels

The hardware monitor panels display the current value of a system sensor such as fan rotation, CPU temperature, and voltages.

The hardware monitor panels come in two display modes: hexagonal (large) and rectangular (small). When you check the **Enable Monitoring Panel** option from the **Preference** section, the monitor panels appear on your computer's desktop.

Large display

Small display

Changing the monitor panels position
To change the position of the monitor panels on the desktop, click the arrow down button of the **Scheme** options, then select another position from the list box. Click **OK** when finished.

Moving the monitor panels
All monitor panels move together using a magnetic effect. If you want to detach a monitor panel from the group, click the horseshoe magnet icon. You can now move or reposition the panel independently.
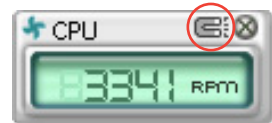
Adjusting the sensor threshold value
You can adjust the sensor threshold value in the monitor panel by clicking the arrow buttons. You can also adjust the threshold values using the **Config** window.

You cannot adjust the sensor threshold values in a small monitoring panel.

Click to increase value

Click to decrease value
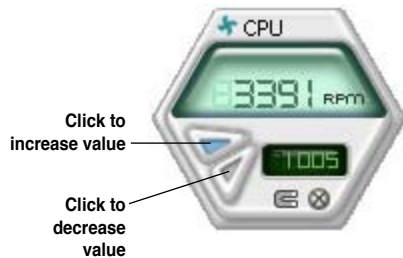
Monitoring sensor alert

The monitor panel turns red when a component value exceeds or is lower than the threshold value. Refer to the illustrations below.

Large display

Small display

WMI browser

Click ▨▨▨ to display the WMI (Windows Management Instrumentation) browser. This browser displays various Windows® management information. Click an item from the left panel to display on the right panel. Click the plus sign (+) before **WMI Information** to display the available information.
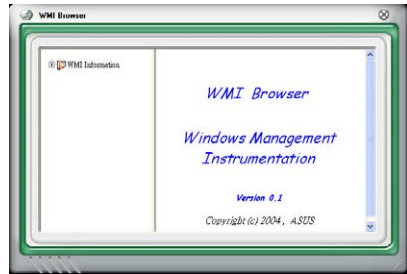
You can enlarge or reduce the browser size by dragging the bottom right corner of the browser.

DMI browser

Click ▨▨▨ to display the DMI (Desktop Management Interface) browser. This browser displays various desktop and system information. Click the plus sign (+) before **DMI Information** to display the available information.
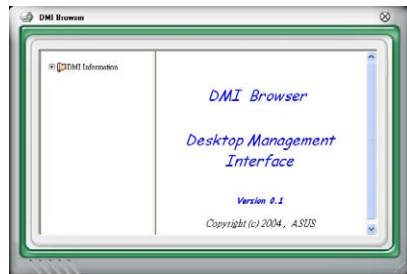
PCI browser

Click PCI to display the PCI
(Peripheral Component Interconnect)
browser. This browser provides
information on the PCI devices
installed on your system. Click the plus
sign (+) before the **PCI Information**
item to display available information.

Usage

The **Usage** browser displays real-time information on the CPU, hard disk drive
space, and memory usage. Click USAGE to display the Usage browser.

CPU usage
The **CPU** tab displays real-time CPU
usage in line graph representation.
If the CPU has an enabled Hyper-
Threading, two separate line graphs
display the operation of the two logical
processors.
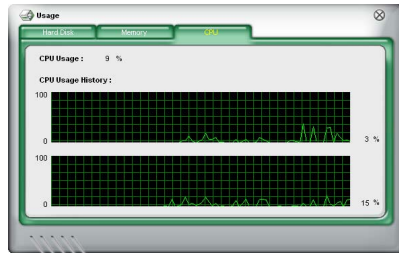
Hard disk drive space usage
The **Hard Disk** tab displays the used
and available hard disk drive space.
The left panel of the tab lists all logical
drives. Click a hard disk drive to display
the information on the right panel. The
pie chart at the bottom of the window
represents the used (blue) and the
available HDD space.
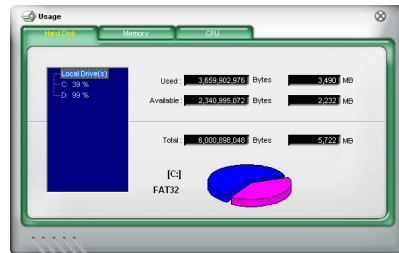
Memory usage

The **Memory** tab shows both used and available physical memory. The pie chart at the bottom of the window represents the used (blue) and the available physical memory.
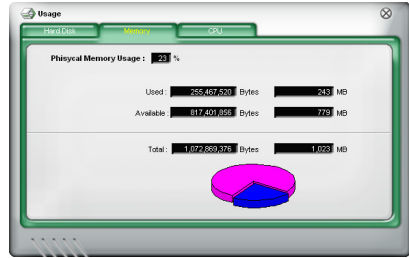
Configuring PC Probe II

Click to view and adjust the sensor threshold values.

The **Config** window has two tabs: **Sensor/Threshold** and **Preference**. The **Sensor/Threshold** tab enables you to activate the sensors or to adjust the sensor threshold values. The **Preference** tab allows you to customize sensor alerts, change temperature scale, or enable the Q-Fan feature.
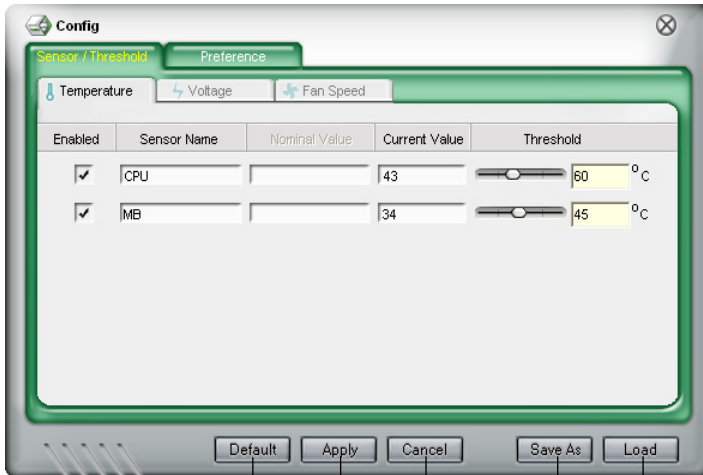
Loads the default threshold values for each sensor

Applies your changes

Cancels or ignores your changes

Loads your saved configuration

Saves your configuration

This chapter gives information about he motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

Motherboard introductiomn
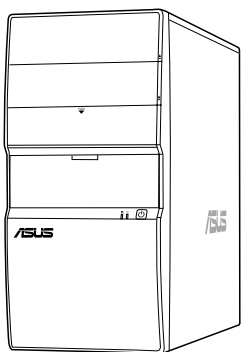
4.1   Introduction

The Vintage V4-Series P5P43 barebone system comes with an ASUS motherboard. This chapter provides technical information about the motherboard for future upgrades or system reconfiguration.

4.2   Motherboard layout
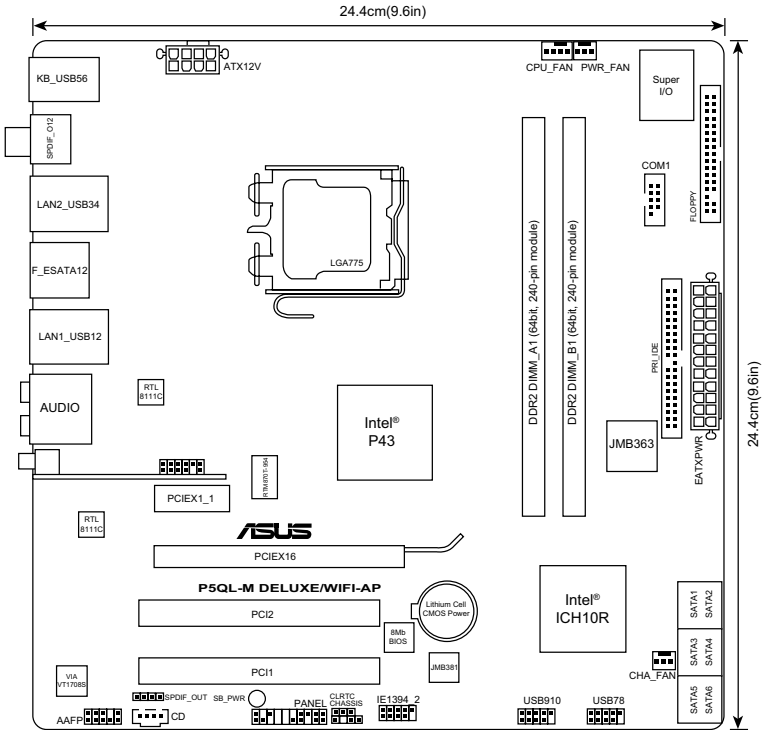
4.3 Jumpers

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 onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

   To erase the RTC RAM:

   1. Turn OFF the computer and unplug the power cord.
   2. Remove the onboard battery.
   3. 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.
   4. Re-install the battery.
   5. Plug the power cord and turn ON the computer.
   6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

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

   P5QL-M DELUXE/WIFI-AP Clear RTC RAM
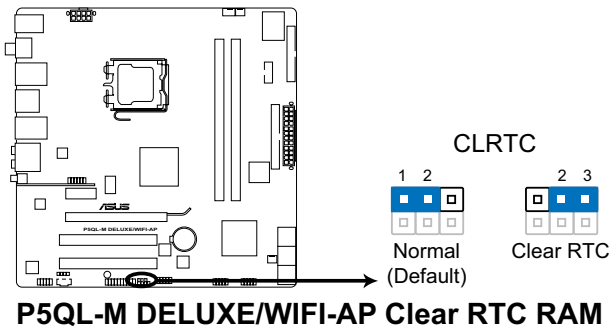
   You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

4.3 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 an FDD cable with a covered Pin 5.

FLOPPY

PIN1

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

P5QL-M DELUXE/WIFI-AP Floppy disk drive connector
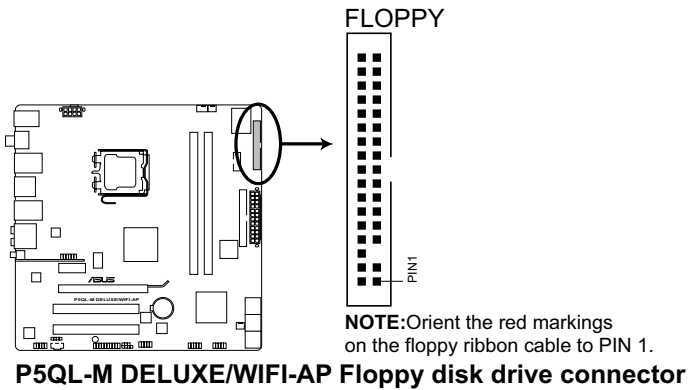
2. IDE connector (40-1 pin PRI_IDE)

The onboard IDE connector is for Ultra DMA 133 / 100 / 66 / 33 signal cable. There are three connectors on each Ultra DMA 100/66/33 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device(s).

PRI_IDE

PIN1

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

P5QL-M DELUXE/WIFI-AP IDE connector
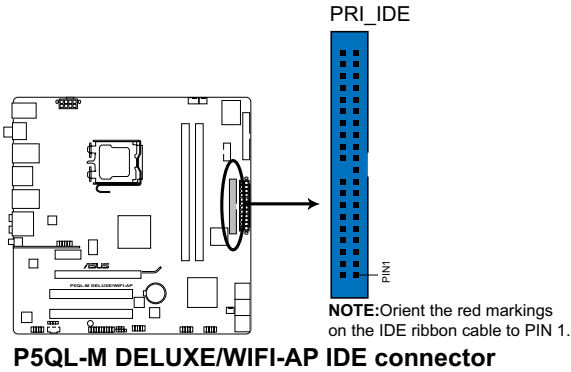
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

> • 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 / 33 IDE devices.

> If any device jumper is set as "Cable-Select," ensure that all other device jumpers have the same setting.

3. ICH10R Serial ATA connectors
(7-pin SATA1, SATA2, SATA3, SATA4, SATA5, SATA6)

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

SATA1   SATA2

SATA3   SATA4

SATA5   SATA6
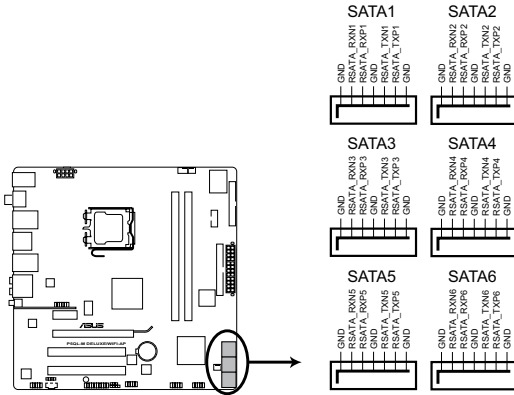
P5QL-M DELUXE/WIFI-AP SATA connectors(ICH10R®)

Connect the right-angle side of SATA signal cable to SATA device. Or you may connect the right-angle side of SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards.

right angle side
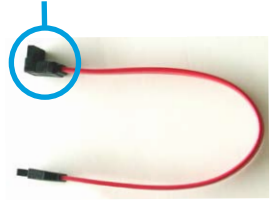
4. Optical drive audio connector (4-pin CD)

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

CD

Left Audio Channel
GND
GND
Right Audio Channel
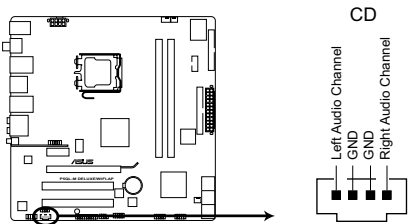
P5QL-M DELUXE/WIFI-AP Internal audio connector

5. **Digital audio connector (4-1 pin SPDIF_OUT for ASUS HDMI VGA card)**

    This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). If you are using an ASUS HDMI-equipped graphics card, connect the HDMI card to this connector with a S/PDIF Out cable.

P5QL-M DELUXE/WIFI-AP Digital audio connector
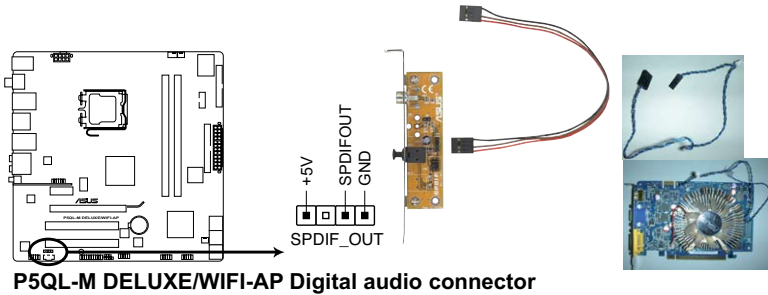
The ASUS HDMI-equipped graphics card and the S/PDIF Out cable are purchased separately.

6. **USB connectors (10-1 pin USB78, USB 910, USB1112)**

    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. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

P5QL-M DELUXE/WIFI-AP USB2.0 connectors
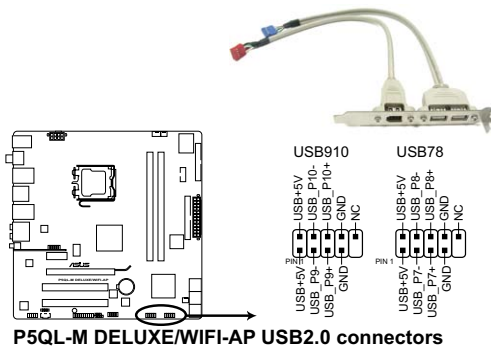
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

You can connect the front panel USB cable to the ASUS Q-Connector (USB, blue) first, and then install the Q-Connector (USB) to the USB connector onboard if your chassis supports front panel USB ports.

The USB module cable is purchased separately.

7. CPU, chassis, and power fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN1, 3-pin PWR_FAN)

The fan connectors support cooling fans of 350 mA~2000 mA (24 W max.) or a total of 1 A~7 A (84 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!
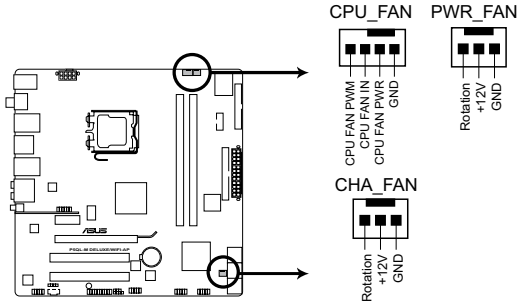
P5QL-M DELUXE/WIFI-AP fan connectors

Only the CPU-FAN connectors support the ASUS Q-FAN feature.

8. Serial port connector (10-1 pin COM1)

This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.
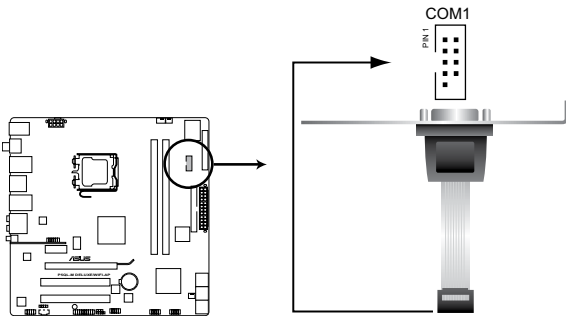
P5QL-M DELUXE/WIFI-AP Serial port (COM1) connector

The serial port module is purchased separately.

9. **Chassis intrusion connector (4-1 pin CHASSIS)**

This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

By default, the pin labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.
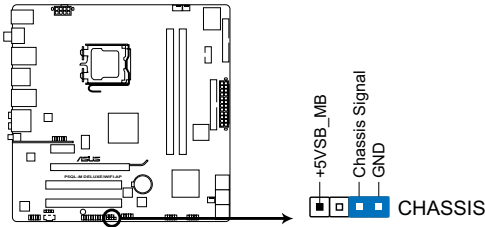
P5QL-M DELUXE/WIFI-AP Chassis intrusion connector

10. **Front panel audio connector (10-1 pin AAFP)**

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.
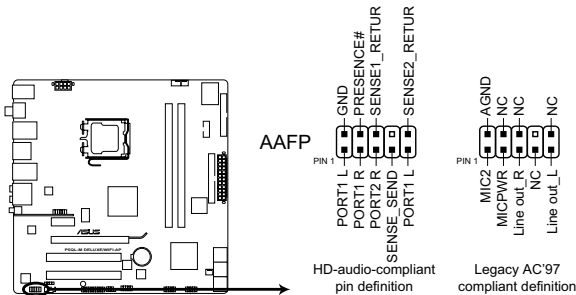
P5QL-M DELUXE/WIFI-AP Analog front panel connector

- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

- If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Type** item in the BIOS setup to **[HD Audio];** if you want to connect an AC'97 front panel audio module to this connector, set the item to **[AC'97]**. By default, this connector is set to **[HD Audio]**. See section **5.4.5 Onboard Devices Configuration** for details.

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

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

P5QL-M DELUXE/WIFI-AP ATX power connectors
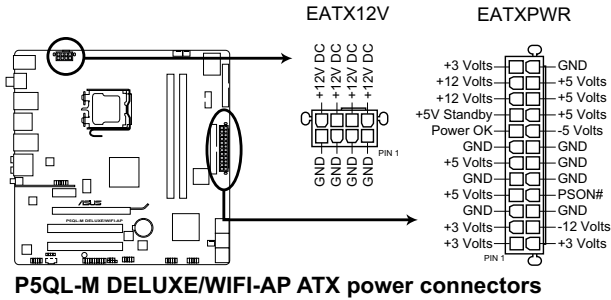
• For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 400 W.

• Do not forget to connect the 4-pin EATX12V power plug; otherwise, the system will not boot.

• Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

• If you want to use two high-end PCI Express x16 cards, use a PSU with 500W to 600W power or above to ensure the system stability.

12. System panel connector (20-8 pin F_PANEL)

This connector supports several chassis-mounted functions.
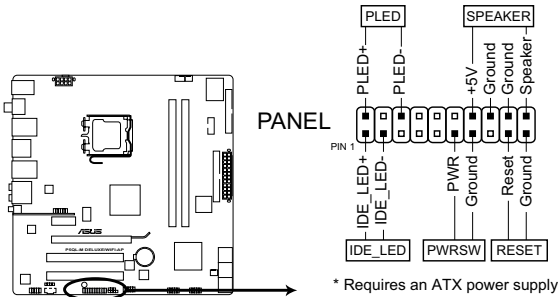
P5QL-M DELUXE/WIFI-AP System panel connector

* **System power LED (2-pin PLED)**

    This 2-pin 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.

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

    This 2-pin 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.

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

    This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

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

    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.

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

    This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

Chapter 5

This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.
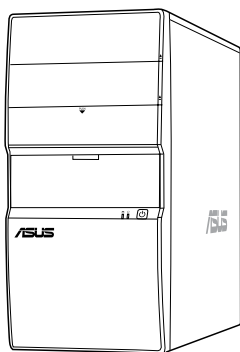
BIOS setup

5.1 Managing and updating your BIOS

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

1. **ASUS Update** (Updates the BIOS in Windows® environment.)
2. **ASUS EZ Flash 2** (Updates the BIOS using a floppy disk or USB flash disk.)
3. **ASUS AFUDOS** (Updates the BIOS using a bootable floppy disk.)
4. **ASUS CrashFree BIOS 3** (Updates the BIOS using a bootable floppy disk, USB flash disk or the motherboard support DVD when the BIOS file fails or gets corrupted.)

Refer to the corresponding sections for details on these utilities.

Save a copy of the original motherboard BIOS file to a bootable floppy disk or USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFUDOS utilities.

5.1.1 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file
- Download the latest BIOS file from the Internet
- Update the BIOS from an updated BIOS file
- Update the BIOS directly from the Internet, and
- View the BIOS version information.

This utility is available in the support DVD that comes with the motherboard package.

ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

Installing ASUS Update

To install ASUS Update:

1. Place the support DVD in the optical drive. The Drivers menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update**.
3. The ASUS Update utility is copied to your system.

	Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.
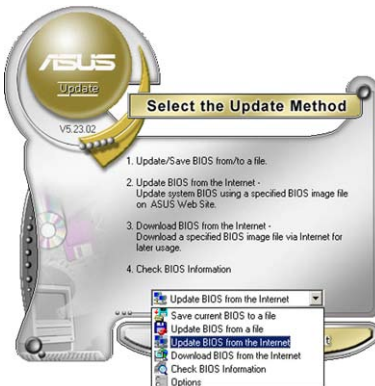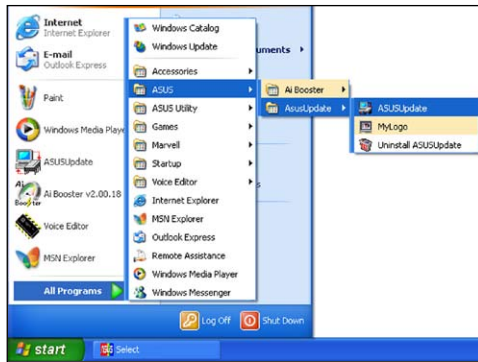
2. Select **Update BIOS** from the Internet option from the drop-down menu, then click **Next**.

3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

4. From the FTP site, select the BIOS version that you wish to download. Click **Next**.

5. Follow the screen instructions to complete the update process.

✎ The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.
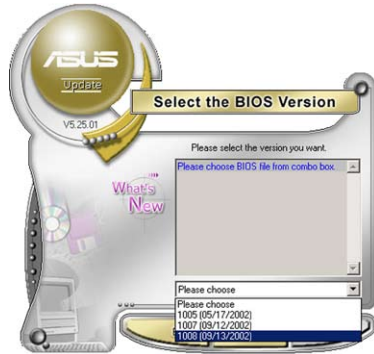
Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.

2. Select Update BIOS from a file option from the drop-down menu, then click **Next**.
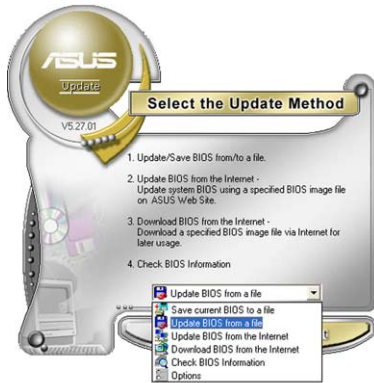
3. Locate the BIOS file from the Open window, then click **Open**.

4. Follow the screen instructions to complete the update process.
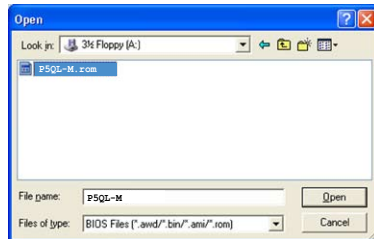
5.1.2   Creating a bootable floppy disk

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

    DOS environment

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

    b.   At the DOS prompt, type *format* **A:/S** then press <Enter>.

    Windows® XP environment

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

    b.   Click **Start** from the Windows® desktop, 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**.

    Windows® Vista environment

    a.   Insert a formatted, high density 1.44 MB floppy disk to the floppy disk drive.

    b.   Click [icon] from the Windows® desktop, then select **Computer**.

    c.   Right-click Floppy Disk Drive then click **Format** to display the Format 3 1/2 Floppy dialog box.

    d.   Select the **Create an MS-DOS startup disk** check box.

    e.   Click **Start**.

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

5.1.3   ASUS EZ Flash 2 utility

The ASUS EZ Flash 2 feature allows you to 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 2 utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self Tests (POST).

To update the BIOS using EZ Flash 2:

1.   Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard.

2.   Save the BIOS file to a floppy disk or a USB flash disk, then restart the system.

3.   You can launch the EZ Flash 2 by two methods.

    (1)   Insert the floppy disk / USB flash disk that contains the BIOS file to the floppy disk drive or the USB port.

        Press <Alt> + <F2> during POST to display the following.

```
            ASUSTek EZ Flash 2 BIOS ROM Utility V3.25
   FLASH TYPE: MXIC 25L8005
      ──── Current ROM ────            ──── Update ROM ────
     BOARD: P5QL-M V-P5P43           BOARD: Unknown
     VER:  0205 (H:00 B:03)          VER:  Unknown
     DATE: 09/01/08                  DATE: Unknown

   PATH: C:\

     A:
     C:




   ┌─ Note ─
   │  [Enter] Select or Load      [B] Backup    [ESC] Exit

      [Tab] Switch                [Up/Down/Home/End] Move
```
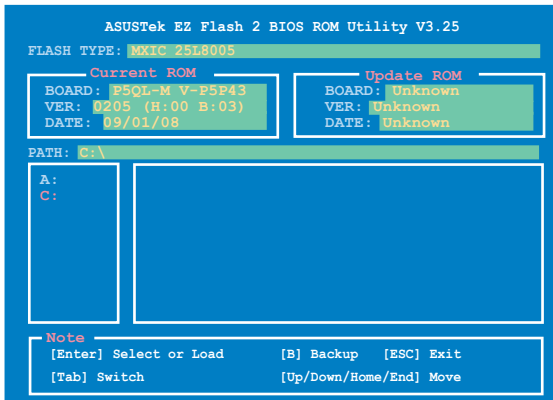
    (2)   Enter BIOS setup program. Go to the **Tools** menu to select **EZ Flash2** and press <Enter> to enable it.

        You can switch between drives by pressing <Tab> before the correct file is found. Then press <Enter>.

4.   When the correct BIOS file is found, EZ Flash 2 performs the BIOS update process and automatically reboots the system when done.

> •   This function can support devices such as USB flash disk, or floppy disk with **FAT 32/16** format and single partition only.
>
> •   Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5.1.4   AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:

> • Make sure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.
>
> • The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.

1.   Copy the AFUDOS utility (afudos.exe) from the motherboard support DVD to the bootable floppy disk you created earlier.

2.   Boot the system in DOS mode, then at the prompt type:

     afudos /o[filename]

     where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

```
A:\>afudos /oOLDBIOS1.rom
```
              Main filename   Extension name

3.   Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
   Reading flash ..... done
   Write to file...... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

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

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

2. Copy the AFUDOS utility (afudos.exe) from the motherboard support DVD to the bootable floppy disk you created earlier.

3. Boot the system in DOS mode, then at the prompt type:

    afudos /i[filename]

    where [filename] is the latest or the original BIOS file on the bootable floppy disk.

    ```
    A:\>afudos /iP5QLM.ROM
    ```

4. The utility verifies the file and starts updating the BIOS.

    ```
    A:\>afudos /iP5QLM.ROM
    AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
    Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

        WARNING!! Do not turn off power during flash BIOS
        Reading file ....... done
        Reading flash ...... done

        Advance Check ......
        Erasing flash ...... done
        Writing flash ...... 0x0008CC00 (9%)
    ```

    Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

    ```
    A:\>afudos /iP5QLM.ROM
    AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
    Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

        WARNING!! Do not turn off power during flash BIOS
        Reading file ....... done
        Reading flash ...... done

        Advance Check ......
        Erasing flash ...... done
        Writing flash ...... done
        Verifying flash .... done

        Please restart your computer

    A:\>
    ```

5.1.5   ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard support DVD, the floppy disk, or the USB flash disk that contains the updated BIOS file.

> • Prepare the motherboard support DVD, the floppy disk or the USB flash disk containing the updated motherboard BIOS before using this utility.
>
> • If you use a SATA optical drive, always connect the SATA cable to the SATA1/SATA2 connector; otherwise, the utility will not function.

Recovering the BIOS from the support DVD

To recover the BIOS from the support DVD:

1. Turn on the system.
2. Insert the motherboard support DVD to the optical drive.
3. The utility displays the following message and automatically checks the DVD for the BIOS file.

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

When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for cd-ROM...
Optical drive found!
Reading file "P5QLM.ROM". Completed.
Start flashing...
```

4. Restart the system after the utility completes the updating process.

Recovering the BIOS from the USB flash disk

To recover the BIOS from the USB flash disk:

1. Insert the USB flash disk that contains BIOS file to the USB port.
2. Turn on the system.
3. The utility will automatically checks the devices for the BIOS file When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.
4. Restart the system after the utility completes the updating process.

> • Only the USB flash disk with FAT 32/16 format and single partition can support ASUS CrashFree BIOS 3. The device size should be smaller than 8GB.
>
> • DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

5.2 BIOS setup program

This motherboard supports a programmable Serial Peripheral Interface (SPI) chip that you can update using the provided utility described in section "4.1 Managing and updating your BIOS."

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

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

The SPI 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 <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

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

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

> • The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Setups Default** item under the Exit Menu. See section **5.8 Exit Menu**.
>
> • The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
>
> • Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

5.2.1 BIOS menu screen

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

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

                                                    Use [ENTER], [TAB]
  System Time              [19:34:30]              or [SHIFT-TAB] to
  System Date              [Mon 05/12/2008]        select a field.
  Legacy Diskette A        [1.44M, 3.5 in.]
                                                    Use [+] or [-] to
                                                    configure system
  ▶    SATA 1              :[Not Detected]          Time.
  ▶    SATA 2              :[Not Detected]
  ▶    SATA 3              :[Not Detected]
  ▶    SATA 4              :[Not Detected]
  ▶    SATA 5              :[Not Detected]
  ▶    SATA 6              :[Not Detected]
                                                    ←→     Select Screen
  ▶    Storage Configuration                        ↑↓     Select Item
  ▶    System Information                           +-     Change Field
                                                    Tab    Select Field
                                                    F1     General Help
                                                    F10    Save and Exit
                                                    ESC    Exit

         v02.58 (C)Copyright 1985-2008, American Megatrends, Inc.
```

Sub-menu items **Navigation keys**

5.2.2 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
Tools	For Configuring options for special functions
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.

5.2.3 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.

5.2.4   Menu items

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

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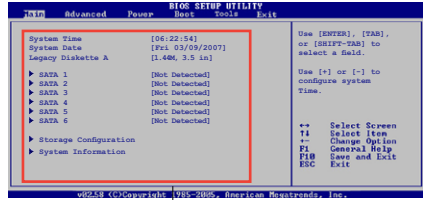
Main menu items

5.2.5   Sub-menu items

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

5.2.6   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 "4.2.7 Pop-up window."

5.2.7   Pop-up window

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

5.2.8   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 <Page Up> /<Page Down> keys to display the other items on the screen.
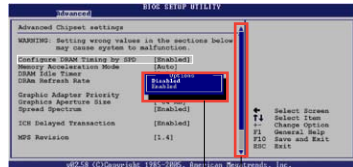
Pop-up window

5.2.9   General help

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

Scroll bar

5.3 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     Tools     Exit

                                                 Use [ENTER], [TAB]
  System Time           [19:34:30]               or [SHIFT-TAB] to
  System Date           [Mon 05/12/2008]         select a field.
  Legacy Diskette A     [1.44M, 3.5 in.]
                                                 Use [+] or [-] to
                                                 configure system
  ▶  SATA 1              :[Not Detected]          Time.
  ▶  SATA 2              :[Not Detected]
  ▶  SATA 3              :[Not Detected]
  ▶  SATA 4              :[Not Detected]
  ▶  SATA 5              :[Not Detected]
  ▶  SATA 6              :[Not Detected]
                                                 ←→    Select Screen
  ▶  Storage Configuration                       ↑↓    Select Item
  ▶  System Information                          +-    Change Field
                                                 Tab   Select Field
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```

5.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

5.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

5.3.3 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]

5.3.4 SATA 1~6

While entering Setup, the 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.

```
                          BIOS SETUP UTILITY
  Main

  SATA 1                                          Select the type of
  ─────────────────────────────────────────      device connected to the
                                                  system.
  Device        : Not Detected
  ─────────────────────────────────────────

  Type                           [Auto]
  LBA/Large Mode                 [Auto]
  Block(Multi-Sector Transfer) M [Auto]
  PIO Mode                       [Auto]
  DMA Mode                       [Auto]
  SMART Monitoring               [Auto]           ←    Select Screen
  32Bit Data Transfer            [Enabled]        ↑↓   Select Item
                                                  +-   Change Option
                                                  F1   General Help
                                                  F10  Save and Exit
                                                  ESC  Exit
```
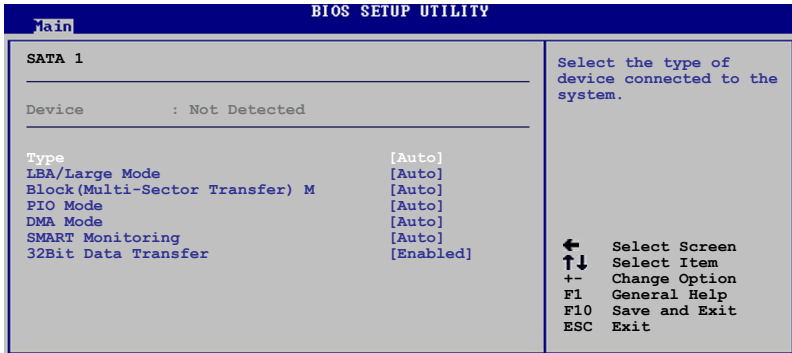
The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. 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 [Enabled]

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

5.3.5   Storage Configuration

The items in this menu allow you to set or change the configurations for the SATA devices installed in the system. Select an item then press **<Enter>** if you want to configure the item.
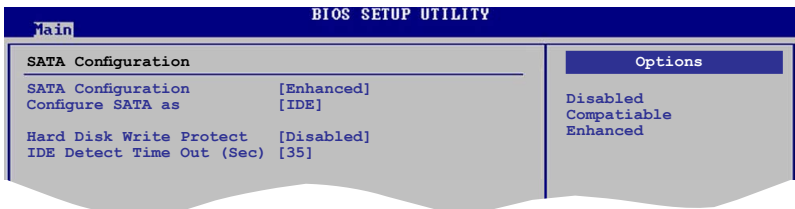
SATA Configuration [Enhanced]

Configuration options: [Disabled] [Compatible] [Enhanced]

Configure SATA As [IDE]

Sets the configuration for the Serial ATA connectors supported by the Southbridge chip.

The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

If you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices, keep the defaul setting [IDE].

If you want the Serial ATA hard disk drives to use the Advanced Host Controller Interface (AHCI), set this item to [AHCI].

Hard Disk Write Protect [Disabled]

Disables or enables device write protection. This will be effective only if device is accessed throuh BIOS. Confiuration option: [Disabled] [Enabled]

SATA Detect Time Out (Sec) [35]

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

5.3.6   System Information

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu.

```
                        BIOS SETUP UTILITY
  Main

    AMIBIOS
    Version    : 0202
    Build Date : 09/01/08

    Processor
    Type       : Intel(R) Core(TM)2 CPU 6300 @ 1.86GHz
    Speed      : 1866MHz
    Count      : 2

    System Memory                          ←→    Select Screen
    Installed Size: 512MB                   ↑↓    Select Item
    Usable Size:    478MB                   +–    Change Option
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit
```
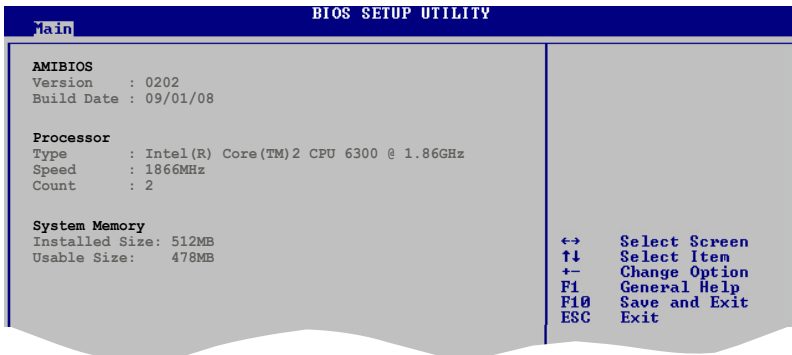
AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected CPU specification.

System Memory

Displays the auto-detected system memory.

5.4 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.

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

    JumperFree Configuration                        Adjust System
    CPU Configuration                               frequency/voltage.
    Chipset
    Onboard Devices Configuration
    USB Configuration
    PCIPnP



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

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```

5.4.1 Jumperfree Configuration

```
                          BIOS SETUP UTILITY
        Advanced

    Configure System Frequency/Voltage            Select the target CPU
                                                  frequency, and the
    AI Overclocking          [Auto]               relevant parameters
    DRAM Frequency           [Auto]               will be auto-
                                                  adjusted.
    Memory Voltage           [Auto]               Frequencies higher
    SB1.5V Voltage           [Auto]               than CPU manufacturer
    SB1.1V Voltage           [Auto]               recommends are not
    CPU Voltage              [Auto]               guaranteed to be
                                                  stable. If the system
                                                  becomes unstable,
                                                  return to the
                                                  default.
```

AI Overclocking [Auto]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking configuration options:

Manual - allows you to individually set overclocking parameters.

Auto - loads the optimal settings for the system.

Overclock Profile - loads overclocking profiles with optimal parameters for stability when overclocking.

CPU Frequency [xxx]

Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the **<+>** and **<->** keys to adjust the CPU frequency. You can also type the desired CPU frequency using the numeric keypad. The values range from 133 to 600. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings.

FSB / CPU External Frequency Synchronization

Front Side Bus	CPU External Frequency
FSB 1333	333 MHz
FSB 1066	266 MHz
FSB 800	200 MHz
FSB 533	133 MHz

PCI Express Frequency [xxx]

Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the **<+>** and **<->** keys to adjust the PCIe frequency. You can also type the desired PCIe frequency using the numeric keypad. The values range from 90 to 150.

FSB Termination Voltage [Auto]

Allows you to set FSB termination voltage or auto for safe mode.
Configuration options: [Auto] [1.20V] [1.30V] [1.40V] 1.50V]

MCH Chipset Voltage [Auto]

Allows you to set MCH chipset voltage or auto for safe mode.
Configuration options: [Auto] [1.125V] [1.175V] [1.225V] [1.275]

The following item appears only when you set the AI Overclocking item to **[Overclock Profile]**.

Overclock Options [Overclock 5%]

Allows you to select the overclock options. Configuration options: [Overclock 5%] [Overclock 10%] [Overclock 15%] [Overclock 20%] [Overclock 30%]

DRAM Frequency [Auto]

Allows you to set the DDR2 operating frequency. Configuration options: [Auto] [667 MHz] [800 MHz] [1066MHz]

The following table shows the DRAM Frequency options that appear when the FSB value is 1333, 1066, and 800.

FSB	DRAM Frequency			
	Auto	667MHz	800MHz	1066MHz
1333	v	v	v	v
1066	v	v	v	v
800	v	v	v	

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

Memory Over Voltage [Auto]

Allows you to adjust Memory Over voltage and each step is 6.25mV

SB1.5V Voltage [Auto]

Allows you to set the SB voltage. Configuration options: [Auto] [1.5V] [1.57V]
[1.64V] [1.71V]

SB1.1V Voltage [Auto]

Allows you to set the SB voltage. Configuration options: [Auto] [1.126V] [1.196V]
[1.266V] [1.336V]

> Setting a very high voltage may damage the component permanently, and
> setting a very low voltage may cause the system to become unstable.

CPU Voltage [Auto]

Allows you to set the CPU VCore voltage. The values range from 0.8500V to 1.55V
with a 0.00625V interval. Configuration options: [Auto]

> Setting a very high voltage may damage the component permanently, and
> setting a very low voltage may cause the system to become unstable.

5.4.2   CPU Configuration

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

```
                          BIOS SETUP UTILITY
        Advanced
                                                   Sets the ratio between
    Configure advanced CPU settings               CPU Core Clock and the
    Module Version: 3D.06                         FSB Frequency.
                                                   NOTE: If an invalid
                                                   ratio is set in CMOS
    Manufacturer: Intel                            then actual and
    Brand String: Intel(R) Core(TM)2 CPU 6300 @ 1.86GHz   setpoint values may
    Frequency:    1.86GHz                          differ.
    FSB Speed:    1066MHz                           NOTE:
    Cache L1:     64 KB                            Please Key in ratio
    Cache L2:     2048 KB                          numbers directly!
    Ratio Status: Unlocked (Max:07.0, Min:06.0)
    Ratio Actual Value:7
    CPUID:        6F2                              ↔     Select Screen
                                                   ↑↓    Select Item
    Ratio CMOS Setting          [Auto]            +-    Change Option
    C1E Support                 [Enabled]         F1    General Help
    Max CPUID Value Limit       [Disabled]        F10   Save and Exit
    Intel(R) Virtualization Tech [Enabled]        ESC   Exit
    CPU TM function             [Enabled]
    Execute Disable Bit         [Enabled]
    Intel(R) SpeedStep(TM) Tech. [Enabled]
```

Ratio CMOS Setting [Auto]

Sets the ratio between CPU Core Clock and the FSB frequency. Configuration options: [Auto].

If an invalid ratio is set in CMOS then actual and setpoint values my differ.

Key in ratio numbers directly.

C1E Support [Enabled]

Allows you to enable or disable Inter CPU Enhanced Halt (C1E) function, a CPU power-saving function in system halt state. When enabled, the CPU core frequency and voltage will be reduced during the system halt state to decrease power consumption. Configuration options: [Disabled] [Enabled]

Max CPUID Value Limit [Disabled]

Allows you to determine whether to limit CPUID maximum value. Set this item to **[Disabled]** for Windows XP operating system; set this item to **[Enabled]** for legacy operating system such as Windows NT4.0. (Default: Disabled)
Configuration options: [Disabled] [Enabled]

Intel® Virtualization Technology [Enabled]

Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitons. With virtualization, one computer system can function as multiple virtual systems. Configuration options: [Enabled] [Disabled]

CPU TM function [Enabled]

Enables or disables Intel® CPU Thermal Monitor (TM) function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage are reduced when the CPU overheats. Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enabled]

Enables or disables Intel® Execute Disable Bit function. This function enhance protection of your computer, reducing exposure to viruses and malicious buffer overflow attacks when working with its supporting software and system. Configuration options: [Disabled] [Enabled]

The following item appears only when you installed an Intel® Pentium® 4 or later CPU that supports the Enhanced Intel SpeedStep® Technology (EIST).

Intel® SpeedStep™ Technology [Enabled]

Allows you to use the Enhanced Intel® SpeedStep® Technology. When set to **[Enabled]**, you can adjust the system power settings in the operating system to use the EIST feature. Set this item to **[Disabled]** if you do not want to use the EIST. Configuration options: [Enabled] [Disabled]

5.4.3   Chipset

The Chipset menu allows 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                    Configure North Bridge
                                                features.
   WARNING: Setting wrong values in below sections
            may cause system to  malfunction.

   ▶  North Bridge Configuration
   ▶  South Bridge Configuration
```

North Bridge Configuration

```
                        BIOS SETUP UTILITY
         Advanced

   North Bridge Chipset Configuration                    Options

   Memory Remap Feature          [Enabled]      128MB
   Configure DRAM Timing by SPD  [Enabled]      256MB

   Initiate Graphic Adapter      [PEG/PCI]




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

Memory Remap Feature [Disabled]

Allows you to enable or disable the remapping of overlapped PCI memory above the total physical memory. We recommend that you set this item to **Enabled** when you install 4GB memory. Configuration options: [Enabled] [Disabled]

Configure DRAM Timing by SPD [Enabled]

Allows you to enable or disable configurating DRAM Timing by SPD. Configuration options: [Enabled] [Disabled]

Initiate Graphic Adapter [PEG/PCI]

Allows you to select the graphics controller as the primary boot device.
Configuration options: [PCI/PEG] [PEG/PCI]

South Bridge Configuration

```
                           BIOS SETUP UTILITY
         Advanced

  South Bridge Chipset Configuration

  Audio Controller          [Enabled]
    Front Panel Type        [HD Audio]
```
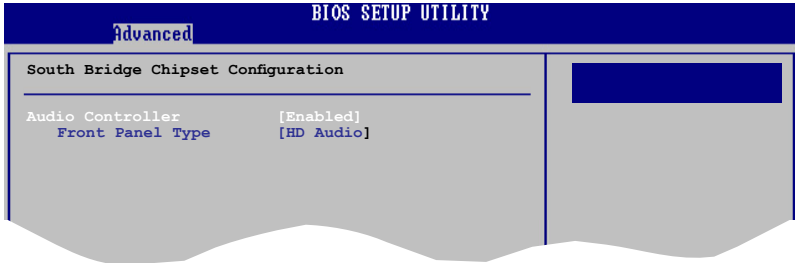
Audio Controller [Enabled]

Allows you to set the audio controller. Configuration options: [Enabled] [Disabled]

> *Front Panel Support Type [HD Audio]*
> Allows you to select the front panel support type. If High Definition Audio
> Front Panel used, please set HD Audio mode. Configuration options: [AC97]
> [HD Audio]

5.4.4   Onboard Devices Configuration

```
                           BIOS SETUP UTILITY
         Advanced

  Onboard Device Configuration                Onboard PCIEX GbE LAN_
                                              Enable/Disable
  Onboard PCIEX GbE Lan1           [Enabled]
   LAN1 Option ROM                 [Disabled]
  OnBoard PCIEX GbE Lan2           [Enabled]
   LAN2 Option ROM                 [Disabled]
  J-Micron eSATA/PATA Controller   [Enabled]
  Controller Mode                  [IDE]
  JMicron SATA/RAID OptRom         [Enabled]
  1394 Controller                  [Enabled]

  Serial Port1 Address             [3F8/IRQ4]
  Parallel Port Address            [378]        ←→    Select Screen
  Parallel Port Mode               [ECP]        ↑↓    Select Item
    ECP Mode DMA Channel           [DMA3]       +—    Change Option
   Parallel Port IRQ               [IRQ7]       F1    General Help
```

Onboard PCIEX GbE Lan1 [Enabled]

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

> *LAN1 Option ROM [Disabled]*
> Allows you to enable or disable the LAN option ROM in the onboard LAN
> controller. This item appears only when the Onboard LAN item is set to
> Enabled. Configuration options: [Disabled] [Enabled]

Onboard PCIEX GbE Lan2 [Enabled]

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

> *LAN2 Option ROM [Disabled]*
> Allows you to enable or disable the LAN option ROM in the onboard LAN
> controller. This item appears only when the Onboard LAN item is set to
> Enabled. Configuration options: [Disabled] [Enabled]

J-Micron eSATA/PATA Controller [Enabled]

Allows you to enable or disable J-Micron eSATA/PATA controller.
Configuration options: [Enabled] [Disabled]

Controller Mode [IDE]

Allows you to select the controller mode.
Configuration options: [RAID] [IDE] [AHCI]

JMicron SATA/RAID OptRom [Enabled]

Allows you to enable or disable JMicron SATA/RAID OptRom.
Configuration options: [Enabled] [Disabled]

1394 controller [Enabled]

Allows you to enable or disable 1394 controller.
Configuration options: [Enabled] [Disabled]

Serial Port1 Address [3F8/IRQ4]

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

Parallel Port Address [378]

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

Parallel Port Mode [ECP]

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

5.4.5   USB Configuration

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

```
                        BIOS SETUP UTILITY
         Advanced

  USB Configuration                                    Options

  Module Version - 2.24.3-13.4                    Disabled
                                                  Enabled
  USB Devices Enabled:
             None

  USB Functions           [Enabled]
  USB 2.0 Controller      [Enabled]
  Legacy USB Support      [Auto]
  USB 2.0 Controller Mode [HiSpeed]
                                             ↔    Select Screen
                                             ↑↓   Select Item
                                             +-   Change Option
                                             F1   General Help
                                             F10  Save and Exit
                                             ESC  Exit
```
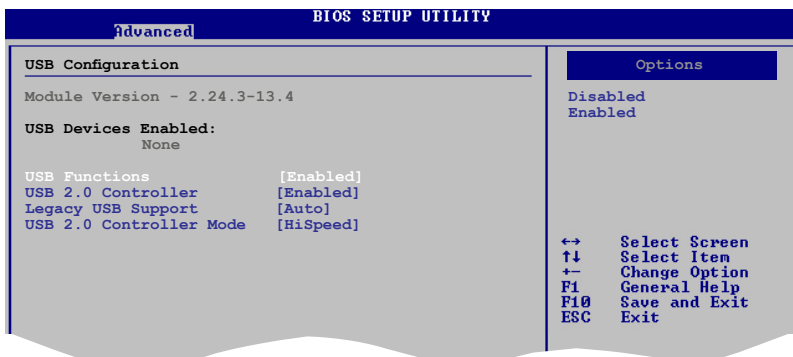
> The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows **None**.

USB Functions [Enabled]

Allows you to disable or select the different values of the USB functions. Configuration options: [Disabled] [Enabled]

USB 2.0 Controller [Enabled]

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

Legacy USB Support [Auto]

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

USB 2.0 Controller Mode [HiSpeed]

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

5.4.6   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, 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 can 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 below sections  devices in the
          may cause system to malfunction.        system.
                                                  Yes: lets the
 Plug And Play O/S              [No]              operating system
                                                  configure Plug and
                                                  Play (PnP) devices
                                                  not required for
                                                  boot if your system
                                                  has a Plug and Play
                                                  operating system.

                                                  ←→   Select Screen
                                                  ↑↓   Select Item
                                                  +-   Change Option
                                                  F1   General Help
                                                  F10  Save and Exit
                                                  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 install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot. Configuration options: [No] [Yes]

5.5 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      Tools     Exit

    Suspend Mode                [Auto]              Select the ACPI state
    ACPI 2.0 Support            [Disabled]          used for System
    ACPI APIC Support           [Enabled]           Suspend.

  ▶ APM Configuration
  ▶ Hardware Monitor
```
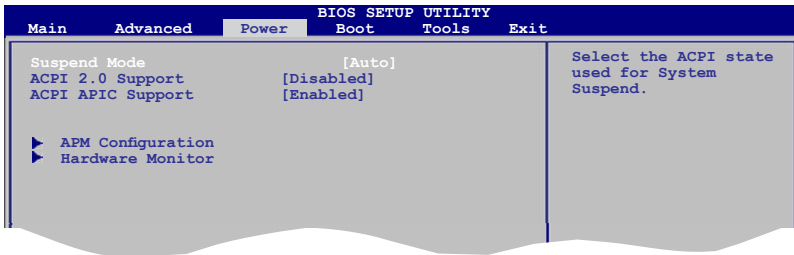
5.5.1 Suspend Mode [Auto]

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

[S1(POS) Only] - Enables the system to enter the ACPI S1 (Power on Suspend) sleep state. In S1 sleep state, the system appears suspended and stays in a low power mode. The system can be resumed at any time.

[S3 Only] - Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state (default). In S3 sleep state, the system appears to be off and consumes less power than in the S1 state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

[Auto] - Detected by OS.

5.5.2 ACPI 2.0 Support [Disabled]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [Disabled] [Enabled]

5.5.3 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

5.5.4 APM Configuration

```
                         BIOS SETUP UTILITY
                Power

  APM Configuration                                    <Enter> to select
                                                       whether or not to
  Restore on AC Power Loss        [Power Off]          restart the system
                                                       after AC power
  Resume On By PS/2 KB/MOUSE      [Disabled]           loss.
  Resume On Ring                  [Disabled]
  Resume On PCI Devices/LAN       [Disabled]
  Resume On PCIE Devices          [Disabled]
  Resume On RTC Alarm             [Disabled]
```
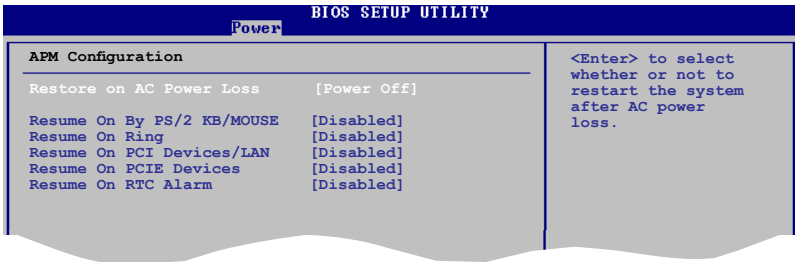
Restore on AC Power Loss [Power Off]

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 the system state was before the AC power loss. Configuration options: [Power Off] [Power On] [Last State]

Power On By PS/2 KB/Mouse [Disabled]

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

Resume On Ring [Disabled]

Allows you to enable or disable RI to generate a wake event.
Configuration options: [Disabled] [Enabled]

Resume On PCI Devices/LAN [Disabled]

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

Resume On PCIE Devices [Disabled]

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

Resume On RTC Alarm [Disabled]

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

5.5.5   Hardware Monitor

```
                          BIOS SETUP UTILITY
                 Power

  Hardware Monitor                              CPU Temperature

  CPU Temperature            [23°C/73°F]
  MB Temperature             [30°C/86°F]

  CPU Fan Speed              [4891RPM]
  CPU Q-Fan Control          [Disabled]
  Chassis Fan Speed          [N/A]
  Chassis Q-Fan Control      [Disabled]
  Power Fan Speed            [N/A]

  VCORE Voltage              [1.344V]          ←→   Select Screen
  3.3V Voltage               [3.152V]          ↑↓   Select Item
  5V Voltage                 [4.838V]          +-   Change Field
  12V Voltage                [11.712V]         F1   General Help
                                               F10  Save and Exit
                                               ESC  Exit

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```

CPU Temperature [xxxºC/xxxºF] or [Ignored]

MB Temperature [xxxºC/xxxºF] or [Ignored]

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 (RPM) [xxxxRPM] or [Ignored]

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 field shows **N/A**. Select Ignored if you do not wish to display the
detected speed.

CPU Q-Fan Control [Disabled]

Allows you to enable or disable the Q-Fan control. Configuration options:
[Disabled] [Enabled]

Chassis Fan Speed [Ignored] or [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
motherboard, the field shows **N/A**. Select Ignored if you do not wish to display the
detected speed.

Chassis Q-Fan Control [Disabled]

Allows you to enable or disable the Chassis Q-Fan control. Configuration options:
[Disabled] [Enabled]

Power Fan Speed [Ignored] or [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 motherboard, the field shows **N/A**. Select Ignored if you do not wish to display the detected speed.

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage [xxxV] or [Ignored]

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

5.6   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    Tools    Exit

   Boot Settings                                  Specifies the Boot
                                                  Device Priority
    Boot Device Priority                          sequence.

 ▶ Boot Settings Configuration                    A virtual floppy disk
 ▶ Security                                       drive (Floppy Drive B:)
                                                  may appear when you set
                                                  the CD-ROM drive as the
                                                  first boot device.


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

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```

5.6.1   Boot Device Priority

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

   Boot Device Priority                           Specifies the boot
                                                  sequence from the
   1st Boot Device        [1st FLOPPY DRIVE]      available devices.
   2nd Boot Device        [Hard Drive]
   3rd Boot Device        [ATAPI CD-ROM]
```

1st ~ xxth Boot Device [XX Drive]

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

5.6.2   Boot Settings Configuration

```
                          BIOS SETUP UTILITY
                          Boot

  Boot Settings Configuration                        Allows BIOS to skip
                                                     certain tests while
  Quick Boot                 [Enabled]               booting. This will
  Full Screen Logo           [Enabled]               decrease the time
  AddOn ROM Display Mode      [Force BIOS]            needed to boot the
  Bootup Num-Lock            [On]                     system.
  Wait For 'F1' If Error     [Enabled]
  Hit 'DEL' Message Display  [Enabled]
```
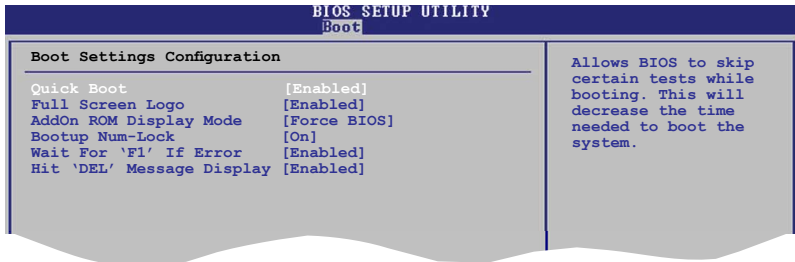
Quick Boot [Enabled]

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

Full Screen Logo [Enabled]

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

> Set this item to **[Enabled]** to use the ASUS MyLogo2™ feature.

AddOn ROM Display Mode [Force BIOS]

Allows you to set 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]

Wait for 'F1' If Error [Enabled]

When set to Enabled, the system waits for the **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]

5.6.3   Security

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

```
                            BIOS SETUP UTILITY
                                  Boot

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

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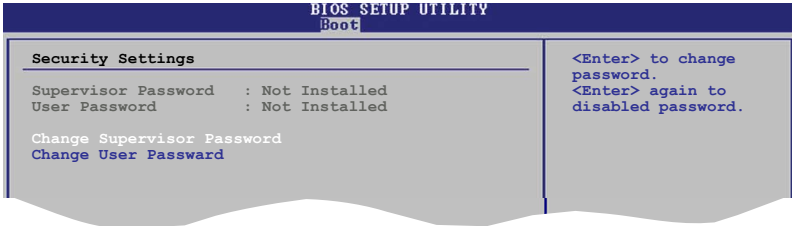
Change Supervisor Password

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

To set a Supervisor Password:

1.   Select the **Change Supervisor Password** item and press **<Enter>**.
2.   From the password box, type a password 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.

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

```
                          BIOS SETUP UTILITY
                              Boot

 Security Settings                                      <Enter> to change
                                                        password.
 Supervisor Password    : Installed                     <Enter> again to
 User Password          : Installed                     disabled password.

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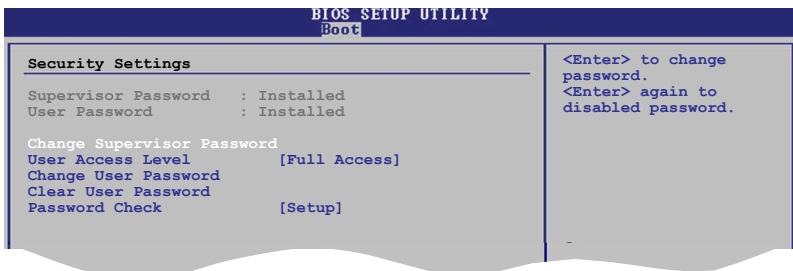
User Access Level [Full Access]

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

No Access prevents user access to the Setup utility.

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

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

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

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

Clear User Password

Select this item 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]

5.7 Tools menu

The Tools menu items allow you to launch special functions. Select an item then press **<Enter>** to display the sub-menu.

```
                          BIOS SETUP UTILITY
    Main    Advanced    Power    Boot    Tools    Exit
 ┌────────────────────────────────────────────┬──────────────────────────────┐
 │                                            │  Press ENTER to run          │
 │  ASUS EZ Flash 2                           │  the utility to select       │
 │                                            │  and update BIOS.            │
 │                                            │  This utility doesn't        │
 │  Express Gate          [Enabled]           │  support :                   │
 │     Enter OS Timer     [10 Seconds]        │  1.NTFS format               │
 │     Reset User Data    [No]                │                              │
 │ ▶ AI NET 2                                 │                              │
 │                                            │                              │
 │                                            │  ←→    Select Screen         │
 │                                            │  ↑↓    Select Item           │
 │                                            │  +-    Change Field          │
 │                                            │  Enter Go to Sub             │
 │                                            │  Screen                      │
 │                                            │  F1    General Help          │
 │                                            │  F10   Save and Exit         │
 │                                            │  ESC   Exit                  │
 └────────────────────────────────────────────┴──────────────────────────────┘
        v02.58 (C)Copyright 1985-2008, American Megatrends, Inc.
```
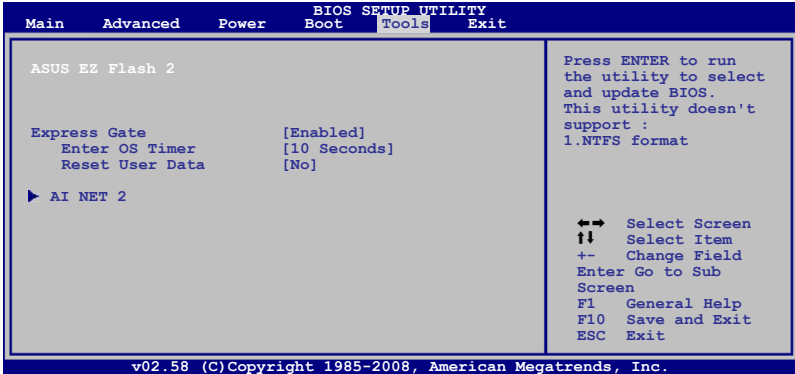
5.7.1 ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press **<Enter>**, a confirmation message appears. Use the left/right arrow key to select between **[Yes**] or **[No**], then press **<Enter>** to confirm your choice. See section 5.1.2 for details.

```
 ┌──────────────────────────────────────────────────────────────────────┐
 │            ASUSTek EZ Flash 2 BIOS ROM Utility V3.25                  │
 │  FLASH TYPE: MXIC 25L8005                                            │
 │  ┌──── Current ROM ────────────┐  ┌──── Update ROM ──────────┐      │
 │  │ BOARD: P5QL-M V-P5P43        │  │ BOARD: Unknown           │      │
 │  │ VER:  0302 (H:00 B:03)       │  │ VER:  Unknown            │      │
 │  │ DATE: 09/01/2008             │  │ DATE: Unknown            │      │
 │  └──────────────────────────────┘  └──────────────────────────┘      │
 │  PATH: A:\                                                           │
 │  ┌───────────┐  ┌──────────────────────────────────────────┐        │
 │  │ A:        │  │                                          │        │
 │  │           │  │                                          │        │
 │  │           │  │                                          │        │
 │  │           │  │                                          │        │
 │  │           │  │                                          │        │
 │  └───────────┘  └──────────────────────────────────────────┘        │
 │  ┌─ Note ──────────────────────────────────────────────────┐        │
 │   [Enter] Select or Load [Tab] Switch    [V] Drive Info     │        │
 │   [Up/Down/Home/End] Move    [B] Backup      [ESC] Exit      │        │
 └──────────────────────────────────────────────────────────────────────┘
```
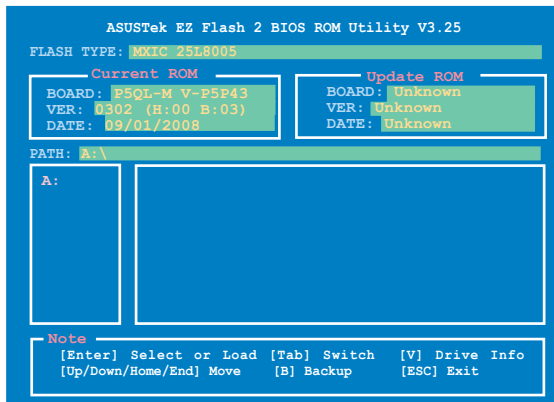
This function only supports FAT 32/16 format.

5.7.2 Express Gate [Enabled]

Allows you to enable or disable the ASUS Express Gate feature. The ASUS Express Gate feature is a unique instant-on environment that provides quick access to the Internet browser and Skype. Configuration options: [Enabled] [Disabled]

Enter OS Timer [10 Seconds]

Sets countdown duration that the system waits at the Express Gate's first screen before starting Windows or other installed OS. Choose **[Prompt User]** to stay at the first screen of Express Gate for user action.
Configuration options: [Prompt User] [1 second] [3 seconds] [5 seconds]
[10 seconds] [15 seconds] [20 seconds] [30 seconds]

Reset User Data [No]

Allows you to clear Express Gate's user data.
Configuration options: [No] [Reset]

> When setting this item to **[Reset]**, make sure to save the setting to the BIOS so that the user data will be cleared the next time you enter the Express Gate. User data includes the Express Gate's settings as well as any personal information stored by the web browser (bookmarks, cookies, browsing history, etc.). This is useful in the rare case where corrupt settings prevent the Express Gate environment from launching properly.

The first time wizard will run again when you enter the Express Gate environment after clearing its settings.

5.7.3   AI NET 2

```
AI NET 2                                              Check Realtek LAN
Pair    Status    Length                              cable during POST.

                                                      It will take 3 to 10
                                                      seconds to diagnose
Check Realtek LAN cable         [Disabled]            LAN cable.




                                                  ←→   Select Screen
                                                  ↑↓   Select Item
                                                  +-   Change Option
                                                  F1   General Help
                                                  F10  Save and Exit
                                                  ESC  Exit
```
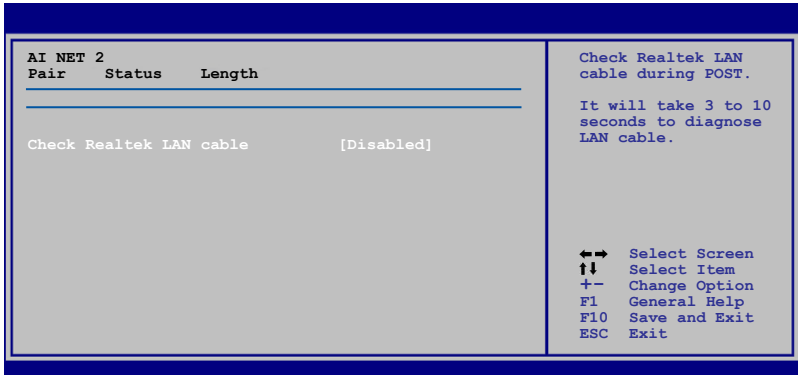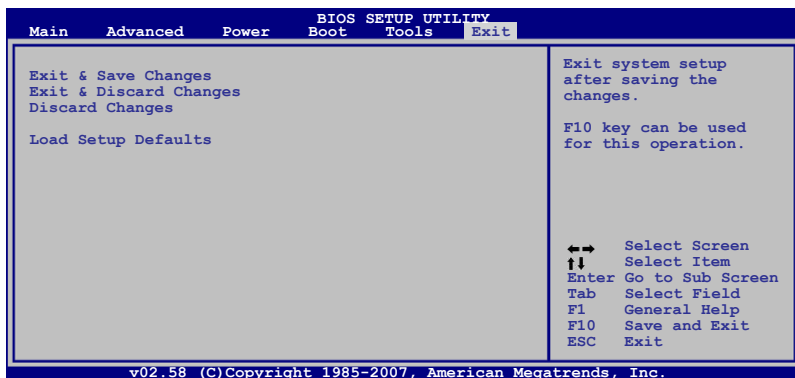
Check Realtek LAN cable [Disabled]

Enables or disables checking of the Realtek LAN cable during the Power-On Self-Test (POST).
Configuration options: [Disabled] [Enabled]

5.8 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    Tools    Exit

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




                                                ←→    Select Screen
                                                ↑↓    Select Item
                                                Enter Go to Sub Screen
                                                Tab   Select Field
                                                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. An onboard backup battery sustains the CMOS RAM so it 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. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select 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 & Save Changes or make other changes before saving the values to the non-volatile RAM.