P3-P5G31

ASUS PC (Desktop Barebone)

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Contents

Contents

Contents

Notices

Federal Communications Commission Statement

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

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

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

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

WARNING! 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.

Macrovision Corporation Product Notice

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected.
- If 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, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet. Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

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 manufacturerís 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

The symbol of the crossed out wheeled bin indicates that the product (electrical, electronic equipment, Mercury-containing button cell battery) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

About this guide

Audience

This guide provides general information and installation instructions about the ASUS P3-P5G31 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 barebone system. 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: Getting started**

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

4. **Chapter 4: Motherboard info**

   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 how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

Conventions used in 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 P3-P5G31 system package for the following items.

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

Item description
1. ASUS P3-P5G31 barebone system with
• ASUS motherboard
• 220 W PFC power supply unit
• 6-in-1 storage card reader
2. Accessories
• Foot stand and screw (1 pair) for vertical placement
• Rubber stand (x 4) for horizontal placement
• Hard disk drive screw (x 8)
• Optical drive screw (x 2)
• Rubber washer (x 8)
3. Cables
• AC power cable
• Serial ATA signal cable (x 2)
• IDE cable (x 1)
4. Support CD and Recover Pro CD
• Support CD
• Recover PRO CD (only support Windows 2000/XP)
5. Quick Installation Guide

Chapter 1

This chapter gives a general description of the barebone system. The chapter lists the system features including introduction on the front and rear panel, and internal components.

System introduction

1.1 Welcome!

Thank you for choosing the ASUS P3-P5G31!

The ASUS P3-P5G31 is an all-in-one barebone system with powerful and flexible features.

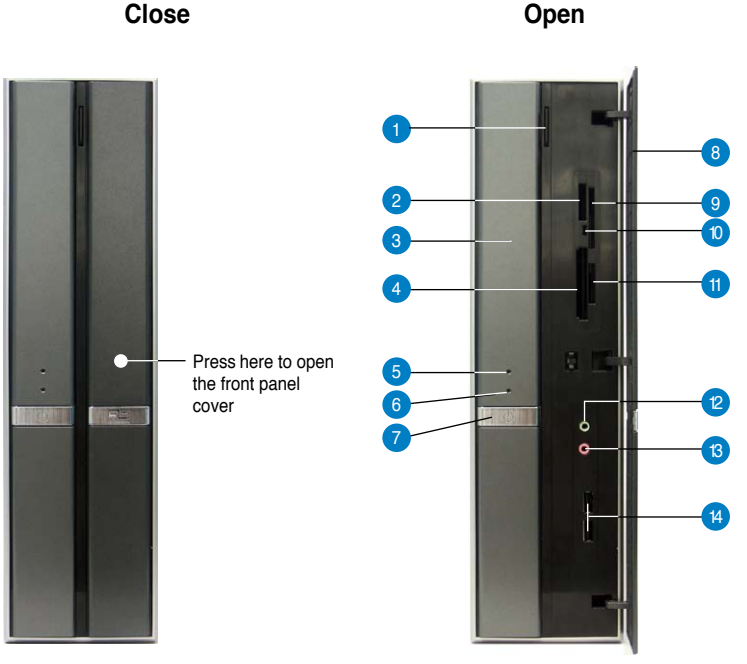
The system comes in a stylish book-size casing, and powered by the ASUS motherboard that supports the Intel® Core™ 2 Extreme/Core™ 2 Duo/ Pentium® 4/Celeron® D processors in the 775-land package.

With audio capabilities, extensive connectivity, and Fast Ethernet LAN, P3-P5G31 is designed for the sophisticated. The system's ergonomic design allows vertical or horizontal placement so you can maximize your desktop space.

With these and many more, the P3-P5G31 definitely delivers the cutting edge technology for your computing and multimedia needs.

1.2 Front panel

The front panel includes the front panel cover, connectors, power button, and LEDs.

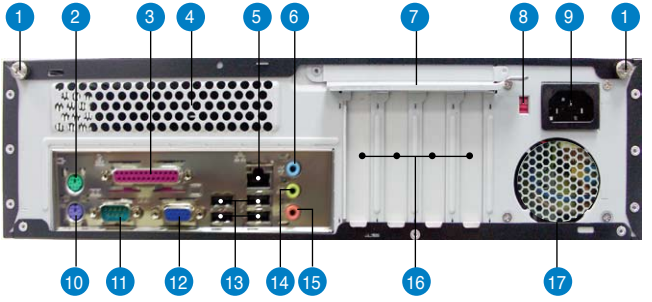


1. **Optical drive eject button.** Press this button to eject the optical drive tray.
2. **Memory Stick®/Memory Stick Pro™ card slot***. This slot is for a Memory Stick®/Memory Stick Pro™ storage card.
3. **Optical drive/bay cover.** Covers the optical drive or optical drive bay.
4. **CompactFlash® card slot*** . This slot is for a CompactFlash® storage card.
5. **Power LED.** This LED lights up to indicate that the system is ON.
6. **HDD LED.** This LED lights up when data is being read from or written to the hard disk drive.
7. **Power button** . Press this button to turn the system on or off.
8. **Front panel cover.** Covers the 6-in-1 card reader and front panel I/O ports. Press the indicated area to open the front panel cover. Refer to the illustration in the previous page.
9. **SmartMedia® card slot*** . This slot is for a SmartMedia® storage card.
10. **Card reader LED.** This LED lights up when data is being read from or written to a storage card inserted in any of the card reader slots.
11. **Secure Digital™/MultimediaCard slot*** . This slot is for a Secure Digital™/MultimediaCard storage card.
12. **Headphone port** . This port connects a headphone with a stereo mini-plug.
13. **Microphone port** . This Mic (pink) port connects a microphone.
14. **USB 2.0 ports** . These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.

* Use and format a storage card according to the documentation that comes with it.

1.3 Rear panel

The system rear panel includes the power connector and several I/O ports that allow convenient connection of devices.



1. **Cover screw.** Secures the system cover.
2. **PS/2 mouse port .** This green 6-pin connector is for a PS/2 mouse.
3. **Parallel port .** This 25-pin port connects a printer, scanner, or other devices.
4. **Air vent.** Provides ventilation for the system.
5. **LAN (RJ-45) port .** This port allows Fast Ethernet connection to a Local Area Network (LAN) through a network hub.
6. **Line In port (light blue).** This port connects a tape, CD, DVD player, or other audio sources.
7. **Metal bracket lock.** Secures the expansion slot/card metal brackets.
8. **Voltage selector.** Allows you to adjust the system input voltage according to the voltage supply in your area. See the section **2.12 Selecting the voltage** before adjusting this switch.
9. **Power connector.** Connects the power cable and plug.
10. **PS/2 keyboard port .** This purple 6-pin connector is for a PS/2 keyboard.
11. **COM port .** This port connects a mouse, modem, or other devices that confoms with serial specification.
12. **VGA port .** Connects a VGA monitor.
13. **USB 2.0 ports .** These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
14. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel, and 6-channel configuration, the function of this port becomes Front Speaker Out.

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

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

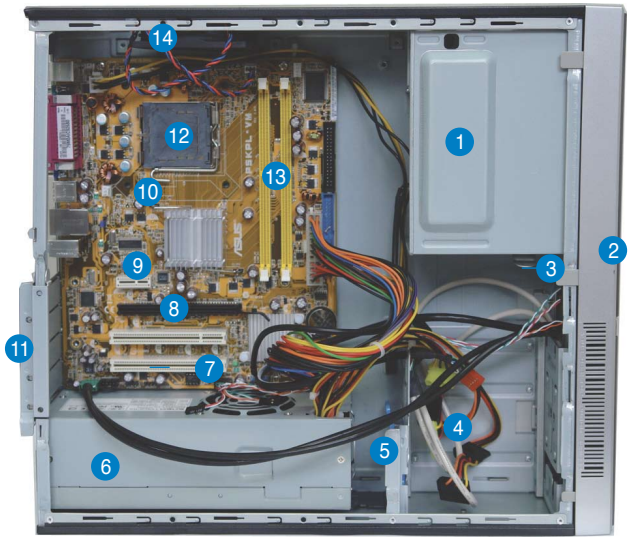
Audio 2, 4, or 6-channel configuration

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

16. **Expansion slots.** You can insert expansion boards into these slots to add memory and graphics capabilities to the system.
17. **Power fan vent.** The fan vent allows air to be circulated by the power supply fan.

1.4 Internal components

The illustration below is the internal view of the system when you remove the top cover and the chassis support bracket. The installed components are labeled for your reference. Proceed to Chapter 2 for instructions on installing additional system components.



1. 5.25-inch empty optical drive bay
2. Front panel cover
3. Optical drive lock
4. Hard disk drive bays
5. Hard disk drive lock
6. Power supply unit
7. PCI slots
8. PCI Express x16 slot
9. PCI Express x1 slot
10. ASUS motherboard
11. Metal bracket lock
12. LGA775 socket
13. DIMM sockets
14. Chassis fan

Chapter 2

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

Basic installation

2.1 Preparation

Before you proceed, make sure that you have all the components you plan to install in the system.

Basic components to install

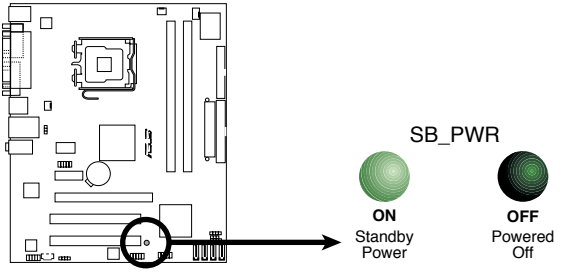
1. Central processing unit (CPU)
2. DDR2 Dual Inline Memory Module (DIMM)
3. Expansion card(s)
4. Hard disk drive
5. Optical drive

2.2 Before you proceed

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

The system motherboard comes with an onboard standby power LED. This LED lights up to indicate that the system is ON, in sleep mode or in soft-off mode, and not powered OFF. Unplug the power cable from the power outlet and make sure that the standby power LED is OFF before installing any system component.



Onboard LED

2.3 Removing the covers

2.3.1 Removing the system cover

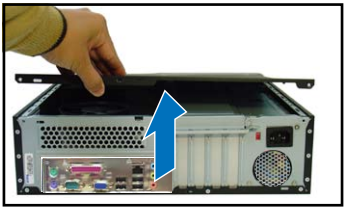
To remove the cover and metal chassis support:

1. On the rear panel, locate the two thumb screws that secure the cover to the chassis.

2. Remove the cover screws. Keep the screws for later use.

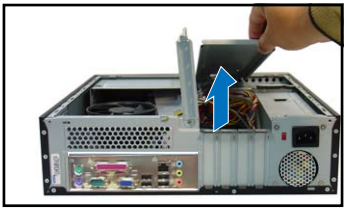
3. Slightly pull the cover toward the rear panel until the cover hooks disengages from the chassis holes.

4. Lift the system cover, then set aside.



5. Lift the expansion card lock to a 90º-100º angle.

6. Lift the chassis support bracket to a 45º angle, then carefully pull to release. Set the chassis support bracket aside.

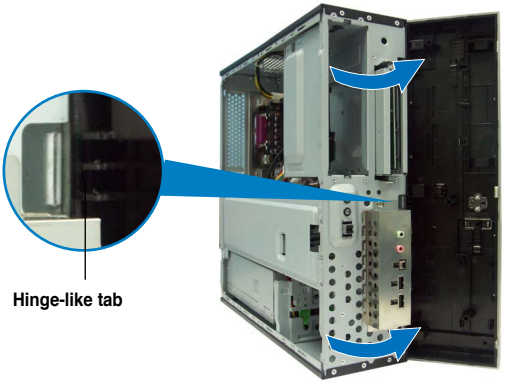


2.3.2 Removing the front panel assembly

To remove the front panel assembly:

1. Place the system vertically.
2. Locate the front panel assembly hooks.
3. Pull the hooks outward to release the front panel assembly.

4. Swing the left edge of the front panel assembly outward.
5. Unhook the hinge-like tabs from the holes on the right side of the chassis to detach.



Do not use too much force when removing the front panel assembly.

2.4 Installing a CPU

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

This system is designed for Intel® 65W desktop processors. Other Intel® processors higher than 65W may not provide optimum performance. Refer to ASUS CPU support list for more details. http://support.asus.com/cpusupport/cpusupport.aspx?SLanguage=en-us.

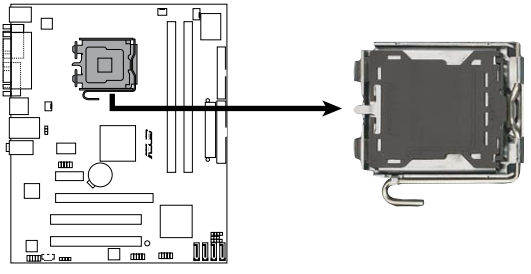
2.4.1 CPU installation

- Your boxed Intel® LGA775 processor package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.
- Check your motherboard to make sure that the socket contacts are not bent. Contact your retailer immediately if you see any damage to the socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation or removal.

Installing the CPU

To install a CPU:

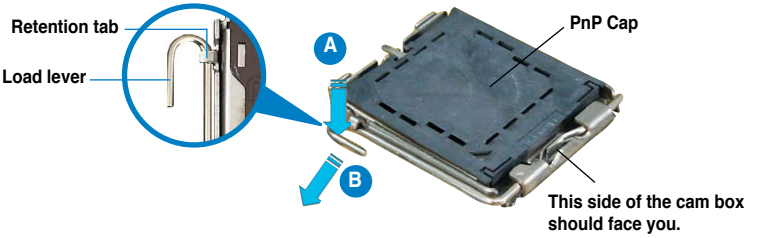
1. Locate the CPU socket on the motherboard.



CPU Socket 775

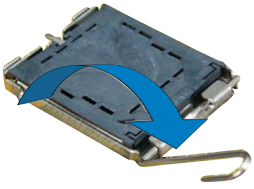
Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

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

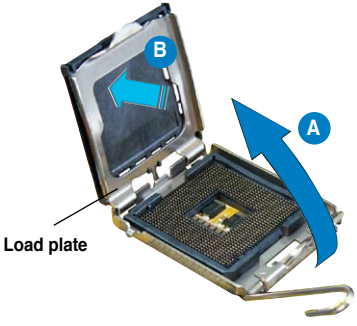


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

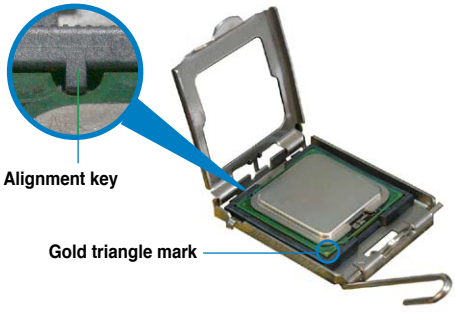
3. Lift the load lever in the direction of the arrow to a 135° angle.



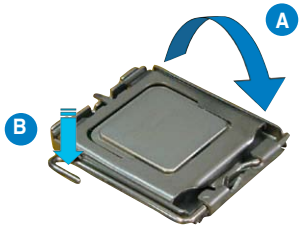
4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch.



6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.



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

The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel SpeedStep® Technology (EIST), and Hyper-Threading Technology. Refer to the Appendix for more information on these CPU features.

2.4.2 Installing the CPU fan and heatsink assembly

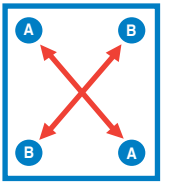
The Intel® LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

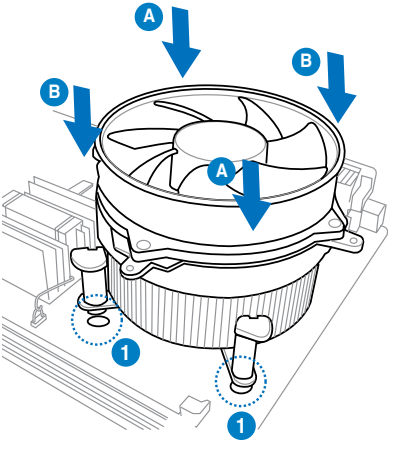
- When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
- Your Intel® LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool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

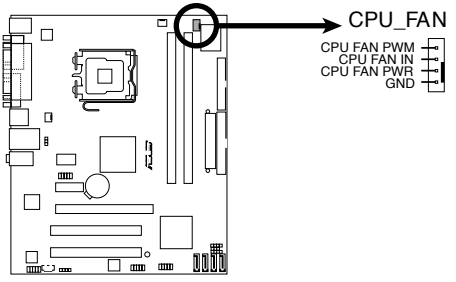
To install the CPU heatsink and fan:

1. Place the heatsink on top of the installed CPU, making sure 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.





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



CPU Fan Connector

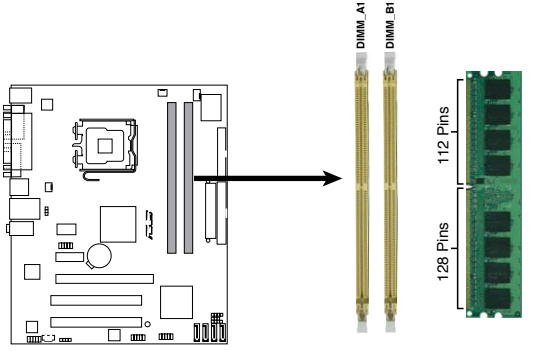
Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

2.5 Installing a DIMM

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

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket.

The figure illustrates the location of the DDR2 DIMM sockets:



240-pin DDR2 DIMM Sockets

Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1

Install a memory module in DIMM_A1 slot to support the Intel® Quiet System Technology and for optimum performance.

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.

- 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.
- If you are using a Windows 31-bit version operating system (e.g. 32-bit Windows XP, 32-bit Windows Vista) without the Physical Address Extension (PAE) support, the system will allocate a certain amount of memory space for system devices.
- We recommend that you install only a maximum of 3GB system memory when using a Windows 32-bit version operating system without the PAE. The excess over 3GB of installed memory will not cause any problem; however, the system can not use this excess memory space and the system will display less than the total size of physical memory installed.
- This motherboard does not support memory modules made up of 128 Mb chips or double sided x16 memory modules.

Notes on memory limitations

- Due to chipset limitation, this motherboard can only support up to 4 GB on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot, but only DDR2-800 and DDR2-667 2 GB density modules are available for this configuration.

32-bit	64-bit
Windows® XP	Windows® XP x64 Edition
Windows® 2003 Server	Windows® 2003 Server x64 Edition
Windows® Vista	Windows® Vista x64 Edition

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

DDR2 Qualified Vendors List

The following tables list the memory modules that have been tested and qualified for use with this motherboard. Visit the ASUS website (www.asus.com) for the latest DDR2 DIMM modules for this motherboard.

DDR2 667 Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Part No.	DIMM support	
						A*	B*
256MB	Kingston	KVR667D2N5/256	Kingston	SS	E2508AB-6E-E	•	•
256MB	Kingston	KVR667D2N5/256	Kingston	SS	D3216TLSAKL3U	•	•
256MB	Kingston	KVR667D2N5/256	Infineon	SS	HYB18T256800AF3SW6533154	•	•
512MB	Kingston	KVR667D2N5/512	Kingston	SS	D6408TE8WL-27	•	•
512MB	Kingston	KVR667D2N5/512	Elpida	SS	E5108AGBG-6E-E	•	•
1G	Kingston	KVR667D2N5/1G	Kingston	DS	D6408TE8WL-3	•	•
1G	Kingston	KVR667D2N5/1G	Kingston	DS	D6408TEBGGL3U	•	•
1G	Kingston	KVR667D2N5/1G	Elpida	DS	E5108AGBG-6E-E	•	•
512MB	Samsung	KRM378T6553CZ0-CE6	Samsung	SS	K4T51083QC	•	•
512MB	Samsung	KRM378T6453FZ0-CE6	Samsung	DS	K4T56083QF-ZCE6	•	•
512MB	Samsung	M378T6553CZ3-CE6	Samsung	SS	K4T51083QC-ZCE6	•	•
1G	Samsung	M378T2953CZ3-CE6	Samsung	DS	K4T51083QC-ZCE6	•	•
1G	Samsung	KRM378T2953CZ0-CE6	Samsung	DS	K4T51083QC-ZCE6	•	•
256MB	Qimonda	HYS64T32000HU-3S-A	Qimonda	SS	HYB18T512160AF-3SSSS17310	•	•
512MB	Qimonda	HYS64T32000HU-3S-A	Qimonda	SS	HYB18T5128000AF-3SSSS27416	•	•
512MB	Qimonda	HYS64T64000HU-3S-A	Qimonda	SS	HYB18T512800AF3SFSS05346	•	•
1G	Qimonda	HYS64T128020HU-3S-A	Qimonda	DS	HYB18T512800AF3SSSS28104	•	•
512MB	Corsair	VS512MB667D2	Corsair	SS	64M8CFEGPS0900647	•	•
512MB	Corsair	VS512MB667D2	Corsair	DS	MIII0052532M8CEC	•	•
1G	Corsair	VS1GB667D2	Corsair	DS	MID095D62864M8CEC	•	•
1G	Corsair	XMS2-5400	Corsair	DS	Heat-SinkPackage	•	•
256MB	HY	HYMP532U64CP6-Y5AB	Hynix	SS	HY5PS121621CFP-Y5	•	•
512MB	HY	HYMP564U64AP8-Y4AA	Hynix	SS	HY5PS12821AFP-Y4	•	•
512MB	HY	HYMP564U64AP8-Y5AA	Hynix	SS	HY5PS12821AFP-Y5	•	•
1G	HY	HYMP512U64AP8-Y5AB	Hynix	DS	HY5PS12821AFP-Y5	•	•
1G	HY	HYMP512U64CP8-Y5AB	Hynix	DS	HY5PS12521CFP-Y5	•	•
512MB	Kingmax	KLCC28F-A8EB5	Elpida	SS	E5108AE-6E-E	•	•
512MB	Kingmax	KLCC28F-A8KB5	Kingmax	SS	KKEA88B4LAUG-29DX	•	•
1G	Kingmax	KLCD48F-A8KB5	Kingmax	DS	KKEA88B4LAUG-29DX	•	•
512MB	Apacer	78.91092.420	Elpida	SS	E5108AE-6E-E	•	•
512MB	Apacer	AU512E667C5KBGC	Apacer	SS	AM4B5708MIJS7E0627B	•	•
512MB	Apacer	AU512E667C5KBGC	Apacer	SS	AM4B5708GQJS7E06332F	•	•
1G	Apacer	AU01GE667C5KBGC	Apacer	DS	AM4B5708GQJS7E0636B	•	•
1G	Apacer	78.01092.420	Elpida	DS	E5108AE-6E-E	•	•
1G	Apacer	AU01GE667C5KBGC	Apacer	DS	AM4B5708MIJS7E0627B	•	•
512MB	ADATA	M20EL5G3H3160B1C0Z	Elpida	SS	E5108AE-6E-E	•	•
512MB	ADATA	M20AD5G3H3166I1C52	ADATA	SS	AD29608A8A-3EG20648	•	•
512MB	ADATA	M20AD5G3H3166I1C52	ADATA	SS	AD29608A8A-3EG20718	•	•
1G	ADATA	M2OAD5G3I4176I1C52	ADATA	DS	AD29608A8A-3EG20645	•	•
512MB	ADATA	M2GVD5G3H31A4I1C52	ADATA	SS	AD29608A8A-3EG20615	•	•

(continued on the next page)

DDR2 667 Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Part No.	DIMM support	
						A*	B*
512MB	VDATA	M2YVD5G3H31P4I1C52	VDATA	SS	VD29608A8A-3EG20627	•	•
512MB	VDATA	M2GVD5G3H166I1C52	VDATA	SS	VD29608A8A-3EG20637	•	•
1G	VDATA	M2GVD5G3I41P6I1C52	VDATA	DS	VD29608A8A-3EG20627	•	•
1G	VDATA	M2GVD5G3I41C4I1C52	VDATA	DS	VD29608A8A-3EC20620	•	•
1G	VDATA	M2GVD5G3I4176I1C52	VDATA	DS	VD29608A8A-3EG20641	•	•
512MB	PSC	AL6E8E63B-6E1K	PSC	SS	A3R12E3GEF637BLC5N	•	•
1G	PSC	AL7E8E63B-6E1K	PSC	DS	A3R12E3GEF637BLC5N	•	•
256MB	Nanya	NT256T64UH4A1FY-3C	Nanya	SS	NT5TU32M16AG-3C	•	•
512MB	Nanya	NT512T64U88A1BY-3C	Nanya	SS	NT5TU64M8AE-3C	•	•
512MB	MDT	MDT512MB	MDT	SS	18D51280D-30648	•	•
1G	MDT	MDT1024MB	MDT	DS	18D51200D-30646	•	•
1G	MDT	MDT1024MB	MDT	DS	18D51280D-30646E	•	•
1G	PQI	DDR2-667U1G	Hynix	DS	HY5PS12821BFP-E3A	•	•
512MB	AENEON	AET660UD00-30DA98Z	AENEON	SS	AET93F30DA0552	•	•
512MB	AENEON	AET660UD00-30DB97X	AENEON	SS	AET93R300B0634	•	•
1G	AENEON	AET760UD00-30DA98Z	AENEON	DS	AET93F30DA8EE47414G0540	•	•
512MB	AENEON	AET660UD00-30DA98Z	AENEON	SS	AET93F300A0606		
1G	AENEON	AET760UD00-30DA98Z	AENEON	DS	AET93F30DA0604	•	•
1G	AENEON	AET760UD00-30DB97X	AENEON	DS	AET93R300B0639	•	•
512MB	TAKEMS	TMS51B264C081-665QI	takeMS	SS	MS18T51280-3	•	•
512MB	TAKEMS	TMS51B264C081-665AP	takeMS	SS	MS18T51280-3S0627D	•	•
1G	TAKEMS	TMS1GB264C081-665QI	takeMS	DS	MS18T51280-3	•	•
1G	TAKEMS	TMS1GB264C081-665AE	takeMS	DS	MS18T51280-3SEA07100	•	•
1G	TAKEMS	TMS1GB264C081-665AP	takeMS	DS	MS18T51280-3SP0717A	•	•
512MB	VERITECH	GTP512HLTM45EG	VERITECH	SS	VTD264M8PC6G01A164129621	•	•
1G	VERITECH	GTP01GHLTM55EG	VERITECH	DS	VTD264M8PC6G01A164129621	•	•
512MB	GEIL	GX21GB5300DC	GEIT	SS	Heat-SinkPackage	•	•
512MB	TEAM	TVDD512M667C5	TEAM	SS	T2D648MT-6	•	•
1G	TEAM	TVDD1.02M667C4	TEAM	DS	T2D648PT-6	•	•
512MB	Century	CENTURY512MB	Nanya	SS	NT5TU64M8AE-3C	•	•
512MB	Century	CENTURY512MB	Hynix	SS	HY5PS12821AFP-Y5	•	•
1G	Century	CENTURY1G	Hynix	DS	HY5PS12821AFP-Y5	•	•
1G	Century	CENTURY1G	Nanya	DS	NT5TU64M8AE-3C	•	•
512MB	KINGBOX	512MB667MHz	KINGBOX	SS	EPD264082200-4	•	•
1G	KINGBOX	DDRII1G667MHz	KINGBOX	DS	EPD264082200-4	•	•

Side(s): SS - Single Sided **DS** - Double Sided

DIMM Support:

A - supports one module inserted into either slot, in a Single-channel memory configuration.

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

DDR2 800 Qualified Vendors List

Size	Vendor	Model	Brand	Side(s)	Part No.	DIMM support	
						A*	B*
512MB	Kingston	KVR800D2N5/512	Samsung	SS	K4T51083QC-ZCE7	•	•
512MB	Kingston	KVR800D2N5/512	Promos	SS	V59C1512804QBF25S0054707PEBPA	•	•
1G	Kingston	KVR800D2N5/1G	Samsung	DS	K4T51083QC-ZCE7	•	•
1G	Kingston	KHX6400D2LL/1G	Kingston	DS	Heat-Sink Package	•	•
1G	Kingston	KVR800D2N5/1G	Nanya	DS	NT5TU64M8BE-25C62321800CP	•	•
1G	Kingston	KHX6400D2LLK2/1GN	Kingston	DS	Heat-Sink Package	•	•
2G	Kingston	KHX6400D2K2/2G	Kingston	DS	Heat-Sink Package	•	•
512MB	Samsung	KR M378T6553CZ3-CE7	Samsung	SS	K4T51083QC-ZCE7	•	•
1G	Samsung	KR M378T2953CZ3-CE7	Samsung	DS	K4T51083QC-ZCE7	•	•
256MB	Qimonda	HYS64T32001HU-2.5-A	Qimonda	SS	HYB18T256800AF25SSS49313	•	•
512MB	Qimonda	HYS64T64020HU-2.5-A	Qimonda	DS	HYB18T256800AF25SSS25063	•	•
1G	Corsair	CM2X1024-6400	Corsair	DS	Heat-Sink Package	•	•
1G	Corsair	XMS2-6400	Corsair	DS	Heat-Sink Package	•	•
1G	Corsair	XMS2-6400	Corsair	DS	Heat-Sink Package	•	•
512MB	HY	HYMP564U64AP8-S6 AA	Hynix	SS	HY5PS12821AFP-S6	•	•
512MB	HY	HYMP564U64BP8-S5 AB	Hynix	SS	HY5PS12821BFP-S5	•	•
512MB	HY	HYMP564U64CP8-S5 AB	Hynix	SS	HY5PS12821CFP-S5	•	•
1G	HY	HYMP512U64AP8-S6 AA	Hynix	DS	HY5PS12821AFP-S6	•	•
1G	HY	HYMP512U64BP8-S5 AB	Hynix	DS	HY5PS12821BFP-S5	•	•
1G	HY	HYMP512U64CP8-S5 AB	Hynix	DS	HY5PS12821CFPS5	•	•
2G	Apacer	AHU02GE800C5N1C	Apacer	DS	Heat-Sink Package	•	
512MB	ADATA	M20AD6G3H3160I1E58	ADATA	SS	AD29608A8A-25EG80720	•	•
512MB	VDATA	M2GVD6G3H3160I1E53	VDATA	SS	VD29608A8A-25EG30648	•	•
1G	VDATA	M2GVD6G3I4170I1E53	VDATA	DS	VD29608A8A-25EG30647	•	•
512MB	PSC	AL6E8E63B-8E1K	PSC	SS	A3R12E3HEF641B9A05	•	•
1G	PSC	AL7E8E63B-8E1K	PSC	DS	A3R12E3HEF641B9A05	•	•
512MB	AENEON	AET660UD00-25DB98X	AENEON	SS	AET93F25DB 0621	•	•
1G	AENEON	AET760UD00-25DB97X	AENEON	DS	AET93R25DB 0640	•	•
512MB	SIS	SLY264M8-JGE-3	SIS	SS	DDRII6408-8E 7212	•	•
1G	SIS	SLY264M8-JGE-3	SIS	DS	DDRII6408-8E 7301	•	•
512MB	TAKEMS	TMS51B264C081-805EP	takeMS	SS	MS18T51280-2.5P0710	•	•
1G	TAKEMS	TMS1GB264C081-805EP	takeMS	DS	MS18T51280-2.5P0716	•	•
512MB	VERITECH	GTU512HLTXX4EG	Veritech	SS	VTD264M8PC4G03A169045648	•	•
1G	VERITECH	GTU01GHLTXX4EG	Veritech	DS	VTD264M8PC4G03A169045648	•	•
1G	UMAX	1GB,DDR2,PC6400	UMAX	DS	U2S12D30TP-8E	•	•

Side(s): SS - Single Sided **DS** - Double Sided

DIMM Support:

A - supports one module inserted into either slot, in a Single-channel memory configuration.

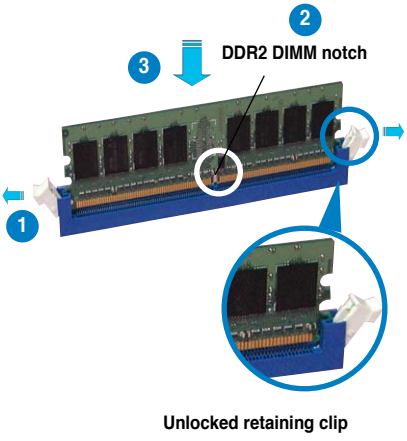
B - supports on pair of modules inserted into either the yellow slots or the black slots as one pair of Dual-channel memory configuration.

2.5.2 Installing a DIMM

Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



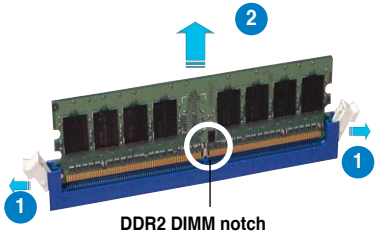
- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. Do not force a DIMM into a socket to avoid damaging the DIMM.
- The DDR2 DIMM sockets do not support DDR DIMMs. DO not install DDR DIMMs to the DDR2 DIMM sockets.

2.5.3 Removing a DIMM

To remove a DIMM:

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

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



2. Remove the DIMM from the socket.

2.6 Installing an expansion card

In the future, you may need to install expansion cards. The motherboard has two PCI, one PCI Express™ x1, and one PCI Express™ x16 slot. The following sub-sections describe the slots and the expansion cards that they support.

The system supports low profile PCI, PCI Express x16, and PCI Express x1 cards. You can only install low profile expansion cards on this system. Ask your retailer for details.

2.6.1 Expansion slots

PCI slots

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

PCI Express x16 slot

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

PCI Express x1 slot

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications.

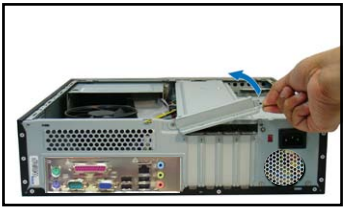
Before installing an expansion card, read the documentation that came with it and make the necessary hardware settings for the card.

2.6.2 Expansion card installation

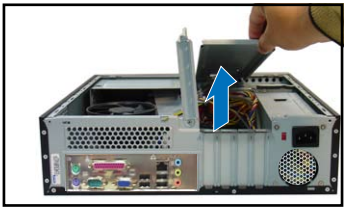
Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage the motherboard.

To install an expansion card:

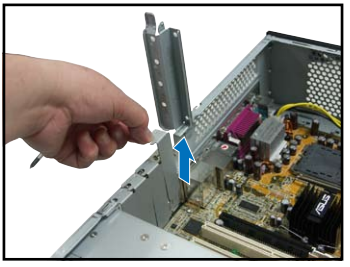
1. Lay the system on its side on a flat and stable surface.
2. Lift the expansion card lock to a 90º-100º angle.



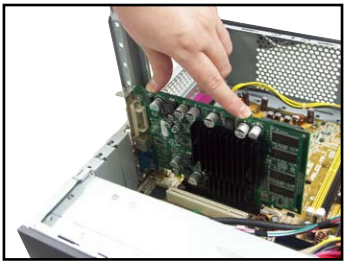
2. Remove the chassis support bracket.



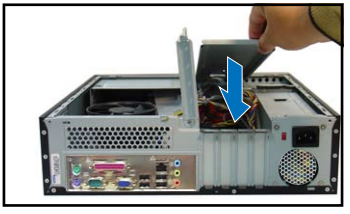
3. Remove the metal cover opposite the slot that you intend to use.



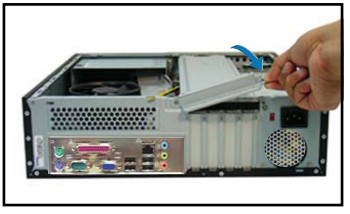
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.



5. If you have already installed a hard disk drive, replace the chassis support bracket; otherwise, install other components before replacing the chassis support bracket.



6. Replace the expansion card lock to secure the card to the chassis.



Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	—	Re-direct to IRQ#9
3	10	Communications Port (COM1)
4	11	IRQ holder for PCI steering*
5	12	Standard Floppy Disk Controller
6	13	Printer Port (LPT1)
7	3	System CMOS/Real Time Clock
8	4	IRQ holder for PCI steering*
9	5	IRQ holder for PCI steering*
10	6	IRQ holder for PCI steering*
11	7	PS/2 Compatible Mouse Port
12	8	Numeric Data Processor
13	9	Primary IDE Channel

* These IRQs are usually available for PCI devices.

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCI1	—	—	—	shared	—	—	—	—
PCI2	shared	—	—	—	—	—	—	—
PCIEX16_1	shared	—	—	—	—	—	—	—
PCIEX1_1	shared	—	—	—	—	—	—	—
Onboard USB controller 1	—	—	—	—	—	—	—	shared
Onboard USB controller 2	—	—	—	shared	—	—	—	—
Onboard USB controller 3	—	—	shared	—	—	—	—	—
Onboard USB controller 4	shared	—	—	—	—	—	—	—
Onboard USB 2.0 controller	—	—	—	—	—	—	—	shared
Onboard HD audio	shared	—	—	—	—	—	—	—
Onboard LAN	—	shared	—	—	—	—	—	—

2.7 Installing an optical drive

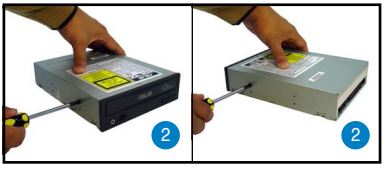
The system comes with a 5.25-inch drive bay for an optical drive.

If you plan to install an IDE hard disk drive, set the optical drive as a slave device before installing it to the system. Refer to the optical drive documentation for details on how to set the drive as slave device.

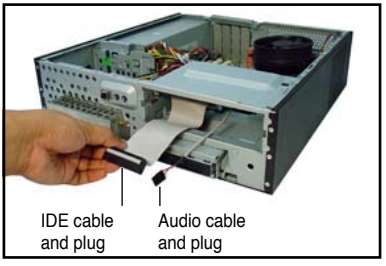
To install an optical drive:

1. Remove the front panel assembly following the instructions in section “2.3.2 Removing the front panel assembly.”

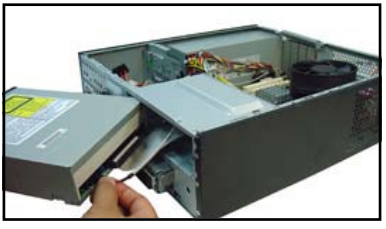
2. Drive a screw on the top right screw hole on both sides of the drive. The screw holes are approximately 5 cm from the drive front panel and 2 cm from the drive base.



3. Lay the system on its side in a flat and stable surface.
4. Carefully pull the IDE and audio cables and plugs out from the bay until the cables are long enough to connect to the drive.

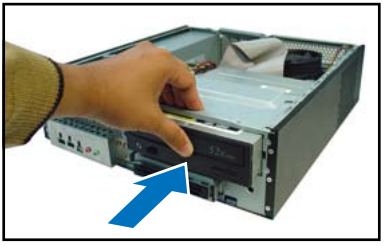


5. Connect the IDE cable to the IDE interface at the back of the drive. Match the red stripe on the cable with Pin 1 on the IDE interface.
6. Connect the optical drive audio cable to the 4-pin connector at the back of the optical drive.



The IDE and audio plugs are pre-connected to the primary IDE and internal audio connectors on the motherboard. If you disconnected these plugs, refer to page 4-6 and 4-8 for their respective locations.

7. Carefully push the optical drive all the way into the bay until the optical drive lock clicks.
8. Connect a 4-pin power plug from the power supply unit to the power connector at the back of the drive.

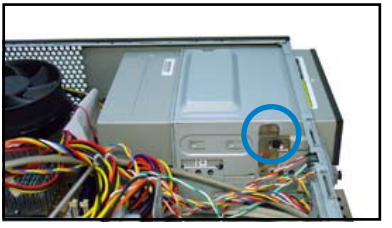


Uninstalling the optical drive

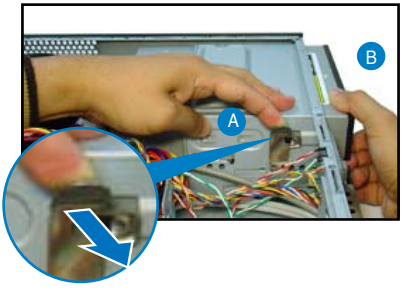
In the future, you may have to upgrade or replace a defective optical drive.

To uninstall the optical drive:

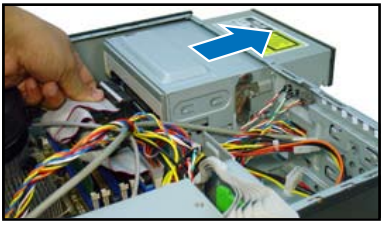
1. Remove the front panel assembly following the instructions in section "2.3.2 Removing the front panel assembly".
2. Locate the optical drive screw lock.



3. Push the lock to release the optical drive screw (A), then slightly pull the drive out from the bay (B).



4. Disconnect the IDE, audio, and power cables and plugs from the back of the drive.
5. Pull out the drive completely from the bay, then replace it following the instructions in the previous section.

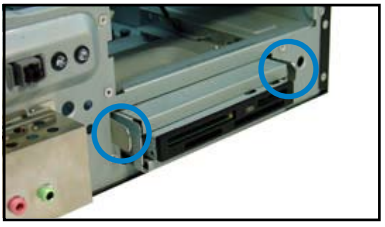


2.8 Removing the card reader

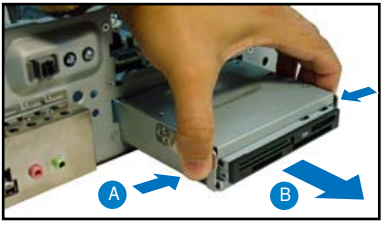
In the future, you may have to remove or replace the 6-in-1 card reader.

To uninstall the card reader:

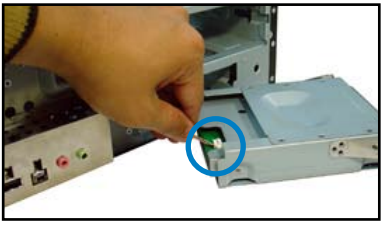
1. Remove the front panel assembly following the instructions in “2.3.2 Removing the front panel assembly”.
2. Locate the lock on both sides of the card reader assembly.



3. Press the card reader lock inwards(A), then slightly pull the card reader assembly outward (B) until the USB cable and plug is exposed.



4. Disconnect the USB cable and plug from the card reader assembly, then set the card reader assembly aside.

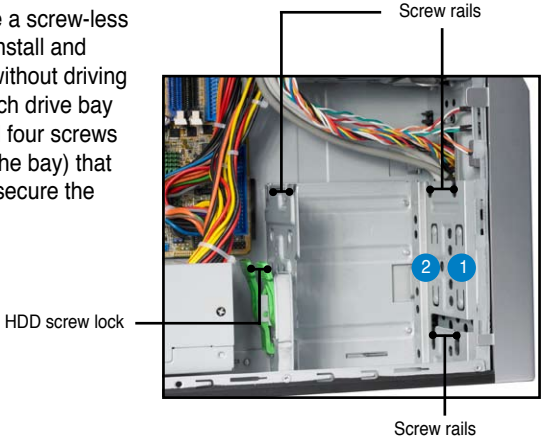


2.9 Installing hard disk drives (HDDs)

The system comes with two 3.5-inch drive bays (labeled 1 and 2) for installation of two Serial ATA hard disk drives or one IDE HDD (if you have installed an optical drive).

2.9.1 Hard disk drive bays

The drive bays incorporate a screw-less design that allows you to install and remove a hard disk drive without driving screws on the chassis. Each drive bay has a HDD screw lock and four screws rails (two on each side of the bay) that trap the HDD screws and secure the drive in the place.

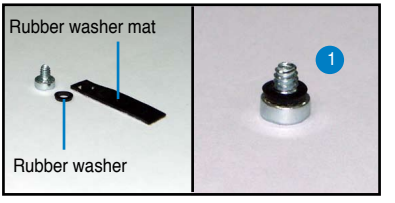


When installing one hard disk drive, install it on the upper HDD bay.

2.9.2 SATA hard disk drive installation

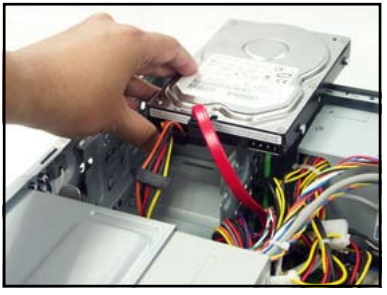
To install a SATA hard disk drive:

1. Insert the rubber washers to the HDD screws. Refer to the illustration on the right.
2. Drive four screws (two on each side of the drive) on the drive screw holes.

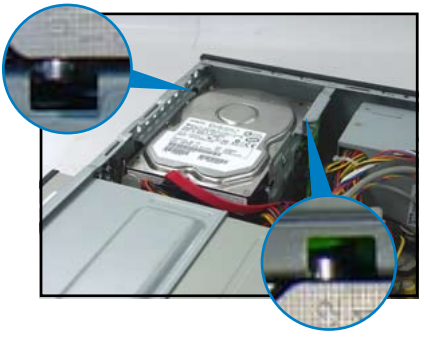


3. Connect one end of the supplied 7-pin SATA cable to the SATA connector at the back of the drive, then connect the other end to a SATA connector on the motherboard. See page 4-7 for the location of the SATA connectors.

4. Connect the 15-pin SATA power plug from the power supply unit to the power connector at the back of the drive.

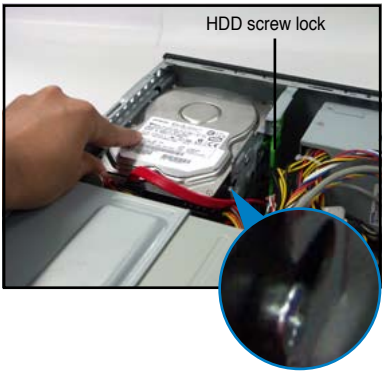


5. Place the HDD on the tray. Make sure that the HDD screws are aligned with the screw holes and rails.



6. When the HDD screws align with the screw rails, push the drive carefully until it is completely flushed on the bay.

   The HDD screw lock clicks to indicate that the drive is properly in place.



2.9.3 IDE hard disk drive installation

Set the IDE HDD as master device before connecting the IDE cable and power plug. Refer to the HDD documentation for details.

To install an IDE hard disk drive:

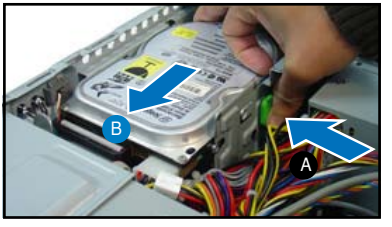
1. Follow steps 1 to 2 of the previous section.
2. Connect the IDE cable (gray connector) to the IDE interface at the back of the drive. Match the red stripe on the cable with Pin 1 on the IDE interface.
3. Connect a power cable from the power supply unit to the power connector at the back of the drive.
4. Follow steps 5 to 6 of the previous section to complete installation.

2.9.4 Uninstalling a hard disk drive

In the future, you may have to upgrade or replace a defective hard disk drive.

To uninstall the hard disk drive:

1. Press the HDD screw lock (A), then push the drive out from the bay (B) until the drive screws are released from the screw rails.



2. Slightly lift the HDD, then remove all plugs at the back of the drive.
3. Install a new HDD following the instructions in the previous section.

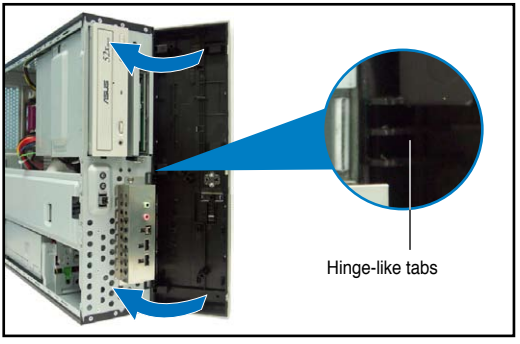
2.10 Replacing the covers

After you install all the necessary components on the system, replace the covers following the instructions in this section:

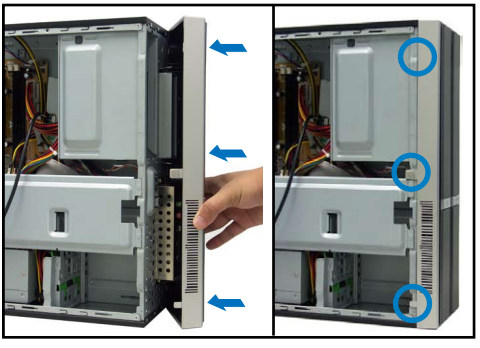
2.10.1 Replacing the front panel assembly

To replace the front panel assembly:

1. Hook the hinge-like tabs to the holes on the right side of the chassis.



2. Swing the left edge of the front panel inward, then attach the front panel assembly hooks to the chassis until they snap in place.

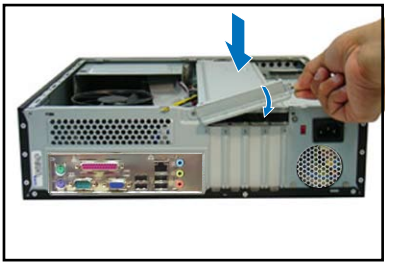


Do not use too much force when replacing the front panel assembly.

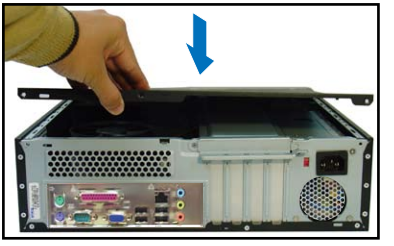
2.10.2 Replacing the system cover

To replace the metal chassis support:

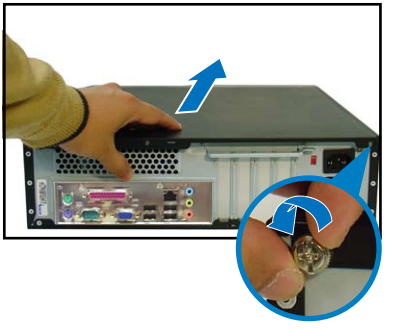
1. Reinstall the metal chassis support and the expansion card lock.



2. Match and insert the hooks of the cover to the elongated holes on the side of the chassis. All eight hooks (four hooks on both sides) of the cover must properly fit the designated holes.



3. Slide the cover toward the front panel until it is in place.
4. Replace the cover screws.



2.11 Installing the foot stands

You need to install the foot stands to place the system vertically on your desktop. To install the foot stands:

1. Lay the system on its side on a flat, stable, and elevated surface, then locate two screw holes on the left side of the system.
2. Extend the left side of the system at least 3 cm from the edge of the surface to facilitate installation.

3. Align the foot stand and chassis screw holes.
4. Drive in a screw to secure the foot stand to the chassis.

5. Follow the same procedures when installing the second foot stand.

The photo on the right shows the system in a vertical desktop placement.

2.12 Selecting the voltage

The system's power supply unit 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 the switch to 115 V.

If the voltage supply in your area is 200-240 V, set the switch to 230 V.

Setting the switch to 115 V in a 230 V environment will seriously damage the system!

Chapter 3

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

Getting started

3.1 Installing an operating system

This motherboard supports Windows® XP/64-bit XP/Vista/64-bit Vista operating systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

- Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.
- Make sure that you install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack2 or later versions before installing the drivers for better compatibility and system stability.

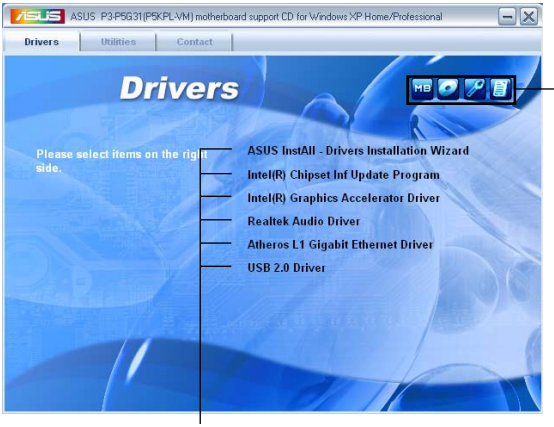
3.2 Support CD information

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

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

3.2.1 Running the support CD

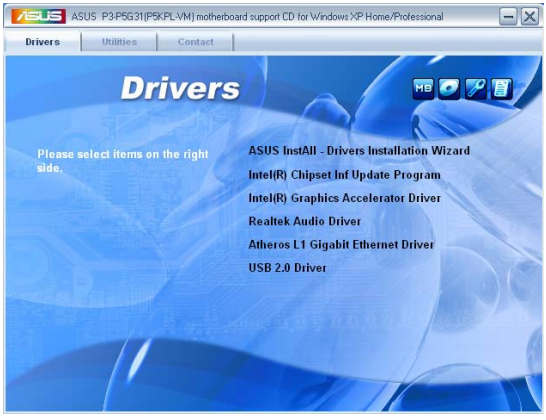
Place the support CD to the optical drive. The CD automatically displays the Drivers menu if Autorun is enabled in your computer.



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

3.2.2 Drivers menu

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



ASUS InstAll-Drivers Installation Wizard

Installs the ASUS InstAll-Drivers Installation Wizard.

Intel(R) Chipset Inf Update Program

Installs the Intel® chipset Inf update program.

Intel(R) Graphics Accelerator Driver

Installs the Intel® graphics accelerator driver.

Realtek Audio Driver

Installs the Realtek® ALC883 audio driver and application.

Atheros L1 Gigabit Ethernet Driver

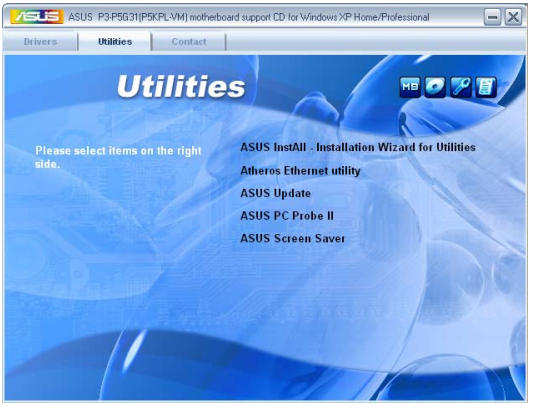
Installs the Atheros L1 Gigabit Ethernet driver.

USB 2.0 Driver

Installs the Universal Serial Bus 2.0 (USB 2.0) driver.

3.2.3 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.

Athero Ethernet utility

Installs the Athero Ethernet utility.

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 that you can connect to the ASUS website.

ASUS PC Probe II

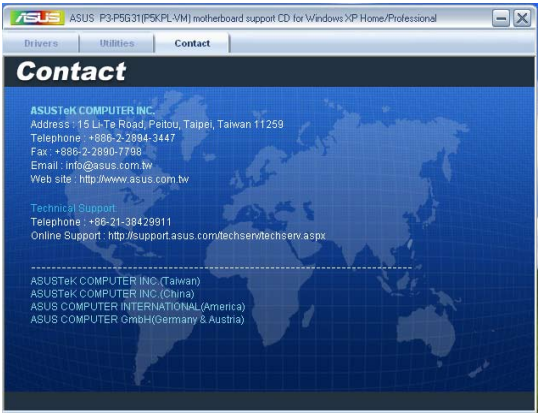
This smart utility monitors the fan speed, CPU temperature, and system voltage, and alerts you of any detected problems. This utility helps you keep your computer in healthy operating condition.

ASUS Screen Saver

Installs the ASUS screen saver.

3.2.4 ASUS contact information

Click the Contact tab to display the ASUS contact information.

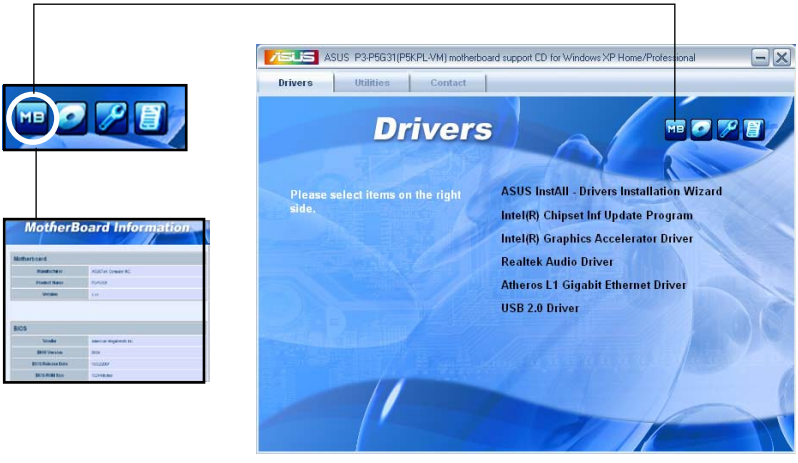


3.2.5 Other information

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

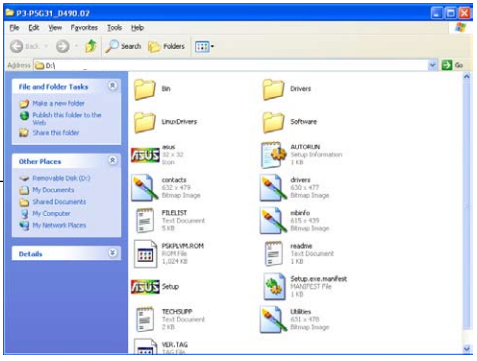
Motherboard Info

Displays the general specifications of the motherboard.



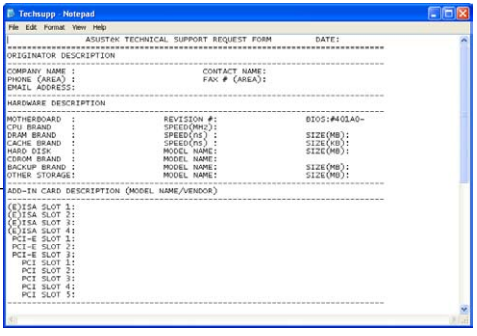
Browse this CD

Displays the support CD contents in graphical format.



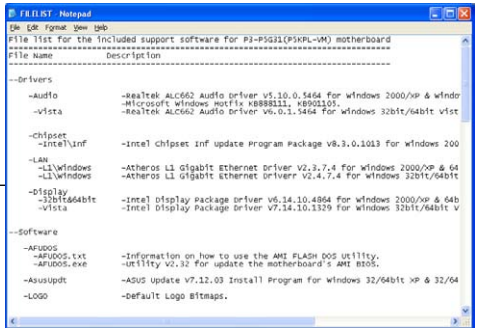
Technical support Form

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



Filelist

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



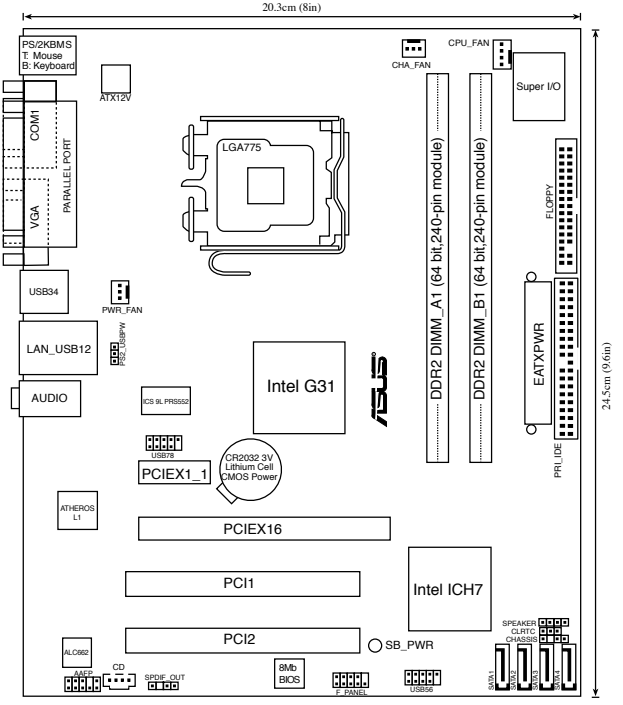
Chapter 4

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

Motherboard info

4.1 Motherboard overview

Motherboard layout



Refer to section **1.3 Rear Panel** and **4.3.2 Internal Connectors** for more information about rear panel connectors and internal connectors.

4.2 Jumpers

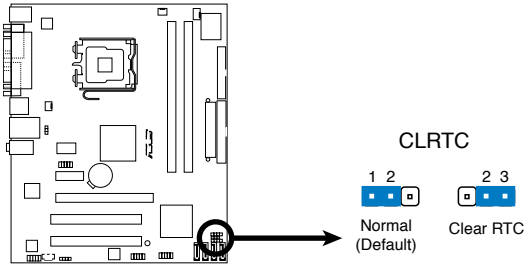
1. Clear RTC RAM (CLRTC)

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 •words.

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. Reinstall 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!

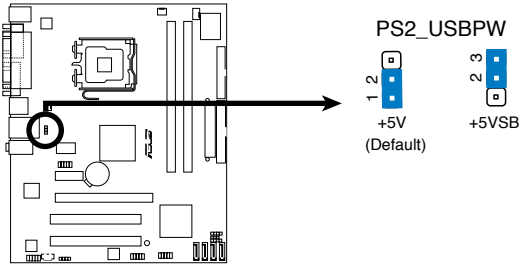


Clear RTC RAM

- 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.
- Due to the chipset limitation, AC power off is required prior using C.P.R. function. You must turn off and on the power supply or unplug and plug the power cord before reboot the system.

2. USB device wake-up (3-pin PS2_USBPW)

This jumper allows you to wake up the computer from S1 mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB device. Set this jumper to pins 2-3 (+5VSB) to wake up the computer from S3 and S4 modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).



USB Device Wake Up

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

4.3 Connectors

4.3.1 Rear panel connectors

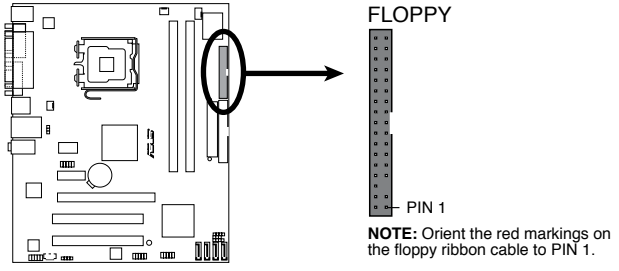
Refer to section “1.3 Rear panel” for a description of the rear panel I/O ports.

4.3.2 Internal connectors

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

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

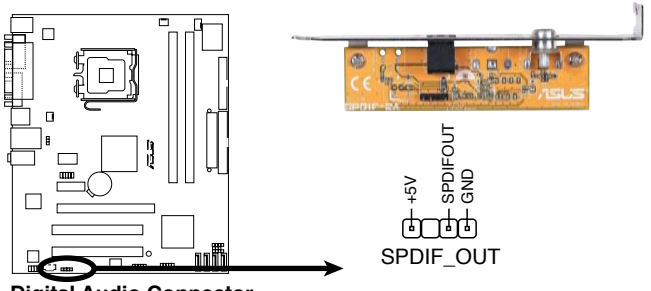
Pin 5 on the connector is removed to prevent incorrect cable connection when using an FDD cable with a covered Pin 5.



Floppy Disk Drive Connector

2. Digital Audio connector (4-1 pin SPDIF_OUT)

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



Digital Audio Connector

The S/PDIF out module is purchased separately.

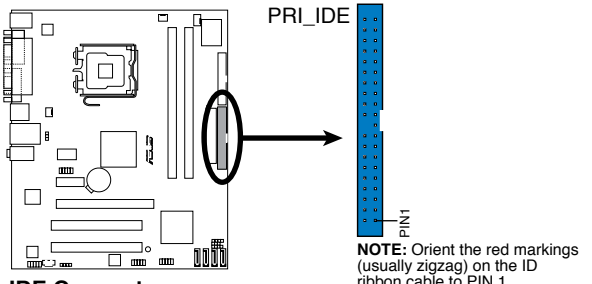
3. IDE connector (40-1 pin PRI_EIDE)

The onboard IDE connector is for the Ultra DMA 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.

	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 IDE devices.

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

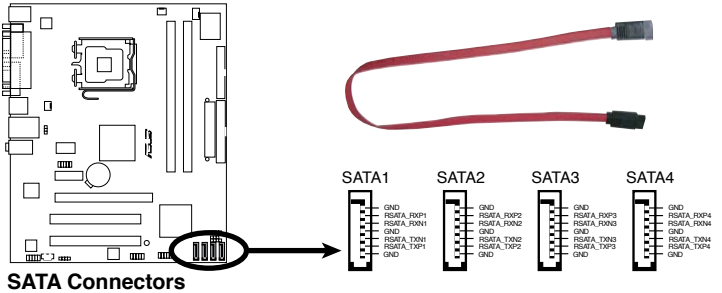


IDE Connector

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

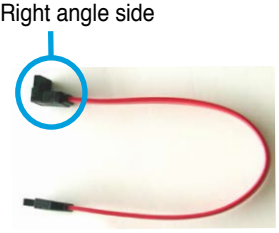
4. Serial ATA connectors
(7-pin SATA1 [red], SATA2 [black], SATA3 [red], SATA4 [black])

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



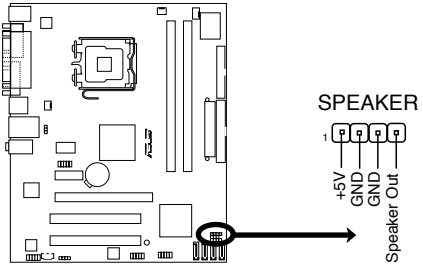
SATA Connectors

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.



5. Speaker connector (4-pin SPEAKER)

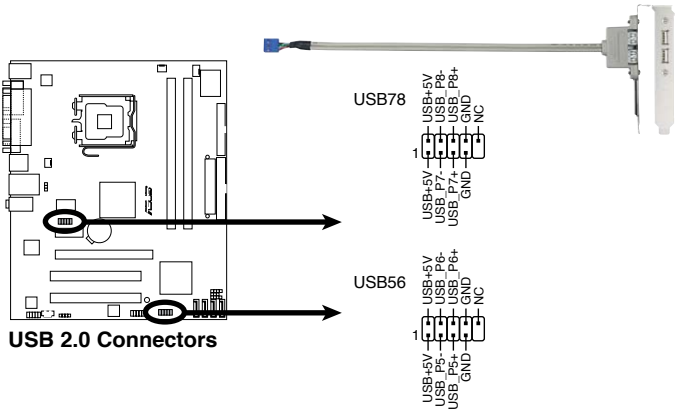
This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.



Speaker Out Connector

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

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



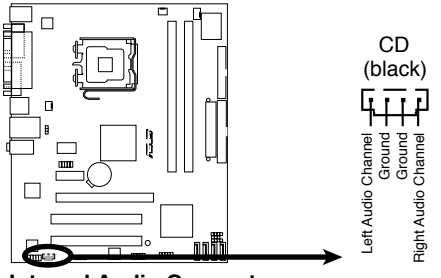
USB 2.0 Connectors

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

The USB module is purchased separately.

7. 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.

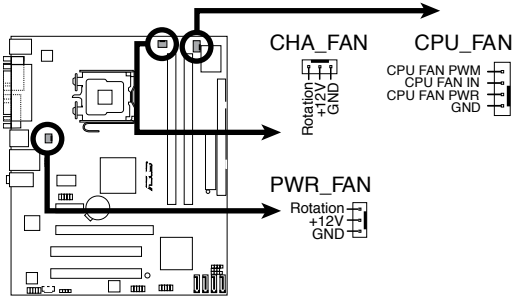


Internal Audio Connector

8. CPU, chassis and power fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN, 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!



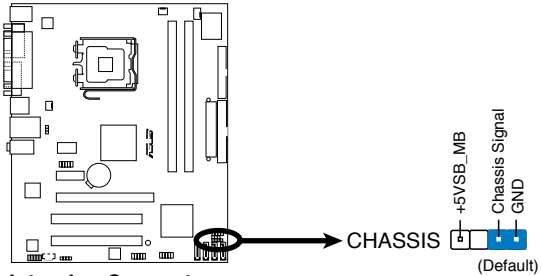
Fan Connectors

Only the CPU-FAN connector support the ASUS Advanced Q-Fan feature.

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.

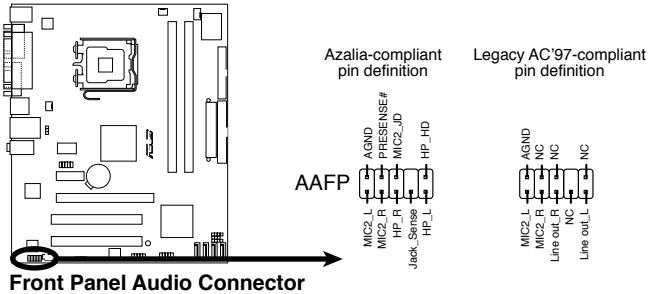
By default , the pin labeled “Chassis Signal” and “ Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



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.

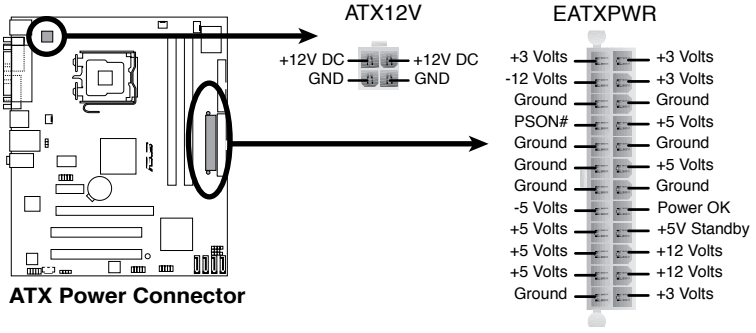


Front Panel Audio Connector

- 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.
- By default, this connector is set to HD Audio. If you want to connect a High Definition front panel audio module to this connector, set the **Front Panel Support Type** item in the BIOS to [HD Audio]. See section “5.4.4 Chipset” 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.

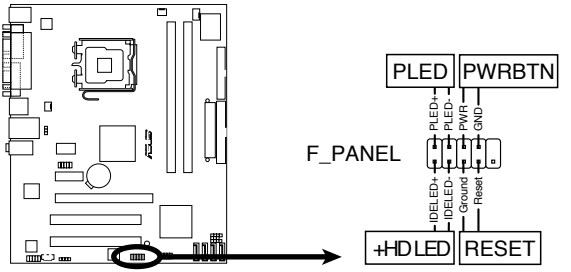


ATX Power Connector

- 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 ATX12V 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.
- The ATX 12 V Specification 2.0-compliant (400W) PSU has been tested to support the motherboard power requirements.

12. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.



System Panel Connector

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

  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 +HDLED)**

  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.

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

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

- **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 the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

ASUS P3-P5G31

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

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 a 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 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® 2003 environment
   To create a set of boot disks for Windows® 2003:
   a. Insert a formatted, high density 1.44 MB floppy disk into the drive.
   b. Insert the Windows® 2003 CD to the optical drive.
   c. Click **Start**, then select **Run**.
   d. From the Open field, type
      `D:\bootdisk\makeboot a:`
      assuming that D: is your optical drive.
   e. Press <Enter>, then follow screen instructions to continue.

Windows® Vista environment

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

b. Click  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.

5.1.2 ASUS EZ Flash 2 utility

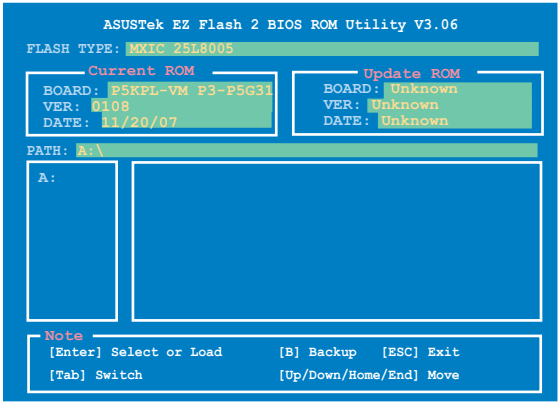
The ASUS EZ Flash 2 feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash 2 utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self Tests (POST).

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.



(2) Enter BIOS setup program. Go to the **Tools** menu then select **EZ Flash2** and press <Enter>.

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!

5.1.3 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 CD 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.

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 CD 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 /iP5KPLVM.ROM
```

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

```
A:\>afudos /iP5KPLVM.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 /iP5KPLVM.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:\>
```

5.1.4 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 CD , the floppy disk or the USB flash disk that contains the updated BIOS file.

- Prepare the motherboard support CD, the floppy disk or the USB flash disk containing the updated motherboard BIOS before using this utility.
- Make sure that you rename the original or updated BIOS file in the floppy disk or the USB flash disk to **P5KPLVM.ROM.**

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1. Turn on the system.
2. Insert the floppy disk with the original or updated BIOS file to the floppy disk drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated 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 floppy...
Floppy found!
Reading file "P5KPLVM.ROM". Completed.
Start flashing...
```

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

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

Recovering the BIOS from the support CD

To recover the BIOS from the support CD:

1. Remove any floppy disk from the floppy disk drive, then turn on the system.
2. Insert the support CD to the optical drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

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

When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
CD-ROM found!
Reading file "P5KPLVM.ROM". Completed.
Start flashing...
```

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

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

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!

5.1.5 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 CD 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:

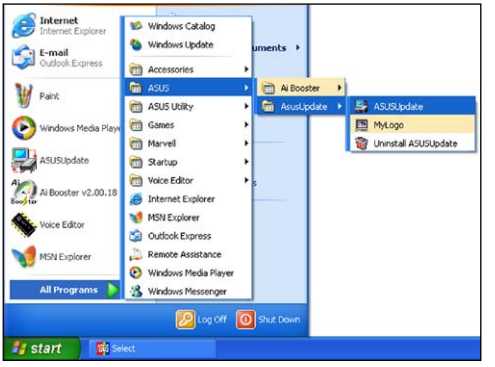
1. Place the support CD in the optical drive. The **Drivers** menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update**. See page 3-4 for the **Utilities** screen menu.
3. The ASUS Update utility is copied to your system.

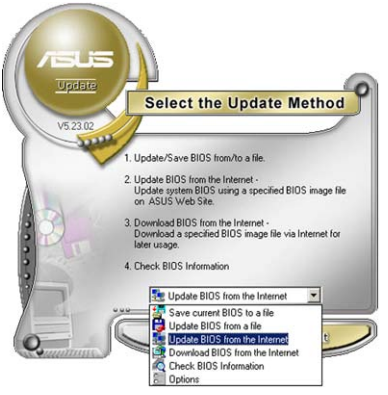
Quit all Windows® applications before you update the BIOS using this utility.

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.

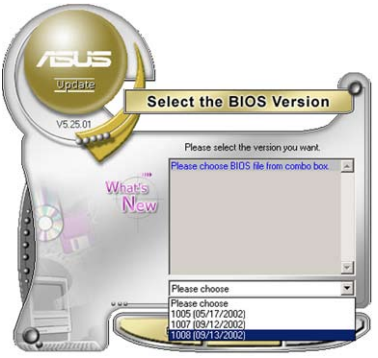




2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.

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.

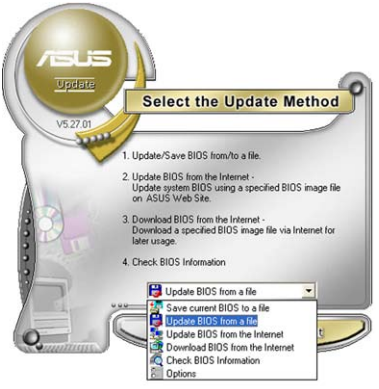


The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

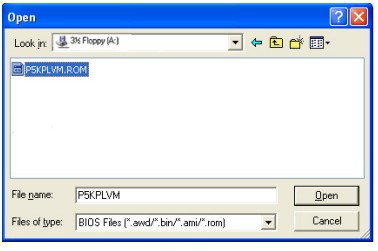
Updating the BIOS through a BIOS file

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.



5.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section “5.1 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 firmware 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, reboot the system by doing any of the following procedures:

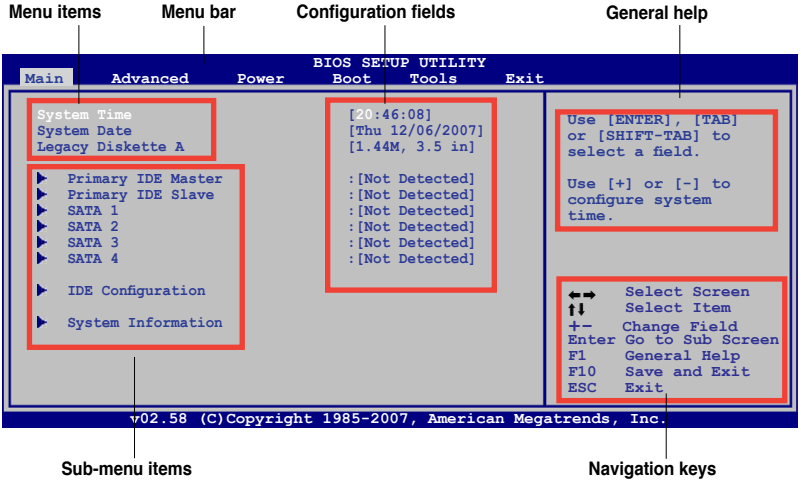
- Restart using the OS standard shut-down procedure.
- Press <Ctrl>+<Alt>+<Del> simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on.

Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

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 Setup Defaults** 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



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

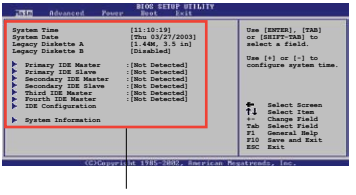
At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

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, Tool, 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.

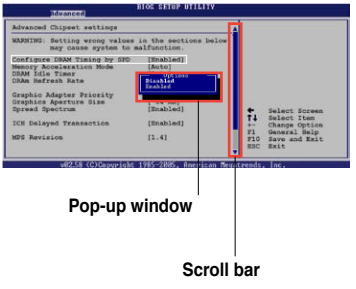
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "2.2.7 Pop-up window."

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

Scroll bar

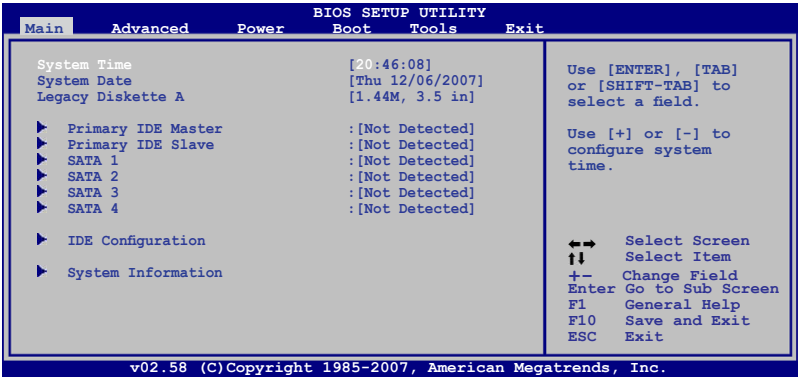
5.2.9 General help

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

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



5.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

5.3.2 System Date [Day xx/xx/xxxx]

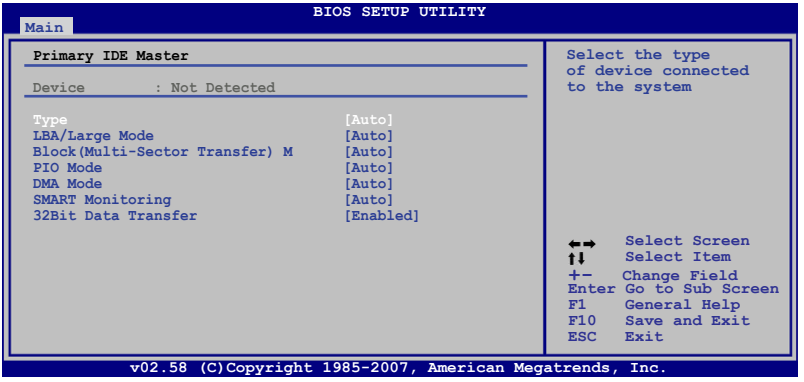
Allows you to set the system date.

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 Primary, Third and Fourth IDE Master/Slave

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.



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) M [Auto]

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

PIO Mode [Auto]

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

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto]

SMART Monitoring [Auto]

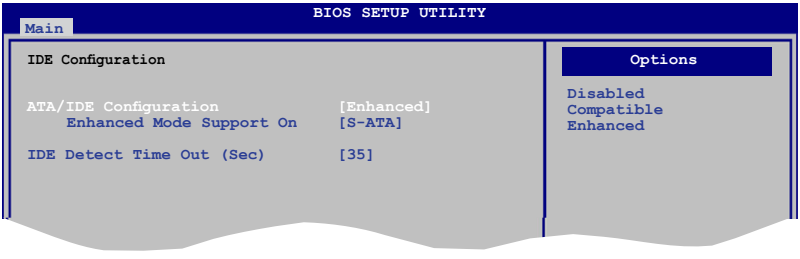
Enables or disables the S.M.A.R.T. (Self Monitooring and Reporting Technology) capability of your hard drive. This feature allows your system to report read/write errors of the hard drive and to issue warnings when a third party hardware monitor utility is installed. Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

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

5.3.5 IDE Configuration

The items in this menu allow you to set or change the configurations for the IDE devices installed in the system. Select an item then press <Enter> if you wish to configure the item.



ATA/IDE Configuration [Enhanced]

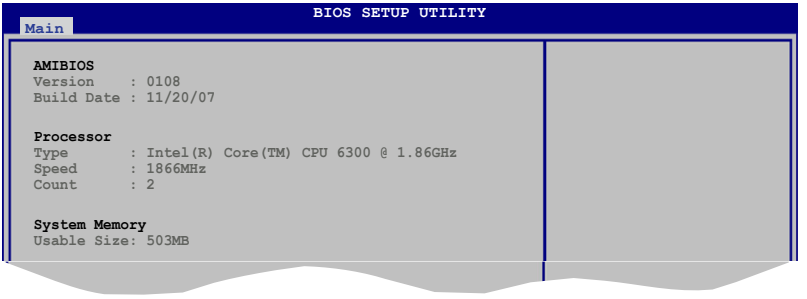
Allows you to set the ATA/IDE configuration. Configuration options: [Disabled] [Compatible] [Enhanced].
[Disabled] Disables the integrated SATA and PATA controller.
[Compatible] Sets all SATA devices to operate in PATA mode. This allows a maximum of 4 (four) ATA devices to be used simultaneously: two PATA devices plus two SATA devices.
[Enhanced] Sets all SATA devices to operate in SATA mode.

IDE Detect Time Out [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.



AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected CPU specification.

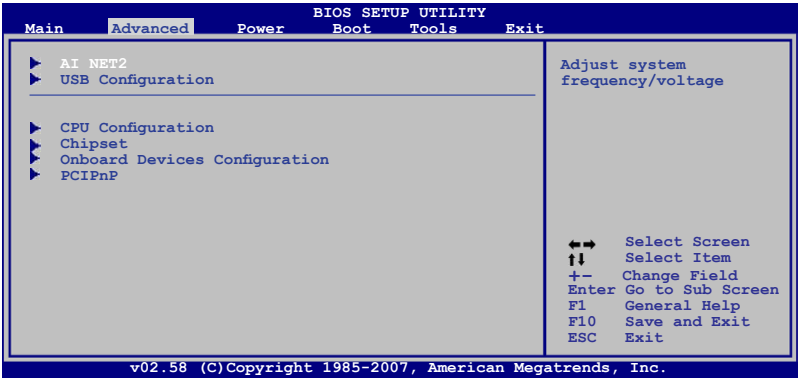
System Memory

Displays the auto-detected system memory.

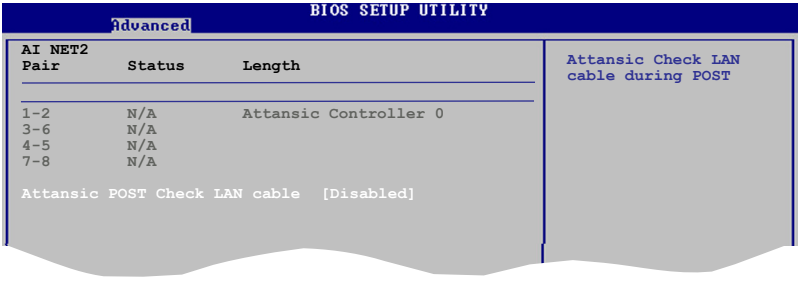
5.4 Advanced menu

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.



5.4.1 AI NET2

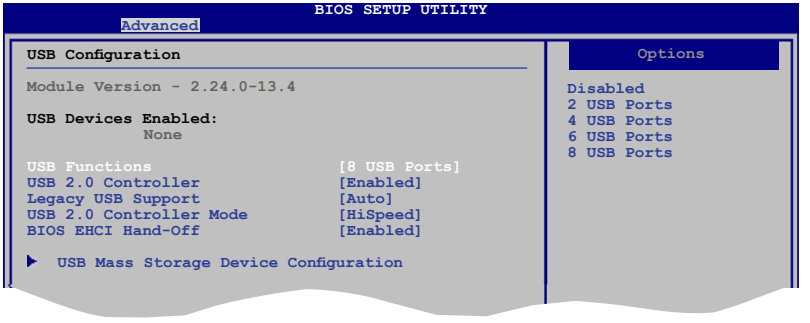


Attansic POST Check LAN cable [Disabled]

Allows you to enable or disable Attansic POST Check LAN cable function. Configuration options: [Disabled] [Enabled]

5.4.2 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.



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 [8 USB Ports]

Allows you to disable or select the different values of the USB functions. Configuration options: [Disabled] [2 USB Ports] [4 USB Ports] [6 USB Ports] [8 USB Ports]

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 devices 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]

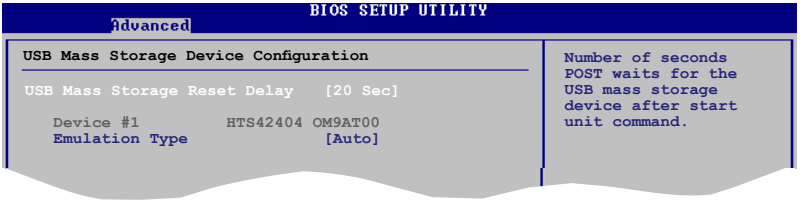
Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [FullSpeed] [HiSpeed]

BIOS EHCI Hand-Off [Enabled]

Allows you to enable support for operating systems without an EHCI hand-off feature. Configuration options: [Disabled] [Enabled]

USB Mass Storage Device Configuration

Allows you to configure the USB Mass Storage Class Devices.



USB Mass Storage Reset Delay [20 Sec]

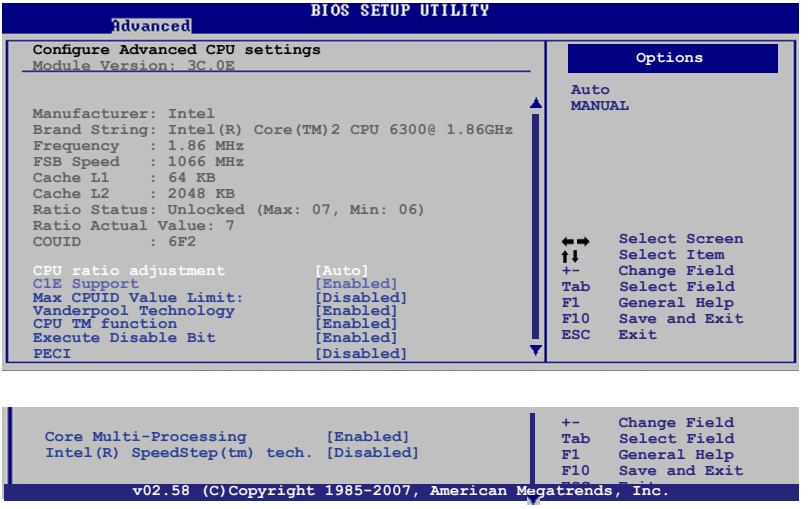
Sets the number of seconds POST waits for the USB mass storage device after start unit command. Configuration options: [10 Sec] [20 Sec] [30 Sec] [40 Sec]

Emulation Type [Auto]

Selects the Emulation type. When set to Auto, USB devices less than 530MB will be emulated as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boost as FDD drive to boot as FDD. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CDROM]

5.4.3 CPU Configuration

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



CPU ratio adjustment [Auto]

Allows you to enable or disable the CPU ratio adjustment function. Configuration options: [Auto] [Manual].

The following items appear only when this item is set to [Manual].

Ratio CMOS Setting: [7]

Sets the ratio between CPU Core Clock and the FSB Frequency.

C1E Support [Enabled]

Enables or disables Intel® CPU Enhanced Halt (C1E) function, a CPU power-saving function in system halt state. When enabled, the CPU core frequency and voltage is reduced during 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..
Configuration options: [Disabled] [Enabled].

Vanderpool Technology [Enabled]

Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology allows a platform to fun multiple operation systems and applications in independent partitions. 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. When enabled, the CPU core frequency and voltage is reduced when the CPU overheats. Configuration options: [Enabled] [Disabled].

Execute Disable Bit [Enabled]

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

PECI [Disabled]

Allows you to enable or disable PECI interface.
Configuration options: [Enabled] [Disabled].

Core Multi-Processing [Enabled]

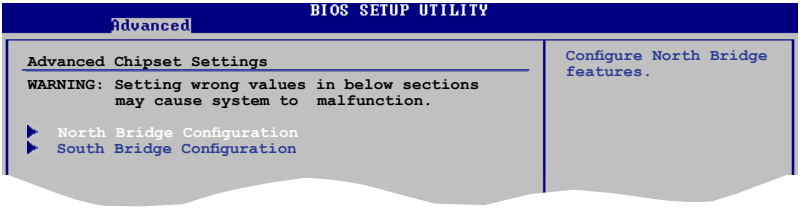
Allows you to enable or disable the Intel® Core Multi-Processing Technology. Configuration options: [Enable] [Disabled].

Intel(R) SpeedStep(tm) tech. [Disabled]

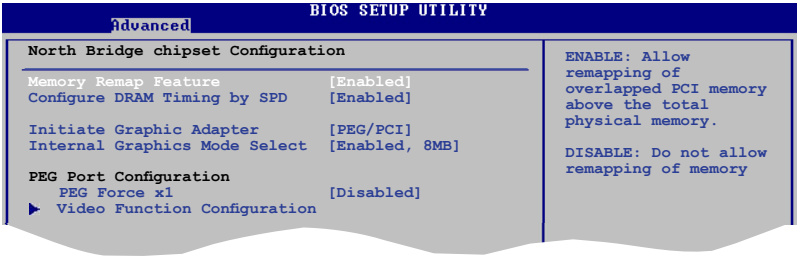
Allows you to enable or disable the Intel® SpeedStep™ Technology. Configuration options: [Enable] [Disabled]

5.4.4 Chipset

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



North Bridge Configuration



Memory Remap Feature [Enabled]

Allows you to enable or disable the remapping of overlapped PCI memory above the total physical 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: [IGD] [PCI/IGD] [PCI/PEG] [PEG/IGD] [PEG/PCI]

Internal Graphics Mode Select [Enabled, 8MB]

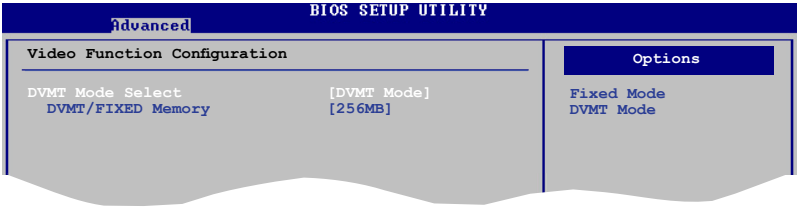
Allows you to select the amount of system memory used by the Interanal graphics device. Configuration options: [Disabled] [Enabled, 1MB] [Enabled, 8MB]

PEG Port Configuration

PEG Force x1 [Disabled]

Allows you to enable or disable the PEG Forec x 1. *Configuration options: [Enabled] [Disabled]*

Video Function Configuration



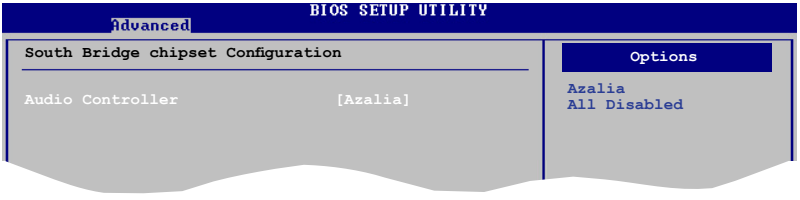
DVMT Mode Select [DVMT Mode]

Allows you to select the DVMT Mode. Configuration options: [Fixed Mode] [DVMT Mode]

DVMT/FIXED Memory [256MB]

Allows you to select the amount of the DVMT/FIXED Memory. Configuration options: [128MB] [256MB]

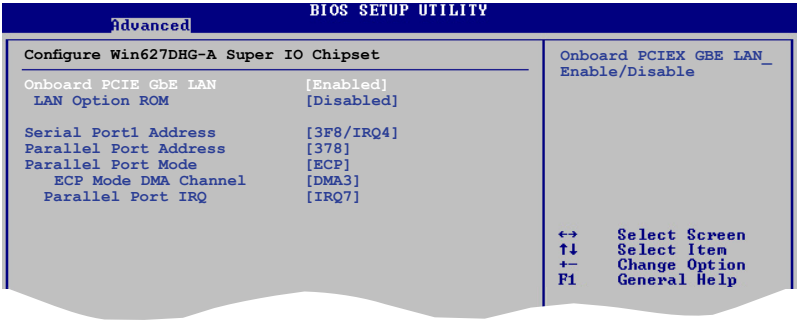
South Bridge Configuration



Audio Controller [Azalia]

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

5.4.5 Onboard Devices Configuration



Onboard PCIE GbE LAN [Enabled]

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

LAN Option ROM [Disabled]

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

Serial Port1 Address [3F8/IRQ4]

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

Parallel Port Address [378]

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

Parallel Port Mode [ECP]

Allows you to select the Parallel Port mode.
Configuration options: [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]

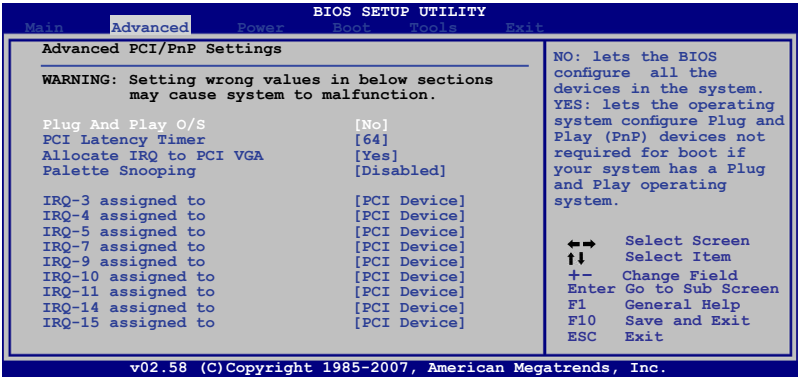
Parallel Port IRQ [IRQ7]

Allows you to select parallel port IRQ. Configuration options: [IRQ5] [IRQ7]

5.4.6 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.



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]

PCI Latency Timer [64]

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

Allocate IRQ to PCI VGA [Yes]

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

Palette Snooping [Disabled]

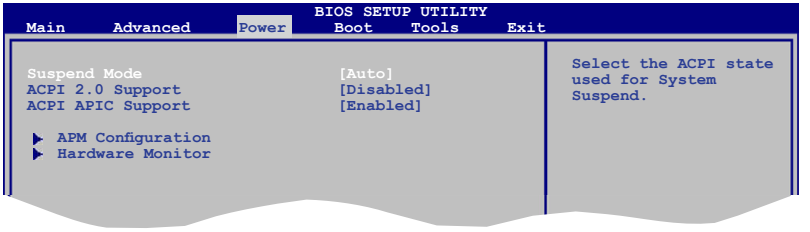
When set to [Enabled], the pallete snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

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

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.



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. 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.

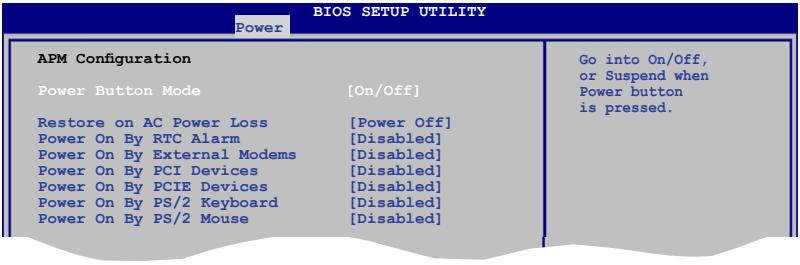
5.5.2 ACPI 2.0 Support [Disabled]

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



Power Button Mode [On/Off]

Allows you to set the power button mode.Configuration options: [On/Off] [Suspend]

Restore on AC Power Loss [Power Off]

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

Power On By RTC Alarm [Disabled]

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

Power On By External Modems [Disabled]

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

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

Power On By PCI Devices [Disabled]

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

Power On By PCIE Devices [Disabled]

When set to [Enabled], this parameter allows you to turn on 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]

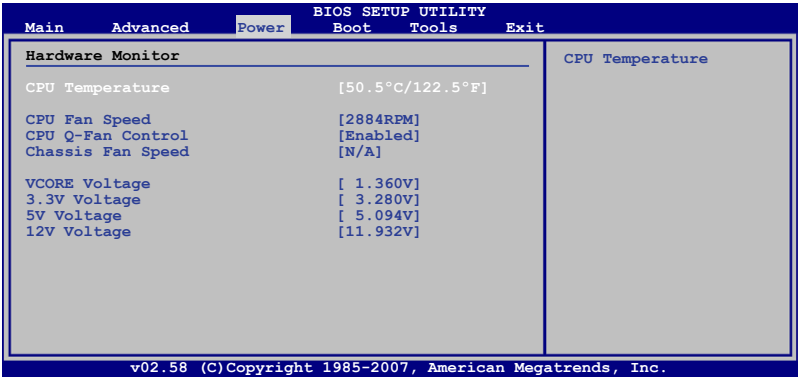
Power On By PS/2 Keyboard [Disabled]

Allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-Esc] [Power Key]

Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 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]

5.5.5 Hardware Monitor



CPU Temperature [xxxºC/xxxºF]

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

CPU Fan Speed (RPM) [xxxxRPM] or [N/A] 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 [Enabled]

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

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

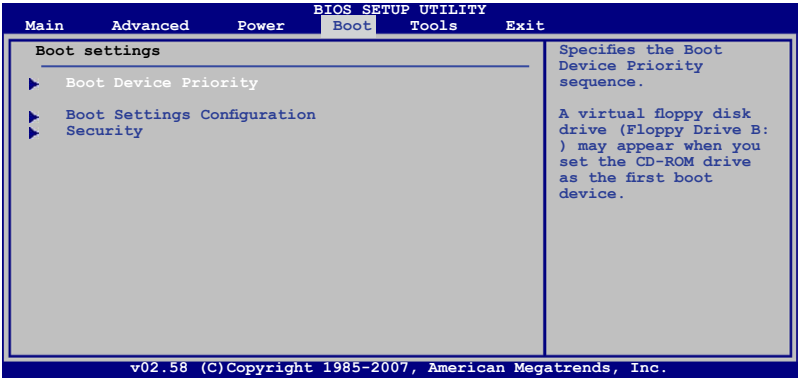
The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A. Select Ignored if you do not wish to display the detected speed.

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

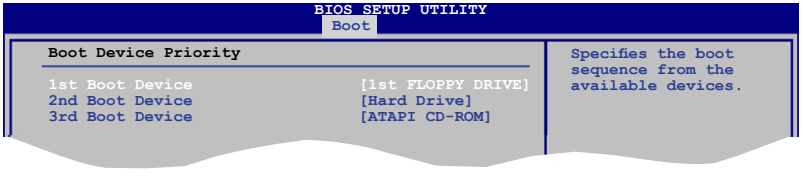
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

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.



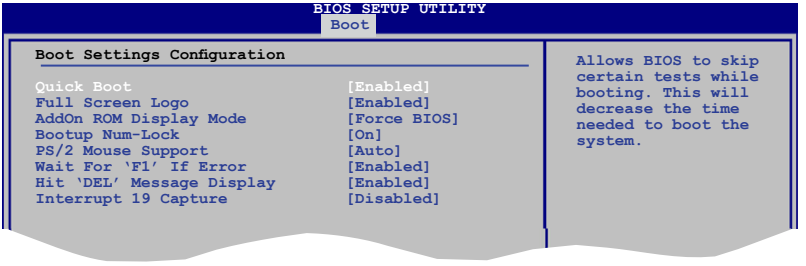
5.6.1 Boot Device Priority



1st ~ xxth Boot Device [1st Floppy Drive]

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

5.6.2 Boot Settings Configuration



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.

Add On ROM Display Mode [Force BIOS]

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

Bootup Num-Lock [On]

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

PS/2 Mouse Support [Auto]

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

Wait for 'F1' If Error [Enabled]

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

Hit ‘DEL’ Message Display [Enabled]

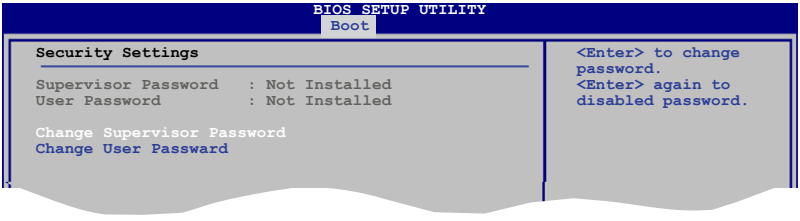
When set to Enabled, the system displays the message “Press DEL to run Setup” during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

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



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.

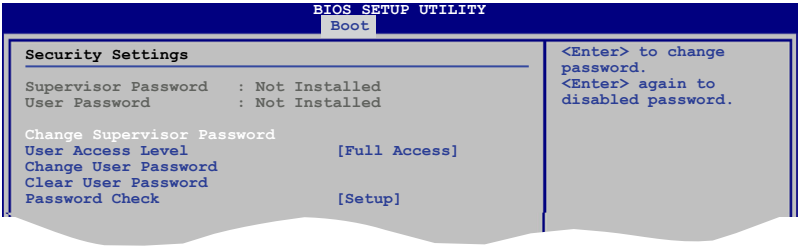
The message “Password Installed” appears after you successfully set your password.

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

To clear the supervisor password, select the Change Supervisor Password then press <Enter>. The message “Password Uninstalled” appears.

If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section “4.2 Jumpers” for information on how to erase the RTC RAM.

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



User Access Level [Full Access]

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

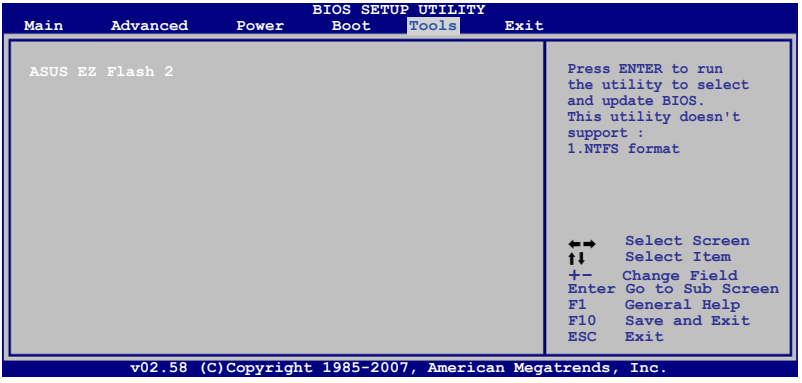
Select this item to clear the user password.

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]

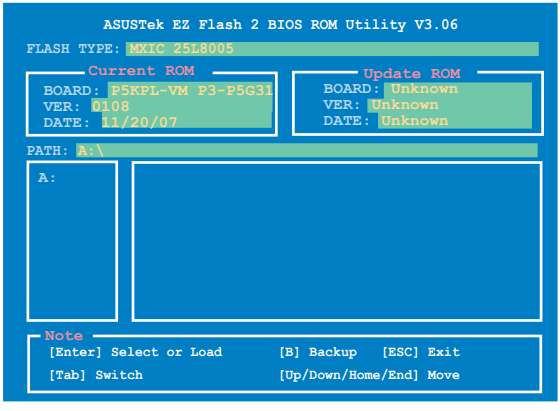
5.7 Tools menu

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



ASUS EZ Flash 2

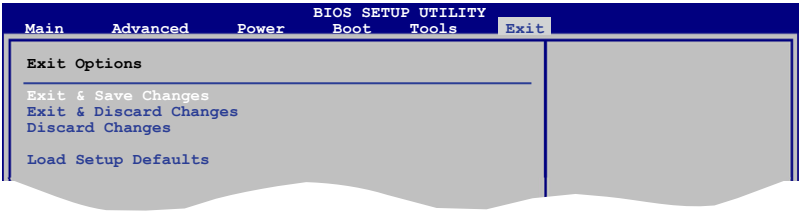
Allows you to run ASUS EZ Flash 2. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice. See section 5.1.2 for details.



- This function can not support IDE CD-ROM, IDE DVD-ROM, or External SATA devices.
- This function only supports FAT 32/16 format.

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.



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