

**P5SD2-A**

**ASUS**<sup>®</sup>

**Motherboard**

E4449

Second Edition V2

January 2009

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# Notices

## Federal Communications Commission Statement

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

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

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

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



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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.



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**DO NOT** throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

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**DO NOT** throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

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# Safety information

## Electrical safety

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

## Operation safety

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

## About this guide

This user guide contains the information you need when installing and configuring the motherboard.

### How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**  
This chapter describes the features of the motherboard and the new technology it supports.
- **Chapter 2: BIOS setup**  
This chapter tells how to change system settings through the BIOS setup menus. Detailed descriptions of the BIOS parameters are also provided.

## Conventions used in this guide

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



**DANGER/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 help you complete 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 website provides updated information on ASUS hardware and software products.

### 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.

## Typography

### **Bold text**

Indicates a menu or an item to select.

### *Italics*

Used to emphasize a word or a phrase.

### <Key>

Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.

Example: <Enter> means that you must press the Enter or Return key.

### <Key1>+<Key2>+<Key3>

If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).

Example: <Ctrl>+<Alt>+<D>

### Command

Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At the DOS prompt, type the command line:

```
afudos /i [filename]
```

```
afudos /iP5SD2A.ROM
```

## P5SD2-A specifications summary

<b>CPU</b>	LGA775 socket for Intel® Core™2 Duo / Pentium® D / Pentium® 4 / Celeron® Processor Support Intel® 45nm Dual Core CPU Compatible with Intel® 05B/05A/06 processors Intel® EIST Hyper-Threading EM64T Technology ready (Refer to <a href="http://www.asus.com">www.asus.com</a> for Intel CPU support list)
<b>Chipset</b>	Northbridge: SIS 671DX / SIS672 Southbridge: SIS 968
<b>Front Side Bus</b>	1066 / 800 / 533MHz
<b>Memory</b>	2 x 240-pin DIMM sockets supports unbuffered non-ECC 4GB 667/533 MHz DDR2 memory modules
<b>Expansion Slots</b>	1 x PCI Express x16 slot 2 x PCI Express x1 slots 4 x PCI slots
<b>Storage</b>	Southbridge SIS968 supports: <ul style="list-style-type: none"><li>- 1 x UltraDMA 133 / 100 / 66 / 33 hard disk drives</li><li>- 2 x SATA 3 Gb/s ports with RAID 0,1 function</li></ul>
<b>LAN</b>	PHY 10/100 LAN
<b>Audio</b>	Realtek® ALC662 6-channel high-Definition Audio CODEC Support Jack-detect & SPDIF-OUT interface
<b>USB</b>	Max. 8 x USB2.0 ports (4 ports at mid-board, 4 ports at back panel (optional))
<b>ASUS Features</b>	ASUS CrashFree BIOS 3 ASUS Q-Fan ASUS EZ Flash 2 ASUS MyLogo 2
<b>BIOS</b>	8 Mb Flash ROM, AMI BIOS, PnP, DMI2.0, Wfm2.0, ACPI 2.0a, SM BIOS 2.4
<b>Rear panel</b>	1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x Parallel port 2 x COM ports 1 x LAN (RJ-45) port 4 x USB 2.0/1.1 ports 6-channel audio I/O port

*(continued on the next page)*

## P5SD2-A specifications summary

<b>Internal connectors</b>	1 x Floppy disk drive connector 1 x IDE connector for two devices 2 x USB 2.0 connectors for 4 additional USB 2.0 ports 1 x CPU fan connector 1 x Chassis fan connector 1 x S/PDIF Out connector 1 x Chassis intrusion connector 1 x 4-pin internal speaker connector 1 x CD audio in connector 1 x Front panel audio connector 1 x 4-pin ATX 12V power connector 1 x System panel connector
<b>Manageability</b>	WOL by PME, WOR by PME, PXE
<b>Support DVD contents</b>	Drivers ASUS PC Probe II ASUS LiveUpdate utility Anti-virus software (OEM)
<b>Accessories</b>	1 x Serial ATA cable 1 x Serial ATA power cable 1 x Ultra ATA 133/100/66 cable 1 x FDD cable I/O shield User manual
<b>Form factor</b>	ATX form factor: 12 in x 7.4 in (30.5 cm x 18.8cm)

*\*Specifications are subject to change without notice.*

# Chapter 1

## Product introduction

Thank you for buying an ASUS® P5SD2-A motherboard!

Before you start installing the motherboard, and hardware devices on it, check the items in your motherboard package. Refer to page ix for the list of accessories.



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

---

### 1.1 Before you proceed

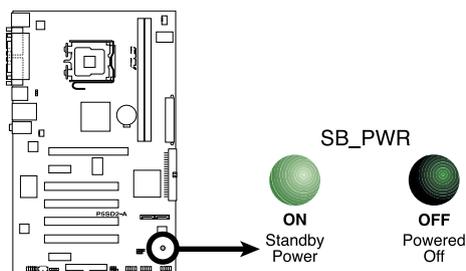
Take note of the following precautions before you install motherboard components or change any motherboard settings.



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

### Onboard LED

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



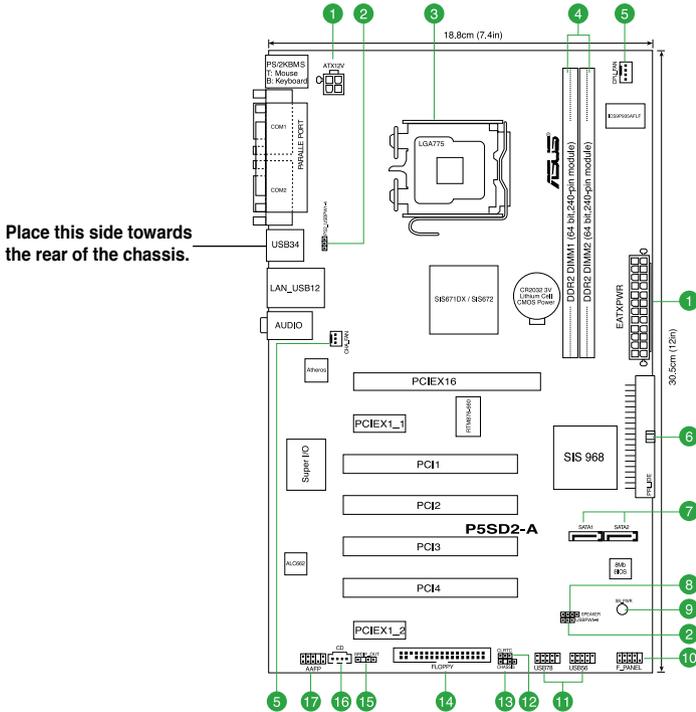
**P5SD2-A Onboard LED**

# 1.2 Motherboard overview

## 1.2.1 Motherboard layout



Ensure that you install the motherboard into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis.



Place this side towards the rear of the chassis.



Place six screws into the holes indicated by circles to secure the motherboard to the chassis. **DO NOT** overtighten the screws! Doing so can damage the motherboard.

## 1.2.2 Layout contents

Connectors/Jumpers/Slots	Page	Connectors/Jumpers/Slots	Page
1. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)	1-13	10. System panel connector (10-1 pin PANEL)	1-14
2. USB device wake-up (3-pin USBPW5-8)	1-7	11. USB connectors (10-1 pin USB56 and USB78)	1-11
3. LGA775 CPU socket	1-3	12. Clear RTC RAM (3-pin CLRTC)	1-8
4. DDR2 DIMM slots	1-3	13. Chassis intrusion connector (4-1 pin CHASSIS)	1-15
5. CPU, CHASSIS fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN)	1-12	14. Floppy disk drive connector (34-1 pin FLOPPY)	1-10
6. IDE connector (40-pin PRI-EIDE)	1-11	15. Digital audio connector (4-1 pin SPDIF_OUT)	1-15
7. Serial ATA connectors (7-pin SATA1 and SATA2)	1-10	16. Optical drive audio connector (4-pin CD)	1-14
8. Speaker connector (4-pin SPEAKER)	1-13	17. Front panel audio connector (10-1 pin AAFP)	1-13
9. Onboard LED	1-1		

## 1.3 Central Processing Unit (CPU)

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



- Ensure that all power cables are unplugged before installing the CPU.



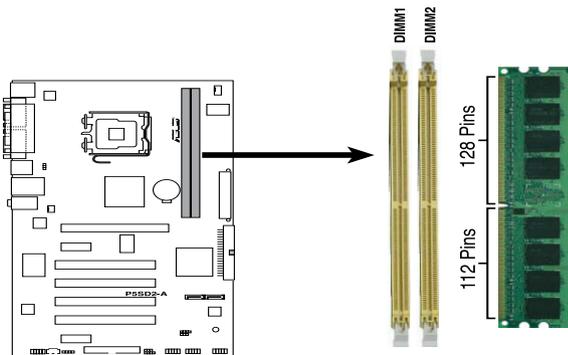
- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only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

## 1.4 System memory

### 1.4.1 Overview

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

The figure illustrates the location of the DDR2 DIMM sockets:



**P5SD2-A 240-pin DDR2 DIMM Sockets**

### 1.4.2 Memory configurations

You may install 512MB, 1GB, and 2GB 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, we recommend that you obtain memory modules from the same vendor.
- Due to the memory address limitation on 32-bit Windows OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you install a 64-bit Windows OS when having 4GB or more memory installed on the motherboard.



- Some old-version DDR2-667 DIMMs may not match Intel®'s On-Die-Termination (ODT) requirement and will automatically downgrade to run at DDR2-533. If this happens, contact your memory vendor to check the ODT value.
- Due to chipset limitation, DDR2-667 with CL=3 will be downgraded to run at DDR2-533 by default setting. If you want to operate with lower latency, adjust the memory timing manually. There will be 4MB reduction in total memory when enabling ASUS Thermostat function under Single Channel mode.

## Qualified Vendors Lists (QVL)

### DDR2 667 Qualified Vendors List

Size	Vendor	Model	Brand	SS/DS	Part NO.	DIMM support	
						A*	B*
256MB	Kingston	KVR667D2N5/256	Elpida	SS	E2508AB-6E-E	•	•
256MB	Kingston	KVR667D2N5/256	Kingston	SS	D3216TLSAKL3U	•	•
256MB	Kingston	KVR667D2N5/256	Infineon	SS	HYB18T256800AF3SW65 33154	•	•
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	D6408TEBGL3U	•	•
1G	Kingston	KVR667D2N5/1G	Elpida	DS	E5108AGBG-6E-E	•	•
512MB	Samsung	KR M378T6553CZ0-CE6	Samsung	SS	K4T51083QC	•	•
512MB	Samsung	KR M378T6453FZ0-CE6	Samsung	DS	K4T56083QF-ZCE6	•	•
512MB	Samsung	M378T6553CZ3-CE6	Samsung	SS	K4T51083QC-ZCE6	•	•
1G	Samsung	M378T2953CZ3-CE6	Samsung	DS	K4T51083QC-ZCE6	•	•
1G	Samsung	KR M378T2953CZ0-CE6	Samsung	DS	K4T51083QC-ZCE6	•	•
256MB	Qimonda	HYS64T32000HU-3S-A	Qimonda	SS	HYB18T512160AF-3SSSS17310	•	•
512MB	Qimonda	HYS64T32000HU-3S-A	Qimonda	SS	HYB18T512800AF-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-Sink Package	•	•
256MB	HY	HYMP532U64CP6-Y5 AB	Hynix	SS	HY5PS121621CFP-Y5	•	•
512MB	HY	HYMP564U64AP8-Y4 AA	Hynix	SS	HY5PS12821AFP-Y4	•	•
512MB	HY	HYMP564U64AP8-Y5 AA	Hynix	SS	HY5PS12821AFP-Y5	•	•
1G	HY	HYMP512U64AP8-Y5 AB	Hynix	DS	HY5PS12821AFP-Y5	•	•
1G	HY	HYMP512U64CP8-Y5 AB	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	•	•

(continued on the next page)

Size	Vendor	Model	Brand	SS/DS	Part NO.	DIMM support	
						A*	B*
512MB	Apacer	78.91092.420	Elpida	SS	E5108AE-6E-E	*	*
512MB	Apacer	AU512E667C5KBGC	Apacer	SS	AM4B5708MJS7E0627B	*	*
512MB	Apacer	AU512E667C5KBGC	Apacer	SS	AM4B5708GQS7E06332F	*	*
1G	Apacer	AU01GE667C5KBGC	Apacer	DS	AM4B5708GQS7E0636B	*	*
1G	Apacer	78.01092.420	Elpida	DS	E5108AE-6E-E	*	*
1G	Apacer	AU01GE667C5KBGC	Apacer	DS	AM4B5708MJS7E0627B	*	*
512MB	ADATA	M20EL5G3H3160B1C0Z	Elpida	SS	E5108AE-6E-E	*	*
512MB	ADATA	M20AD5G3H316611C52	ADATA	SS	AD29608A8A-3EG20648	*	*
512MB	ADATA	M20AD5G3H316611C52	ADATA	SS	AD29608A8A-3EG20718	*	*
1G	ADATA	M20AD5G3I417611C52	ADATA	DS	AD29608A8A-3EG20645	*	*
2G	ADATA	M20AD5H3J417011C53	ADATA	DS	AD20908A8A-3EG 30724	*	*
512MB	ADATA	M2GVDSG3H31A411C52	ADATA	SS	VD29608A8A-3EC20615	*	*
512MB	ADATA	M2YVDSG3H31P411C52	ADATA	SS	VD29608A8A-3EG20627	*	*
512MB	ADATA	M2GVDSG3H16611C52	ADATA	SS	VD29608A8A-3EG20637	*	*
1G	ADATA	M2GVDSG3I41P611C52	ADATA	DS	VD29608A8A-3EG20627	*	*
1G	ADATA	M2GVDSG3I41C411C52	ADATA	DS	VD29608A8A-3EC20620	*	*
1G	ADATA	M2GVDSG3I417611C52	ADATA	DS	VD29608A8A-3EG20641	*	*
512MB	PSC	AL6E8E63B-6E1K	PSC	SS	A3R12E3GFE637BLC5N	*	*
512MB	PSC	AL6E8E63J-6E1	PSC	SS	A3R12E3JFF717B9A00	*	*
1G	PSC	AL7E8E63B-6E1K	PSC	DS	A3R12E3GFE637BLC5N	*	*
1G	PSC	AL7E8E63J-6E1	PSC	DS	A3R12E3JFF717B9A01	*	*
256MB	Nanya	NT256T64UH4A1FY-3C	Nanya	SS	NT5TU32M16AG-3C	*	*
512MB	Nanya	NT512T64U88A1BY-3C	Nanya	SS	NT5TU64M8AE-3C	*	*
1G	PQI	DDR2-667U 1G	Hynix	DS	HY5PS12821BFP-E3 A	*	*
512MB	TEAM	TVDD512M667C5	TEAM	SS	T2D648MT-6	*	*

## DDR2 533 Qualified Vendors List

Size	Vendor	Model	Brand	SS/DS	Part NO.	DIMM support	
						A*	B*
256MB	Kingston	KVR533D2N4/256	Elpida	SS	E5116AB-5C-E	*	*
256MB	Kingston	KVR533D2N4/256	Elpida	SS	E5116AF-5C-E	*	*
512MB	Kingston	KVR533D2N4/512	Hynix	DS	HY5PS56821F-C4	*	*
512MB	Kingston	KVR533D2N4/512	Infineon	SS	HYB18T512800AF3733336550	*	*
1G	Kingston	KVR533D2N4/1G	Kingston	DS	D6408TE7B-37	*	*
1G	Kingston	KVR533D2N4/1G	Kingston	DS	D6408TLRAGL37U	*	*
256MB	Samsung	M378T3253FG0-CD5	Samsung	SS	K4T56083QF-GCD5	*	*
512MB	Samsung	M378T6553BG0-CD5	Samsung	SS	K4T51083QB-GCD5	*	*
256MB	Qimonda	HYS64T32000HU-3.7-A	Qimonda	SS	HYB18T512160AF-3.7AFSS31270	*	*
512MB	Qimonda	HYS64T64000GU-3.7-A	Qimonda	SS	HYB18T512800AC37SSS11511	*	*
512MB	Qimonda	HYS64T64000HU-3.7-A	Qimonda	SS	HYB18T512800AF37SSS12079	*	*
512MB	Qimonda	HYS64T64000HU-3.7-A	Qimonda	SS	HYB18T512800AF37FSS29334	*	*
256MB	HY	HYMP532U64CP6-C4 AB	Hynix	SS	HY5PS121621CFP-C4	*	*
1G	HY	HYMP512U64CP8-C4 AB	Hynix	DS	HY5PS12821CFP-C4	*	*
512MB	Micron	MT 16HTF6464AG-53EB2	Micron	DS	D9BOM	*	*
512MB	Micron	MT 16HTF6464AG-53EB2	Micron	DS	Z9BOT	*	*
1G	Micron	MT 16HTF12864AY-53EA1	Micron	DS	D9CRZ	*	*
512MB	Corsair	V5S12MB533D2	Corsair	DS	MIII0052532M8CEC	*	*
512MB	Corsair	V5S12MB533D2	Corsair	DS	MII10052532M8CEC	*	*
1G	Corsair	V51GB533D2	Corsair	DS	64M8CFEGQI0900718	*	*
512MB	Elpida	EBE51UD8ABFA-5C-E	Elpida	SS	E5108AB-5C-E	*	*
512MB	Kingmax	KLBC28F-A8KB4	Kingmax	SS	KKEA88B4IAK-37	*	*
256MB	Kingmax	KLBB68F-36EP4	Elpida	SS	E5116AB-5C-E	*	*
512MB	Kingmax	KLBC28F-A8EB4	Elpida	SS	E5108AE-5C-E	*	*
512MB	ADATA	M20AD2G3H316611B52	ADATA	SS	AD29608A8A-37DG20719	*	*
2G	ADATA	M20AD2H3J417011B53	ADATA	DS	AD20908A8A-37DG30721	*	*
512MB	AENEON	AET660UD00-370A8S5	AENEON	DS	AET627370A 0550	*	*



---

Visit the ASUS website at ([www.asus.com](http://www.asus.com)) for the latest QVL.

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### **SS - Single-sided / DS - Double - sided**

#### **DIMM support:**

- **A\*:** Supports one module inserted into any slot as Single-channel memory configuration.
  - **B\*:** Supports one pair of modules inserted into the yellow slots as one pair of Dual-channel memory configuration.
- 

## **1.5 Expansion slots**

In the future, you may need to install expansion cards. Refer to the technical documentation that come with your expansion card for installation details.



---

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

---

### **1.5.1 PCI slot**

The PCI slot supports cards such as LAN cards, SCSI cards, USB cards, and other cards that comply with the PCI specifications.

### **1.5.2 PCI Express x1 slot**

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

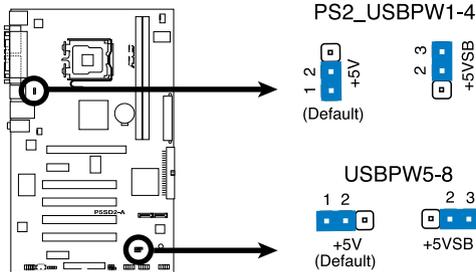
### **1.5.3 PCI Express x16 slot**

This motherboard supports PCI Express x16 graphics cards that comply with the PCI Express specifications.

## 1.6 Jumpers

### 1. Keyboard/mouse/USB device wake-up (3-pin USBPW1-4, USBPW5-8, PS2\_USBPW)

This jumper allows you to enable or disable the keyboard/mouse/USB device wake-up feature. Set this jumper to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected keyboard, mouse or USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).



#### P5SD2-A USB Device Wake Up



- The USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for the 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.

## 2. Clear RTC RAM (CLRRTC)

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



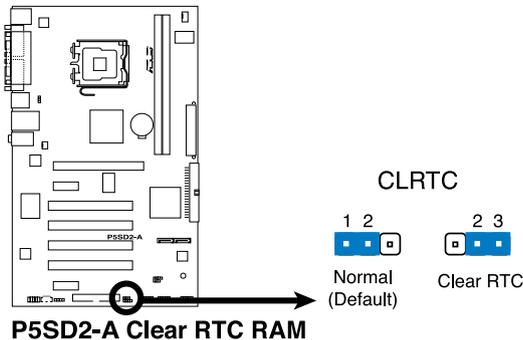
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Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!

---

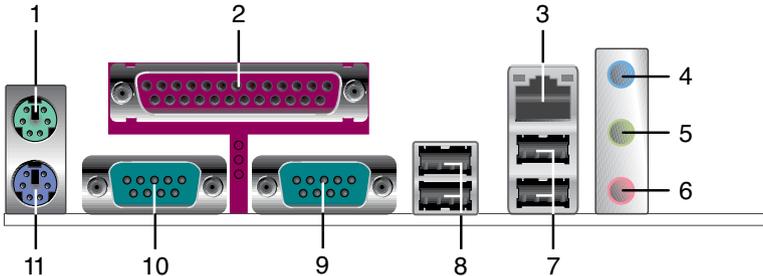


- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.
  - You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R.) feature. Shut down and reboot the system, then the BIOS automatically resets the parameter settings to default values.
  - Due to the chipset limitation, AC power off is required before you use the C.P.R. function. You must turn off and on the power supply or unplug and plug the power cord before rebooting the system.
- 



## 1.7 Connectors

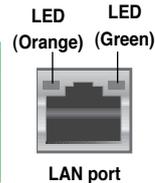
### 1.7.1 Rear panel ports



1. **PS/2 Mouse port (green).** This port is for a PS/2 mouse.
2. **Parallel port.** This 25-pin port connects a parallel printer, a scanner, or other devices.
3. **LAN (RJ-45) port.** This port allows 10/100 PHY connection to a Local Area Network (LAN) through a network hub.

#### LAN port LED indications

ORANGE LED		GREEN LED	
Status	Description	Status	Description
OFF	No link	OFF	No link
Orange	100 Mbps connection	Green	10Mbps connection



4. **Line In port (light blue).** This port connects to the tape, CD, DVD player, or other audio sources.
5. **Line Out port (lime).** This port connects to a headphone or a speaker. In 4-channel and 6-channel configuration, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects to 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, 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

7. **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports connect to USB 2.0 devices.
8. **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports connect to USB 2.0 devices.
9. **COM port.** This 9-pin COM1 port is for pointing devices or other serial devices.
10. **COM port.** This 9-pin COM1 port is for pointing devices or other serial devices.
11. **PS/2 Keyboard port.** This port is for a PS/2 keyboard.



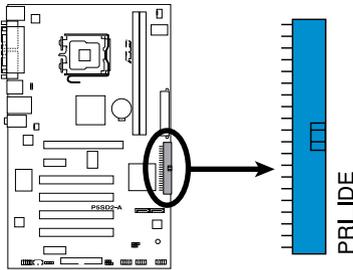
### 3. IDE connector (40-1 pin PRI\_IDE)

The onboard IDE connector is for the Ultra DMA 133/100/66 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.

Driver Jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Selected or Master	-
Two devices	Cable-Select	Master
		Slave
	Master	Master
	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.



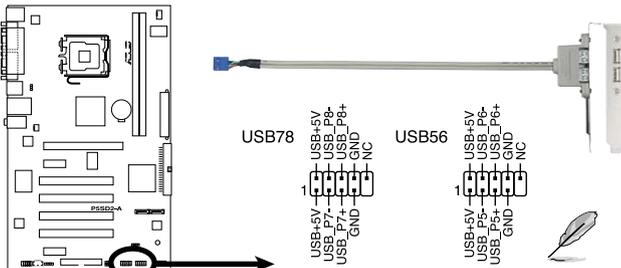
**P5SD2-A IDE Connector**



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

### 4. 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.



**P5SD2-A USB 2.0 Connectors**



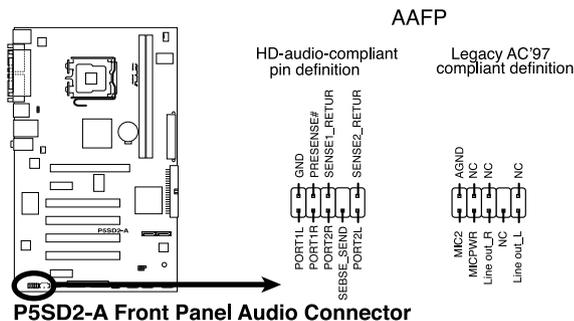
The USB module cable is purchased separately.



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

## 5. 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.



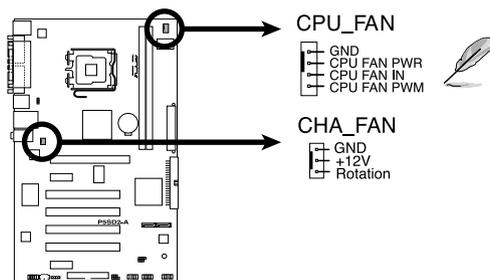
- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.
- If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Type** item in the BIOS setup to **[HD Audio]**; if you want to connect an AC'97 front panel audio module to this connector, set the item to **[AC97]**. By default, this connector is set to **[HD Audio]**.

## 6. CPU, chassis fan connectors (4-pin CPU\_FAN, 3-pin CHA\_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, ensuring 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!

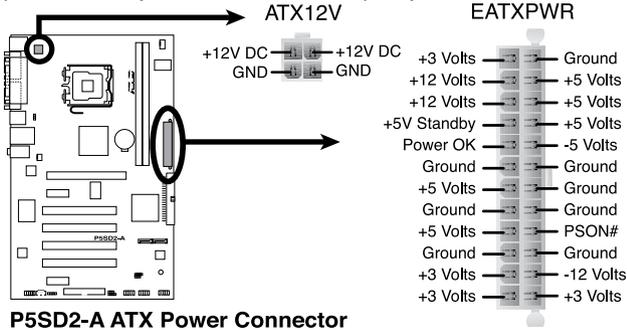


Only the CPU\_FAN connector support the ASUS Advanced Q-Fan feature.

**P5SD2-A Fan Connectors**

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

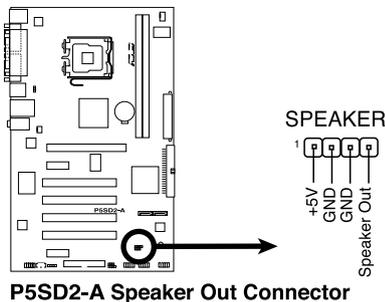
These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with EATX 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.
- We recommended that you use a PSU with a higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

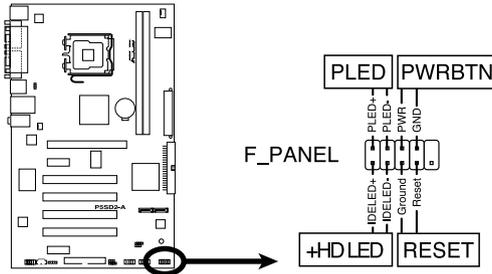
## 8. Speaker connector (4-pin SPEAKER)

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



**9. System panel connector (10-1 pin F\_PANEL)**

This connector supports several chassis-mounted functions.



**P5SD2-A 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 +HDL)**

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)**

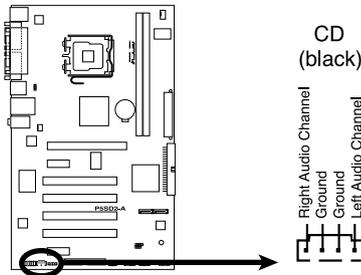
This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **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.

**10. 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.

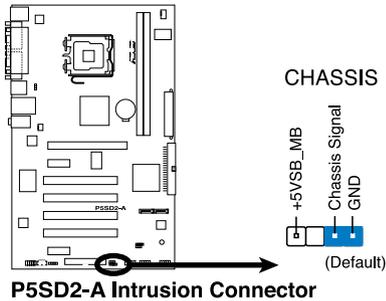


**P5SD2-A Internal Audio Connector**

## 11. Chassis intrusion connector (4-1 pin CHASSIS)

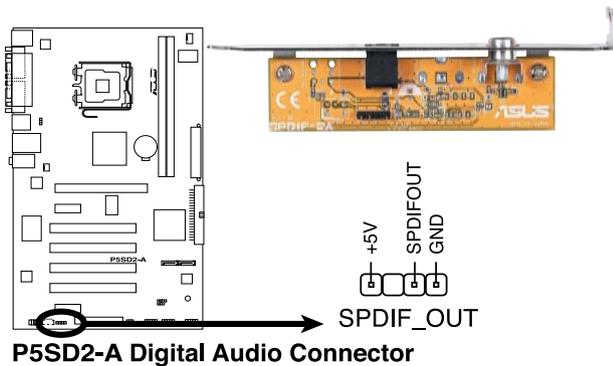
This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis intrusion sensor is removed or replaced. The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



## 12. 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.



## 1.8 Software support

### 1.8.1 Installing an operating system

This motherboard supports Windows® XP/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 section for reference only. Refer to your OS documentation for detailed information.
- Ensure that you install Windows® XP Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

### 1.8.2 Support DVD information

The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

#### To run the Support DVD

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



Click an icon to display Support DVD/ motherboard information

Click an item to install



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

# Chapter 2

## BIOS information

### 2.1 Managing and updating your BIOS

---



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

---

#### 2.1.1 ASUS Update utility

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



- ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).
  - This utility is available in the Support DVD that comes with the motherboard package.
- 

#### Installing ASUS Update:

1. Place the Support DVD into the optical drive. The **Drivers** menu appears.
2. Click the **Utilities > Install ASUS Update**. Follow the onscreen instructions.



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

---

#### Updating the BIOS:

1. Click **Start > Programs > ASUS > ASUS Update > ASUS Update**.
2. From the dropdown list, select any of the updating process:

##### Updating from the Internet

- a. Select Update BIOS from the Internet, then click **Next**.
- b. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select** then click **Next**.
- c. Download the BIOS file from the ftp site, then click **Next**.



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

---

##### Updating from a BIOS file

- a. Select Update BIOS from a file, then click **Next**.
  - b. Locate the BIOS file from the **Open** windows, then click **Open**.
3. Follow the onscreen instructions to complete the update process.

## 2.1.2 ASUS EZ Flash 2 utility

ASUS EZ Flash 2 allows you to update the BIOS without having to use a bootable floppy disk and a DOS-based utility.



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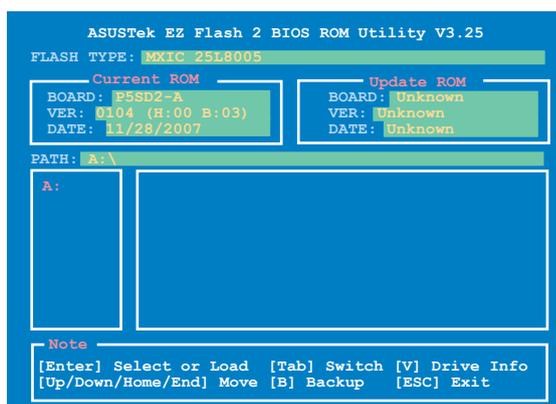
Download the latest BIOS file for this motherboard from the ASUS website at [www.asus.com](http://www.asus.com).

---

To update the BIOS using EZ Flash 2.

1. Insert the USB flash disk that contains the BIOS file to a USB port, then launch EZ Flash 2 in either of these two ways:

- (1) Press **<Alt> + <F2>** during POST to display the following:



- (2) Enter BIOS setup program. Go to the **Tools** menu to select **EZ Flash 2** and press **<Enter>** to enable it.

Press **<Tab>** to switch between drives until the correct BIOS file is found.

2. Select the correct BIOS file then press **<Enter>**, EZ Flash 2 updates the BIOS and automatically reboots the system when done.



- This function supports USB flash disks 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!
-

### 2.1.3 ASUS CrashFree BIOS 3 utility

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



- 
- Prepare the motherboard Support DVD or the USB flash disk containing the updated motherboard BIOS before using this utility.
  - Always connect the SATA cable to the SATA1 / SATA2 connector; otherwise, the utility will not function.
- 

#### Recovering the BIOS from the Support DVD or a USB flash disk:

1. Turn on the system.
2. Insert the Support DVD or a USB flash disk with the BIOS file to your computer.
3. The utility displays the following message and automatically checks the Support DVD and the USB flash disk for the BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for CD-ROM...
```

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

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for CD-ROM...
CD-ROM found!
Reading file "P5SD2A.ROM". Completed.
Start Erasing...!
Start Programming...!
```

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



- 
- Only the USB flash disk with FAT 32/16 format and single partition supports 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!
- 



- 
- The utility automatically checks the optical drive first. If no optical drive is found, the utility automatically checks the USB flash disk.
  - The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website at [www.asus.com](http://www.asus.com) to download the latest BIOS file.
-

## 2.2 BIOS setup program

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.

If you want 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.



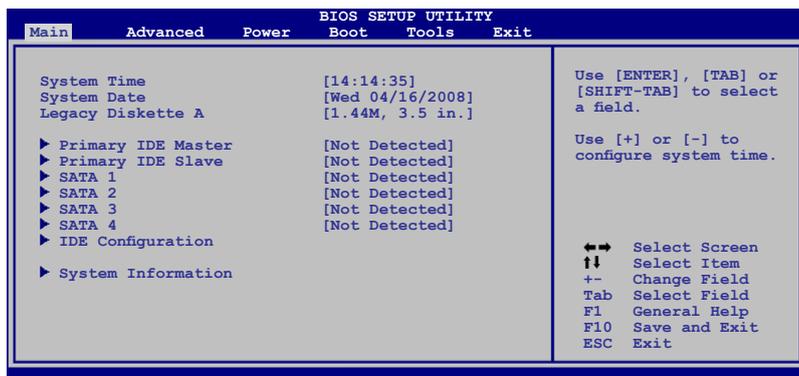
Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend that you always shut down the system properly from the operating system.



- The default BIOS settings for this motherboard apply to 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 2.8 **Exit menu**.
- The BIOS setup screens in this section are for reference only. They may not exactly match what you see on your screen.
- Visit the ASUS website at [www.asus.com](http://www.asus.com) to download the latest BIOS file for this motherboard.

## 2.3 Main menu

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



### 2.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

### 2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

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

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

### 2.3.4 Primary IDE/SATA

While entering Setup, the BIOS automatically detects the presence of IDE/SATA devices. There is a separate sub-menu for each IDE/SATA device. Select a device item then press <Enter> to display the IDE/SATA 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/SATA 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]



---

This option only appears in Primary IDE Master/Slave.

#### 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]

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

#### 32Bit Data Transfer [Enabled]

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

### 2.3.5 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 want to configure the item.

## Onboard PCI IDE Controller [Enabled]

Allows you to disable or enable the onboard PCI IDE controller.

Configuration options: [Disabled] [Enabled]

## SATA Mode Selection [IDE]

Allows you to disable or set the onchip Serial ATA controller mode.

Configuration options: [Disabled] [IDE] [Raid] [AHCI]



- If you install SATA 3Gbps harddisk with NCQ feature, we recommend that you set this feature to [AHCI] for better performance.
- If you want to install 2 SATA harddisk for RAID system, please set this feature to [Raid] before you install the OS.

## 2.3.6 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

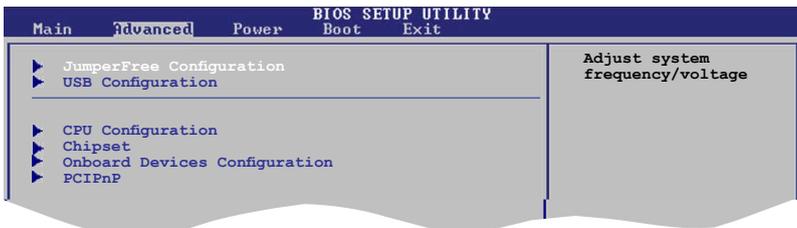
Displays the auto-detected system memory.

## 2.4 Advanced menu

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



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



### 2.4.1 JumperFree Configuration

#### AI Overclocking [Auto]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency.

Select either one of the preset overclocking configuration options:

Manual - allows you to individually set overclocking parameters.

Auto - loads the optimal settings for the system.

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



---

The following item appears only when you set the AI Overclocking item to [Manual].

---

### **CPU Frequency [200]**

Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the <+> and <-> keys to adjust the CPU frequency. You can also type the desired CPU frequency using the numeric keypad. The values range from 100 to 450. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings.

#### **FSB/CPU External Frequency Synchronization**

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



---

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

---

### **Overclock Options [Standard]**

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Configuration options: [Standard] [Overclock 5%] [Overclock 10%] [Overclock 15%] [Overclock 20%] [Overclock 30%]

#### **2.4.2 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.

---

### **OnBoard SiS USB 1.1/USB 2.0 Device [Enabled]**

Allows you to enable or disable the USB 1.1/USB 2.0 device. Configuration options: [Enabled] [Disabled]

### **Legacy USB Support [Enabled]**

Allows you to enable or disable support for USB devices on legacy operating systems (OS). 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]

## 2.4.3 CPU Configuration

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

### CPU ratio adjustment [Auto]

Selects the CPU ratio adjustment mode. Configuration options: [Auto] [Manual]



---

The following items appear only when the **CPU ratio adjustment** item is set to [manual].

---

#### *Ratio CMOS Setting [14]*

Sets the ratio between the CPU core clock and the Front Side Bus frequency. The BIOS auto detects the default value of this item. Use the <+> or <-> keys to adjust the values. Configuration options:[6]...[14]



---

You can only adjust the **CPU ratio adjustment** if you installed an unlocked CPU. Refer to the CPU documentation for details.

---

### C1É Support [Enabled]

Enable this item and users can configure the “Enhanced Halt State” function.

Configuration options: [Disabled] [Enabled]

### Max CPUID Value Limit [Disabled]

Enable this item to boot legacy operating systems that cannot support CPUs with extended CPUID functions. Configuration options: [Disabled] [Enabled]

### Vanderpool Technology [Enabled]

Enable this item when the processor supports Vanderpool technology. Users need to reset the computer to change the configuration of this item. Configuration options: [Disabled] [Enabled]

### CPU TM function [Enabled]

Enables or disables Intel® CPU Thermal Monitor (TM2) function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage is reduced when the CPU is overheats. Configuration options: [Enabled] [Disabled]

### Execute Disable Bit [Enabled]

Allows you to Enable/disable Execute Disable Function.

Configuration options: [Disabled] [Enabled]



---

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

---

### Intel® SpeedStep® Technology [Enabled]

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

Configuration options: [Enabled] [Disabled]

## 2.4.4 Chipset

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

### North Bridge Configuration

#### Primary Graphics Adapter [PCI-E]

Allows selection of the graphics controller to use as primary boot device. Configuration options: [PCI] [PCI-E]

#### DRAM CAS# Latency [By SPD]

Controls the latency between the SDRAM read command and the time the data actually becomes available. Configuration options: [By SPD] [3T] [4T] [5T]

### South Bridge Configuration

#### Onboard Audio Device [Enabled]

This item enables or disables the onboard audio device.  
Configuration options: [Disabled] [Enabled]

#### Front Panel Support Type [HD Audio]

Allows you to select the front panel support type. Configuration options: [AC97] [HD Audio]

#### OnBoard SiS191 Lan Device [Enabled]

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

#### OnBoard LAN Boot ROM [Enabled]

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

#### A11 PCI EXPRESS Controller [Enabled]

Allows you to enable or disable the A11 PCI Express Controller.  
Configuration options: [Disabled] [Enabled]

## 2.4.5 Onboard Devices Configuration

#### Serial Port1 Address [3F8/IRQ4]

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

#### Serial Port2 Address [2F8/IRQ3]

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

#### Parallel Port Address [378]

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

#### Parallel Port Mode [ECP]

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

#### ECP Mode DMA Channel [DMA3]

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

## Parallel Port IRQ [IRQ7]

Configuration options: [IRQ5] [IRQ7]

### 2.4.6 PCI PnP

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

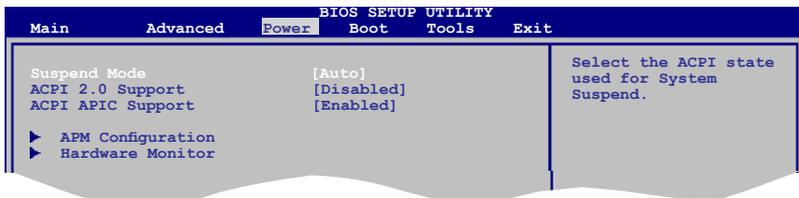
When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

### IRQ-xx 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]

## 2.5 Power menu

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



### 2.5.1 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]

## 2.5.2 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]

## 2.5.3 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Advanced Programmable Interrupt Controller (APIC). When set to **Enabled**, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

## 2.5.4 APM Configuration

### Power On By Ring [Disabled]

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

### Power On By LAN [Disabled]

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

### Power On By PME# [Disabled]

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

### Power On By RTC [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]

### Restore on AC Power Loss [Power Off]

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

### Power On By PS/2 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] [Any 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]

## 2.5.5 Hardware Monitor

### CPU Temperature [xxx°C/xxx°F]

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

### MB Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the motherboard 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 [Disabled]

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

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

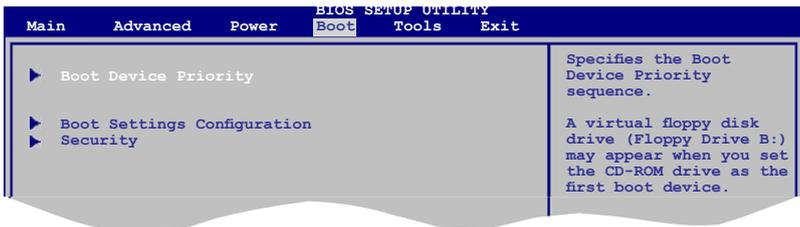
The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A. Select **Ignored** if you do not wish to display the detected speed.

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

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

## 2.6 Boot menu

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



### 2.6.1 Boot Device Priority

#### 1st ~ xxth Boot Device

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: [xxxx Drive] [Disabled]

### 2.6.2 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.

### AddOn ROM Display Mode [Force BIOS]

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

### Bootup Num-Lock [On]

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

### PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse.

Configuration options: [Disabled] [Enabled] [Auto]

### Wait For 'F1' If Error [Enabled]

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

## 2.6.3 Security

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

### Change Supervisor Password

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

To clear the supervisor password, select the **Change Supervisor Password** then press **<Enter>**. The message **Password uninstalled** appears.



---

If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section 1.6 **Jumpers** for information on how to erase the RTC RAM.

---

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

## User Access Level [Full Access]

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. 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 set your password successfully.

To change the user password, follow the same steps 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]

# 2.7 Tools menu

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

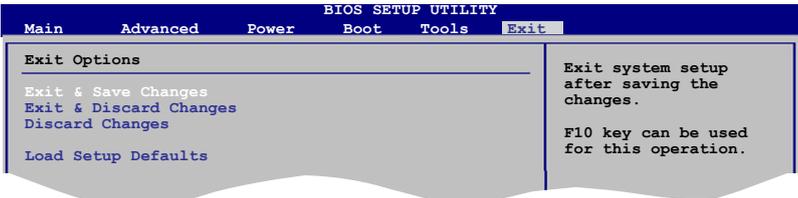


## 2.7.1 ASUS EZ Flash 2

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

## 2.8 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.

### 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 menu. 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.