



# ***PCH-DL***

User Guide

# Motherboard

**E1571**

**First edition V1**

**April 2004**

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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.

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## Canadian Department of Communications Statement

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

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

# Safety information

## Electrical safety

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

## Operation safety

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

# About this guide

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

## How this guide is organized

This manual contains the following parts:

- **Chapter 1: Product introduction**

This chapter describes the features of the PCH-DL motherboard. It includes brief descriptions of the special attributes of the motherboard and the new technology it supports.

- **Chapter 2: Hardware installation**

This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the switches, jumpers, and connectors on the motherboard.

- **Chapter 3: Powering up**

This chapter describes the power up sequence and gives information on the BIOS beep codes.

- **Chapter 4: BIOS setup**

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

- **Appendix: Reference information**

This appendix includes additional information that you may refer to when configuring the motherboard.

## Conventions used in this guide

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



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



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



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



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

## Where to find more information

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

### 1. ASUS Websites

The ASUS websites worldwide provide updated information on ASUS hardware and software products. 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.

# PCH-DL specifications summary

<b>CPU</b>	Dual 604-pin sockets for Intel® Xeon™ Processors 3.2GHz with Hyper-Threading Technology On-die 1MB/512KB L2 cache
<b>Chipset</b>	North bridge: Intel® 82875P Memory Controller Hub (MCH) South bridge: Intel® 6300ESB I/O Controller Hub (ICH)
<b>Front Side Bus (FSB)</b>	533/400 MHz
<b>Memory</b>	Dual-channel memory architecture 4 x 184-pin DDR DIMM sockets for up to 4GB memory Supports PC2700/PC2100 unbuffered ECC or non-ECC DDR DIMMs
<b>Expansion slots</b>	1 x AGP Pro/8X 2 x 3.3V/64-bit/66MHz PCI-X 3 x 5V/32-bit/33MHz PCI
<b>Storage</b>	Supported by south bridge (6300ESB ICH) - 2 x UltraDMA100 connectors - 2 x Serial ATA connectors (supports RAID 0/RAID 1 configurations under Windows XP) Supported by Promise® PDC20378 controller - 1 x UltraDMA 133 connector - 2 x Serial ATA connectors - RAID0, RAID1, RAID0+1, Multi-RAID configurations
<b>LAN</b>	Intel 82547GI Gigabit LAN controller
<b>IEEE 1394</b>	TI TSB43AB22A IEEE 1394 controller
<b>Audio</b>	ADI AD1980 6-channel audio CODEC
<b>Special features</b>	ASUS Q-Fan Technology ASUS POST Reporter™ ASUS C.P.R. (CPU Parameter Recall)
<b>Rear panel I/O</b>	1 x Parallel port 2 x Serial ports 1 x PS/2 keyboard port 1 x PS/2 mouse port 4 x USB 2.0 ports 1 x RJ-45 port 1 x IEEE 1394 port Line In/Line Out/ Microphone ports

*(continued on the next page)*

# PCH-DL specifications summary

<b>Internal I/O</b>	CPU/SYSTEM/CHASSIS fan connectors 24-pin/8-pin SSI-type 12V power connectors 20-pin front panel connectors Chassis intrusion connector 1 x IEEE 1394 connector GAME/MIDI connector S/PDIF Out connector CD/AUX/Modem connectors Front panel audio connector
<b>BIOS features</b>	4Mb Flash ROM, Phoenix-Award BIOS, PnP, DMI2.0, WfM2.0, SM BIOS2.3
<b>Industry standard</b>	PCI 2.2, PCI-X 1.0a, USB 2.0
<b>Manageability</b>	WfM 2.0, DMI 2.0, WOL/WOR by PME, chassis intrusion
<b>Power requirement</b>	SSI-type power supply (with 24-pin and 8-pin power plugs)
<b>Form Factor</b>	Extended ATX form factor: 12in x 10.5in (30.5cm x 26.7cm)
<b>Support CD contents</b>	Device drivers Management software System utilities ASUS contact information

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

# ***Chapter 1***

This chapter describes the features of the motherboard. It includes brief explanations of the special attributes of the motherboard and the new technology it supports.

## **Product introduction**

## **Chapter summary**

<b>1.1</b>	<b>Welcome! .....</b>	<b>1-1</b>
<b>1.2</b>	<b>Package contents .....</b>	<b>1-1</b>
<b>1.3</b>	<b>Special features .....</b>	<b>1-2</b>

# 1.1 Welcome!

## Thank you for buying the ASUS® PCH-DL motherboard!

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

The motherboard incorporates the Intel® Xeon™ processor in 604-pin package coupled with the Intel® 82875P chipset to provide a powerful workstation platform solution.

Supporting 533 MHz FSB, up to 4GB of system memory with dual-channel PC2700/PC2100 DDR SDRAM, high-resolution graphics via an AGP Pro/8X slot, Serial ATA support, IEEE 1394, USB 2.0, and 6-channel audio features, the PCH-DL Deluxe is your perfect vehicle to get ahead in the world of power computing!

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

## 1.2 Package contents

Check your PCH-DL package for the following items.

- ✓ ASUS PCH-DL motherboard
- ✓ ASUS support CD
- ✓ 4 x SATA cables
- ✓ 2 x SATA power cables
- ✓ 3 x UltraDMA100/66 IDE and floppy drive cables (4-in-1)
- ✓ 1-port IEEE 1394 module
- ✓ 2-port USB2.0 module with Game port
- ✓ S/PDIF Out module
- ✓ I/O shield
- ✓ Bag of extra jumper caps
- ✓ User guide



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

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## 1.3 Special features

### Latest processor technology

The motherboard supports dual Intel® Xeon™ Processors via 604-pin surface mount ZIF sockets. The processor has 1MB/512KB L2 cache, includes a 533/400MHz system bus, and features the Intel Hyper-Threading Technology that allows up to 3.2GHz core frequencies.

### Dual-channel DDR333 memory support

Employing the dual-channel DDR memory architecture, the motherboard provides a solution that doubles the system memory bandwidth to boost system performance. The motherboard supports up to 4GB of system memory using PC2700/PC2100 ECC or non-ECC DDR DIMMs to deliver up to 5.33GB/s data transfer rate for the latest 3D graphics, multimedia, and Internet applications.

### Serial ATA technology

The motherboard supports the new Serial ATA technology through the SATA interfaces and the Intel® 6300ESB ICH and Promise® PDC20378 controllers onboard. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, and up to 150MB/s data transfer rate.

### Multi-RAID solution

The motherboard has the Promise® PDC20378 controller to support multi-RAID solution using Serial ATA/150 hard disks. The RAID0 (striping), RAID1 (mirroring), and RAID 0+1 provide a cost-effective high-performance solution for added system performance and reliability.

### AGP 8X support

The motherboard supports the latest graphic architecture, the AGP Pro/8X interface (a.k.a. AGP 3.0), offering 2.1GB/s bandwidth which is twice that of its predecessor AGP 4X.

### USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1.

## Gigabit LAN solution

The Intel® 82547GI Gigabit Ethernet controller allows full-duplex Gigabit performance on LAN on Motherboard (LOM) applications through the Communication Streaming Architecture (CSA). Instead of connecting to the PCI bus, the controller connects to the dedicated CSA bus on the Memory Controller Hub (MCH) thus reducing the PCI bottlenecks by freeing the PCI bus for other I/O operations.

## IEEE 1394 support

The IEEE 1394 interfaces and the TI TSB43AB22A controller onboard provide high-speed and flexible PC connectivity to a wide range of peripherals and devices compliant to IEEE 1394a standards. The IEEE 1394 allows up to 400Mbps transfer rates through simple, low-cost, high-bandwidth asynchronous (real-time) data interfacing between computers, peripherals, and consumer electronic devices such as camcorders, VCRs, printers, TVs, and digital cameras.

## 6-channel audio feature

The SoundMAX-class ADI AD1980 AC '97 audio CODEC supports 6-channel 5.1 surround sound output, stereo microphone input, variable Sample Rate Conversion (SRC), professional quality 103-dB out put with 94-dB SNR, and analog enumeration capability. The SoundMAX 4 XL software features the AudioESP™ (Audio Enumeration and Sensing Process) that allows intelligent detection of the peripherals plugged into the audio ports and identifies the incompatible devices, if any.

## ASUS Q-Fan technology

The ASUS Q-Fan technology smartly adjusts the fan speeds according to the system loading to ensure quiet, cool, and efficient operation.

## ASUS POST Reporter™

The motherboard offers a new exciting feature called the ASUS POST Reporter™ to provide friendly voice messages and alerts during the Power-On Self-Tests (POST) informing you of the system boot status and causes of boot errors, if any. The bundled Winbond Voice Editor software lets you to customize the voice messages in different languages.

## ASUS EZ Flash BIOS

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

## C.P.R. (CPU Parameter Recall)

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

# ***Chapter 2***

This chapter describes the hardware setup procedures that you have to perform when installing system components. It includes details on the switches, jumpers, and connectors on the motherboard.

## **Hardware information**

## **Chapter summary**

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## 2.1 Before you proceed

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



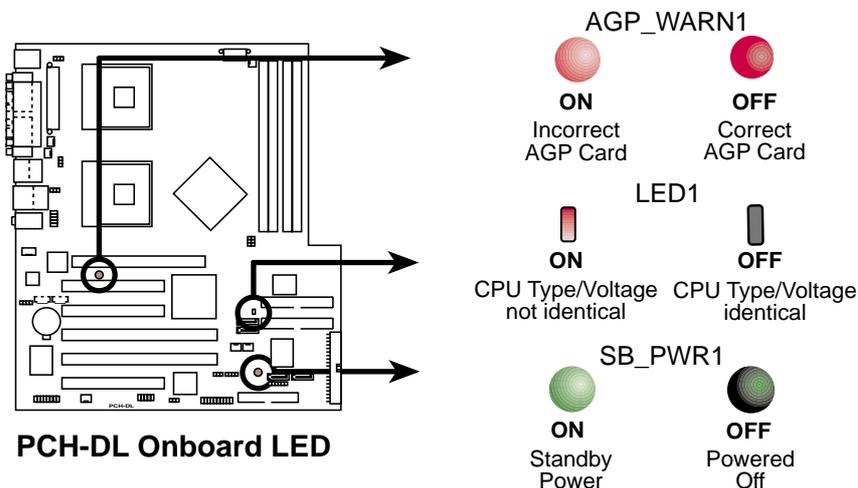
1. Unplug the power cord from the wall socket before touching any component.
2. Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
3. Hold components by the edges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



When lit, the green LED (**SB\_PWR1**) indicates that the system is ON, in sleep mode, or in soft-off mode, a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component.

This warning LED (**LED1**) lights up if you installed two CPUs of different type/voltage. You must install identical CPUs on this motherboard.

The red LED (**AGP\_WARN1**) is a smart protection from motherboard burn out caused by an incorrect AGP card. If you plug in any 3.3V AGP card into the 1.5V AGP slot, this LED lights up thus preventing the system to power up. This LED remains off if you plug in a 1.5V AGP card.



## 2.2 Motherboard installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



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

### 2.2.1 Placement direction

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

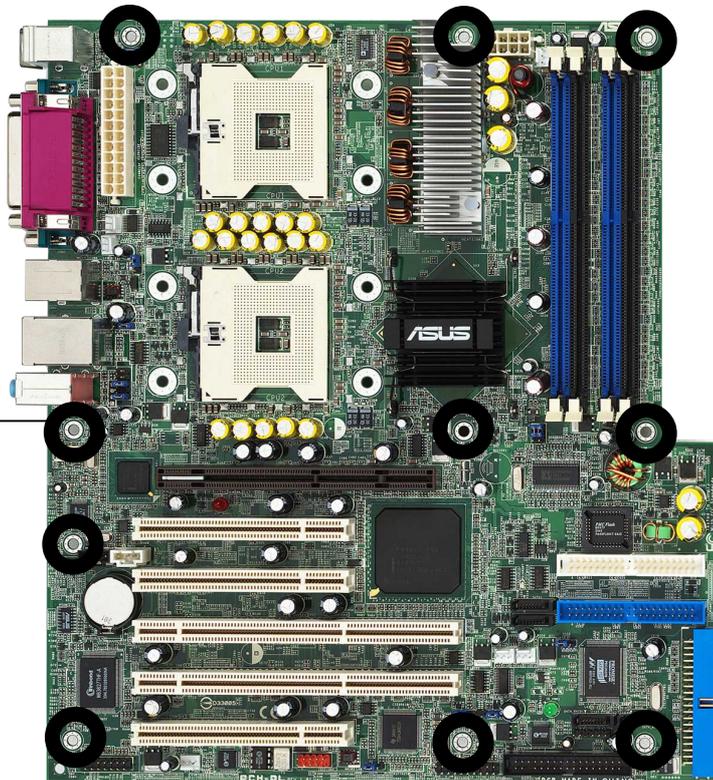
### 2.2.2 Screw holes

Place ten (10) screws into the holes indicated by circles to secure the motherboard to the chassis.

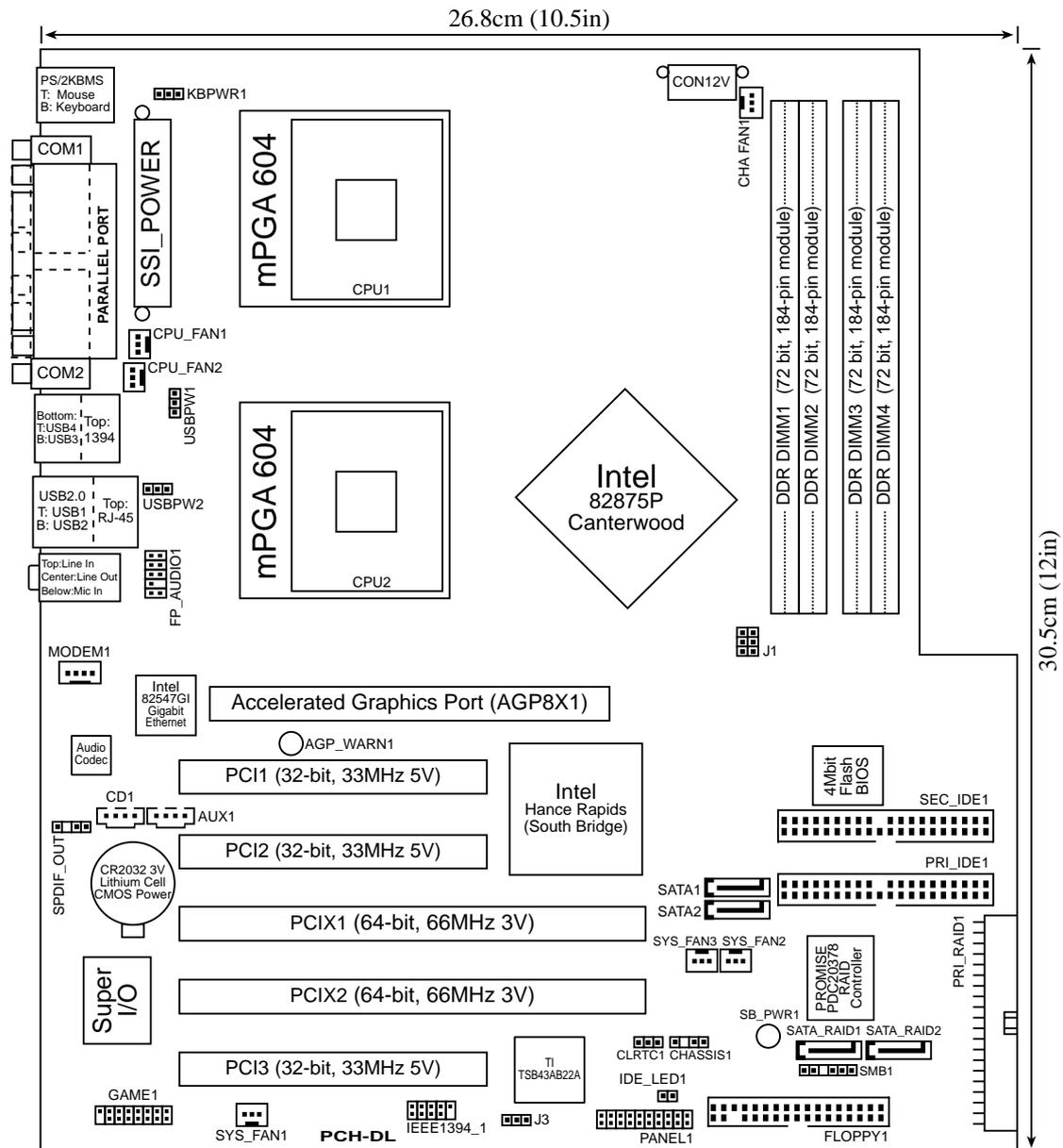


Do not overtighten the screws! Doing so may damage the motherboard.

Place this side towards  
the rear of the chassis



## 2.2.3 Motherboard layout



## 2.2.4 Layout Contents

Sockets/Slots	Page
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2. DDR DIMM sockets	2-13
3. PCI-X/PCI slots	2-15
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2. CPU external frequency selection (3-pin J1)	2-19
3. IEEE 1394 setting (3-pin J3)	2-20
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5. RAID enable (3-pin J2)	2-21
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2. Parallel port	2-22
3. IEEE 1394 port	2-22
4. RJ-45 port	2-22
5. Line In port (light blue)	2-22
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7. Microphone port (pink)	2-22
8. USB 2.0 ports 3 and 4	2-22
9. USB 2.0 ports 1 and 2	2-22
10. Serial ports	2-22
11. PS/2 keyboard port	2-22
<b>Internal connectors</b>	
1. Floppy disk drive connector (34-1 pin FLOPPY1)	2-23
2. Serial ATA connectors (7-pin SATA1, SATA2)	2-23
3. IDE connectors (40-1 pin PRI_IDE[blue], SEC_IDE [black])	2-24
4. SMBus connector (6-1 pin SMB1)	2-24
5. RAID ATA/133/100/66/33 connector (40-1 pin PRI_RAID1)	2-25
6. Serial ATA RAID connectors (7-pin SATA_RAID1, SATA_RAID2)	2-26
7. SSI power connectors (24-pin, 8-pin)	2-27
8. Chassis intrusion connector (4-1 pin CHASSIS1)	2-28
9. IEEE 1394 connector (10-1 pin IEEE1394_1)	2-28
10. CPU, chassis, and system fan connectors (3-pin CHA_FAN1, CPU_FAN1/2, SYS_FAN1/2/3)	2-29

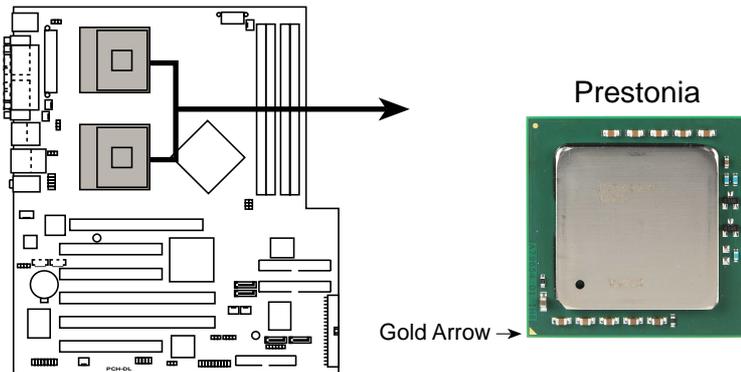
### Internal connectors *(continued)*

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- Reset switch (2-pin RESET)	2-32

## 2.3 Central Processing Unit (CPU)

### 2.3.1 Overview

The motherboard comes with dual surface mount 604-pin Zero Insertion Force (ZIF) sockets. The sockets are designed for the Intel® Xeon™ Processor in the 604-pin package with 1MB/512KB L2 cache.



**PCH-DL Socket 604**

### 2.3.2 Installing the CPU

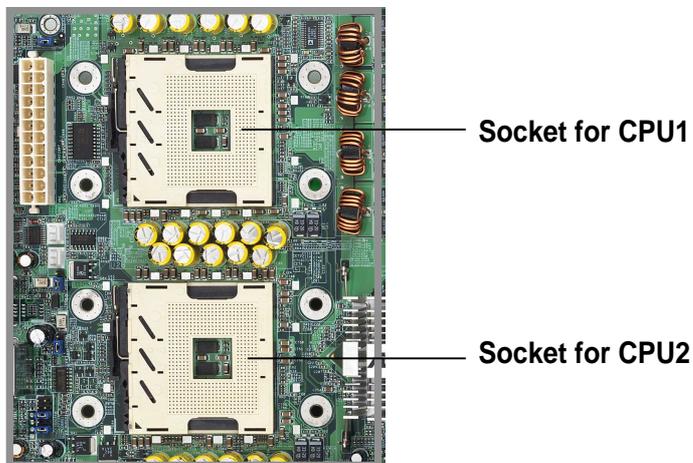
Note in the above illustration that the CPU has a gold triangular mark on one corner. This mark indicates the processor Pin 1 that should match a specific corner of the CPU socket.



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If installing only one CPU, use CPU socket 1 to ensure system stability..

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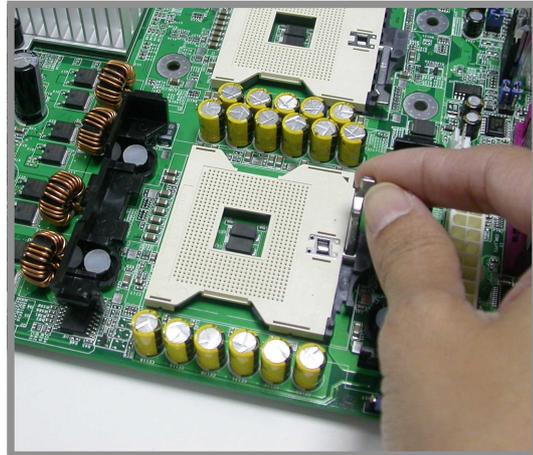
Incorrect installation of the CPU into the socket may bend the pins and severely damage the CPU!

Follow these steps to install a CPU.

1. Locate the 604-pin ZIF sockets on the motherboard. Flip up the socket lever and push it all the way to the other side.



Make sure that the socket lever is pushed back all the way, otherwise the CPU does not fit in completely.

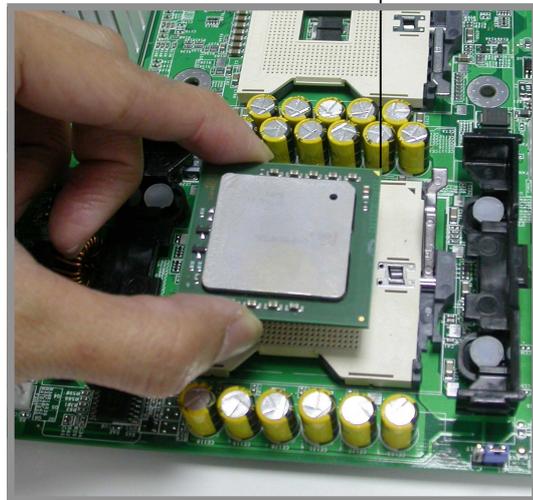


2. Position the CPU above the socket as shown.
3. Carefully insert the CPU into the socket until it fits in place.



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

Marked Corner



4. Carefully push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.
5. Apply the thermal interface material (thermal grease) to the top of the CPU. This thermal grease should come with the CPU package.



## 2.3.3 Installing the CPU heatsink and fan

The Intel® Xeon™ processors require an Intel certified heatsink and fan assembly to ensure optimum thermal condition and performance.

When you buy a boxed Intel CPU, the package includes the heatsink, fan, retention brackets, screws, thermal grease, installation manual, and other items that are necessary for CPU installation.

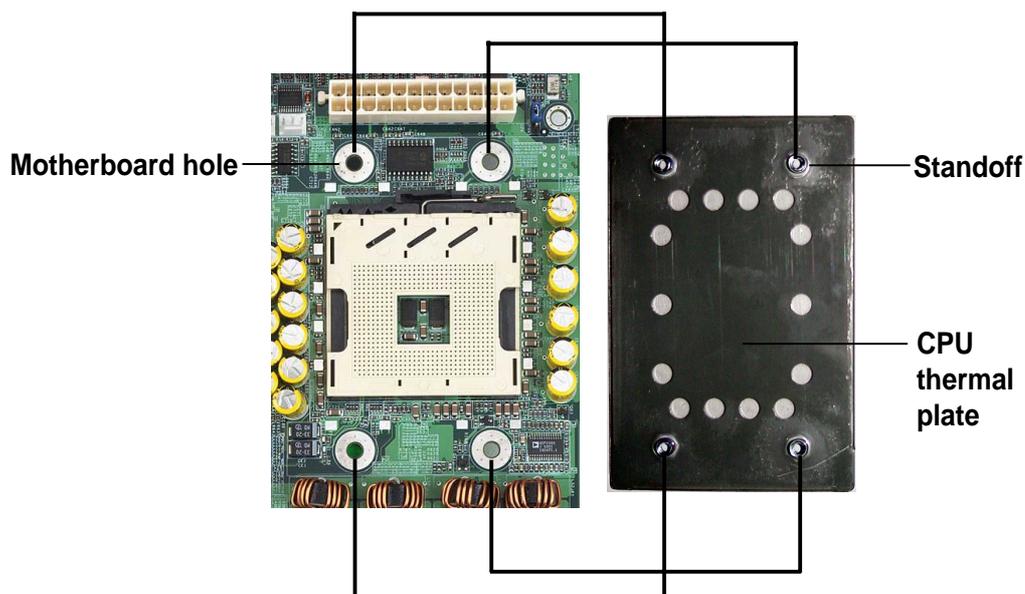


1. **Perform the installation steps 1 to 3 in this section before installing you motherboard into the chassis.**
2. Make sure that you have applied the thermal grease to the top of the CPU before installing the heatsink and fan.
3. Refer to the installation manual that came with the CPU package for details on heatsink/fan assembly and installation.

To install the CPU heatsink and fan:

1. With the motherboard on a flat stable surface (such as a table), place the thermal plate underneath a CPU socket, matching the standoffs on the plate with the four holes around the CPU socket.

The figure below shows the corresponding matches of the motherboard holes and standoffs.

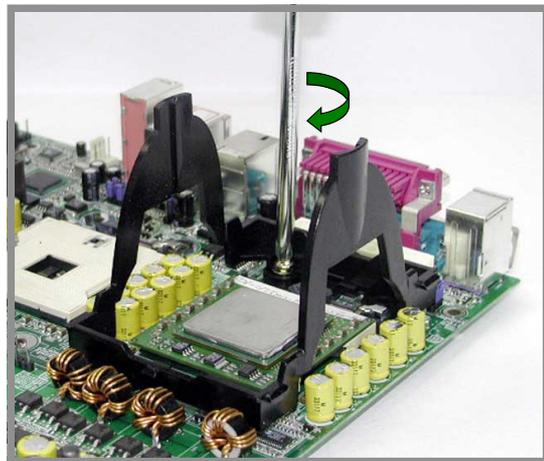


2. Place the heatsink retention mechanism over the CPU socket, matching its holes with the four holes on the motherboard and the standoffs on the thermal plate.

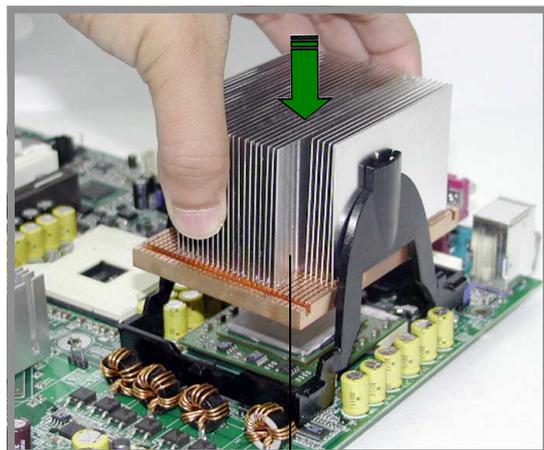
Heatsink retention mechanism



3. Secure the retention mechanism with the thermal plate using four screws.



4. Position the heatsink on top of the CPU, having its angled side (with cut corners) facing the memory sockets. Make sure that the heatsink base fits completely on the retention mechanism.



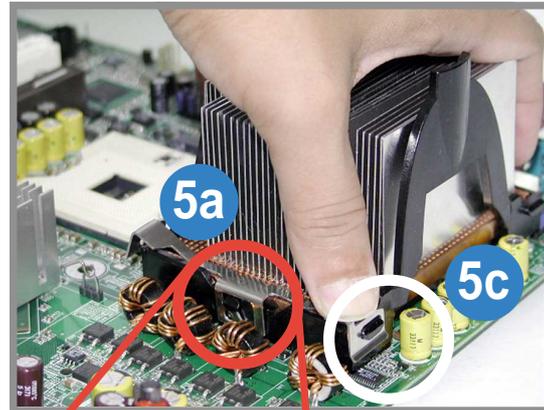
Heatsink angled side

- Secure the heatsink with the retention clips.

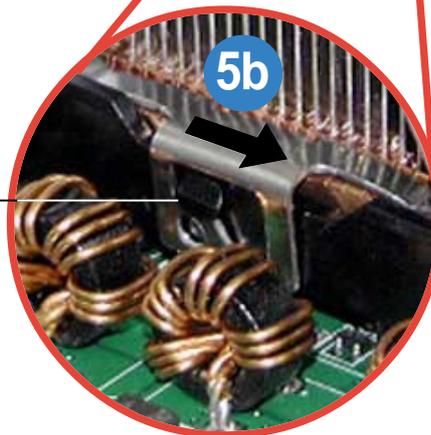
Retention clip



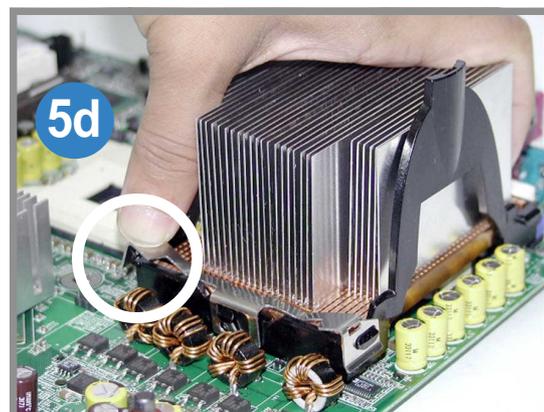
- Insert the center hole of a retention clip into the center tab on the retention mechanism.
- Slightly move the clip to the right so that the center tab is positioned on the narrow side of the hole. This ensures that the side holes fit on the side tabs.
- Press one end of the clip to snap its hole on the right side tab.



Center tab position when retention clip is in place

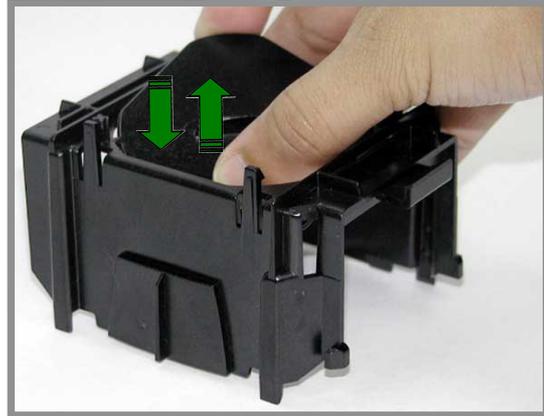


- Press the other end of the clip to snap its hole on the left side tab. This secures one side of the heatsink.



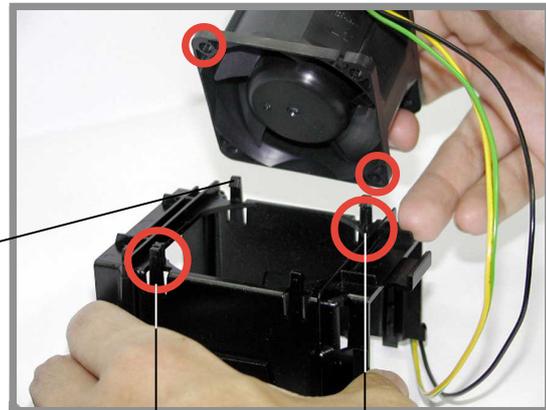
- Follow step 5 to install the other retention clip, and completely secure the heatsink.

7. Detach the cover of the air tunnel by twisting it back and forth.



8. Align the two pegs on the air tunnel with the corner holes of the fan module. Press the module down until the four hooks on the air tunnel snap on its sides.

Hook



Corners with pegs

9. Position the fan and air tunnel assembly over the heatsink such that the two curved corners match the angled side of the heatsink.

Curved corners

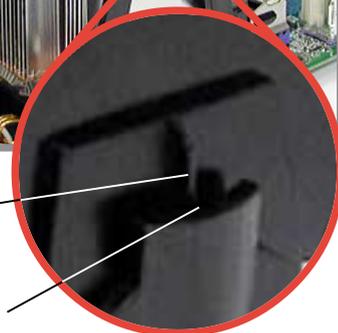


10. Align and insert the side rails of the air tunnel into the grooves on the retention mechanism.

**NOTE** You may need to slightly press out the side of the retention mechanism to properly insert the air tunnel.

Side rail

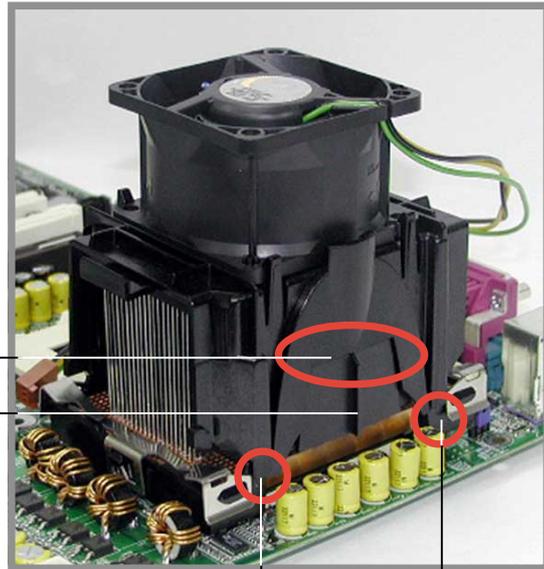
Groove (inner side)



11. Press down the fan and air tunnel assembly until the side rails slide past the grooves and over the rail stoppers. The protruding tab on each corner of the air tunnel should snap over the dents on the retention mechanism.

Rail stopper

Side rail

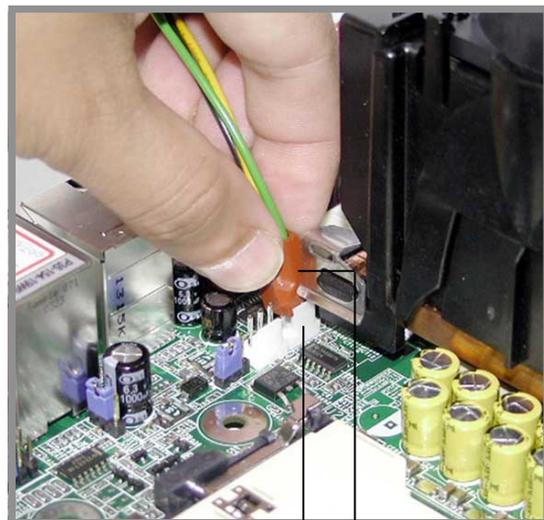


Protruding tabs

12. Connect the fan cable to the connector CPU\_FAN1 on the motherboard.



Make sure to connect to the correct fan connector. Otherwise, you will get a warning message during POST.



Fan connector

Fan cable

13. To install a second CPU and heatsink, follow the same procedure as in the first CPU installation.



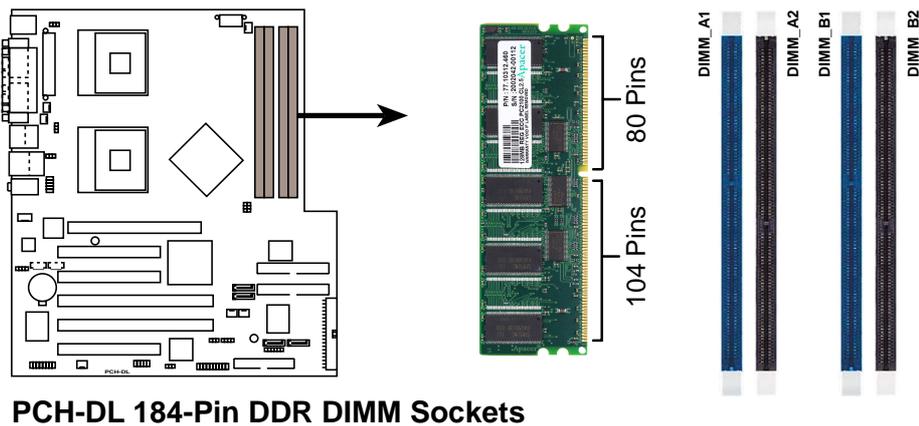
For the second CPU, make sure to connect the CPU fan cable to the connector CPU\_FAN2.

## 2.4 System memory

### 2.4.1 Overview

The motherboard comes with four Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets.

The following figure illustrates the location of the DDR DIMM sockets.



PCH-DL 184-Pin DDR DIMM Sockets

### 2.4.2 Memory configurations

You may install 64MB, 128MB, 256MB, 512MB, and 1GB DDR DIMMs into the DIMM sockets using the memory configurations in this section.

#### Important notes



1. Installing DDR DIMMs other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations in Table 1.
2. In dual-channel configurations, install only **identical** (the same type and size) DDR DIMM pairs for each channel.
3. Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.
4. Make sure that the memory frequency matches the CPU FSB (Front Side Bus). Refer to Table 2.
5. DIMMs installed into **any three** sockets will function in single-channel mode.
6. When all four sockets are populated with 1GB DIMMs (total 4GB), the system may detect only about 3.6GB (less than 4GB) due to Southbridge resource allocation.

**Table 1 Recommended memory configurations**

Mode		Sockets			
		DDR1 (blue)	DDR2 (black)	DDR3 (blue)	DDR4 (black)
Single-channel	(1)	Populated	—	—	—
	(2)	—	Populated	—	—
	(3)	—	—	Populated	—
	(4)	—	—	—	Populated
Dual-channel	(1)	Populated	—	Populated	—
	(2)	—	Populated	—	Populated
	(3)*	Populated	Populated	Populated	Populated

\* For dual-channel configuration (3), you may:

- install identical DIMMs in all four sockets
- or
- install identical DIMM pair in DDR1 and DDR3 (blue sockets) and identical DIMM pair in DDR2 and DDR4 (black sockets)

**Table 2 Memory frequency/CPU FSB synchronization**

CPU FSB	DDR DIMM Type	Memory Frequency
533 MHz	PC2700/PC2100	333/266 MHz
400 MHz	PC2100	266 MHz



Obtain DDR DIMMs only from ASUS qualified vendors for better system performance. Visit the ASUS website ([www.asus.com](http://www.asus.com)) for the latest QVL.

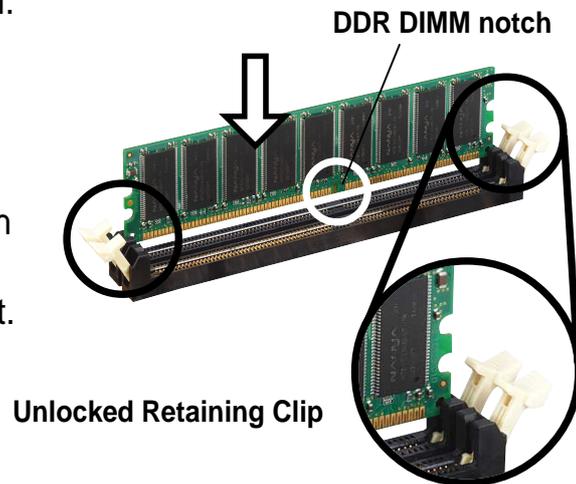
## 2.4.3 Installing a DIMM



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

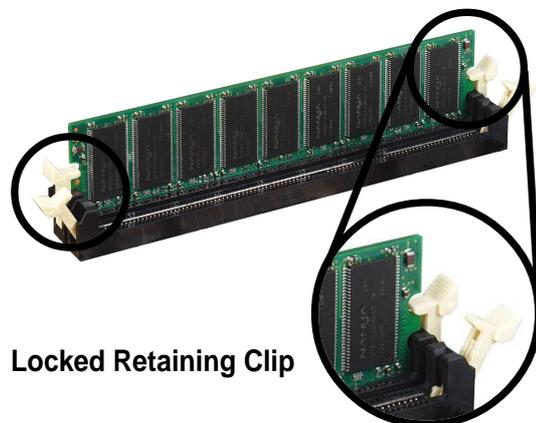
Follow these steps to install a DIMM.

1. 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.



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

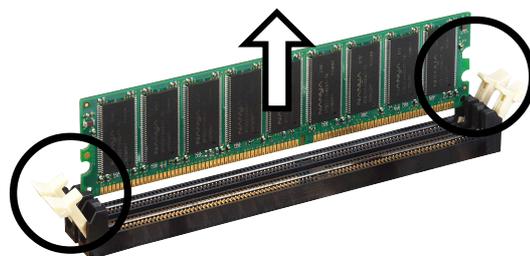
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



## 2.4.4 Removing a DIMM

Follow these steps to remove a DIMM.

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



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

2. Remove the DIMM from the socket.

## 2.5 Expansion slots

In the future, you may need to install expansion cards. The motherboard has two 64-bit PCI-X slots and three 32-bit PCI slots. The following subsections describe the slots and the expansion cards that they support.



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

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### 2.5.1 Installing an expansion card

Follow these steps to install an expansion card.

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

### 2.5.2 Configuring an expansion card

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

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

## Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
3*	11	Communications Port (COM2)
4*	12	Communications Port (COM1)
5*	13	Sound Card (sometimes LPT2)
6	14	Floppy Disk Controller
7*	15	Printer Port (LPT1)
8	3	System CMOS/Real Time Clock
9*	4	ACPI Mode when used
10*	5	IRQ Holder for PCI Steering
11*	6	IRQ Holder for PCI Steering
12*	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14*	9	Primary IDE Channel
15*	10	Secondary IDE Channel

\* These IRQs are usually available for ISA or PCI devices.

## IRQ assignments for this motherboard

	INTA#	INTB#	INTC#	INTD#
PCI slot 1	IRQ_F#	IRQ_G#	IRQ_H#	IRQ_E#
PCI slot 2	IRQ_G#	IRQ_H#	IRQ_E#	IRQ_F#
PCI slot 3	IRQ_H#	IRQ_E#	IRQ_F#	IRQ_G#
PCI-X slot 1	PI_IRQ0#	PI_IRQ1#	PI_IRQ2#	PI_IRQ3#
PCI-X slot 2	PI_IRQ1#	PI_IRQ2#	PI_IRQ3#	PI_IRQ0#
AGP Pro/8X slot	IRQ_A#	IRQ_B#	—	—
Onbd. USB controller #1	IRQ_A#	—	—	—
Onbd. USB controller #2	IRQ_D#	—	—	—
Onbd. USB controller #3	IRQ_C#	—	—	—
Onbd. USB controller #4	IRQ_A#	—	—	—
Onbd. USB 2.0 controller	IRQ_H#	—	—	—
Onbd. LAN controller (Intel 82547GI)	IRQ_F#	—	—	—
Onbd. RAID controller (Promise 20378)	IRQ_H#	—	—	—
Onbd. IDE controller	IRQ_C#	—	—	—
Onbd. SATA controller (6300ESB ICH)	IRQ_C#	—	—	—
Onbd. 1394 controller (TSB43AB22A)	IRQ_E#	—	—	—
Onbd. audio controller (AD1980)	IRQ_B#	—	—	—



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

## 2.5.3 PCI slots

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



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When installing long PCI cards, it is recommended that you install them in PCI slot 1, PCI slot 3, or PCI-X slot 2. Long PCI cards installed in PCI slot 2 and PCI-X slot 1 may interfere with the SATA connectors.

---

## 2.5.4 AGP Pro slot

This motherboard has an Accelerated Graphics Port (AGP) Pro slot that supports AGP 8X (+0.8V) cards and AGP 4X (+1.5V) cards. When you buy an AGP card, make sure that you ask for one with +0.8V or +1.5V specification.

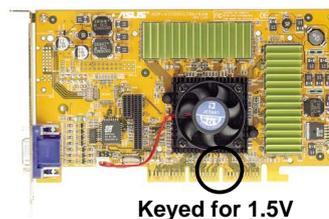
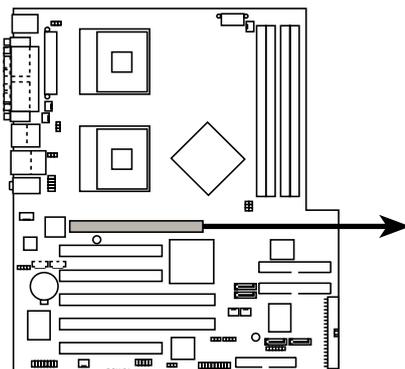
Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.



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Install only +0.8V or +1.5V AGP cards. This motherboard does not support 3.3V AGP cards.

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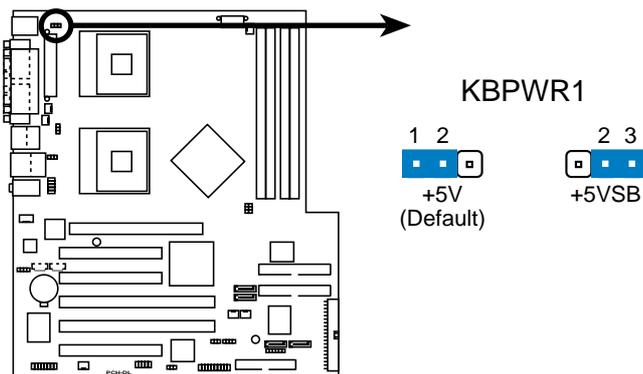


**PCH-DL Accelerated Graphics Port (AGP)**

## 2.6 Jumpers

### 1. Keyboard power (3-pin KBPWR1)

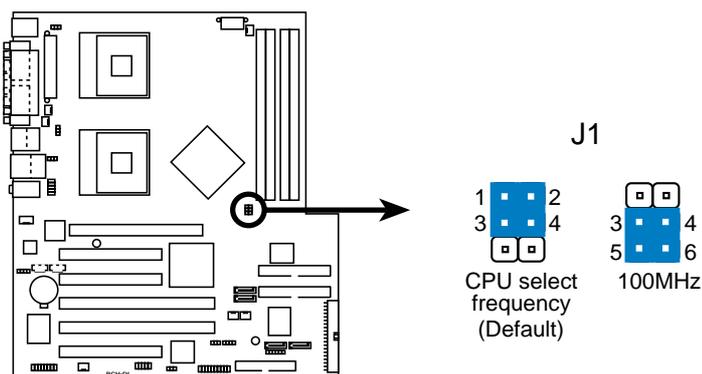
This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard. This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS. Refer to Chapter 4 for information.



**PCH-DL Keyboard Power Setting**

### 2. CPU external frequency selection (3-pin J1)

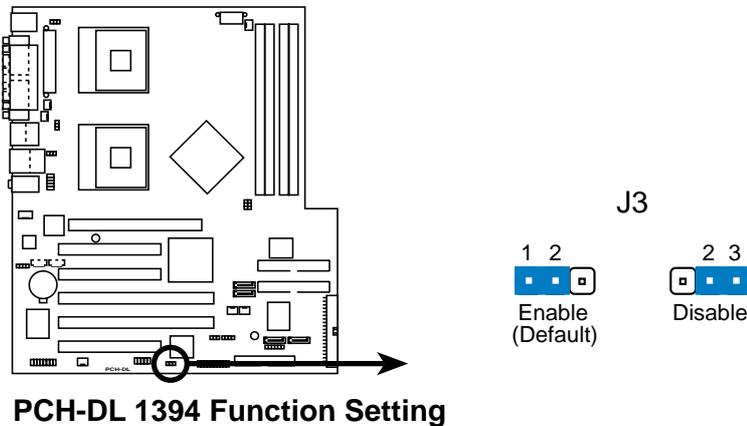
This jumper allows you to select your desired CPU external frequency (or bus clock).



**PCH-DL CPU External Frequency Selection**

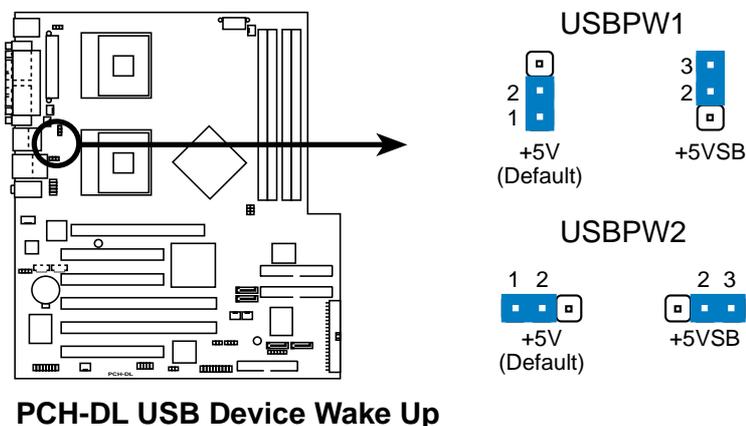
### 3. IEEE 1394 setting (3-pin J3)

This jumper allows you to enable or disable the onboard IEEE 1394 controller. Set to pins 1-2 to activate the 1394 feature.



### 4. USB device wake-up (3-pin USBPW1, USBPW2)

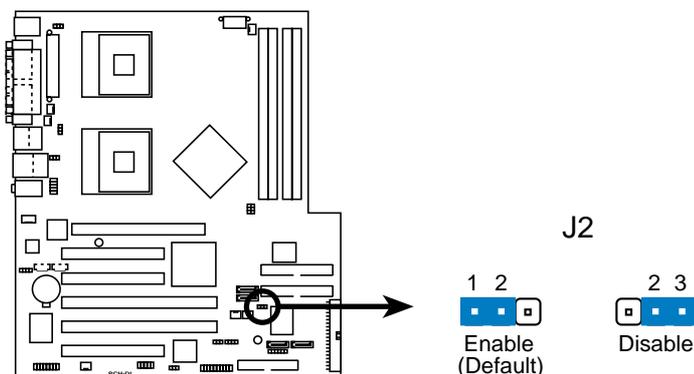
Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).



1. 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.
2. The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

## 5. RAID enable (3-pin J2)

This jumper allows you enable or disable the Promise PDC20378 RAID controller.



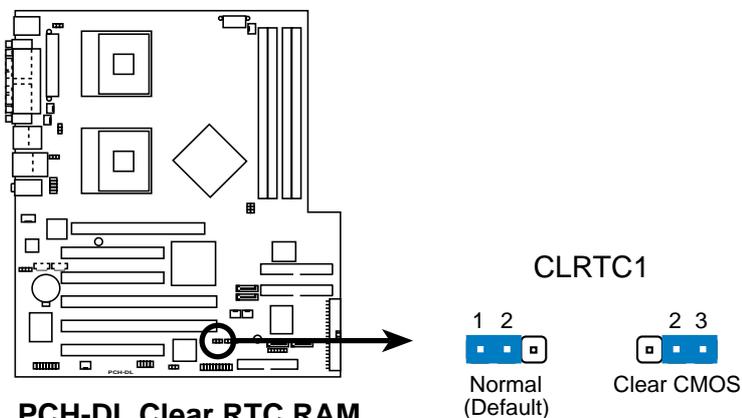
**PCH-DL Promise Raid Chip Setting**

## 6. Clear RTC RAM (3-pin CLRTC1)

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.



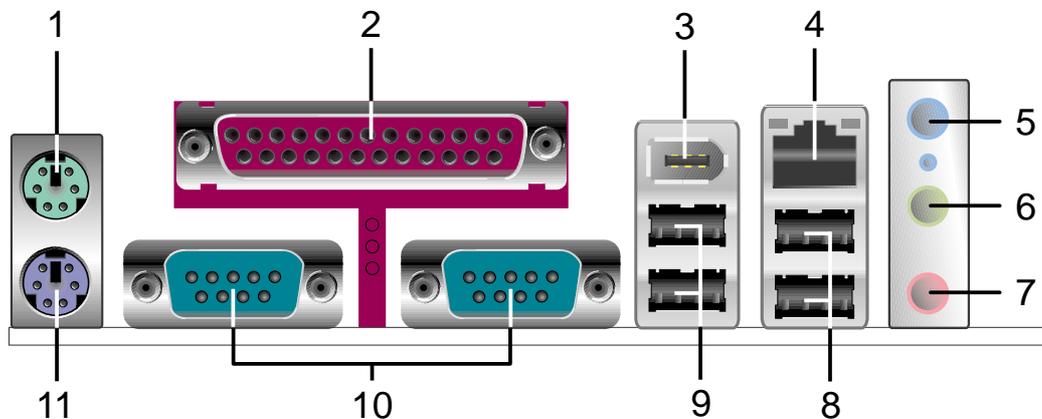
**PCH-DL Clear RTC RAM**



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

## 2.7 Connectors

### 2.7.1 Rear panel connectors

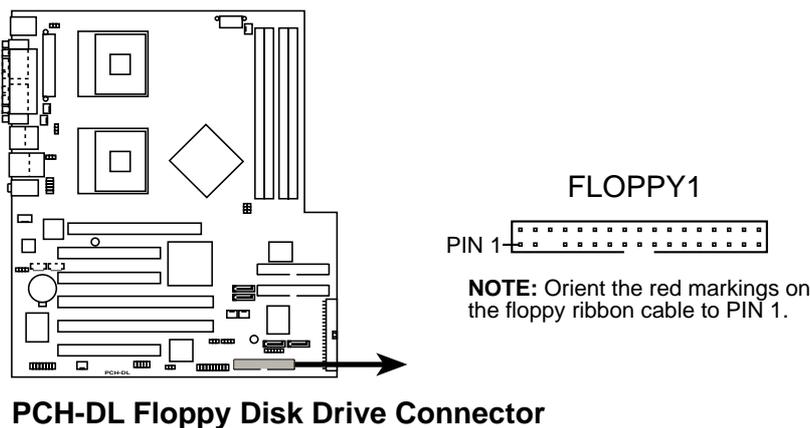


1. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.
2. **Parallel port.** This 25-pin port connects a parallel printer, a scanner, or other devices.
3. **IEEE 1394 port.** This port connects IEEE 1394-compliant devices like camcorders, VCRs, printers, or digital cameras.
4. **RJ-45 port.** This port allows connection to a Local Area Network (LAN) through a network hub.
5. **Line In port.** This Line In (light blue) port connects a tape player or other audio sources. In 6-channel mode, the function of this port becomes Bass/Center.
6. **Line Out port.** This Line Out (light green) port connects a headphone or a speaker. In 6-channel mode, the function of this port becomes Front Speaker Out.
7. **Microphone port.** This Mic (pink) port connects a microphone. In 6-channel mode, the function of this port becomes Rear Speaker Out.
8. **USB 2.0 ports 3 and 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
9. **USB 2.0 ports 1 and 2.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
10. **Serial ports.** These 9-pin COM1 ports are for pointing devices or other serial devices.
11. **PS/2 keyboard port.** This purple connector is for a PS/2 keyboard.

## 2.7.2 Internal connectors

### 1. Floppy disk drive connector (34-1 pin FLOPPY1)

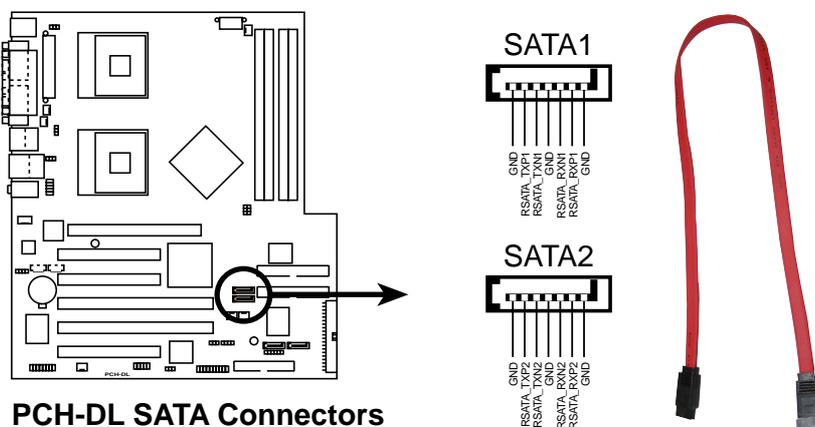
This connector supports the provided floppy drive ribbon cable. After connecting one end to the motherboard, connect the other end to the floppy drive. (Pin 5 is removed to prevent incorrect insertion when using ribbon cables with pin 5 plug).



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

These next generation connectors support the thin Serial ATA cables for Serial ATA hard disks. The current Serial ATA interface allows up to 150 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (Ultra ATA/133).

If you installed Serial ATA hard disks, you may create a RAID 0/RAID 1 configuration using the RAID feature of the Intel® 6300ESB ICH.



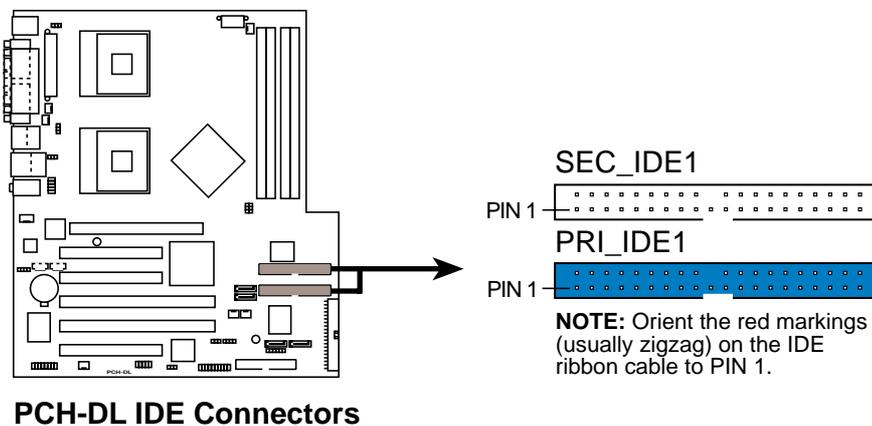
The Serial ATA RAID feature (RAID 0/1) is available only if you are using Windows XP.

### 3. IDE connectors (40-1 pin PRI\_IDE[blue], SEC\_IDE [black])

This connector supports the provided UltraDMA/100/66 IDE hard disk ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraDMA/100/66 slave device (hard disk drive) and the black connector to the UltraDMA/100/66 master device.



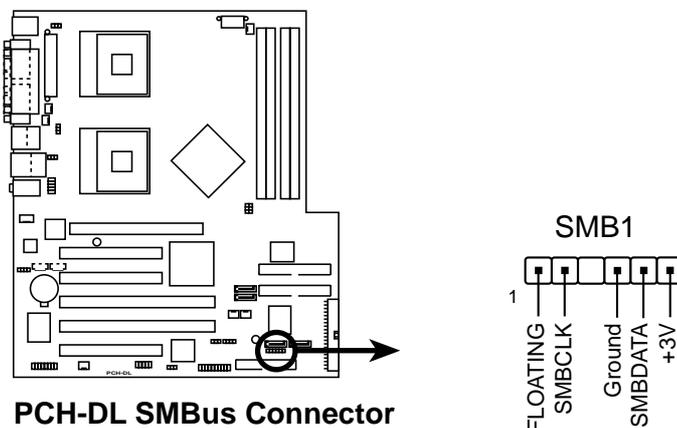
- Refer to the hard disk drive label or documentation when setting the device as master or slave.
- Pin 20 on each IDE connector is removed to match the covered hole on the UltraDMA cable connector. This prevents incorrect orientation when you connect the cables.



**PCH-DL IDE Connectors**

### 4. SMBus connector (6-1 pin SMB1)

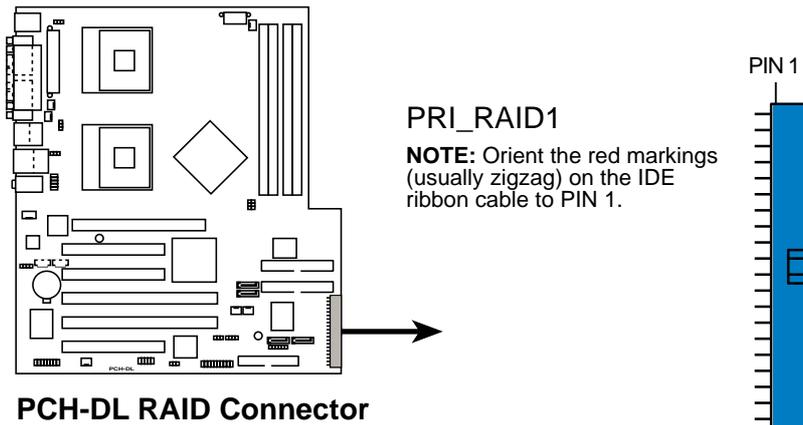
This connector allows you to connect SMBus (System Management Bus) devices. Devices communicate with an SMBus host and/or other SMBus devices using the SMBus interface.



**PCH-DL SMBus Connector**

## 5. RAID ATA/133/100/66/33 connector (40-1 pin PRI\_RAID1)

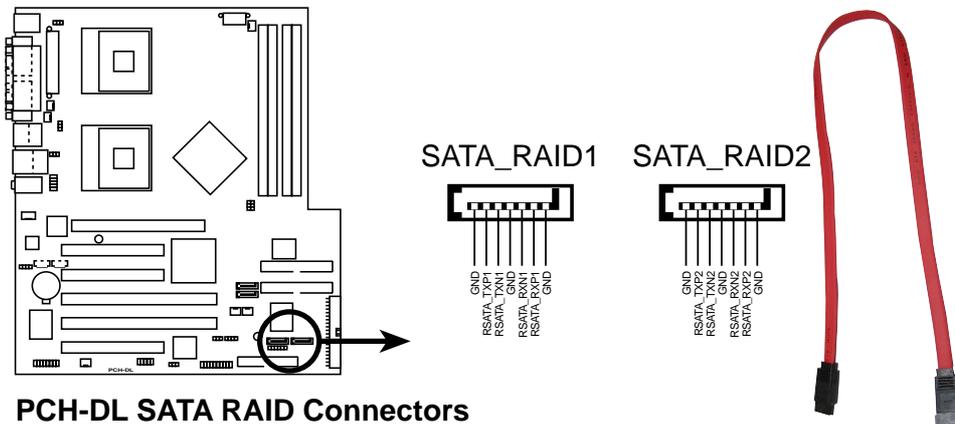
This connector supports either RAID 0 or RAID 1 configuration through the onboard Promise® PDC20378 controller. You can connect two UltraATA133 hard disks to this connector and set up a disk array configuration. You may also set up the UltraATA133 hard disks with the Serial ATA hard disks on the Serial ATA RAID connectors to create a multi-RAID configuration.



1. If you wish to create a RAID set using UltraATA hard disks, make sure that you have connected the UltraATA cable and installed UltraATA 133 hard disks.
2. The Promise® PDC20378 RAID controller does not support ATAPI devices such as CD-ROMs, DVD-ROMs, etc.
3. For RAID 0 and RAID 1 configurations, use both Parallel ATA and Serial ATA devices for better performance.

## 6. Serial ATA RAID connectors (7-pin SATA\_RAID1, SATA\_RAID2)

These Serial ATA connectors support SATA hard disks that you may configure as a RAID set. Through the onboard Promise® PDC20378 RAID controller, you may create a RAID0, RAID1, RAID0+1, or multi-RAID configuration.



**PCH-DL SATA RAID Connectors**



1. If you wish to create a RAID set, make sure that you have connected the SATA cable and installed Serial ATA devices. You cannot enter the SATORaid™ utility and SATA BIOS setup during POST if there are no connected Serial ATA devices.
2. The Promise® PDC20378 RAID controller does not support ATAPI devices such as CD-ROMs, DVD-ROMs, etc.
3. For RAID 0 and RAID 1 configurations, use both Parallel ATA and Serial ATA devices for better performance.

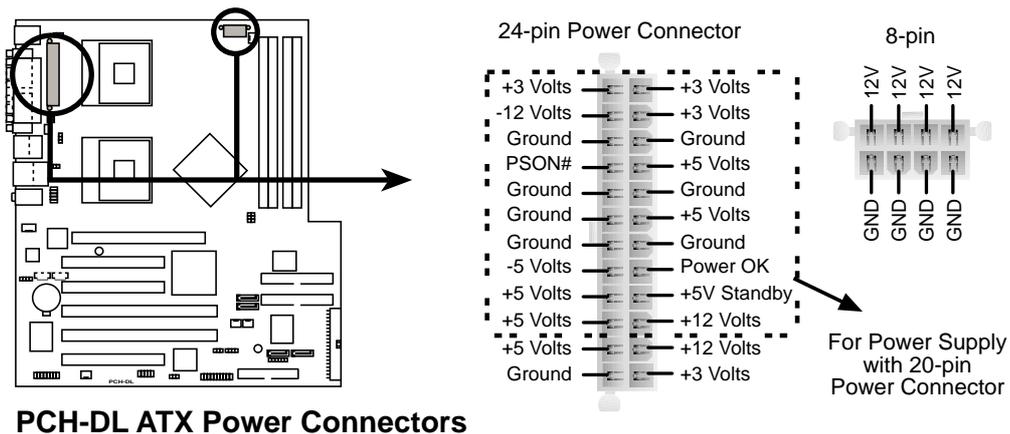
## 7. SSI power connectors (24-pin, 8-pin)

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

In addition to the 24-pin power connector, this motherboard requires that you connect the 8-pin +12V power plug to provide sufficient power to the CPU.



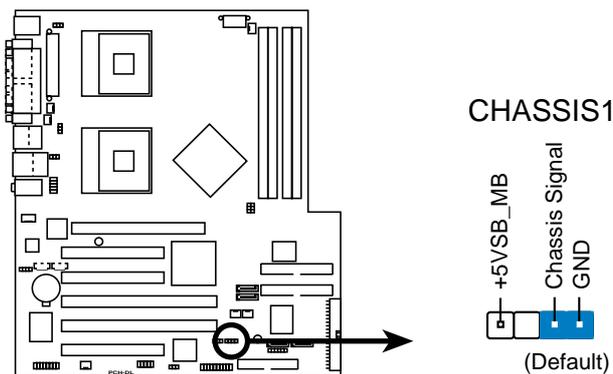
1. Do not forget to connect the 8-pin +12V power plug. Otherwise, the system does not boot up.
2. Make sure that your power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 300W. The system may become unstable or may not boot up if the power is inadequate.



## 8. Chassis intrusion connector (4-1 pin CHASSIS1)

This lead is for a chassis designed with intrusion detection feature. This requires an external detection mechanism such as a chassis intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event.

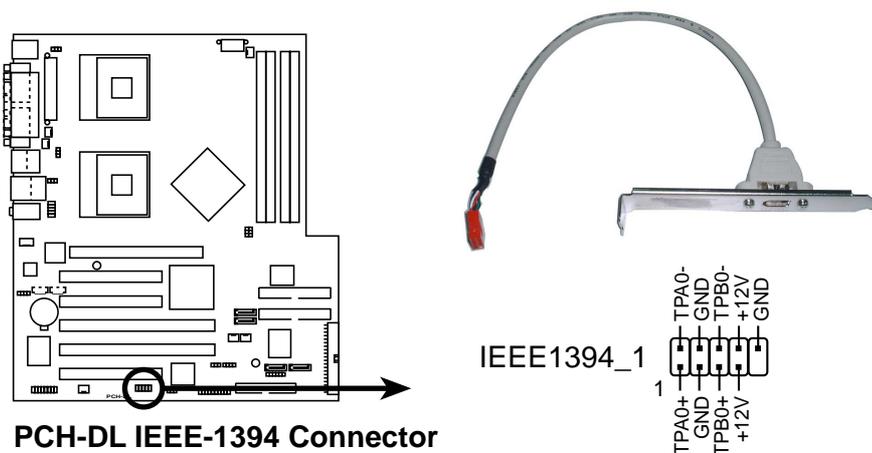
By default, the pins labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. If you wish to use the chassis intrusion detection feature, remove the jumper cap from the pins.



**PCH-DL Chassis Intrusion Connector**

## 9. IEEE 1394 connector (10-1 pin IEEE1394\_1)

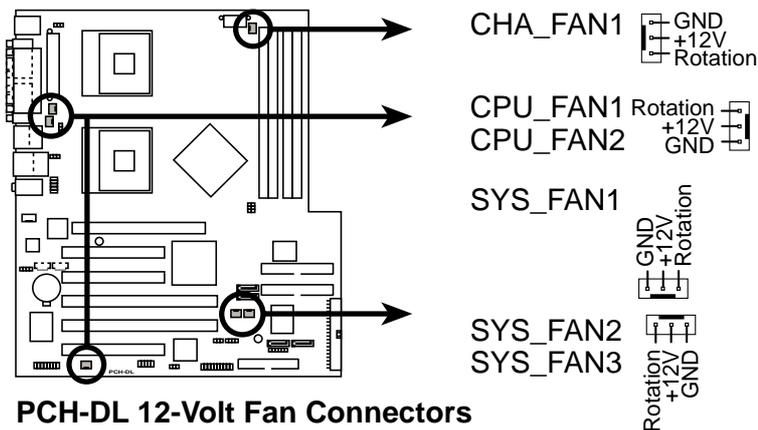
This connector is for a 1394 module. Attach the 10-1 pin 1394 cable plug from the module to this connector. You may also connect a 1394-compliant internal hard disk to this connector.



**PCH-DL IEEE-1394 Connector**

## 10. CPU, chassis, and system fan connectors (3-pin CHA\_FAN1, CPU\_FAN1/2, SYS\_FAN1/2/3)

The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.



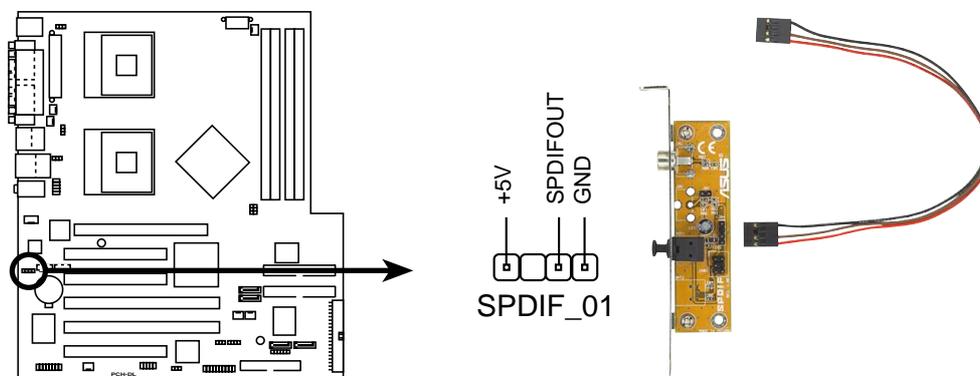
**PCH-DL 12-Volt Fan Connectors**



Do not forget to connect the fan cables to the fan connectors. Lack of sufficient air flow within the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors!

## 11. Digital audio connector (4-1 pin SPDIF\_O1)

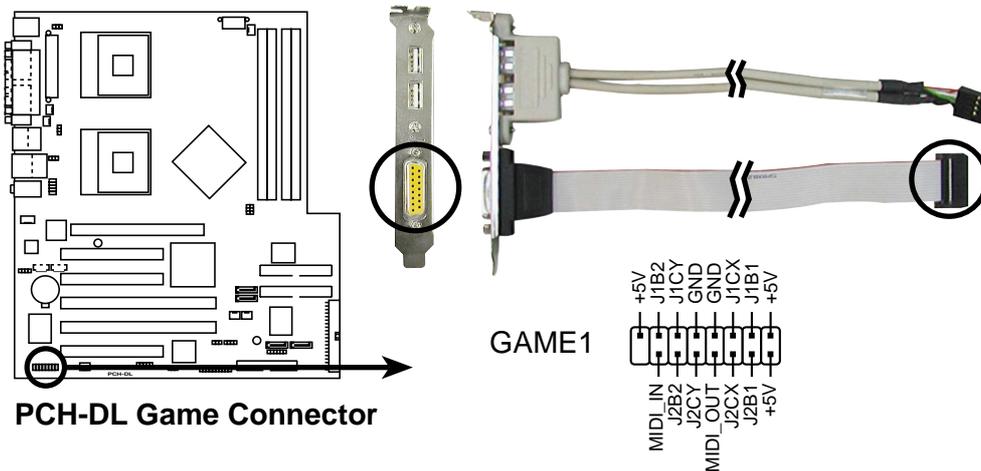
This S/PDIF Out connector is available for an S/PDIF audio module. Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module.



**PCH-DL Digital Audio Connector**

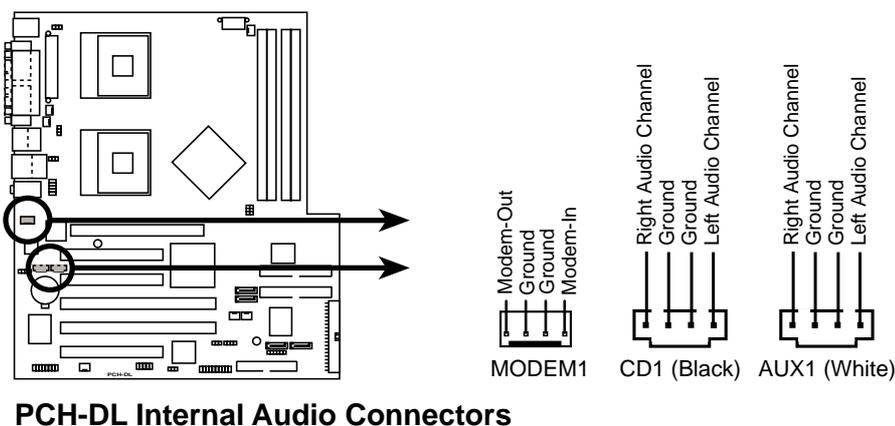
## 12. GAME/MIDI connector (16-1 pin GAME1)

This connector supports a GAME/MIDI module. Connect the GAME/MIDI cable to this connector. The GAME/MIDI port on the module connects a joystick or a game pad for playing games, and MIDI devices for playing or editing audio files.



## 13. Internal audio connectors (4-pin CD1, AUX1, MODEM1)

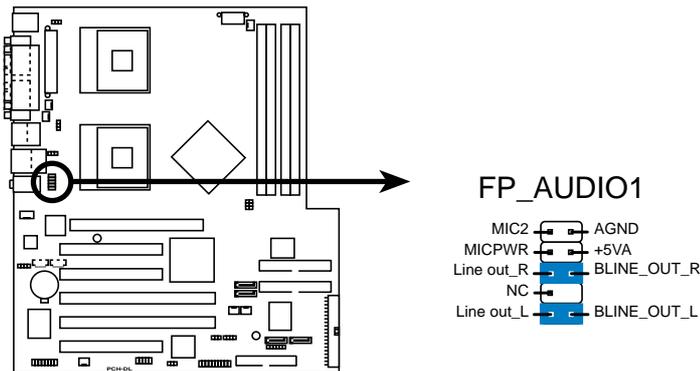
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card. The MODEM connector allows the onboard audio to interface with a voice modem card with a similar connector. It also allows the sharing of mono\_in (such as a phone) and a mono\_out (such as a speaker) between the audio and a voice modem card.



## 14. Front panel audio connector (10-1 pin FP\_AUDIO1)

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

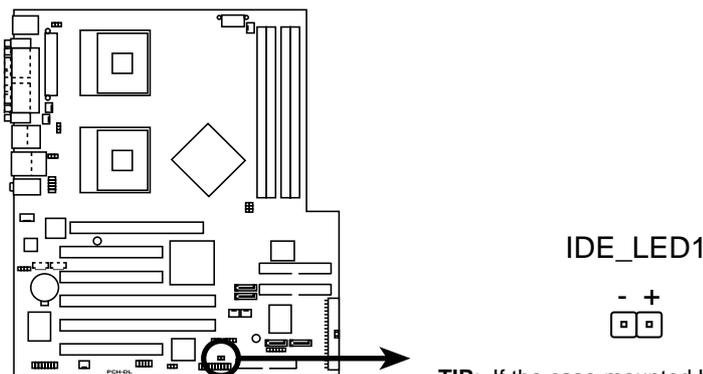
By default, the pins labeled LINE OUT\_R/BLINE\_OUT\_R and the pins LINE OUT\_L/BLINE\_OUT\_L are shorted with jumper caps. Remove the caps only when you are connecting the front panel audio cable.



**PCH-DL Intel Panel Connector**

## 15. Hard disk activity LED (2-pin IDE\_LED1)

This connector supplied power to the hard disk activity LED. The read or write activities of any device connected to the primary or secondary IDE connector cause this LED to light up.

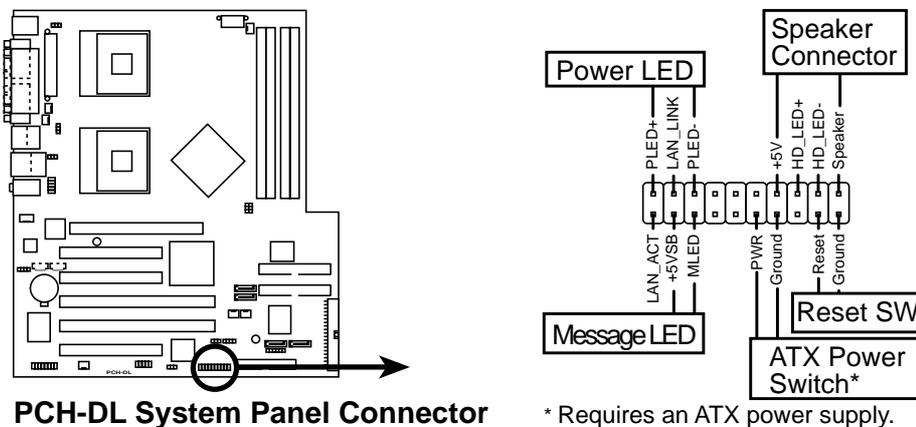


**PCH-DL IDE Activity LED**

**TIP:** If the case-mounted LED does not light up, try reversing the 2-pin plug.

## 16. System panel connector (20-pin PANEL)

This connector accommodates several system front panel functions.



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

This lead connects to the system power LED. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Message LED (2-pin MLED)**

This lead connects to the message LED cable on the front panel and indicates the booting status. The LED blinks when the system is in the boot process until the operating system is loaded.

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

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

- **Hard disk activity (2-pin HD\_LED)**

This lead connects the HDD LED cable. The read or write activities of the device connected to the any of IDE connectors cause the IDE LED to light up.

- **Power switch / Soft-off switch (2-pin PWR\_SW)**

This lead connects a switch that controls the system power. Pressing the power switch turns the system between ON and SLEEP, or ON and SOFT OFF, depending on the BIOS or OS settings. Pressing the power switch while in the ON mode for more than 4 seconds turns the system OFF.

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

This lead connects to the case-mounted reset switch for rebooting the system without turning off the system power.

# ***Chapter 3***

This chapter describes the power up sequence and gives information on the BIOS beep codes.

## **Powering up**

## **Chapter summary**

- 3.1 Starting up for the first time ..... 3-1**
- 3.2 Powering off the computer ..... 3-2**

## 3.1 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Be sure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
  - a. Monitor
  - b. External SCSI devices (starting with the last device on the chain)
  - c. System power
6. After applying power, the power LED on the system front panel case lights up. For SSI-type power supplies, the system LED lights up when you press the power switch. If your monitor complies with “green” standards or if it has a “power standby” feature, the monitor LED may light up or switch between orange and green after the system LED turns on. The system then runs the power-on tests. While the tests are running, the BIOS beeps (see BIOS beep codes table below) or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.

### Award/Phoenix BIOS beep codes

No. of Beeps	Description
2	Parity error
3	Main memory read/write test error
4	Motherboard timer not operational
6	Keyboard controller BAT test error
7	General exception error
8	Display memory error
10	CMOS shutdown register read/write error

7. At power on, hold down <Delete> to enter BIOS Setup. Follow the instructions in Chapter 4.

## 3.2 Vocal POST Messages

This motherboard includes the Winbond speech controller to support a special feature called the ASUS POST Reporter™. This feature gives you vocal POST messages and alerts to inform you of system events and boot status. In case of a boot failure, you will hear the specific cause of the problem.

These POST messages are customizable using the Winbond Voice Editor software that came with your package. You can record your own messages to replace the default messages.

Following is a list of the default POST messages and their corresponding actions, if any.

POST message	Action
No CPU installed	<ul style="list-style-type: none"><li>• Install an Intel® Xeon™ Processor into the CPU socket.</li></ul>
System failed CPU test	<ul style="list-style-type: none"><li>• Check the CPU if properly installed.</li><li>• Call ASUS technical support for assistance. See the “ASUS contact information.”</li></ul>
System failed memory test	<ul style="list-style-type: none"><li>• Install 184-pin unbuffered PC3200/2700/2100 DIMMs into the DIMM sockets.</li><li>• Check if the DIMMs on the DIMM sockets are properly installed.</li><li>• Make sure that your DIMMs are not defective.</li><li>• Refer to section “2.4 System memory” for instruction on installing a DIMM.</li></ul>
System failed VGA test	<ul style="list-style-type: none"><li>• Install a PCI VGA card into one of the PCI slots, or a +0.8V/1.5V AGP card into the AGP slot.</li><li>• Make sure that your VGA/AGP card is not defective.</li></ul>
System failed due to CPU over-clocking	<ul style="list-style-type: none"><li>• Check your CPU settings in BIOS and make sure you only set to the recommended settings.</li></ul>

POST message	Action
No keyboard detected	<ul style="list-style-type: none"> <li>• Check your keyboard if properly connected to the purple PS/2 connector on the rear panel.</li> <li>• See section “2.7.1 Rear panel connectors” for the location of the connector.</li> </ul>
No floppy disk detected	<ul style="list-style-type: none"> <li>• Make sure you have connected a floppy disk to the floppy disk connector on the motherboard.</li> <li>• See section “2.7 Connectors.”</li> </ul>
No IDE hard disk detected	<ul style="list-style-type: none"> <li>• Make sure you have connected an IDE hard disk drive to the one of the IDE connectors on the motherboard.</li> <li>• See section “2.7 Connectors.”</li> </ul>
CPU temperature too high	<ul style="list-style-type: none"> <li>• Check CPU fan if working properly.</li> </ul>
CPU fan failed	<ul style="list-style-type: none"> <li>• Check the CPU fan and make sure it turns on after you applied power to the system.</li> <li>• Make sure that your CPU fan supports the fan speed detection function.</li> </ul>
CPU voltage out of range	<ul style="list-style-type: none"> <li>• Check your power supply and make sure it is not defective.</li> <li>• Call ASUS technical support for assistance. See the “ASUS contact information.”</li> </ul>
System completed Power-On Self Test	<ul style="list-style-type: none"> <li>• No action required</li> </ul>
Computer now booting to operating system	<ul style="list-style-type: none"> <li>• No action required</li> </ul>

## 3.3 Powering off the computer

### 3.3.1 Using the OS shut down function

If you are using Windows® 2000 Professional or Windows® 2000 Server:

1. Click the **Start** button then click **Shut Down...**
2. Make sure that the **Shut down** option button is selected, then click the **OK** button to shut down the computer.
3. The power supply should turn off after Windows® shuts down.

If you are using Windows® XP or Windows® Server 2003:

1. Click the **Start** button then select **Turn Off Computer**.
2. Click the **Turn Off** button to shut down the computer.
3. The power supply should turn off after Windows® shuts down.

### 3.3.2 Using the dual function power switch

While the system is ON, pressing the power switch for less than 4 seconds puts the system to sleep mode or to soft-off mode, depending on the BIOS setting. Pressing the power switch for more than 4 seconds lets the system enter the soft-off mode regardless of the BIOS setting. See section “4.5 Power Menu” in Chapter 4.

# ***Chapter 4***

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

## **BIOS setup**

## **Chapter summary**

<b>4.1</b>	<b>Managing and updating your BIOS .....</b>	<b>4-1</b>
<b>4.2</b>	<b>BIOS Setup program .....</b>	<b>4-3</b>
<b>4.3</b>	<b>Main menu .....</b>	<b>4-6</b>
<b>4.4</b>	<b>Advanced menu .....</b>	<b>4-12</b>
<b>4.5</b>	<b>Power menu .....</b>	<b>4-26</b>
<b>4.6</b>	<b>Boot menu .....</b>	<b>4-32</b>
<b>4.7</b>	<b>Exit menu .....</b>	<b>4-37</b>

## 4.1 Managing and updating your BIOS



- 
- The **original BIOS file** for this motherboard is in the support CD.
  - Copy the original BIOS to a **bootable floppy disk** in case you need to restore the BIOS in the future.
- 

### 4.1.1 Creating a bootable floppy disk

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

#### **DOS environment**

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

**format a: /s**, then press the <Enter> key

#### **Windows® XP environment**

- a. Insert a new 1.44 MB floppy disk in the floppy disk drive.
  - b. From the Windows desktop, click **Start > My Computer**.
  - c. In the **My Computer** window, click the **3 1/2 Floppy** icon.
  - d. From the Menu bar, click **File > Format**.
  - e. Select “**Create an MS-DOS Startup Disk**” in the **Format Options** field, then click **Start**.
2. Copy the original (or the latest) motherboard BIOS to the bootable floppy disk.

## 4.1.2 Updating the BIOS

The Basic Input/Output System (BIOS) can be updated using the AwardBIOS Flash Utility (AWDFLASH.EXE). Follow these instructions to update the BIOS using this utility.

1. Download the latest BIOS file from the ASUS web site. Rename the file to **\*.BIN** and save it to a floppy disk.
2. Insert the disk that contains the new BIOS file into the floppy drive.



---

Save only the updated BIOS file in the floppy disk to avoid loading the wrong BIOS file.

---

3. Reboot the computer.
4. Press <Alt> + <F2> during POST to display the following screen.

```
AwardBIOS Flash Utility V8.24B
(C)Phoenix Technologies Ltd. All Rights Reserved

For KM400-8235-6A6LYA0AC-00  DATE: 05/19/2003
Flash Type - SST-39SF020 /5V
File Name to Program : 1001-015.BIN

Message: Please Wait!
```

5. AWDFLASH checks the new BIOS file from the floppy disk.
6. After verification, AWDFLASH flashes the new BIOS file. Do not shut down the computer during the flash process.

```
AwardBIOS Flash Utility V8.24B
(C)Phoenix Technologies Ltd. All Rights Reserved

For KM400-8235-6A6LYA0AC-00  DATE: 05/19/2003
Flash Type - SST-39SF020 /5V
File Name to Program : 1001-015.BIN
Program Flashing Memory

█ Write OK █ No Update █ Write Fail

Warning: Don't Turn Off Power Or Reset System!
```

7. After the new BIOS file is copied, the computer returns to POST.

## 4.2 BIOS Setup program

This motherboard includes a Flash ROM that you can update using the provided utility described in section “4.1 Managing and updating your BIOS.”

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

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

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

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

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

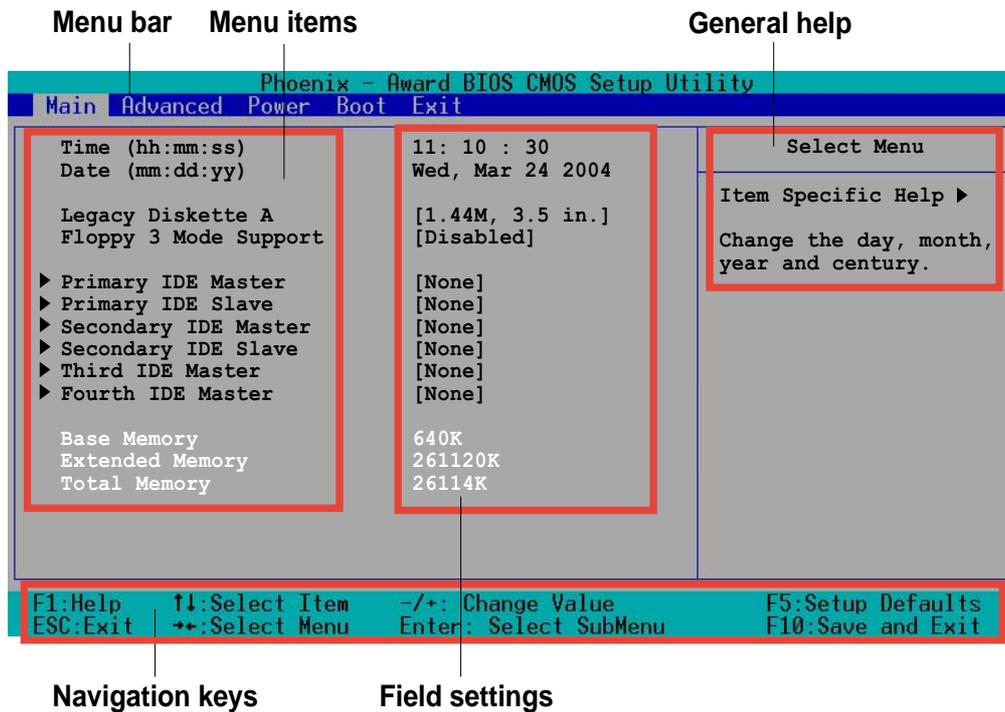


---

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

---

## 4.2.1 BIOS menu screen



## 4.2.2 Menu bar

The menu bar on top of the screen has the following main items:

- Main** For changing the basic system configuration settings
- Advanced** For changing the advanced system settings
- Power** For changing the power configuration settings
- Boot** For changing the system boot configuration settings
- Exit** For selecting the exit options and loading default settings

To select the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

### 4.2.3 Navigation keys

At the **bottom** 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.



---

The navigation keys differ from one screen to another.

---

### 4.2.4 General help

On the right side of the menu screen is a brief description of the selected item.

### 4.2.5 Sub-menu

An item with a sub-menu on any menu screen is distinguished by a solid triangle before the item. To display the sub-menu, select the item and press Enter.

### 4.2.6 Scroll bar

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

### 4.2.7 Pop-up window

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

## 4.3 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 “4.2.1 BIOS menu screen” for information on the menu screen items and how to navigate through them.

Phoenix - Award BIOS CMOS Setup Utility		
Main Advanced Power Boot Exit		
Time (hh:mm:ss)	11: 10 : 30	Select Menu
Date (mm:dd:yy)	Wed, Mar 24 2004	
Legacy Diskette A	[1.44M, 3.5 in.]	Item Specific Help ► Change the day, month, year and century.
Floppy 3 Mode Support	[Disabled]	
▶ Primary IDE Master	[None]	
▶ Primary IDE Slave	[None]	
▶ Secondary IDE Master	[None]	
▶ Secondary IDE Slave	[None]	
▶ Third IDE Master	[None]	
▶ Fourth IDE Master	[None]	
Base Memory	640K	
Extended Memory	261120K	
Total Memory	26114K	
F1:Help    ↑↓:Select Item    -/+ : Change Value    F5:Setup Defaults		
ESC:Exit    ++:Select Menu    Enter: Select SubMenu    F10:Save and Exit		

### Time (hh:mm:ss)

Sets the system to the time that you specify (usually the current time). The format is hour:minute:second. Valid values for hour, minute, and second are Hour: (00 to 23), Minute: (00 to 59), Second: (00 to 59). Use the <Tab> key to move between the hour, minute, and second fields.

### Date (mm:dd:yy)

Sets the system to the date that you specify (usually the current date). The format is month:day:year. Valid values for month, day, and year are Month: (1 to 12), Day: (1 to 31), Year: (1999 to 2099). Use the <Tab> key to move between the month, day, and year fields.

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

Sets the type of floppy drive installed. Configuration options: [None] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K , 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

### Floppy 3 Mode Support [Disabled]

This is required to support older Japanese floppy drives. The Floppy 3 Mode feature allows reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.5-inch floppy disk. Configuration options: [Disabled] [Enabled]

## Base/Extended/Total Memory [xxxK]

The base memory, extended memory, and total memory values are auto-detected. These fields are not user-configurable.

### 4.3.1 Primary IDE Master

Phoenix - Award BIOS CMOS Setup Utility	
Main	
Primary Master	Select Menu
Auto-Detection [Press Enter]	Item Specific Help ►
Primary IDE Master [Auto]	To auto-detect the
Access Mode [Auto]	HDD's size, head...on
Capacity 0 MB	this channel.
Cylinder 0	
Head 0	
Precomp 0	
Landing Zone 0	
Sector 0	
PIO Mode [Auto]	
UDMA Mode [Auto]	
Transfer Mode None	
S.M.A.R.T Status None	

F1:Help   ↑↓:Select Item   -/+ : Change Value   F5:Setup Defaults  
ESC:Exit   →←:Select Menu   Enter: Select SubMenu   F10:Save and Exit

#### Auto-Detection [Press Enter]

Press Enter to automatically detect an IDE drive, if the drive is not yet detected. Upon pressing Enter, the message “Detecting Hard Drive...” appears as the BIOS attempts to detect the presence of a IDE drive.

#### Primary IDE Master [Auto]

Select [Auto] to automatically detect an IDE drive. If automatic detection is successful, the setup BIOS automatically fills in the correct values for the remaining fields on this sub-menu.

If automatic detection fails, this may be because the IDE drive is too old or too new. If the drive was already formatted on a previous system, the BIOS may detect incorrect parameters. In these cases, select [Manual] to manually enter the IDE drive parameters. Refer to the section “Manually detecting an IDE drive.”

If no drive is installed or if you are removing a drive and not replacing it, select [None]. Configuration options: [None] [Auto] [Manual]



The IDE drive information items are grayed out when this item is set to [Auto].

### **Access Mode [Auto]**

Allows selection of the sector addressing mode. The default [Auto] allows automatic detection of an IDE drive. Set this item to [CHS] if the **Primary IDE Master** item is set to [Manual] so you can manually enter the drive values. Configuration options: [CHS] [LBA] [Large] [Auto]

### **PIO Mode [Auto]**

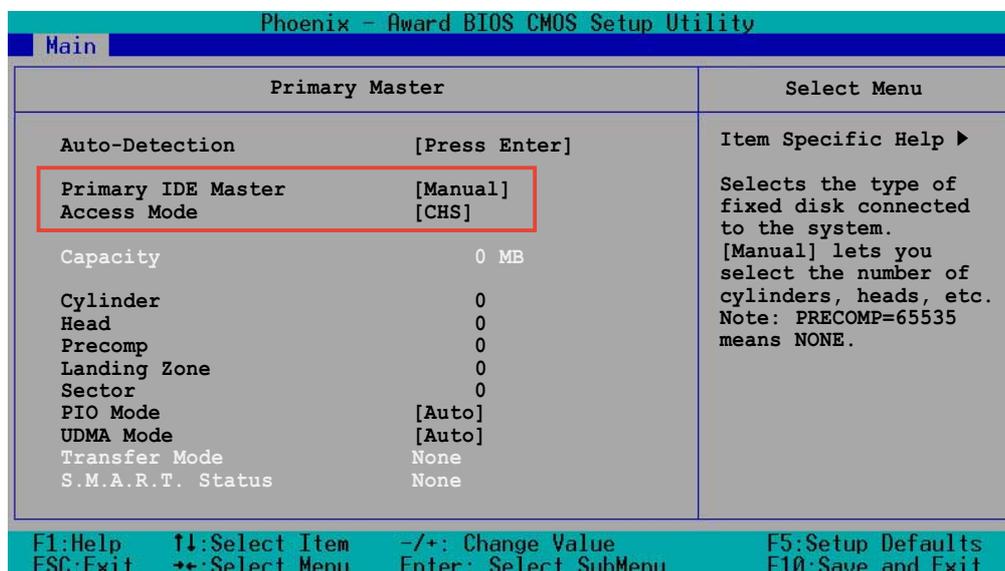
Sets the PIO mode for the IDE drive. The settings Mode 0 to 4 allow successive increase in performance. Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

### **UDMA Mode [Auto]**

When this item is set to [Auto], the UDMA capability allows improved transfer speeds and data integrity for supported IDE drives. Configuration options: [Disabled] [Auto]

## Manually detecting an IDE drive

If you wish to manually enter the drive information, set the Primary IDE Master item to [Manual], and the Access Mode item to [CHS].



Before attempting to manually configure an IDE drive, make sure that you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed IDE drive!

To manually enter the number of cylinder, head, precomp, landing zone, and sector per track for the drive, highlight an item, key-in the value that you obtained from the drive documentation, then press Enter. Refer to the drive documentation or the drive label for this information.

To enter a value, you may also highlight the item, then press Enter to display a pop-up menu. Type in the value from the drive documentation, then press Enter.

### Capacity [xxxxx MB]

Displays the auto-detected hard disk capacity. The value is not user-configurable.

### Cylinder

Shows the number of the hard disk cylinders.

### Head

Shows the number of the hard disk read/write heads.

## **Precomp**

Displays the precompressed volumes on the hard disk, if any, on the motherboard.

## **Landing Zone**

Displays the drive's maximum usable capacity as calculated by the BIOS based on the drive information you entered.

## **Sector**

Shows the number of sectors per track.

## **Transfer Mode**

Shows the data transfer mode if the IDE hard disk drive supports the feature. Otherwise, this item is grayed out and shows the value [None].

## **S.M.A.R.T. Status**

Shows the Smart Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) status if the IDE hard disk drive supports the feature. Otherwise, this item is grayed out and shows the value [None].



---

After entering the IDE hard disk drive information, use a disk utility, such as FDISK, to partition and format new IDE drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drive to "Active."

---

## **4.3.2 Primary IDE Slave**

When configuring a drive as Primary IDE Slave, refer to section "4.3.1 Primary IDE Master" for the menu item descriptions.

## **4.3.3 Secondary IDE Master**

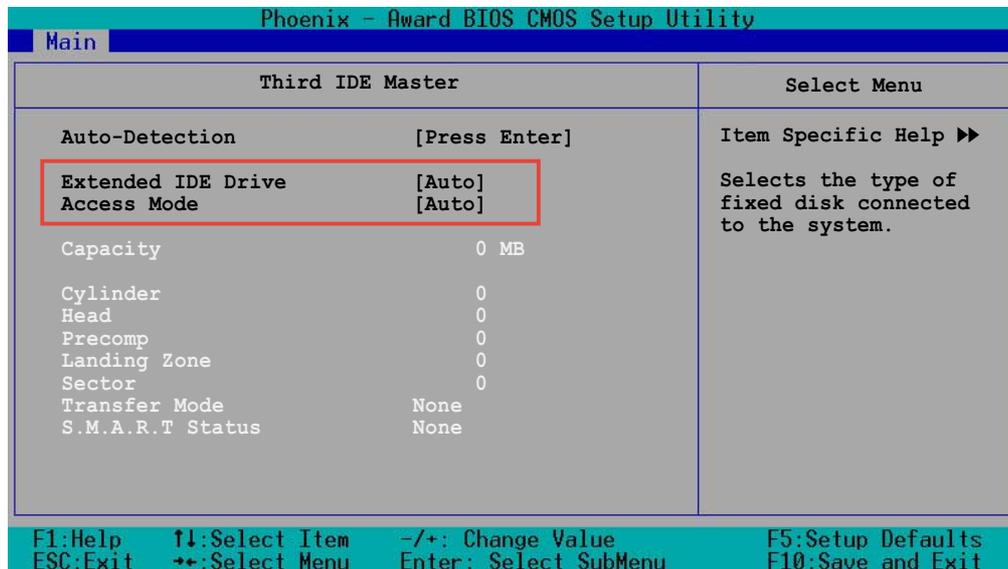
When configuring a drive as Secondary IDE Master, refer to section "4.3.1 Primary IDE Master" for the menu item descriptions.

## **4.3.4 Secondary IDE Slave**

When configuring a drive as Secondary IDE Slave, refer to section "4.3.1 Primary IDE Master" for the menu item descriptions.

## 4.3.5 Third IDE Master

When configuring a drive as Third IDE Master, refer to section “4.3.1 Primary IDE Master” for the menu item descriptions which are not discussed in this section.



### Extended IDE Drive [Auto]

When set to [Auto], allows automatic selection of the extended IDE drive installed, if any. Set this item to [None] if there is no extended IDE drive, or if you do not wish to detect the drive even if installed. Configuration options: [None] [Auto]

### Access Mode [Auto]

Configuration options: [Large] [Auto]

## 4.3.6 Fourth IDE Master

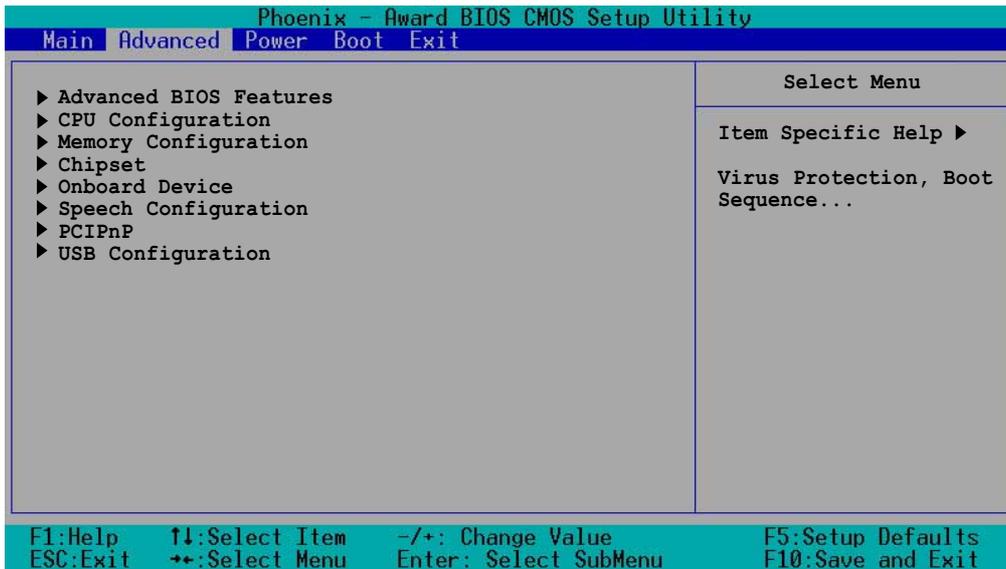
When configuring a drive as Fourth IDE Master, refer to section “4.3.1 Primary IDE Master” and section “4.3.5 Third IDE Master” for the menu item descriptions.

## 4.4 Advanced menu

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

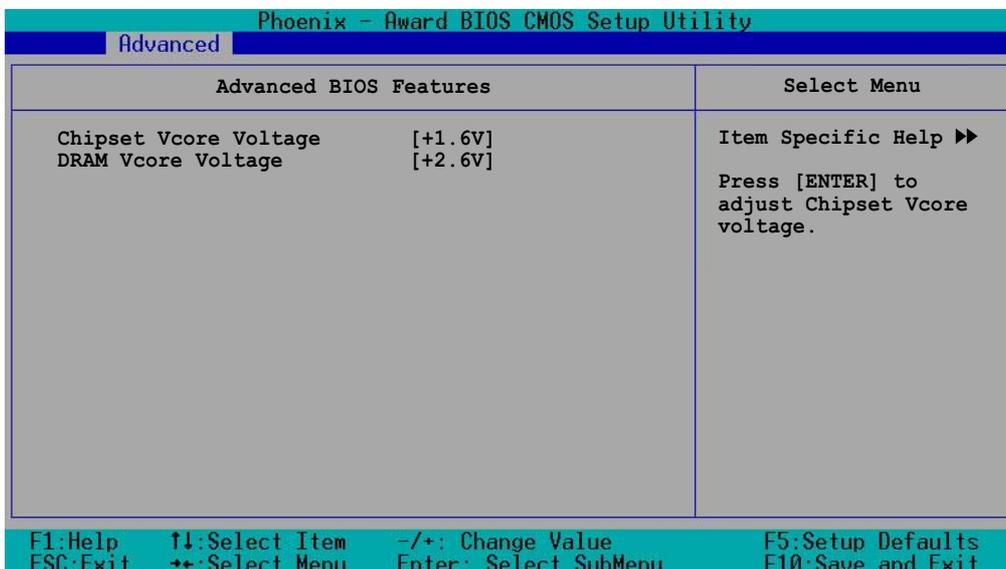


Take caution when changing the settings of the Advanced menu items. Incorrect field values may cause the system to malfunction!



### 4.4.1 Advanced BIOS Features

This menu shows the chipset and DRAM Vcore voltage settings. Select an item then press Enter to display a pop-up menu with the configuration options.





Setting to very high Vcore voltages may cause the system to become unstable!

### Chipset Vcore Voltage [+1.6V]

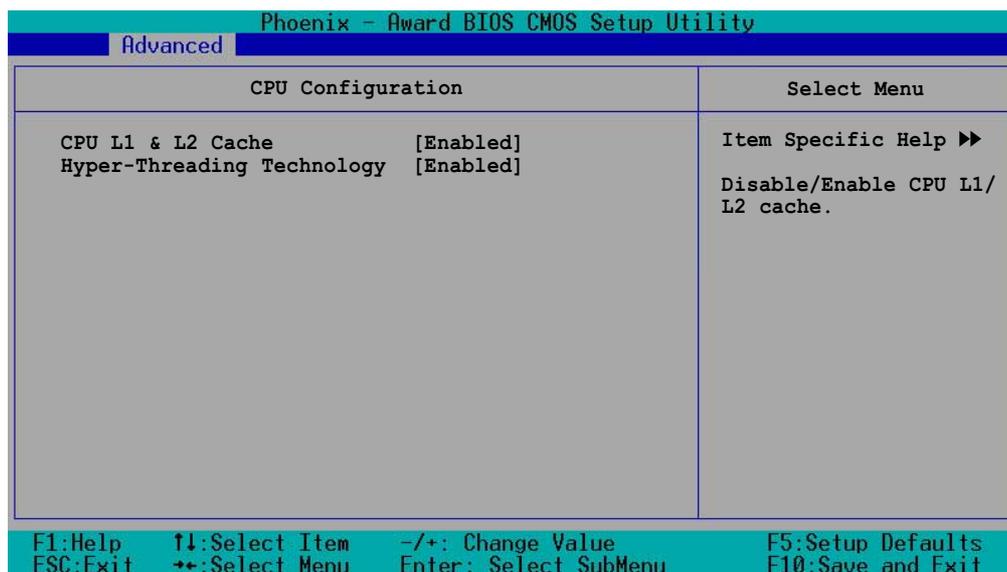
Allows adjustment of the chipset Vcore voltage. Configuration options: [+1.5V] [+1.6V] [+1.7V] [+1.8V]

### DRAM Vcore Voltage [+2.6V]

Allows adjustment of the DRAM Vcore voltage. Configuration options: [+2.8V] [+2.7V] [+2.6V]

## 4.4.2 CPU Configuration

This menu shows the CPU configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.



### CPU L1 & L2 Cache [Enabled]

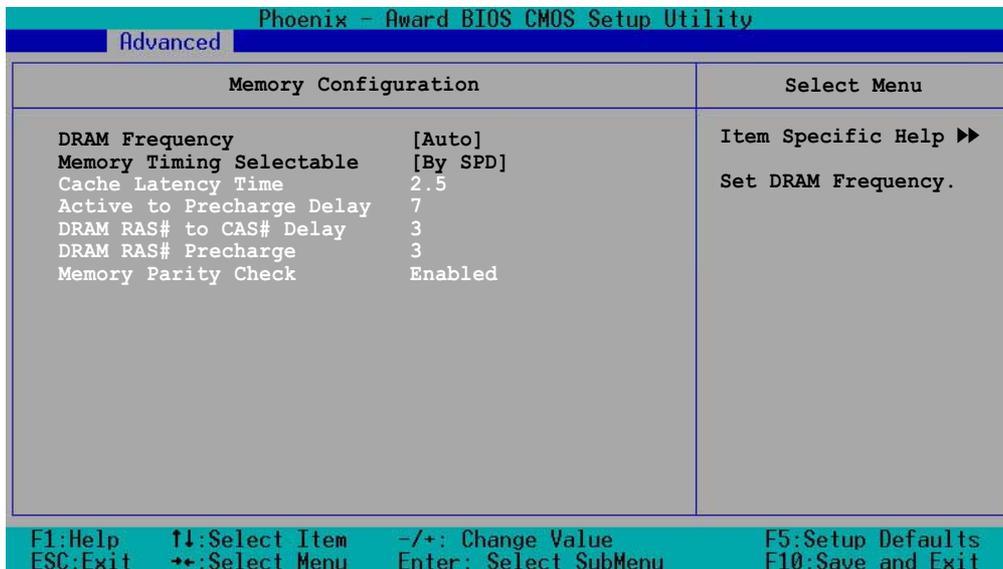
Allows you to enable or disable the CPU L1 and L2 cache. Configuration options: [Disabled] [Enabled]

### Hyper-Threading Technology [Enabled]

Allows you to enable or disable the CPU Hyper-Threading Technology feature. Set this item to [Enabled] if you are using an operating system that is optimized for Hyper-Threading Technology, such as Windows XP or Linux 2.4. Otherwise, set this item to [Disabled]. Configuration options: [Disabled] [Enabled]

## 4.4.3 Memory Configuration

This menu shows the memory configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.



### DRAM Frequency [Auto]

This item sets the DRAM operating frequency. Configuration options: [DDR266] [DDR333] [Auto]

### Memory Timing Selectable [By SPD]

The DRAM clock are set according to the DRAM SPD (Serial Presence Detect). Select [By SPD] for automatic DRAM clock detection. Select [Manual] to allow setting the succeeding memory items to optimal timings. Configuration options: [Manual] [By SPD]



The items CAS Latency Time, Active to Precharge Delay, DRAM RAS# to CAS# Delay, and DRAM RAS# Precharge are configurable only when the Memory Timing Selectable item is set to [Manual].

### CAS Latency Time [2.5]

This item sets the latency (in clocks) between the DRAM read command and the time the data actually becomes available. Configuration options: [2] [2.5] [3]

### Active to Precharge Delay [7]

This item controls the number of DRAM clocks used for DRAM parameters. Configuration options: [8] [7] [6] [5]

### DRAM RAS# to CAS# Delay [3]

Controls the latency between the DRAM active command and the read/write command. Configuration options: [4] [3] [2]

### DRAM RAS# Precharge [3]

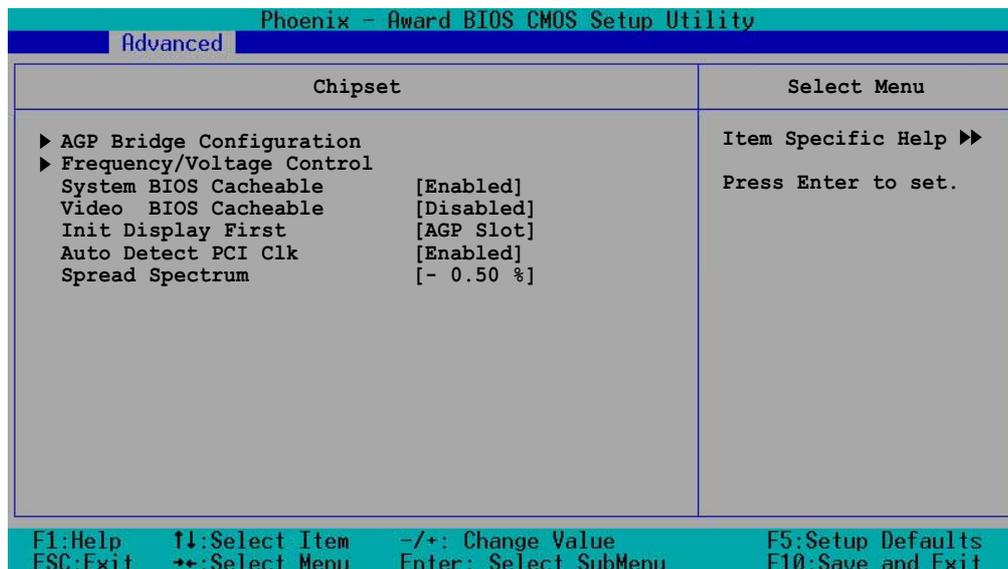
This item controls the idle clocks after issuing a precharge command to the DDR SDRAM. Configuration options: [4] [3] [2]

### Memory Parity Check [Enabled]

Allows memory parity checking option (ECC). This item is not user-configuration but set to [Enabled] by default.

## 4.4.4 Chipset

This menu shows the chipset configuration settings. Select an item then press Enter to display a sub-menu with additional items, or show a pop-up menu with the configuration options.



### System BIOS Cacheable [Enabled]

Allows you to enable or disable the cache function of the system BIOS. Configuration options: [Disabled] [Enabled]

### Video BIOS Cacheable [Disabled]

Allows you to enable or disable the cache function of the video BIOS. Setting to [Enabled] improves the display speed by caching the display data. Configuration options: [Disabled] [Enabled]

### Init Display First [AGP Slot]

Allows you to select the graphics controller to use as primary boot device.  
Configuration options: [PCI VGA Card] [AGP Slot]

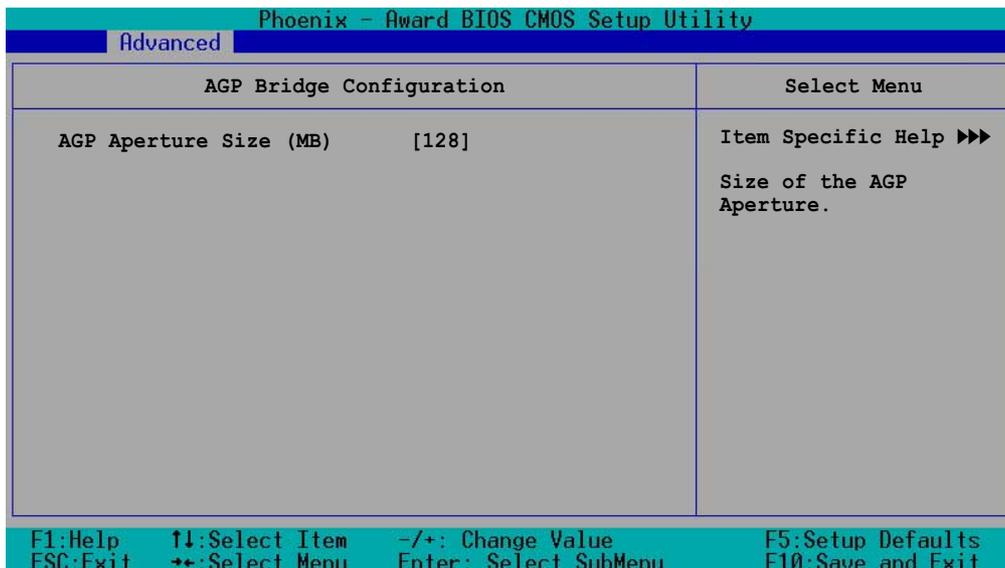
### Auto Detect PCI Clk [Enabled]

Allows you to select the maximum PCI bus speed to be programmed.  
Configuration options: [Enabled] [Disabled]

### Spread Spectrum [- 0.50%]

Allows you to select the clock generator spread spectrum. Configuration options: [Disabled] [- 0.40%] [- 0.50%] [- 0.60%] [- 1.00%]

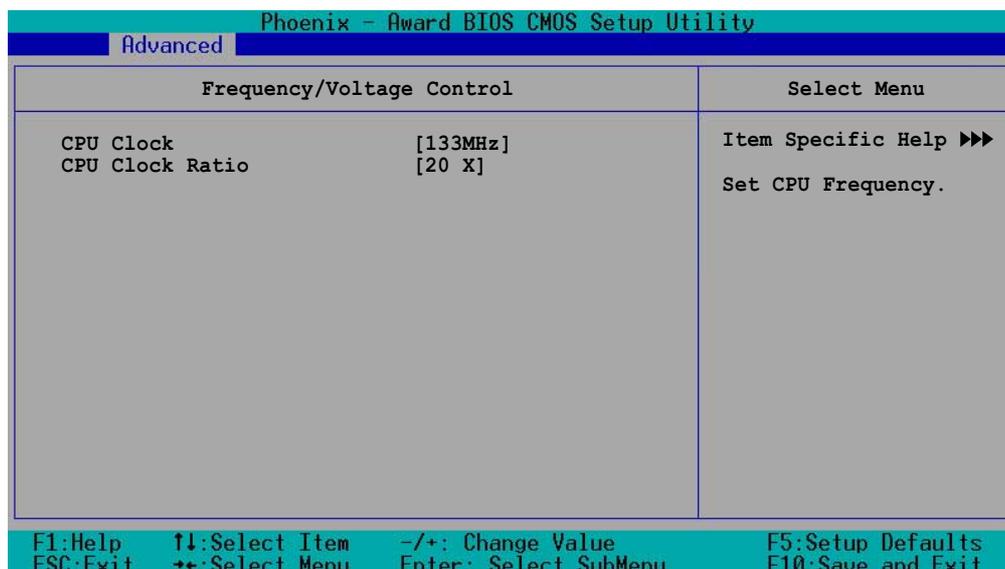
## AGP Bridge Configuration



### AGP Aperture Size [128]

This feature allows you to select the size of mapped memory for AGP graphic data. Configuration options: [4] [8] [16] [32] [64] [128] [256]

## Frequency/Voltage Control



Take caution when overclocking the CPU. Overclocking may cause the system to be unstable.

### CPU Clock [133MHz]

Allows you to set the CPU frequency. Key-in a value within the specified range, then press Enter. Configuration options: [Min=133] [Max=165]

### CPU Clock Ratio [20 X]

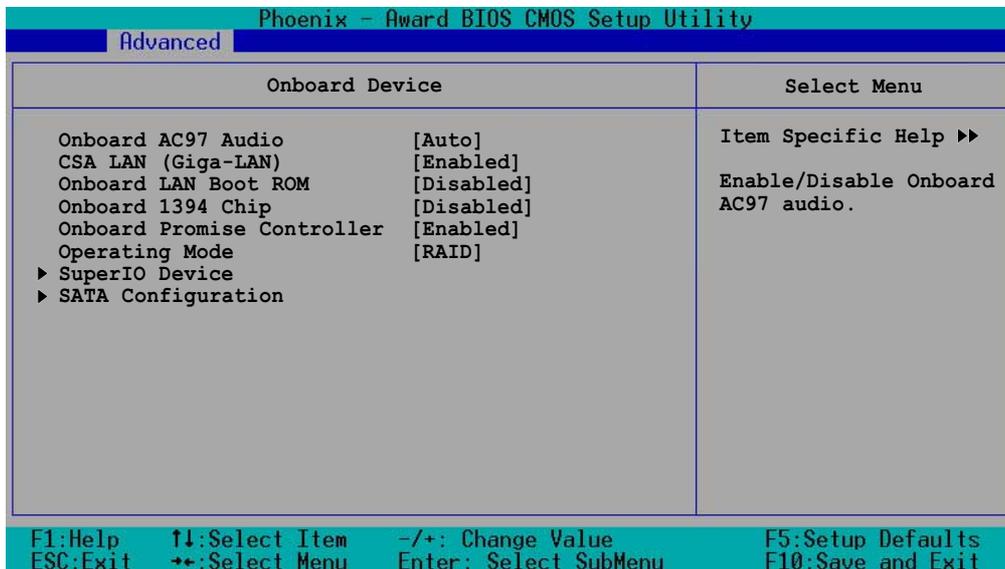
Sets the ratio between the CPU core clock and the Front Side Bus (FSB) frequency. Key-in a value within the specified range, then press Enter. Configuration options: [Min=12] [Max=23]



The minimum and maximum configuration values depend on the installed CPU.

## 4.4.5 Onboard Device

This menu shows the onboard device configuration settings. Select an item then press Enter to display a sub-menu with additional items, or show a pop-up menu with the configuration options.



### Onboard AC97 Audio [Auto]

Allows you to enable or disable the onboard AC97 audio controller.  
Configuration options: [Auto] [Disabled]

### CSA LAN (Giga-LAN) [Enabled]

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

### Onboard LAN Boot ROM [Disabled]

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

### Onboard 1394 [Enabled]

Allows you enable or disable the onboard IEEE 1394 controller.  
Configuration options: [Disabled] [Enabled]

### Onboard Promise Controller [Enabled]

Allows you enable or disable the onboard Promise® RAID controller.  
Configuration options: [Disabled] [Enabled]

## Operating Mode [RAID]

Allows you to set the RAID controller operating mode. This item is configurable only when the **Onboard Promise Controller** item is set to [Enabled]. Configuration options: [IDE] [RAID]

## SuperIO Device

Phoenix - Award BIOS CMOS Setup Utility	
Advanced	
SuperIO Device	Select Menu
Serial Port1 Address [3F8/IRQ4]	Item Specific Help >>>  Set Base I/O address for serial port 1.
Serial Port2 Address [2F8/IRQ3]	
Onboard Parallel Port [378/IRQ7]	
Parallel Port Mode [SPP]	
EPP Mode Select EPP1.7	
ECP Mode Use DMA 3	
Game Port Address [201]	
MIDI Port Address [330]	
MIDI Port IRQ [10]	
F1:Help    F10:Select Item    -/+ : Change Value    F5:Setup Defaults ESC:Exit    ++:Select Menu    Enter: Select SubMenu    F10:Save and Exit	

### Serial Port 1 [3F8/IRQ4]

### Serial Port 2 [2F8/IRQ3]

Allow you to select the serial port base addresses. Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3] [Auto]

### Onboard Parallel Port [378/IRQ7]

Allows you to select the parallel port base address. Configuration options: [Disabled] [378/IRQ7] [278/IRG5] [3BC/IRQ7]

### Parallel Port Mode [SPP]

Allows you to select the parallel port mode. Configuration options: [SPP] [EPP] [ECP] [ECP+EPP] [Normal]

### EPP Mode Select [EPP1.7]

Allows you to select the EPP mode. This item becomes configurable only if the **Parallel Port Mode** is set to [EPP] or [ECP+EPP]. Configuration options: [EPP 1.7] [EPP 1.9]

## ECP Mode Use DMA [3]

Allows you to select the ECP mode. This item becomes configurable only if the **Parallel Port Mode** is set to [ECP] or [ECP+EPP]. Configuration options: [1] [3]

## Game Port Address [201]

Allows you to select the game port address. Configuration options: [Disabled] [201] [209]

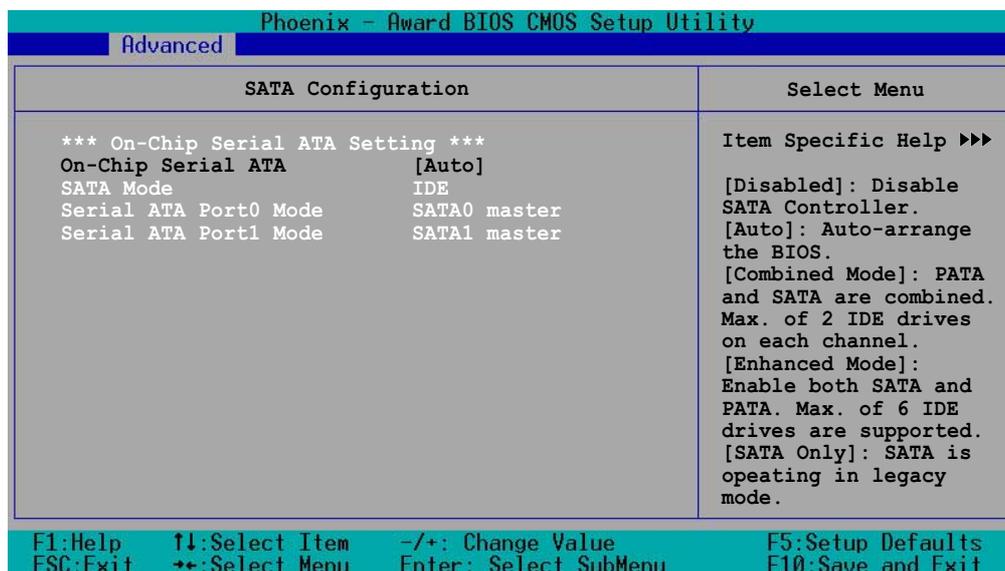
## Midi Port Address [330]

Allows you to select the MIDI port address. Configuration options: [Disabled] [330] [300] [290]

## Midi Port IRQ [10]

Allows you to select the MIDI port IRQ. Configuration options: [5] [10]

## SATA Configuration



## \*\*On-Chip Serial ATA Setting



1. The items SATA Mode, Serial ATA Port0 Mode, and Serial ATA Port1 Mode are configurable only when the On-Chip Serial ATA item is not set to [Disabled].
2. Refer to the Parallel ATA and Serial ATA device configurations on page 2-24 for more information when installing IDE devices.

## On-chip Serial ATA [Auto]

This item allows you to configure your serial ATA devices if present. Configuration options: [Disabled] [Auto] [Combined Mode] [Enhanced Mode] [SATA Only]

- a. Setting to **[Auto]** allows BIOS to automatically configure the SATA devices.
- b. Setting to **[Combined Mode]** allows you to install parallel ATA and serial ATA devices at the same time. You may install **two IDE devices on any of the parallel ATA channels**, and **one IDE device on each serial ATA channel** for a maximum of **four** devices.
- c. Setting to **[Enhanced Mode]** allows you to install parallel ATA and serial ATA devices at the same time, with a maximum of **six** IDE devices on each channel. Use this option when you installed a native operating system like Windows 2000/XP.
- d. Setting to **[SATA Only]** allows you to install IDE devices on the Serial ATA channels only.
- e. Setting to **[Disabled]** disables the onboard SATA controller. The RAID feature is also disabled.

## SATA Mode [IDE]

When set to [RAID], this item allows configuration of the installed IDE devices into a disk array. See Chapter 5 for information on RAID configuration. Configuration options: [IDE] [RAID]

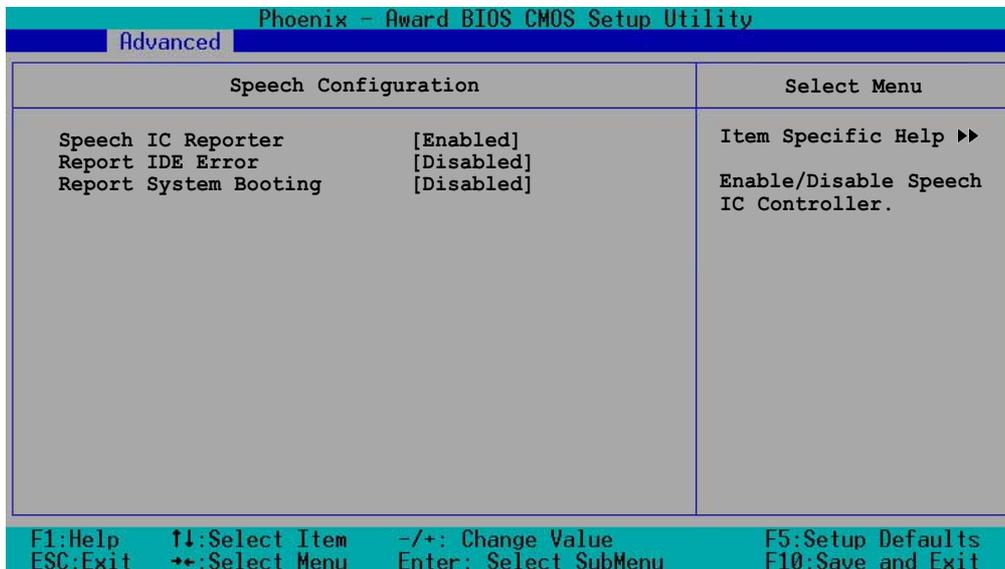
## Serial ATA Port0 Mode [Primary Master]

## Serial ATA Port1 Mode [Primary Master]

Allow you to set the SATA Port0 and Serial ATA Port1 modes. The options for these items vary depending on the setting of the **On-Chip Serial ATA** item. Configuration options: [Primary Master] [Primary Slave] [Secondary Master] [Secondary Slave] [SATA0 Master] [SATA1 Master]

## 4.4.6 Speech Configuration

This menu shows the ASUS POST Reporter™ configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.



### Speech IC Controller [Enabled]

Allows you enable or disable the Speech IC controller. Configuration options: [Disabled] [Enabled]

### Report IDE Error [Disabled]

Allows you enable or disable the IDE error reporting function. Configuration options: [Disabled] [Enabled]

### Report System Booting [Disabled]

Allows you enable or disable the system boot error reporting function. Configuration options: [Disabled] [Enabled]

## 4.4.7 PCIPnP

This menu shows the PCIPnP configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility	
Advanced	
PCIPnP	Select Menu
Reset Configuration Data [Disabled]	Item Specific Help ►►
Resources Controlled By [Auto(ESCD)] IRQ Resources	Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) upon exiting Setup, if you installed a new add-on card and the system cannot boot due to a serious conflict in system configuration.
PCI/VGA Pallete Snoop [Disabled]	
INT Pin 1 Assignment [Auto]	
INT Pin 2 Assignment [Auto]	
INT Pin 3 Assignment [Auto]	
INT Pin 4 Assignment [Auto]	
INT Pin 5 Assignment [Auto]	
INT Pin 6 Assignment [Auto]	
INT Pin 7 Assignment [Auto]	
INT Pin 8 Assignment [Auto]	

F1:Help    ↑↓:Select Item    -/+ : Change Value    F5:Setup Defaults  
ESC:Exit    ←→:Select Menu    Enter: Select SubMenu    F10:Save and Exit

### Reset Configuration Data [Disabled]

Allows you to enable or disabled resetting of the Extended System Configuration Data (ESCD) when you exit the Setup. The ESCD includes information on non-PnP devices. Set this item to [Enabled] if you installed an expansion card that conflicts with other devices and cause system boot failure. Configuration options: [Disabled] [Enabled]

### Resources Controlled By [Auto(ESCD)]

When set to [Auto(ESCD)], allows BIOS to automatically configure of all boot and Plug and Play devices. When set to [Manual], you can assign the available IRQ Resources to the PCI devices. Configuration options: [Auto(ESCD)] [Manual]



When the item **Resources Controlled By** is set to [Auto(ESCD)], the item **IRQ Resources** is grayed out and not user-configurable. Refer to the section “IRQ Resources” for information on how to enable this item.

### PCI/VGA Pallete Snoop [Disabled]

Some non-standard VGA cards, like graphics accelerators or MPEG video cards, may not show colors properly. Setting this field to [Enabled] corrects this problem. If you are using a standard VGA card, leave this field to the default setting [Disabled]. Configuration options: [Disabled] [Enabled]

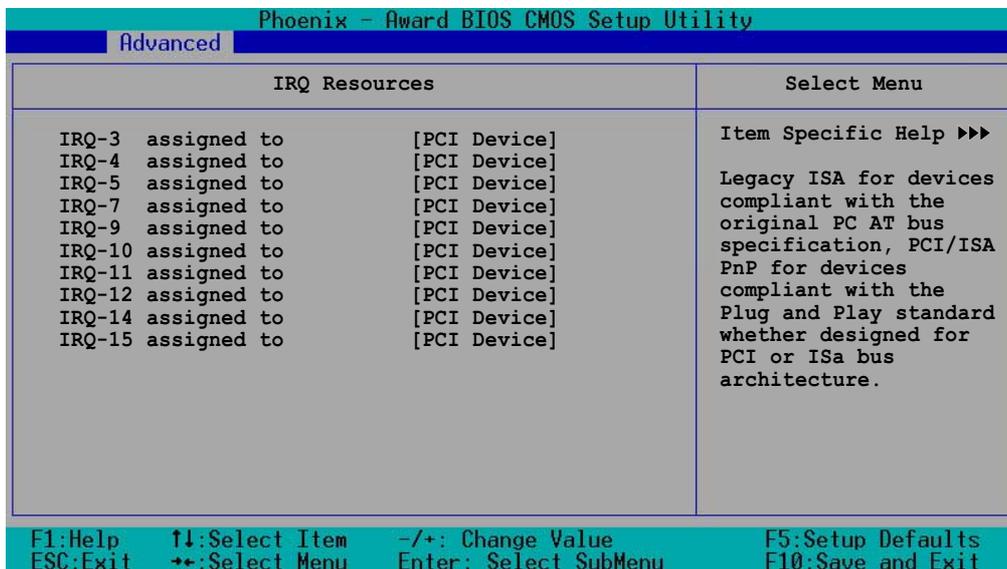
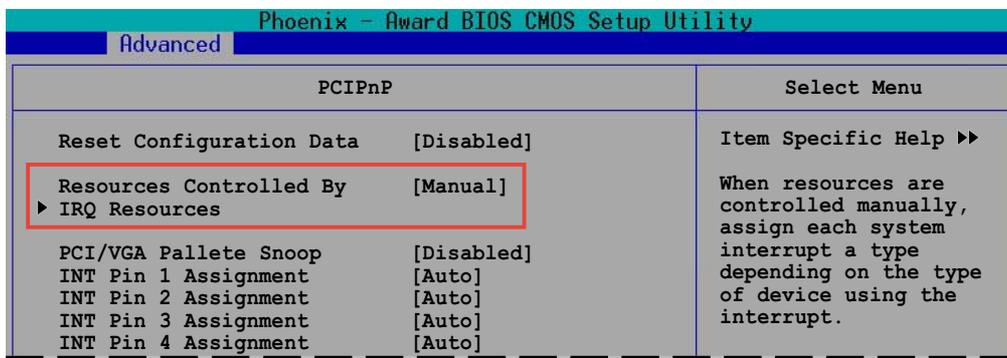
## INT Pin 1~8 Assignment [Auto]

Allows you to select the appropriate interrupt to the specific devices to avoid conflict. Configuration options: [Auto] [3] [4] [5] [7] [9] [10] [11] [12] [14] [15]

## IRQ Resources



Set the item **Resources Controlled By** to [Manual] to enable the item **IRQ Resources** and assign the interrupts depending on the type of installed PCI devices.

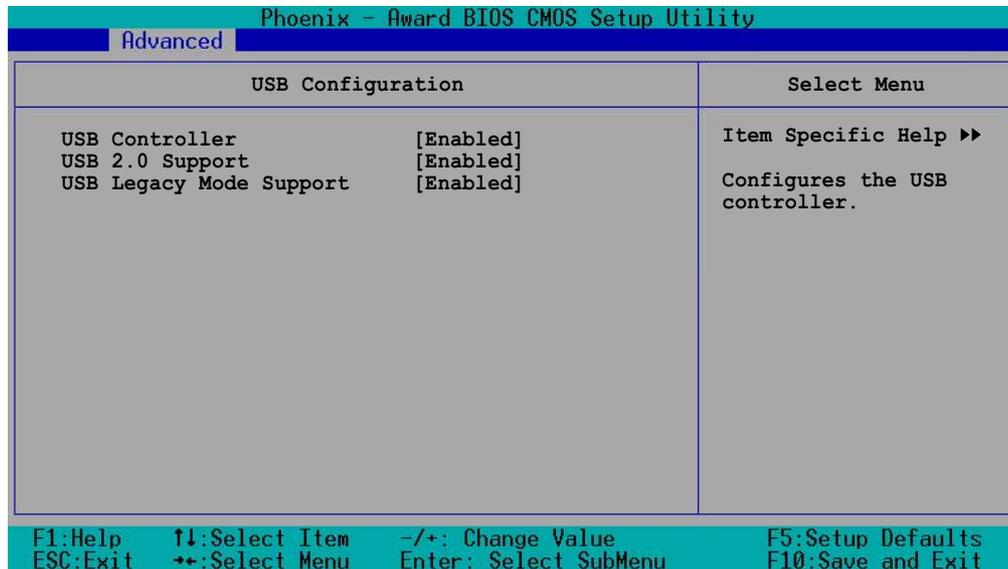


## IRQ-xx assigned to [PCI device]

The IRQ Resources sub-menu is activated when the Resources Controlled by parameter is set to [Manual]. Select [PCI Device] to assign an IRQ address to a Plug and Play device. Setting to [Reserved] reserves the IRQ address. Configuration options: [PCI Device] [Reserved]

## 4.4.8 USB Configuration

This menu shows the USB configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.



### USB Controller [Enabled]

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

### USB 2.0 Support [Enabled]

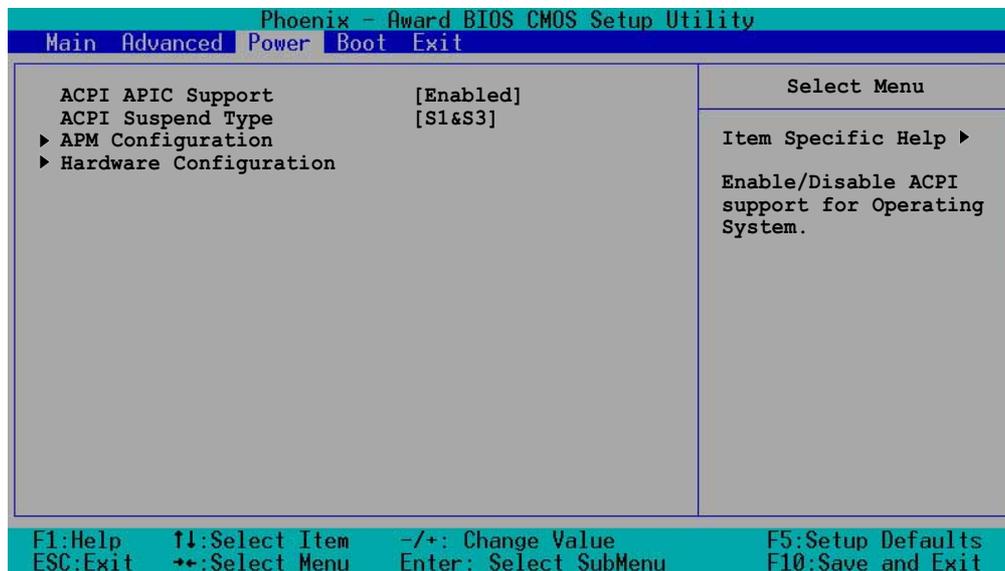
Allows you to enable or disable the EHCI controller. Setting this item to [Enabled] allows the built-in high speed USB support in the BIOS to turn on automatically when you install high speed USB devices. Configuration options: [Disabled] [Enabled]

### USB Legacy Mode Support [Enabled]

Allows you enable or disable support for the legacy USB devices. Configuration options: [Disabled] [Enabled]

## 4.5 Power menu

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



### ACPI APIC Support [Enabled]

Allows you to enable or disable the ACPI feature on the operating system. Configuration options: [Disabled] [Enabled]

### ACPI Suspend Type [S1&S3]

Allows you to select the ACPI state that you wish to use for system suspend. Configuration options: [S1(POS)] [S3(STR)] [S1&S3]

## 4.5.1 APM Configuration

This menu shows the Advanced Power Management (APM) configuration settings. Select an item then press Enter to display a pop-up menu with the configuration options.

Phoenix - Award BIOS CMOS Setup Utility		
Power		
APM Configuration		Select Menu
Power Management	[User Define]	Item Specific Help ►►  This field allows you to set the automatic power saving features.
HDD Power Down	[Disabled]	
Suspend Mode	[Disabled]	
Suspend Type	[Stop Grant]	
Restore on AC Power Loss	[Power Off]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
MODEM Use IRQ	[3]	
Soft-Off by PWR-BTN	[Instant-Off]	
USB Wake-Up from S3(S4)	[Disabled]	
Power On By PCI Devices	[Enabled]	
Power On By External Modem	[Enabled]	
POWER ON Function	[Button Only]	
KB Power On Password	Enter	
Hot Key Power ON	Ctrl-F1	
Resume By Alarm	[Disabled]	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
F1:Help    ↑↓:Select Item    -/+ : Change Value    F5:Setup Defaults ESC:Exit    →*:Select Menu    Enter: Select SubMenu    F10:Save and Exit		

### Power Management [User Define]

Allows you to set the automatic power saving features. Configuration options: [User Define] [Min. Saving] [Max. Saving]

### HDD Power Down [Disabled]

Shuts down any IDE hard disk drives in the system after a period of inactivity as set in this user-configurable field. This feature does not affect SCSI hard drives. Configuration options: [Disabled] [1 Min] ... [15 Min]

### Suspend Mode [Disabled]

Sets the time period before the system goes into suspend mode. Configuration options: [Disabled] [1 Min] [2 Min] [4 Min] [8 Min] [12 Min] [20 Min] [30 Min] [40 Min] [1 Hr]

### Suspend Type [Stop Grant]

Allows you to select the suspend type. Configuration options: [Stop Grant] [PwrOn Suspend]

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

When set to [Power Off], the system goes into “off state” after an AC power interruption. When set to [Power On], the system turns on automatically after an power interruption. When set to [Last State], the system goes into whatever was the system state (on or off) before the power interruption. Configuration options: [Power Off] [Power On] [Last State]

### **Video Off Method [DPMS]**

This item determines the video off features. The Display Power Management System (DPMS) feature allows the BIOS to control the video display card if it supports the DPMS feature. [Blank Screen] only blanks the screen. Use this for monitors without power management or “green” features. Configuration options: [Blank Screen] [V/H SYNC+Blank] [DPMS]

### **Video Off In Suspend [Yes]**

This item determines when to activate the video off feature for monitor power management. Configuration options: [Yes] [No]

### **MODEM Use IRQ [3]**

Allows you to select the IRQ assignment for the modem. Configuration options: [NA] [3] [4] [5] [7] [9] [10] [11]

### **Soft-Off by PWR-BTTN [Instant-Off]**

When set to [Instant-Off], the system goes to soft off when you press the power button for **less** than 4 seconds. When set to [Delay 4 Sec], press the power button for **more** than 4 seconds to power off the system. Configuration options: [Instant-Off] [Delay 4 Sec.]

### **USB Wake-Up From S3(S4) [Disabled]**

Allows you to enable or disable system wake-up from S3 or S4 mode through a USB keyboard/mouse event. Configuration options: [Disabled] [Enabled]

### **Power On By PCI Devices [Enabled]**

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

### **Power On By External Modem [Disabled]**

Allows you to enable or disable system power up when the external modem receives a call while in soft-off mode. Configuration options: [Disabled] [Enabled]

## Power On Function [BUTTON ONLY]

Allows you to select a device to turn the system power on. Configuration options: [Password] [Hot Key] [Mouse Left] [Mouse Right] [Any KEY] [BUTTON ONLY] [PS/2 Mouse]

## KB Power On Password [Enter]

Allows you to set a password to turn the system power on. Highlight this item then press enter to set a password.



---

To configure this item, you should set the **Power On Function** item to [Password].

---

## Hot Key Power On [Ctrl-F1]

Allows you to set a hot key combination to turn the system power on. Configuration options: [Ctrl-F1] ... [Ctrl-F12]



---

To configure this item, you should set the **Power On Function** item to [Hot Key].

---

## Resume by Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is enabled, you can set the date and time of alarm using the two following items. Configuration options: [Disabled] [Enabled]

## Date (of Month) Alarm [0]

To set the date of alarm, highlight this item and press Enter to display a pop-up menu. Key-in a value within the specified range then press Enter. Configuration options: [Min=0] [Max=31]

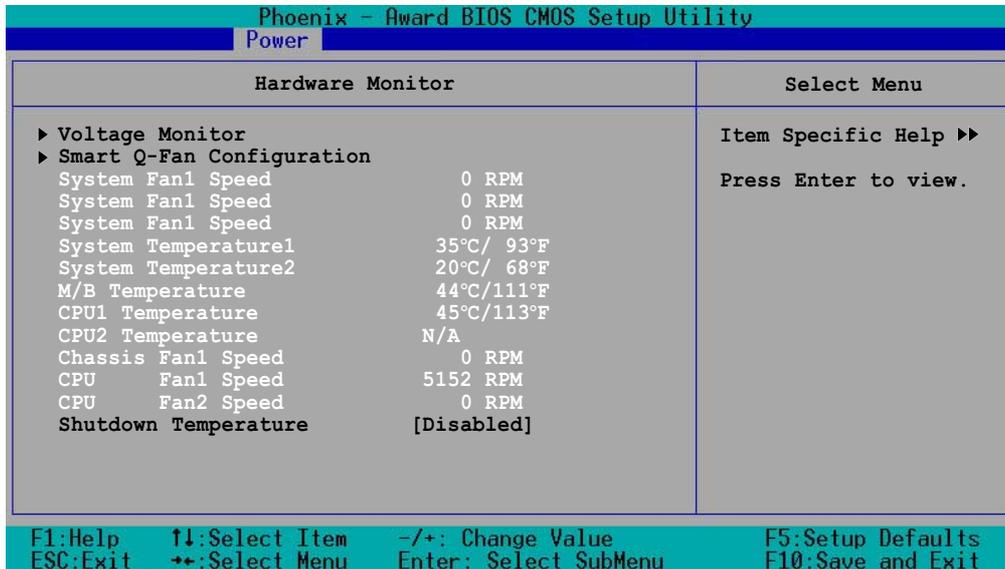
## Time (hh:mm:ss) Alarm [0 : 0 : 0]

To set the time of alarm:

1. Highlight this item and press Enter to display a pop-up menu for the hour field.
2. Key-in a value (Min=0, Max=23), then press Enter.
3. Press tab to move to the minutes field, then press Enter.
4. Key-in a minute value (Min=0, Max=59), then press Enter.
5. Press tab to move to the seconds field, then press Enter.
6. Key-in a value (Min=0, Max=59), then press Enter.

## 4.5.2 Hardware Monitor

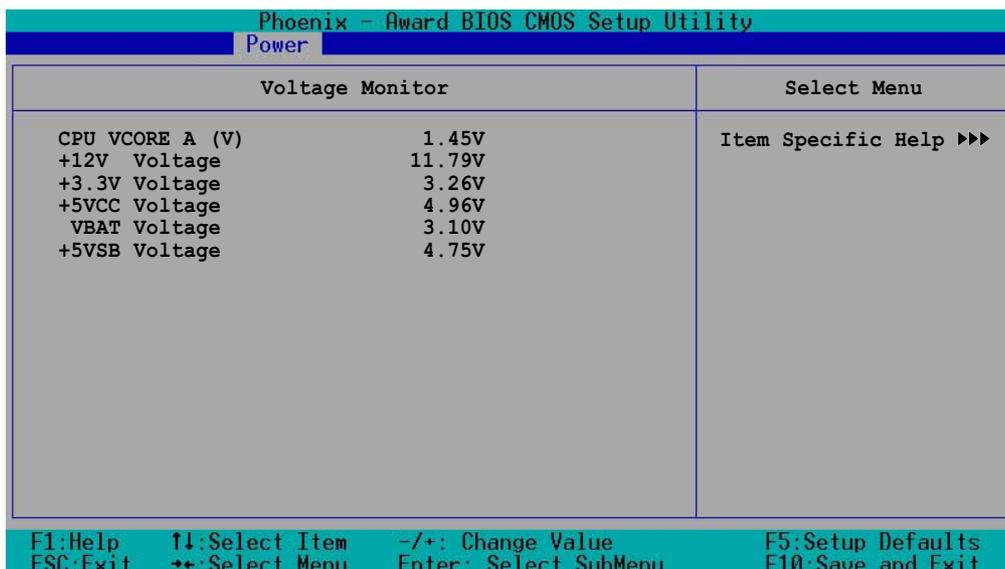
This menu shows the hardware monitoring status. Select an item then press Enter to display a pop-up menu with the configuration options.



### Shutdown Temperature [Disabled]

Allows system shutdown when the temperature goes over the level that you specified. Configuration options: [60°C/140°F] [65°C/149°F] [70°C/158°F] [Disabled]

### Voltage Monitor



### CPU VCORE Voltage, +12V Voltage, +3.3V Voltage, +5VCC Voltage, VBAT Voltage, +5VSB Voltage

Auto-detected voltages through the onboard voltage regulators.

## Smart Q-Fan Configuration

Phoenix - Award BIOS CMOS Setup Utility	
Power	
Smart Q-Fan Configuration	Select Menu
Chassis Q-Fan Temperature [40°C/104°F] Chassis Q-Fan Tole. Value [ 5] CPU Q-Fan Temperature [40°C/104°F] CPU Q-Fan Tolerance Value [ 5]	Item Specific Help ►►  Automatically adjusts CPU fan speeds according to system temperature.
F1:Help    ↑↓:Select Item    -/+ : Change Value    F5:Setup Defaults ESC:Exit    →←:Select Menu    Enter: Select SubMenu    F10:Save and Exit	

### Chassis Q-Fan Temperature [40°C/104°F]

Allows automatic chassis fan speed adjustment according to the system temperature. Configuration options: [Disabled] [45°C/113°F] [50°C/122°F] [55°C/131°F] [60°C/140°F] [65°C/149°F]

### Chassis Q-Fan Tole. Value [ 5]

Allows you to set the smart chassis fan speed detection range.  
Configuration options: [Min = 1] [Max = 5]

### CPU Q-Fan Temperature [40°C/104°F]

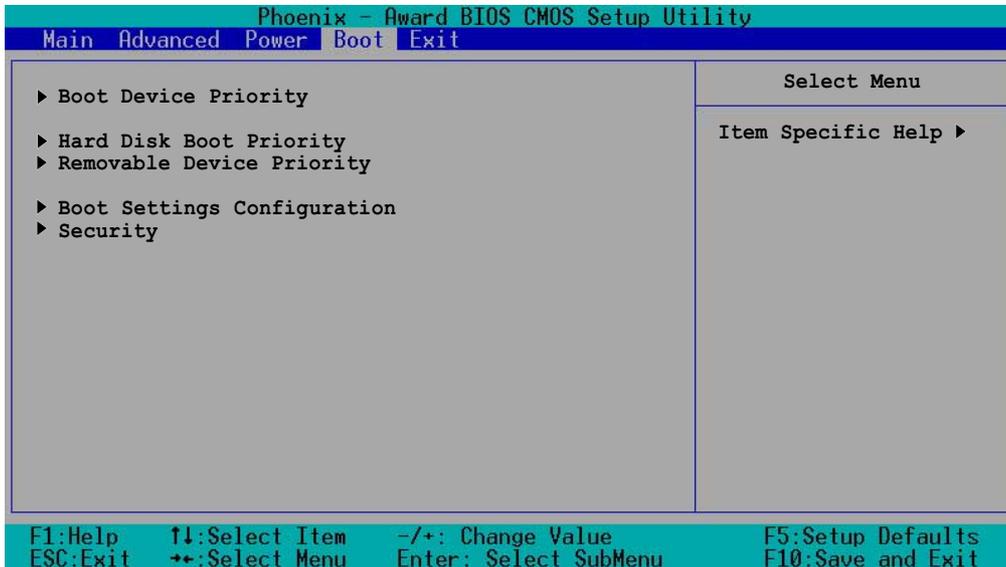
Allows automatic CPU fan speed adjustment according to the system temperature. Configuration options: [Disabled] [45°C/113°F] [50°C/122°F] [55°C/131°F] [60°C/140°F] [65°C/149°F]

### CPU Q-Fan Tolerance Value [ 5]

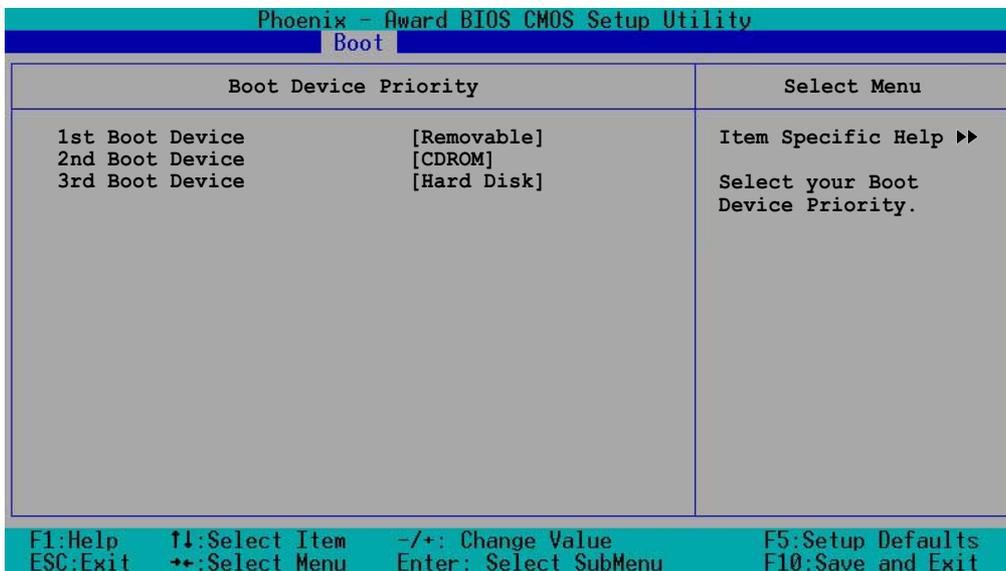
Allows you to set the smart CPU fan speed detection range. Configuration options: [Min = 1] [Max = 5]

## 4.6 Boot menu

The Boot menu items allow you to change the system boot settings. Select an item then press Enter to display a sub-menu with additional items, or show a pop-up menu with the configuration options.



### 4.6.1 Boot Device Priority



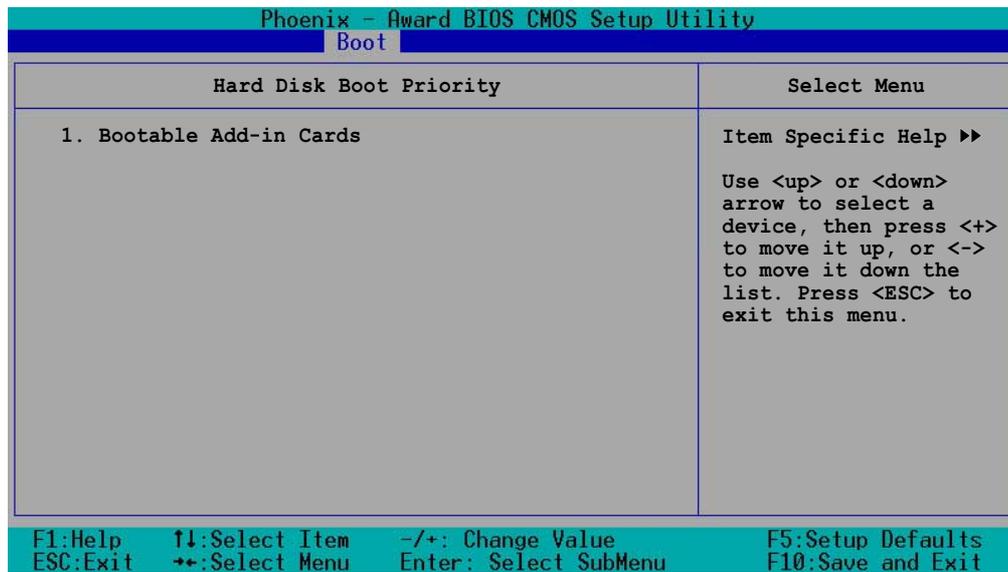
**1st Boot Device [Removable]**

**2nd Boot Device [CDROM]**

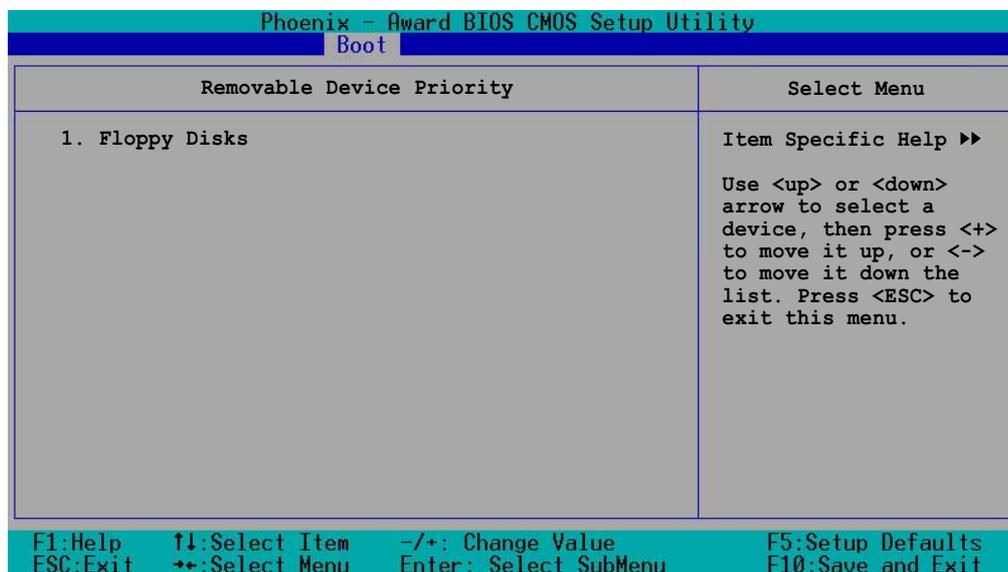
**3rd Boot Device [Hard Disk]**

These items allow you to select your boot device priority. Configuration options: [Removable] [Hard Disk] [CDROM] [Legacy LAN] [Disabled]

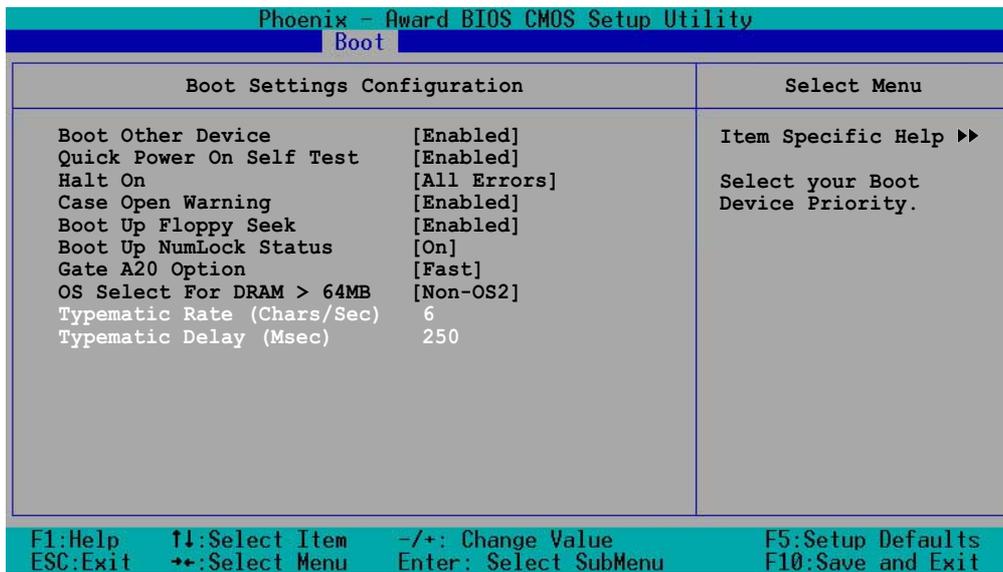
## 4.6.2 Hard Disk Boot Priority



## 4.6.3 Removable Device Priority



## 4.6.4 Boot Settings Configuration



### Boot Other Device [Enabled]

Allows you to enable or disable selection of other boot device.

Configuration options: [Disabled] [Enabled]

### Quick Power On Self Test [Enabled]

This field speeds up the Power-On-Self Test (POST) routine by skipping retesting a second, third, and fourth time. Configuration options: [Disabled] [Enabled]

### Halt On [All Errors]

Sets the system to halt on errors according to the system functions specified in each option. Configuration options: [All Errors] [No Errors] [All, But Keyboard] [All, But Diskette] [All, But Disk/Key]

### Case Open Warning [Enabled]

Allows you to enable or disable the case open status feature. Setting to [Enabled] clear the case open status. Configuration options: [Disabled] [Enabled]

### Boot Up Floppy Seek [Enabled]

When enabled, the BIOS will seek the floppy disk drive to determine whether the drive has 40 or 80 tracks. Configuration options: [Disabled] [Enabled]

## Boot Up NumLock Status [On]

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

## Typematic Rate Setting [Disabled]

Allows you to enable or disable the keyboard typematic rate setting. Set to [Enabled] to configure the Type Rate and Type Delay items. Configuration options: [Disabled] [Enabled]



The items **Typematic Rate (Chars/Sec)** and **Typematic Delay** become configurable only when the item Typematic Setting is enabled.

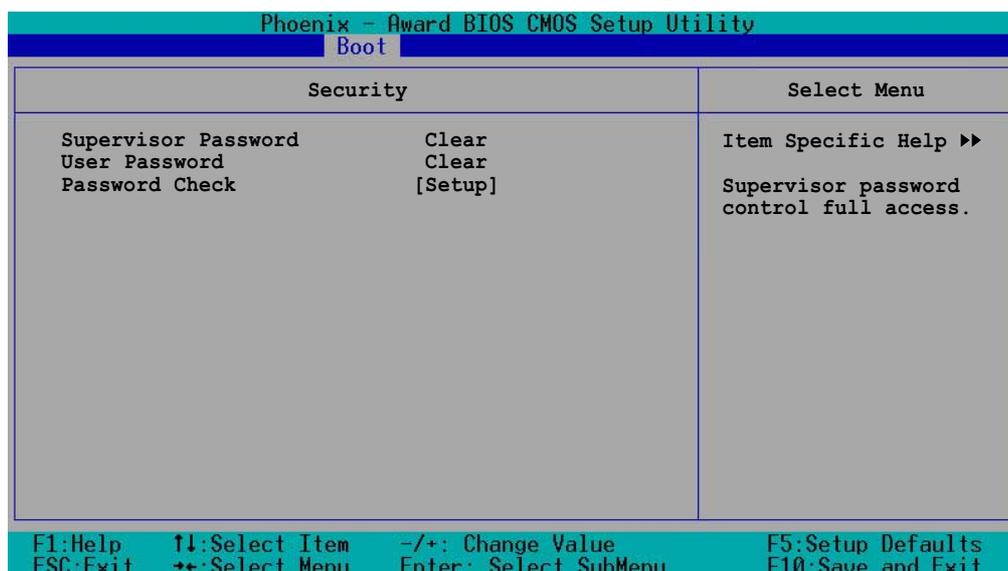
## Typematic Rate (Chars/Sec) [6]

Allows you to select the rate at which character repeats when you hold a key. Configuration options: [6] [8] [10] [12] [15] [20] [24] [30]

## Typematic Delay (Msec) [250]

Allows you to set the delay before key strokes begin to repeat. Configuration options: [250] [500] [750] [1000]

## 4.6.5 Security



## **Supervisor Password [Clear]**

## **User Password [Clear]**

These fields allow you to set passwords.

To set a password:

1. Highlight an item then press <Enter>.
2. Type in a password using eight (8) alphanumeric characters, then press <Enter>.
3. When prompted, confirm the password by typing the exact characters again, then press <Enter>. The password field setting is changed to [Set].

To clear the password:

1. Highlight the password field, and press <Enter> twice. The following message appears:  
“PASSWORD DISABLED!!! Press any key to continue...”
2. Press any key to return to the menu.

### **A note about passwords**

The Supervisor password is required to enter the BIOS Setup program preventing unauthorized access. The User password is required to boot the system preventing unauthorized use.

### **Forgot the password?**

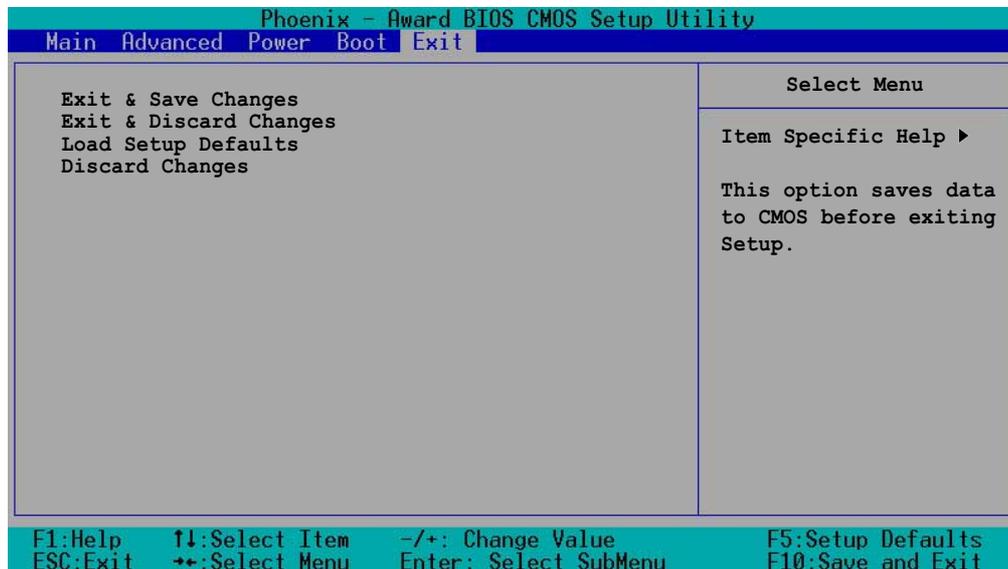
If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, refer to section “2.6 Jumpers” for instructions.

## **Password Check [Setup]**

This field requires you to enter the password before entering the BIOS setup or the system. Select [Setup] to require the password before entering the BIOS Setup. Select [System] to require the password before entering the system. Configuration options: [Setup] [System]

## 4.7 Exit menu

The Exit menu items allow you to load the BIOS setup default settings, save or discard any changes you made, or exit the Setup utility.



### Exit & Save Changes

Select this option then press Enter, or simply press <F10>, to save your changes to CMOS before exiting the Setup utility. When a confirmation window appears, type [Y] to save and exit, or [N] to cancel and return to the menu.

### Exit & Discard Changes

Select this option then press Enter if you wish to exit the Setup utility without saving your changes. When a confirmation window appears, type [Y] to exit and discard your changes, or [N] to cancel and return to the menu.

### Load Setup Defaults

Select this option then press Enter, or simply press <F5>, to load the optimized values for each of the Setup menu items. When a confirmation window appears, type [Y] to load the default values, or [N] to cancel and return to the menu.

### Discard Changes

Select this option to discard the changes that you made, and restore the previously saved values. When a confirmation appears, type [Y] to discard any changes and load the previously saved values, or [N] to cancel and return to the menu.



# ***Appendix***

This appendix includes additional information that you may refer to when configuring the motherboard.

## **Reference information**

## **Appnedix summary**

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# A.1 PCH-DL block diagram

