P5N32-SLI
Premium

Motherboard

E2749

First Edition V1
August 2006

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Notices

Federal Communications Commission Statement

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

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

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

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

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

Canadian Department of Communications Statement

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

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

Safety information

Electrical safety

- To prevent 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.

This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

About this guide

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

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports.

- **Chapter 2: Hardware information**

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

- **Chapter 3: Powering up**

  This chapter describes the power up sequence and ways of shutting down the system.

- **Chapter 4: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Descriptions of the BIOS items are also provided.

Where to find more information

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

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. 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.

Conventions used in this guide

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

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

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

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.
	Example: <Enter> means that you must press the Enter or Return key.
<Key1+Key2+Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).
	Example: <Ctrl+Alt+D>
`Command`	Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets.
	Example: At the DOS prompt, type the command line:
	`format A:/S`

P5N32-SLI Premium specifications summary

CPU	LGA775 socket for Intel® Core™2 Extreme / Core™2 Duo / Pentium® Extreme / Pentium® D / Pentium® 4 / Celeron® D Processors Compatible with Intel® 06/05B/05A processors **Note**: Visit the ASUS website at www.asus.com for the Intel® CPU support list.
Chipset	NVIDIA® nForce® 590 SLI™ Intel® Edition Features Enhanced Performance Profile Technology
Front Side Bus	1066 / 800 / 533 MHz

Memory	Dual-channel memory architecture
	  - 4 x 240-pin DIMM sockets support non-ECC unbuffered DDR2 800/667/533 MHz memory modules
	  - Supports up to 8 GB system memory
	
	Note: Visit the ASUS website at www.asus.com for the latest Qualified Vendors List (QVL).

Expansion slots	2 x PCI Express™ x16 slots (blue and black) support NVIDIA® SLI™ technology at full x16, x16 speed 1 x PCI Express™ x16 slot (middle) supports an add-on card at x8 speed 1 x PCI Express™ x1 2 x PCI 2.2
Scalable Link Interface (SLI™)	Supports two identical NVIDIA® SLI™-Ready graphics cards (both at x16 mode) **Note:** The blue and the black PCI Express x 16 slots support NVIDIA® SLI™ technology at full x16, x16 speed. The middle slot is for an add-on card at x8 speed. ASUS PEG Link

Storage/RAID	Southbridge supports:
	  - 1 x Ultra DMA 133/100/66/33
	  - 6 x Serial ATA 3.0 Gb/s
	  - NVIDIA® MediaShield™ RAID supports RAID 0, 1, 0+1, 5 and JBOD configuration across Serial ATA drives
	
	Silicon Image® 3132 SATA controller supports:
	  - 2 x External Serial ATA 3.0 Gb/s ports (SATA-on-the-Go) on the rear panel

LAN	NVIDIA® nForce® 590 SLI™ built-in dual Gigabit MAC with external Marvell PHY Supports NVIDIA® DualNet® technology

P5N32-SLI Premium specifications summary

Wireless LAN	ASUS WiFi-AP Solo™ - 54 Mbps IEEE 802.11g and backward compatible with 11 Mbps IEEE 802.11b - Software Access Point (AP) mode - Station mode: Infrastructure mode and Ad-Hoc mode
High Definition Audio	SupremeFX Audio Card - ADI 1988B 8-channel High Definition Audio CODEC - Supports Jack-Sensing, Enumeration, Multi-streaming and Jack-Retasking - Noise Filter Coaxial, Optical S/PDIF out DTS® Connect ASUS Array Mic
IEEE 1394	VIA6308P controller supports: - 2 x IEEE 1394a connectors (1 at mid-board, 1 on the rear panel)
USB	Supports up to 8 USB 2.0/1.1 ports (4 at mid-board, 4 on the rear panel)
ASUS Exclusive Overclocking features	Intelligent overclocking tools: - AI NOS™ (Non-delay Overclocking System) - AI Overclocking (intelligent CPU frequency tuner) - AI Booster - ASUS PEG Link (automatic performance tuning for graphics cards) Precision Tweaker: - vCore: Adjustable CPU voltage at 6.25 mV increment - vDIMM: 16-step DRAM voltage control - vChipset: 8-step Chipset voltage control Stepless Frequency Selection (SFS) - FSB tuning from 133 MHz up to 600 MHz at 1 MHz increment - Memory tuning from 533 MHz up to 1066 MHz - PCI Express frequency tuning from 100 MHz up to 200 MHz at 1 MHz increment Overclocking protection: - ASUS C.P.R. (CPU Parameter Recall)

P5N32-SLI Premium specifications summary

ASUS AI Lifestyle features	ASUS Quiet Thermal Solution: - AI Gear - AI Nap - ASUS 8-Phase Power Design - ASUS Fanless Design: Heat-pipe solution - ASUS Fanless Design: Stack Cool 2 - ASUS Q-Fan 2 - ASUS Optional Fan *(for Water-cooling or Passive-Cooling only)* ASUS EZ DIY: - ASUS Q-Connector - ASUS O.C. Profile - ASUS Music Alarm - ASUS CrashFree BIOS 3 - ASUS EZ Flash 2 - ASUS MyLogo 3
Rear panel	1 x PS/2 Keyboard port (purple) 1 x PS/2 Mouse (green) 1 x Optical S/PDIF Output port 1 x Coaxial S/PDIF Output port 2 x External Serial ATA ports 2 x LAN (RJ45) port 4 x USB 2.0/1.1 ports 1 x IEEE1394a port
Internal connectors	1 x Floppy disk drive connector 1 x IDE connector 6 x Serial ATA connectors 2 x USB 2.0 connectors support four additional USB 2.0 ports 1 x IEEE 1394a port connector 1 x Chassis intrusion connector 1 x 24-pin EATX power connector 1 x 8-pin ATX 12V power connector 1 x S/PDIF output connector 1 x CPU / 1 x SPS / 3 x chassis fan connectors System panel connector

P5N32-SLI Premium specifications summary

BIOS features	8 Mb AWARD BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.3, Multi-Language BIOS
Manageability	WOL by PME, WOR by PME, Chasis Intrusion, PXE
Support CD contents	Device drivers ASUS PC Probe II ASUS Update ASUS AI Booster ASUS AI Suite ASUS WiFi-AP Solo Wizard NVIDIA® MediaShield™ RAID Anti-virus software
Form factor	ATX form factor: 12 in x 9.6 in (30.5 cm x 24.5 cm)

*Specifications are subject to change without notice.

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

Product introduction

1

Chapter summary

1

1.1 Welcome!

Thank you for buying an ASUS® P5N32-SLI Premium motherboard!

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

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

1.2 Package contents

Check your motherboard package for the following items.

Motherboard	ASUS **P5N32-SLI Premium**
I/O modules	1 x 1-port IEEE 1394a module 1 x 2-port USB 2.0 module
Cables	Serial ATA power and signal cables for 6 devices 1 x Ultra DMA 133/100/66 cable 1 x Floppy disk drive cable

Accessories	I/O shield
	ASUS Array Mic
	ASUS Optional Fan
	ASUS WiFi-AP Solo™ omni-directional antenna
	  (WiFi-AP Edition only)
	1 x 3-in-1 ASUS Q-Connector Kit
	  (USB, 1394, system panel; Retail version only)
	1 x ASUS SLI Bridge
	InterVideo® Media Launcher (OEM version)

Application CD	ASUS motherboard support CD
Documentation	User guide

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

1.3 Special features

1.3.1 Product highlights

Green ASUS

This motherboard and its packaging comply with the European Union's Restriction on the use of Hazardous Substances (RoHS). This is in line with the ASUS vision of creating environment-friendly and recyclable products/packaging to safeguard consumers' health while minimizing the impact on the environment.

Intel® Core™2 Processor Ready

This motherboard supports the latest Intel® Core™2 processor in the LGA775 package. With the new Intel® Core™ microarchitecture technology and 1066 / 800 MHz FSB, the Intel® Core™2 processor is one of the most powerful and energy efficient CPUs in the world. See page 2-7 for details.

NVIDIA® Scalable Link Interface (SLI™)

The NVIDIA® Scalable Link Interface (SLI™) technology allows two graphics processing units (GPUs) in a single system. This technology takes advantage of the PCI Express™ bus architecture and features intelligent hardware and software solutions that allows multiple GPUs to work together and achieve exceptional graphics performance.

NVIDIA® nForce® 590 SLI™ Intel® Edition

The NVIDIA® nForce® 590 SLI™ chipset supports the NVIDIA Scalable Link Interface(SLI™) technology that allows two graphics processing units(GPUs) in a single system. This technology takes advantage of the PCI Express™ bus architecture and features intelligent hardware and software solutions that allow multiple GPUs to work together and achieve exceptional graphics performance.

DDR2 memory support

The motherboard supports DDR2 memory that features data transfer rates of 800/667/533 MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, eliminating bottlenecks with peak bandwidths of up to 12.8 GB/s. See page 2-15 for details.

Serial ATA I/II technology and SATA-On-The-Go

The motherboard fully supports the Serial ATA II 3.0 Gb/s technology through the Serial ATA interfaces and the NVIDIA® nForce® 590 SLI™ chipset. The Serial ATA 3.0 Gb/s specification provides twice the bandwidth of the current Serial ATA products with a host of new features, including Nativa Command Queueing (NCQ), and Power Management (PM) Implementation Algorithm. Serial ATA allows for thinner, more flexible cables with lower pin count and reduced voltage required. See page 2-26 for details.

Leveraging these Serial ATA 3.0 Gb/s features is the SATA-On-The-Go. Supported by the Silicon Image® 3132 Serial ATA controller are two external Serial ATA 3.0 Gb/s ports on the rear panel that provide smart setup and hot-plug function. See page 2-23 for details.

Dual RAID solution

Onboard RAID controllers provide the motherboard with dual-RAID functionality that allows you to select the best RAID solution for Serial ATA devices.

The NVIDIA® MediaShield™ RAID controller integrated in the NVIDIA® nForce® 590 SLI™ chipset allows RAID 0, RAID 1, RAID 0+1, RAID 5, and JBOD configurations for six SATA 3.0 Gb/s connectors. See page 2-26.

The Silicon Image® 3132 controller supports two additional external Serial ATA 3.0 Gb/s ports on the rear panel and allows RAID 0, RAID 1, RAID 0+1, RAID 5, and JBOD configurations through port multiplier functions. See page 2-23 for details.

IEEE 1394a support

The IEEE 1394a interface provides high speed digital interface for audio/video appliances such as digital television, digital video camcorders, storage peripherals & other PC portable devices. See pages 2-24 and 2-28 for details.

S/PDIF digital sound ready

This motherboard provides convenient connectivity to external home theater audio systems via coaxial and optical S/PDIF-out (SONY/PHILIPS Digital Interface) jacks.It allows to transfer digital audio without converting to analog format and keeps the best signal quality. See pages 2-24 and 2-33 for details.

Dual Gigabit LAN solution

The motherboard comes with dual Gigabit LAN controllers to provide the total solution for your networking needs. These network controllers use the PCI Express segment to provide faster data bandwidth for your wired or wireless Internet, LAN, and file sharing requirements. See page 2-22 for details.

1.3.2 ASUS AI Lifestyle features

ASUS Quiet Thermal Solution

ASUS Quiet Thermal solution makes the system more stable and enhances the overclocking capability.

AI Gear

AI Gear provides four modes that adjust the CPU frequency and Vcore voltage minimizing system noise and power consumption. You can choose the mode that best suits your computing needs.

AI Nap

With AI Nap, the system can continue running at minimum power and noise when you are temporarily away. To wake the system and return to the OS environment, simply click the mouse or press a key.

8-Phase Power Design

The ASUS 8-Phase Power Design provides highly efficient operation to generate less heat (at least 15°C (59°F)) than other conventional power solutions. It reduces input ripple current and output ripple voltage, which keeps CPU and power module from suffering the risk of high power stress. It has the advantages of quick transient response and stability, especially beneficial when CPU requires more current immediately under heavy loading or overclocking mode.

Fanless Design - Stack Cool 2

ASUS Stack Cool 2 is a fan-less and zero-noise cooling solution that lowers the temperature of critical heat generating components. The motherboard uses a special design on the printed circuit board (PCB) to dissipate heat these critical components generate. See page 2-3 for details.

Fanless Design - Heat-pipe

The Heat Pipe design effectively directs the heat generated by the chipsets to the heatsink near the back IO ports, where it can be carried away by existing airflow from CPU fan or bundled optional fan. The purpose of the innovative heat pipe design on this motherboard is that the groundbreaking fanless design does not have lifetime problems as a chipset fan does. The Heat Pipe design is the most reliable fanless thermal solution to date.

Optional Fan *(for Water-Cooling or Passive-Cooling only)*

The optional fan is specifically designed to provide sufficient airflow over the CPU power modules and chipset area when water-cooling or passive-cooling is utilized, ensuring effective heat dissipation for the entire system. See page 2-14 for details.

Q-Fan 2

ASUS Q-Fan2 technology intelligently adjusts both CPU fan and chassis fan speeds according to system loading to ensure quiet, cool and efficient operation. See page 4-34 for details.

ASUS Supreme Audio Entertainment

SupremeFX Audio

SupremeFX audio card features Noise Filter and Echo Cancellation technology as well as the Superbeam Array Microphone, which picks up the sound you want and suppresses the noise when you need to communicate with your teammates during game play. This standalone audio card reaches the outstanding audio quality of 24bit/192kHz full sampling in all 7.1 surround channel, enabling you to enjoy high quality audio surround experience in hundreds of great games.

High Definition Audio

Enjoy high-end sound quality on your PC! The onboard 8-channel HD audio (High Definition Audio, previously codenamed Azalia) CODEC enables high-quality 192KHz/24-bit audio output, jack-sensing feature, retasking functions and multi-streaming technology that simultaneously sends different audio streams to different destinations. You can now talk to your partners on the headphone while playing multi-channel network games. See page 2-24 for details.

ASUS Array Mic

The bundled Superbeam Array Microphone receives only the sound coming from the reception cone and ignores the sounds coming from other directions. This mechanism eliminates a large number of interferences, including neighboring speakers and reverberations. It also uses advanced de-reverberation techniques to reduce echo and minimize its effect on the speech engine. This feature can enchance speech-centric applications like Skype™, online game, video conference, and recording.

Noise Filter

This feature detects repetitive and stationary noises (non-voice signals) like computer fans, air conditioners, and other background noises then eliminates it in the incoming audio stream while recording.

DTS® Connect

This feature is consists of two elements: DTS interactive and DTS NEO:PC. DTS interactive re-encodes your stereo or multi-channel sound into a DTS audio signal and send it out from your PC to any DTS enabled system. While DTS NEO:PC turns your stereo audio such as MP3, WMA, CD, and other sound format into a convincing multi-channel audio experience.

ASUS EZ DIY

ASUS EZ DIY feature collection provides you easy ways to install computer components, update the BIOS or back up your favorite settings.

ASUS Q-Connector

ASUS Q-Connector allows you to easily connect or disconnect the chassis front panel cables to the motherboard. This unique module eliminates the trouble of connecting the system panel cables one at a time and avoiding wrong cable connections. See page 2-35 for details.

ASUS O.C. Profile

The motherboard features the ASUS O.C. Profile that allows users to conveniently store or load multiple BIOS settings. The BIOS settings can be stored in the CMOS or a separate file, giving users freedom to share and distribute their favorite settings. See page 4-43 for details.

ASUS CrashFree BIOS 3

The ASUS CrashFree BIOS 3 allows users to restore corrupted BIOS data from a USB flash disk containing the BIOS file. See page 4-9 for details.

ASUS EZ Flash 2

EZ Flash 2 is a user-friendly BIOS update utility. Simply press the predefined hotkey to launch the utility and update the BIOS without entering the OS. Update your BIOS easily without preparing a bootable diskette or using an OS-based flash utility. See pages 4-5 and 4-45 for details.

ASUS Music Alarm

Wake up to the music of your choice instead of the irritating sound of an alarm clock. The ASUS Music Alarm gives you a personal wake-up call with your favorite CD music without having to enter the OS. See page 4-41 for details.

1.3.3   ASUS Special features

ASUS MyLogo3

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

ASUS Multi-language BIOS

The multi-language BIOS allows you to select the language of your choice from the available options. The localized BIOS setup menu helps you configure your system easier and faster. See page 4-14 for details.

ASUS WiFi-AP Solo™

ASUS WiFi-AP Solo™ allows a new level of versatility for your PC, enabling it to create a complete wireless home network in either AP or wireless client mode. Users will be able to play LAN games, connect to the Internet, access and share printers, and use Skype™ from anywhere within range. WiFi-AP Solo™ can provide these functions even when the PC is in sleep mode, so users can use Skype™ as a true replacement for tradition long distance telephone service. WiFi-AP Solo™ is an on-board feature, which means that users will save the extra WiFi AP™ cost.

1.3.4 ASUS Intelligent Overclocking features

AI NOS™ (Non-Delay Overclocking System)

The patented ASUS Non-delay Overclocking System™ (AI NOS™) technology auto-detects the CPU loading and dynamically overclocks the CPU speed when needed. Unlike other dynamic overclocking techniques, AI NOS™ reacts much faster to satisfy your need for speed. See page 4-23 for details.

PEG Link Mode

This feature enhances your PCI Express graphics card performance. It allows the motherboard to automatically adjust the PCI Express graphics link mode to the correct frequency based on the system configuration. Four additional settings are available for overclocking the PEG Link Mode. See page 4-24 for details.

Precision Tweaker

This feature allows you to fine tune the CPU/memory voltage and gradually increase the memory Front Side Bus (FSB) and PCI Express frequency at 1MHz increment to achieve maximum system performance. See pages 4-20 to 4-21 for details.

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 the BIOS automatically restores the CPU default setting for each parameter.

Due to the chipset behavior, make sure that AC power is off before using C.P.R. function.

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

Hardware information

2

Chapter summary

2

2.1   Before you proceed

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

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

Onboard LED

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

SB_PWR

ON
Standby
Power

OFF
Powered
Off

P5N32-SLI PREMIUM Onboard LED
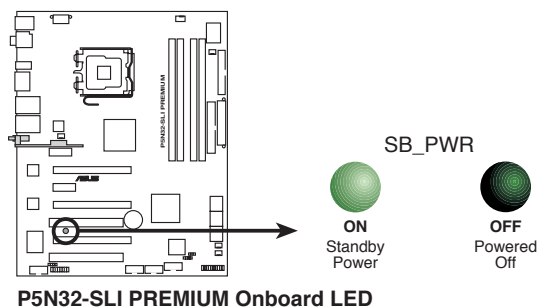
2.2 Motherboard overview

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 can 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 nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.

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

Place this side towards the rear of the chassis
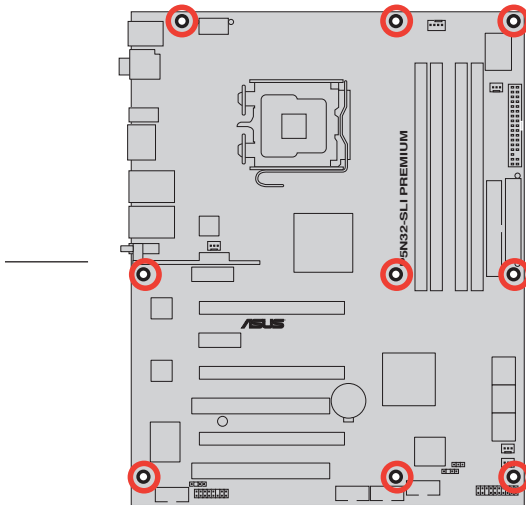
2.2.3   ASUS Stack Cool 2

The motherboard comes with the ASUS Stack Cool 2 cooling solution that lowers the temperature of critical heat generating components. The motherboard uses a special design on the printed circuit board (PCB) to dissipate heat that critical components generate.
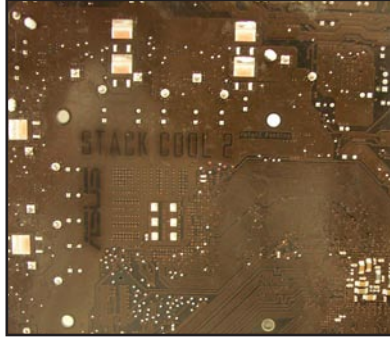
2.2.4   Motherboard layout

24.5cm (9.6in)

PS/2KBMS
T: Mouse
B: Keyboard

ATX12V

CPU_FAN

Super
I/O

SPDIF_O1

LGA775

1394a

ESATA12

LAN1_USB12

LAN2_USB34

Silicon Image®
3132

NVIDIA®
NFORCE® 4 SLI
Intel® Edition

CHA_FAN1

USB910_WIFI_G

Audio slot

Marvell
88E1116

PCIEX16_1

ASUS

PCIEX1

Marvell
88E1116

PCIEX16_2

NVIDIA®
NFORCE® 590 SLI
Intel® Edition

CR2032 3V
Lithium Cell
CMOS Power

PCI1

SB_PWR

VIA
VT6308P

PCIEX16_3

PCI2

8Mb
BIOS

CLRTC

CHASSIS

IE1394_2

SPDIF_O2

ADH

USB56   USB78

COM1

PANEL

P5N32-SLI PREMIUM

DDR2 DIMM_A1 (64 bit,240-pin module)
DDR2 DIMM_A2 (64 bit,240-pin module)
DDR2 DIMM_B1 (64 bit,240-pin module)
DDR2 DIMM_B2 (64 bit,240-pin module)

PWR_FAN

FLOPPY

EATXPWR

PRI_IDE

SATA56

SATA34

SATA12

CHA_FAN2

CHA_FAN3

30.5cm (12.0in)

2.2.5   Layout contents

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SupremeFX		Page
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7. Chassis intrusion connector (4-1 pin CHASSIS)	2-30
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9. S/PDIF output connector (4-1 pin SPDIF_02)	2-33
10. System panel connector (20-8-pin PANEL) • System power LED (2-pin PLED) • Hard disk drive activity LED (2-pin IDE_LED) • System warning speaker (4-pin SPEAKER) • ATX power button/soft-off button (2-pin PWR) • Reset button (2-pin RESET)	2-34

2.3 Central Processing Unit (CPU)

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

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

- If installing a dual-core CPU, connect the chassis fan cable to the CHA_FAN1 connector to ensure system stability.

- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.

- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA775 socket.

- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap.

2.3.1 Installing the CPU

To install a CPU:

1.   Locate the CPU socket on the motherboard.
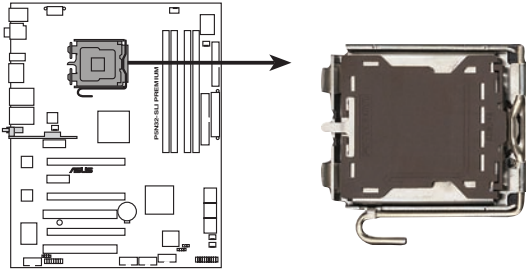
P5N32-SLI PREMIUM CPU Socket 775

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

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

Retention tab

Load lever

PnP cap

This side of the socket box should face you.
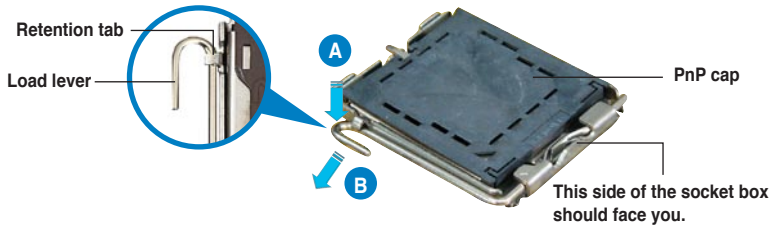
To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

3.   Lift the load lever in the direction of the arrow to a 135º angle.
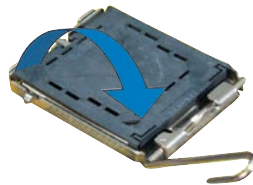
4. Lift the load plate with your thumb and forefinger to a 100º angle (A), then push the PnP cap from the load plate window to remove (B).

B

A

Load plate
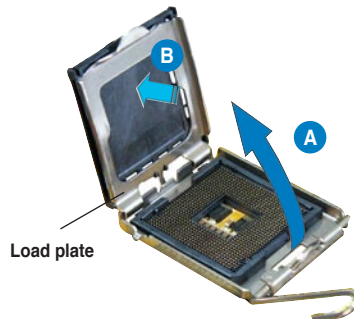
Alignment key

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

CPU notch

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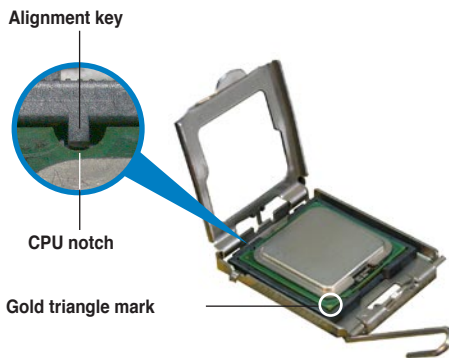
> The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

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

7. If installing a dual-core CPU, connect the chassis fan cable to the CHA_FAN1 connector to ensure system stability.

A

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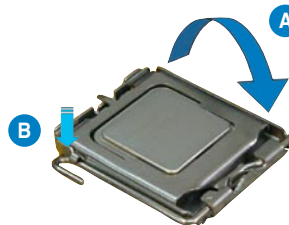
> The motherboard supports Intel® LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel SpeedStep® Technology (EIST), and Hyper-Threading Technology. Refer to the Appendix for more information on these CPU features.

2.3.2 Installing the CPU heatsink and fan

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

> • When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.
>
> • Your Intel® LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install.
>
> • If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly.

> Make sure that you have installed the motherboard to the chassis before you install the CPU fan and heatsink assembly.

To install the CPU heatsink and fan:

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

> Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.

Motherboard hole

Fastener

Narrow end of the groove
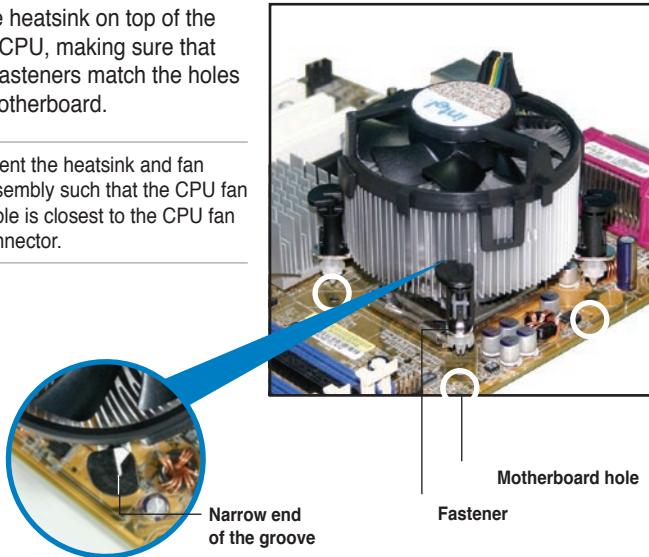
> Make sure to orient each fastener with the narrow end of the groove pointing outward. (The photo shows the groove shaded for emphasis.)

2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.
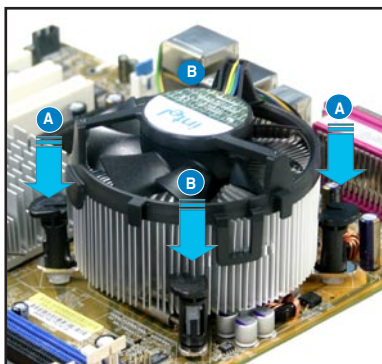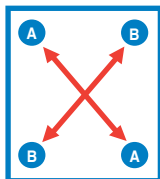
3. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.

CPU_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND
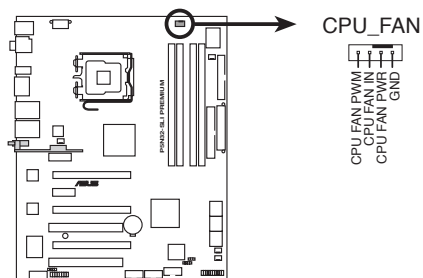
P5N32-SLI PREMIUM CPU fan connector

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

2.3.3 Uninstalling the CPU heatsink and fan

To uninstall the CPU heatsink and fan:

1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counterclockwise.

3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.
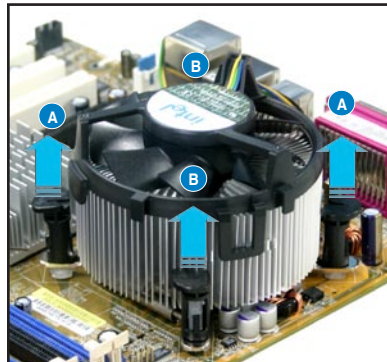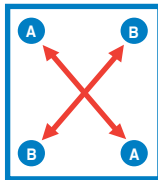
4. Carefully remove the heatsink and fan assembly from the motherboard.
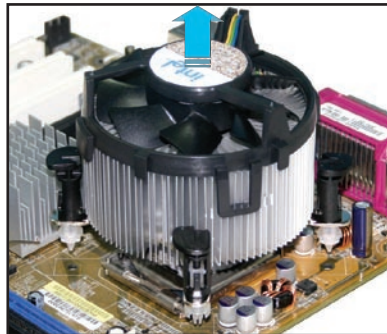
5. Rotate each fastener clockwise to ensure correct orientation when reinstalling.
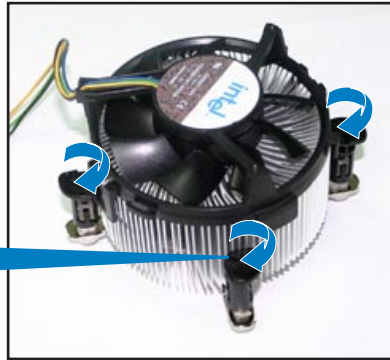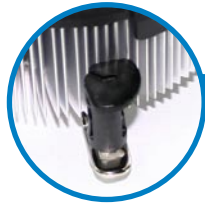
Narrow end of the groove

The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.)

Refer to the documentation in the boxed or stand-alone CPU fan package for detailed information on CPU fan installation.

2.3.4   Installing the optional fan

Install the optional fan only if you are using a passive cooler or a water cooler. Installing the optional fan with an active CPU cooler will interfere with the airflow and destabilize the system.

The photos in this section are provided for your reference only and may not match your actual fan and motherboard.
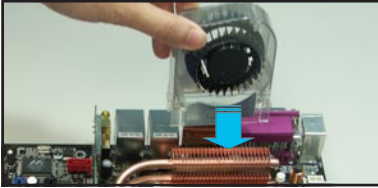
1.   Position the fan above the pipe and heatsink assembly.
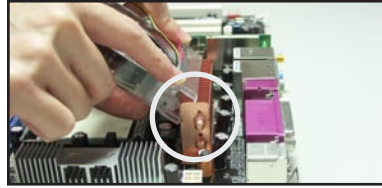
2.   Fit the grooved edge to the heatsink.
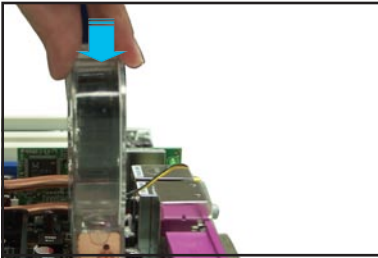
3.   Carefully push down the fan until it snugly fits the heatsink, then connect the fan cables.
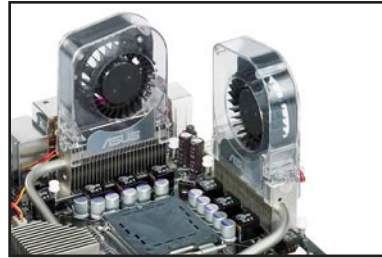
4.   The above photo shows the fans installed on the motherboard.

•   Plug the optional fan cables to the CHA_FAN1 and/or PWR_FAN connector on the motherboard.

•   Make sure the optional fan is installed correctly to prevent damage to the fan and motherboard components.

Do not tilt the fan.
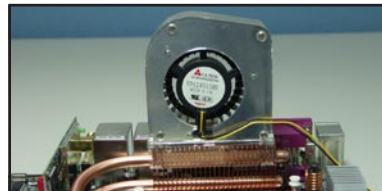
Do not install the fan with its rear side facing you.

2.4 System memory

2.4.1 Overview

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

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

The figure illustrates the location of the DDR2 DIMM sockets:
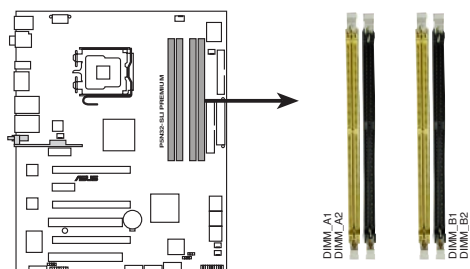
P5N32-SLI PREMIUM 240-pin DDR2 DIMM sockets

Channel	Sockets
Channel A	DIMM_A1 and DIMM_A2
Channel B	DIMM_B1 and DIMM_B2

2.4.2 Memory configurations

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

• For dual-channel configuration, the total size of memory module(s) installed per channel must be the same (DIMM_A1 + DIMM_A2 = DIMM_B1 + DIMM_B2).

• Always install DIMMs with the same CAS latency. For optimum compatibility, we recommend that you obtain memory modules from the same vendor. Visit the ASUS website at www.asus.com for the latest DDR2 Qualified Vendors List.

• Due to chipset resource allocation, the system may detect less than 8 GB system memory when you installed four 2 GB DDR2 memory modules.

• This motherboard does not support memory modules made up of 2048 Mb chips or double sided x16 memory modules.

The motherboard can support up to 8 GB on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot.

32-bit	64-bit
Windows® 2000 Advanced Server Windows® Server 2003 Enterprise Edition	Windows® Server 2003 Standard x64 Edition Windows® XP Professional x64 Edition Windows® Server 2003 Enterprise x64 Edition

2.4.3   Installing a DIMM

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

To install a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.

2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.

3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.
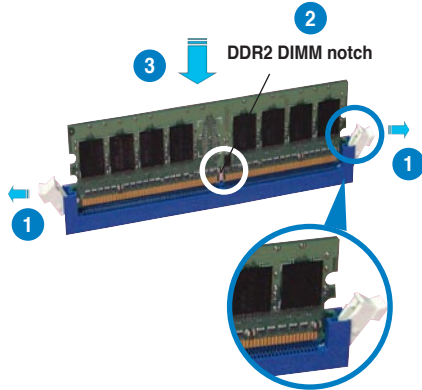
DDR2 DIMM notch

Unlocked retaining clip

✎
•   A DDR2 DIMM is keyed with a notch so that it fits in only one direction. Do not force a DIMM into a socket to avoid damaging the DIMM.

•   The DDR2 DIMM sockets do not support DDR DIMMs. Do not install DDR DIMMs to the DDR2 DIMM sockets.

2.4.4   Removing a DIMM

To remove a DIMM:

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

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

DDR2 DIMM notch
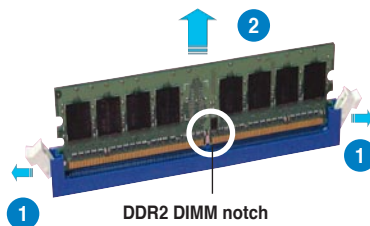
2. Remove the DIMM from the socket.

2.5 Expansion slots

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

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

2.5.1 Installing an expansion card

To install an expansion card:

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

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.

✎ When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable. Refer to the table on the next page for details.

2.5.3   Interrupt assignments

IRQ	Standard function
0	System timer
1	Standard 101/102-key or Microsoft Natural Keyboard
4	Communications Port (COM1)*
6	Standard floppy disk controller
8	System CMOS/real-time clock
9	Microsoft ACPI-compliant system
9	NVIDIA nForce networking controller #3
9	NVIDIA nForce networking controller #4
10	NVIDIA nForce PCI system management
11	Mass storage controller
12	PS/2 compatible mouse port
13	Numeric data processor
14	Primary IDE channel
16	NVIDIA GeForce 6600 GT
19	VIA OHCI compliant IEEE 1394 host controller
20	NVIDIA nForce 590/570/550 Serial ATA controller
20	NVIDIA network bus enumerator
21	NVIDIA network bus enumerator
22	Standard OpenHCD USB host controller
22	NVIDIA nForce 590/570/550 Serial ATA controller
23	Standard Enhanced PCI to USB host controller
23	NVIDIA nForce 590/570/550 Serial ATA controller

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCIEx16_1	–	–	–	–	shared	–	–	–
PCIEx16_2	–	–	–	–	–	shared	–	–
PCIEx16_3	–	–	–	–	shared	–	–	–
PCIEx1_1	–	–	–	–	–	shared	–	–
PCI Slot_1	shared	–	–	–	–	–	–	–
PCI Slot_2	–	shared	–	–	–	–	–	–
USB 1.1	–	shared	–	–	–	–	–	–
USB 2.0	–	–	shared	–	–	–	–	–
LAN_1	–	shared	–	–	–	–	–	–
LAN_2	–	shared	–	–	–	–	–	–
PATA	shared	–	–	–	–	–	–	–
SATA_1	–	shared	–	–	–	–	–	–
SATA_2	–	–	shared	–	–	–	–	–
SATA_3	–	–	–	used	–	–	–	–
SATA_RAID	–	shared	–	–	–	–	–	–
1394	–	shared	–	–	–	–	–	–
Audio	–	–	shared	–	–	–	–	–

2.5.4 PCI slots

The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed on a PCI slot.
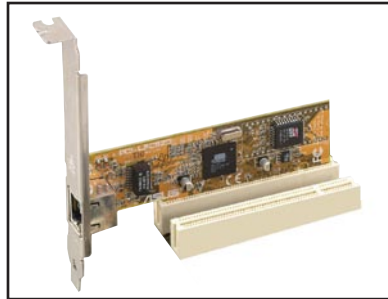
2.5.5 PCI Express x1 slot

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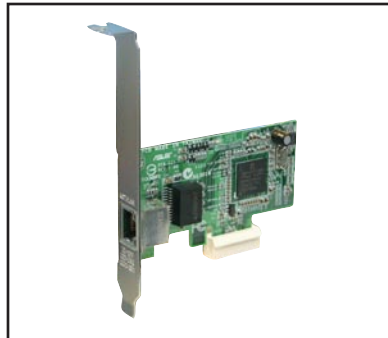
2.5.6 PCI Express x16 slots

This motherboard has three PCI Express x16 slots that support PCI Express x16 graphic cards complying with the PCI Express specifications.

The blue and black slots support the NVIDIA® SLI™ technology at full x16, x16 speed.

The photo shows two NVIDIA® SLI™-ready graphics cards installed on the blue and black slots.

The slot in the middle supports graphics cards at x8 link.
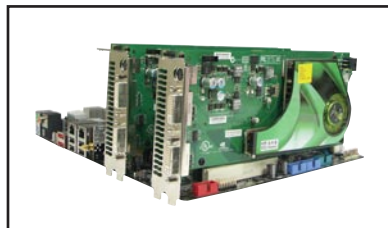
In NVIDIA® SLI™ mode, the blue and black slots work at the full bandwidth of PCI Express x16 on each slot for a combined bandwidth of x32.

2.6 Jumper

1. Clear RTC RAM (3-pin CLRTC_EN)

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

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.

2. Remove the onboard battery.

3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.

4. Reinstall the battery.

5. Plug the power cord and turn ON the computer.

6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

| | Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure! |
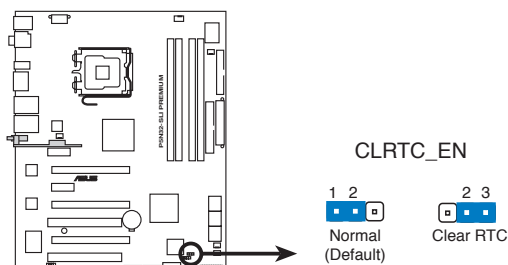
P5N32-SLI PREMIUM Clear RTC RAM

CLRTC_EN

1 2 Normal (Default)   2 3 Clear RTC

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

2.7 Connectors

2.7.1 Rear panel connectors
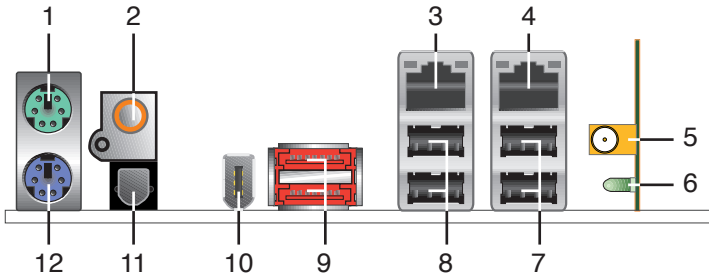
1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.

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

3. **LAN 1 (RJ-45) port.** Supported by NV Gigabit LAN controller, this port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

4. **LAN 2 (RJ-45) port**. Supported by the NV Gigabit LAN controller, this port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.
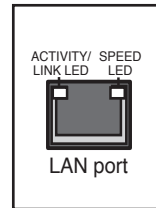
32-bit OS LAN port LED indications

Activity/Link	Speed LED	Description
OFF	OFF	Soft-off Mode
YELLOW*	OFF	During Power ON/OFF
YELLOW*	ORANGE	100 Mbps connection
YELLOW*	GREEN	1 Gbps connection

* Blinking

64-bit OS LAN port LED indications

Activity/Link	Speed LED	Description
DNR	DNR	Soft-off Mode
DNR	DNR	During Power ON/OFF
DNR	DNR	100 Mbps connection
DNR	DNR	1 Gbps connection

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

6.	**Wireless LAN Activity LED.** The wireless module comes with an activity LED.

7.	**USB 2.0 ports 3 and 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

8.	**USB 2.0 ports 1 and 2.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

9.	**External SATA ports.** These ports connect to an external SATA box or a Serial ATA port multiplier. These ports support a Serial ATA hard disk drives that you can combine with an external Serial ATA 3.0 Gb/s device to configure a RAID 0, RAID 1, RAID 0+1 (10), RAID 5, or JBOD set through the onboard Silicon Image® SATA RAID controller.

•	Before creating a RAID set using Serial ATA hard disks, make sure that you have connected the Serial ATA signal cable and installed Serial ATA hard disk drives; otherwise, you cannot enter the Silicon Image RAID utility and SATA BIOS setup during POST.

•	The external SATA ports support external Serial ATA 1.5 and 3 Gb/s devices. Longer cables support higher power requirements to deliver signal up to two meters away, and enables improved hot-swap function.

•	If you intend to create a RAID configuration using this connector, set the **Silicon SATA II Controller** item in the BIOS to [RAID Mode]. See section "4.4.7 Onboard Device Configuration" for details.

•	Use these ports and an external Serial ATA box connected to the external SATA port if you want to configure a RAID 0 or RAID 1 set.

•	The Serial ATA port multiplier and external Serial ATA box are purchased separately.

•	DO NOT insert a different connector to this port.

•	DO NOT unplug the external Serial ATA box when a RAID 0 or RAID 1 is configured.

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

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

12. **PS/2 keyboard port (purple)**. This port is for a PS/2 keyboard.

Audio module

This motherboard features an audio module connected to the audio slot. Below are the descriptions of the audio ports.

1. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.

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

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

4. **Center/Subwoofer port (orange).** This port connects the center/subwoofer speakers.

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

6. **Side Speaker Out port (gray).** This port connects the side speakers in an 8-channel audio configuration.
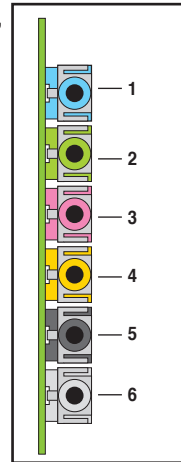
Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

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

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

2.7.2 Internal connectors

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

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

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

FLOPPY

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

PIN 1
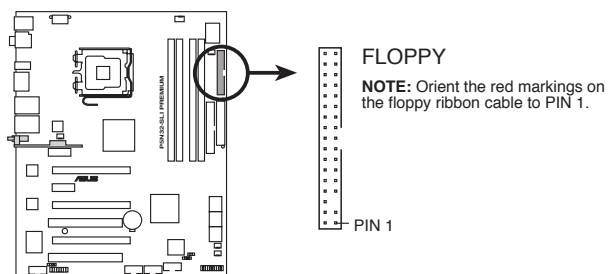
P5N32-SLI PREMIUM Floppy disk drive connector

2. IDE connector (40-1 pin PRI_IDE)

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

	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.

- Use the 80-conductor IDE cable for Ultra DMA 133/100/66 IDE devices.

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

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

PIN 1
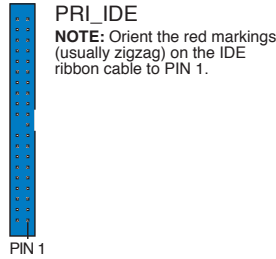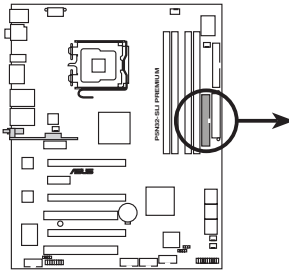
P5N32-SLI PREMIUM IDE connector

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

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

    If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, RAID 0+1, RAID 5, or JBOD configuration **with the onboard NVIDIA**® MediaShield™ RAID controller.

    The RAID function of these connectors is set to [Disabled] by default. If you intend to create a Serial ATA RAID set using these connectors, enable the **RAID Enabled** item under the **Serial ATA Configuration** sub-menu in the BIOS. See section "4.4.7 Onboard Device Configuration" for details.

SATA1   SATA3   SATA5

SATA2   SATA4   SATA6
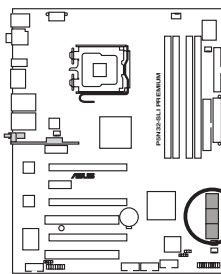
P5N32-SLI PREMIUM SATA connectors

    These connectors support Native Command Queuing (NCQ), Power Management (PM) Implementation Algorithm, Hot Swap and smart setup.

Right-angle side

Connect the right-angle side of SATA signal cable to the SATA device, or connect the right-angle side of the SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards.
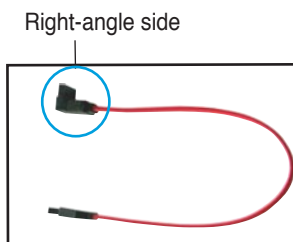
4. **USB connectors (10-1 pin USB56, USB78)**

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

P5N32-SLI PREMIUM USB 2.0 connectors
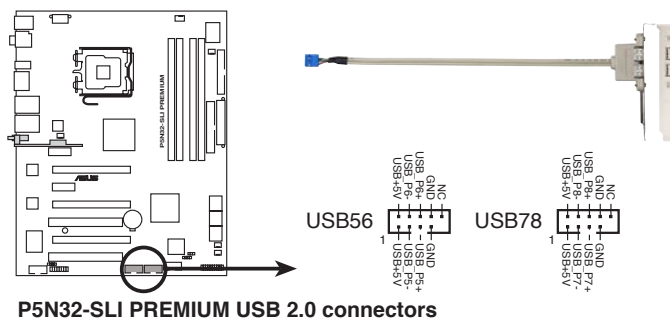
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

You can connect the USB cable to ASUS Q-Connector (USB, blue) first, and then install the Q-Connector (USB) to the USB connector onboard.

5. IEEE 1394a port connector (10-1 pin IE1394_2)

This connector is for a IEEE 1394a port. Connect the IEEE 1394a module cable to this connector, then install the module to a slot opening at the back of the system chassis.

IE1394_2

GND
+12V
TPB2-
GND
TPA2-

+12V
TPB2+
GND
TPA2+

P5N32-SLI PREMIUM IEEE 1394 connector
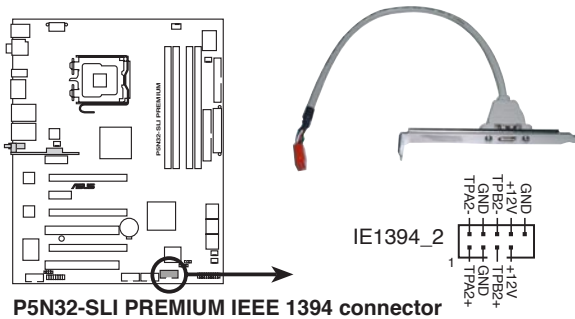
Never connect a USB cable to the IEEE 1394a connector. Doing so will damage the motherboard!

You can connect the 1394 cable to ASUS Q-Connector (1394, red) first, and then install the Q-Connector (1394) to the 1394 connector onboard.

6. CPU, chassis, and power fan connectors
(4-pin CPU_FAN, 3-pin CHA_FAN1, 3-pin CHA_FAN2, 3-pin CHA_FAN3, 3-pin PWR_FAN)

The fan connectors support cooling fans of 350 mA ~ 2000 mA (24 W max.) or a total of 1 A ~ 7 A (84 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

> Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

P5N32-SLI PREMIUM Fan connectors
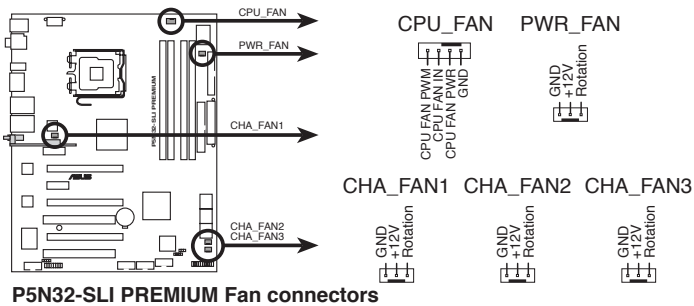
> • Only the CPU_FAN and CHA_FAN 1-3 connectors support the ASUS Q-FAN 2 feature.
> • If you install two VGA cards, we recommend that you plug the rear chassis fan cable to the motherboard connector labeled CHA_FAN1 or CHA_FAN2 for better themal environment.

7. Chassis intrusion connector (4-1 pin CHASSIS)

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

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

P5N32-SLI PREMIUM Chassis intrusion connector
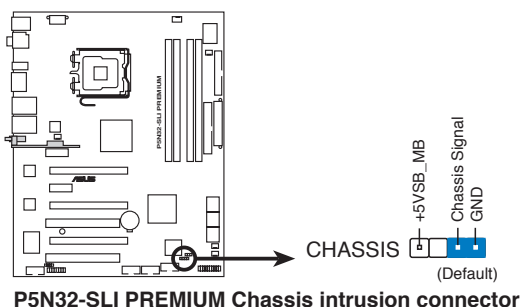
8. ATX power connectors
   (24-pin EATXPWR, 2 x 4-pin ATX12V)

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

P5N32-SLI PREMIUM ATX power connectors
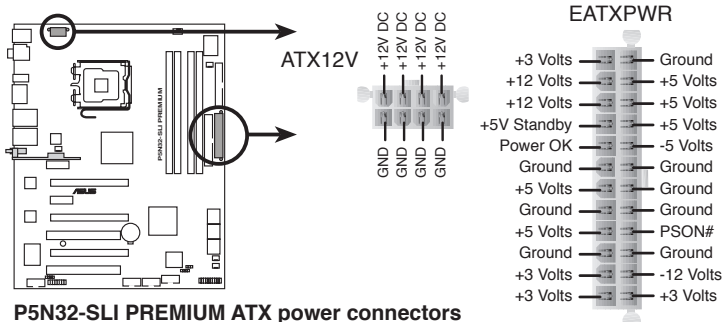
• Make sure to remove the cap on the ATX12V connector before connecting an 8-pin EPS +12V power plug.

• Use only either a 4-pin ATX12V or an 8-pin EPS +12V power plug for the ATX12V connector.

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 550 W.

- Do not forget to connect the 4-pin/8pin EATX12V power plug; otherwise, the system will not boot.

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

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

Power supply requirements

Heavy Loading	
CPU	SMF 3.2XE
DDR533	256MB*4
PCI-E VGA	Nvidia 7950GTX*2
SATA-HD	6
ESATA-HD	2
IDE-HD	1
CD-ROM	1
USB	2
PCI-E 1X	0
PCI	0

	+12V-V2 (4 PIN)	+12V-V1 (24PIN)	+5V	+3.3V	VGA +12V	HDD +12V	HDD +5V	+5VSB	Total PSU
Io_max (A)	17	11.4	5.66	9.18	15.76	7.6	7.96	0.548	Po_max (W)
Io_rms (A)	12.35	7.68	4.42	8.52	10.74	3.32	5.26	0.413	
Vout (V)	11.93	11.9	5.022	3.316	11.42	11.95			
Po_max (W)	202.81	135.66	28.42	30.44	179.98	90.82	4.993	5.054	678.18

Power supply requirements

Normal Loading	
CPU	PSC 3.73G 1066
DDR800	1GB*2
VGA	Nvidia 7800GTX*2
SATA-HD	SATA*4
ESATA-HD	1
IDE-HD	1
CD-ROM	1
USB	2
PCI	1

	+12V-V2 (4 PIN)	+12V-V1 (24PIN)	+5V	+3.3V	VGA +12V	HDD +12V	HDD +5V	+5VSB	Total PSU
Io_max (A)	12.72	11.44	6.88	8.72	8.88	4.04	4.14	0.588	Po_max (W)
Io_rms (A)	9.16	8.1	5.6	8	5.86	2.14	2.92	0.435	
Vout (V)	11.94	11.9	5.026	3.32	11.57	11.99	5.04	5.05	
Po_max (W)	151.88	136.14	34.58	28.95	102.74	48.44	20.87	2.97	526.56

Light Loading	
CPU	PSC 3.8G EM64T
DDR667	512MB*2
VGA	Nvidia 7800GTX*1
SATA-HD	SATA*2
IDE-HD	1
CD-ROM	1
USB	1
PCI	1

	+12V-V2 (4 PIN)	+12V-V1 (24PIN)	+5V	+3.3V	VGA +12V	HDD +12V	HDD +5V	+5VSB	Total PSU
Io_max (A)	12.36	7.6	8.44	3.24	4.28	4.34	3.58	0.556	Po_max (W)
Io_rms (A)	8.98	4.8	6.76	3.01	2.84	23.4	2.48	0.396	
Vout (V)	11.93	11.93	5.026	3.33	11.91	12.03	5.09	5.066	
Po_max (W)	147.45	90.67	42.42	10.79	50.97	52.21	18.22	2.82	415.56

9. S/PDIF output connector (4-1 pin SPDIF_02)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF Out module cable to this connector, then install the module to a slot opening at the back of the system chassis.

P5N32-SLI PREMIUM SPDIF OUT connector
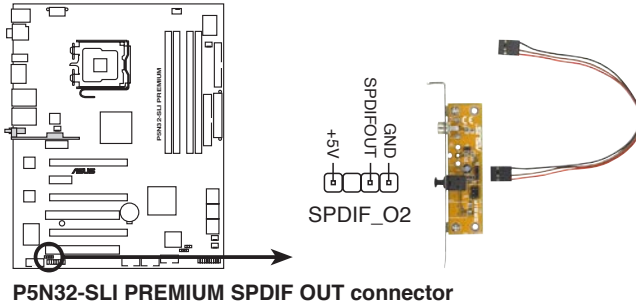
The S/PDIF module is purchased separately.

10. **System panel connector (20-8 pin PANEL)**

This connector supports several chassis-mounted functions.
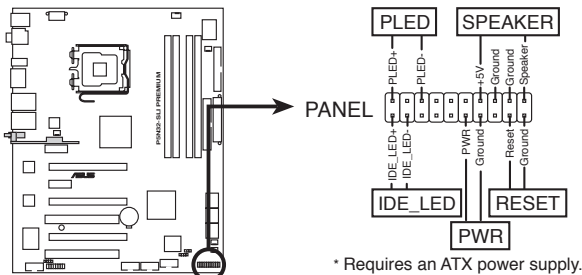
P5N32-SLI PREMIUM System panel connector

* Requires an ATX power supply.

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

  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

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

  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

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

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

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

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

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

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

ASUS Q-Connector (system panel)

You can use the ASUS Q-Connector to connect/disconnect chassis front panel cables in a few steps. Refer to the instructions below to install the ASUS Q-Connector.

1. Connect the front panel cables to the ASUS Q-Connector.

    Refer to the labels on the Q-Connector to know the detailed pin definitions, then match them to the respective front panel cable labels.
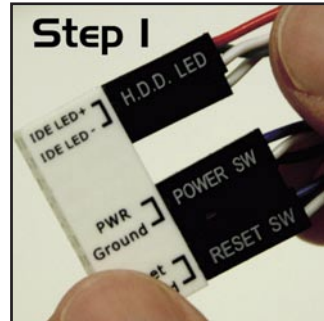
2. Install the ASUS Q-Connector to the system panel connector, making sure the orientation matches the labels on the motherboard.
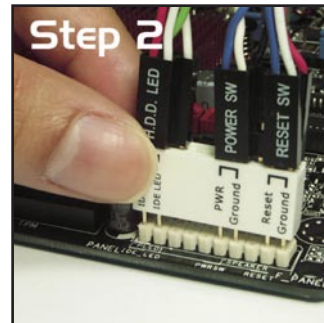
3. The front panel functions are now enabled. The figure shows the Q-Connector properly installed on the motherboard.
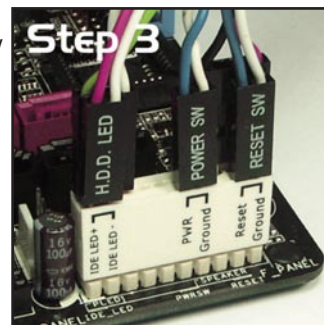
This chapter describes the power up
sequence, the vocal POST messages,
and ways of shutting down the system.

Powering up

Chapter summary

3

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 system power LED on the system front panel case lights up. For systems withATX power supplies, the system LED lights up when you press the ATX power button. 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 self tests or POST. 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.

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

3.2 Turning off the computer

3.2.1 Using the OS shut down function

If you are using Windows® 2000:

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 later version:

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.

3.2.2 Using the dual function power switch

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

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

BIOS setup

4

Chapter summary

4

4.1 Managing and updating your BIOS

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

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

Refer to the corresponding sections for details on these utilities.

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

4.1.1 ASUS Update utility

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

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

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

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

Installing ASUS Update

To install ASUS Update:

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

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

Updating the BIOS through the Internet

To update the BIOS through the Internet:

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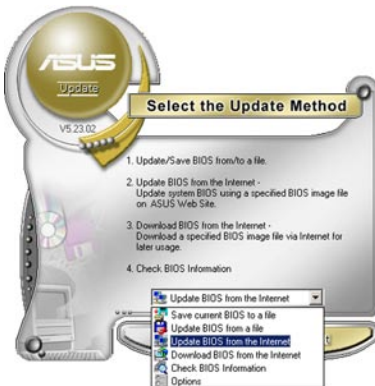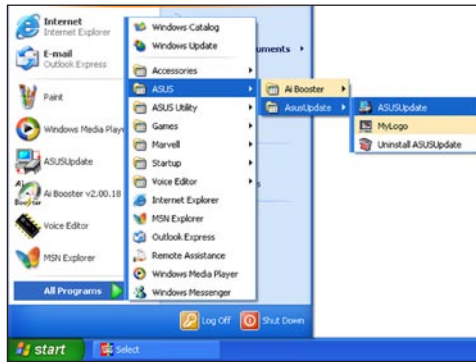
2. Select **Update BIOS** from the Internet option from the drop-down menu, then click **Next**.

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

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

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

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

Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

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

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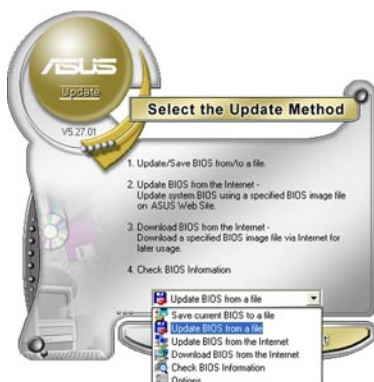
3. Locate the BIOS file from the Open window, then click **Save**.

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

4.1.2   Creating a bootable floppy disk

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

DOS environment

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

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

Windows® XP environment

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

b.   Click **Start** from the Windows® desktop, then select **My Computer**.

c.   Select the 3 1/2 Floppy Drive icon.

d.   Click File from the menu, then select **Format**. A **Format 3 1/2 Floppy Disk** window appears.

e.   Windows® XP users: Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

Windows® 2000 environment

To create a set of boot disks for Windows® 2000:

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

b.   Insert the Windows® 2000 CD to the optical drive.

c.   Click **Start**, then select **Run**.

d.   In the **Open** field, type `D:\bootdisk\makeboot a:`

assuming that **D** is your optical drive letter.

e.   Press <Enter>, then follow screen instructions to continue.

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

4.1.3 ASUS EZ Flash 2 utility

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

To update the BIOS using EZ Flash 2:

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

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

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

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

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

```
            ASUSTek EZ Flash 2 BIOS ROM Utility B312
   FLASH TYPE: Winbond W39V080A 8Mb LPC
        ┌─── Current ROM ───┐       ┌─── Update ROM ───┐
         BOARD: P5N32-SLI Premium     BOARD: Unknown
         VER: 07241                   VER: Unknown
         DATE: 07/24/2006             DATE: Unknown

   PATH: C:\

    A:        WIN98SE          <DIR>
    C:        NETTERM          <DIR>
              DRIVERS          <DIR>
              RECYCLED         <DIR>
              WUTEMP           <DIR>
              NEWFOL~1         <DIR>
              INSTALL          <DIR>
              TEST_REB         <DIR>
              MSDOWNLD.TMP     <DIR>

   ┌─ Note ─┐
    [Enter] Select        [S] Save           [ESC] Exit

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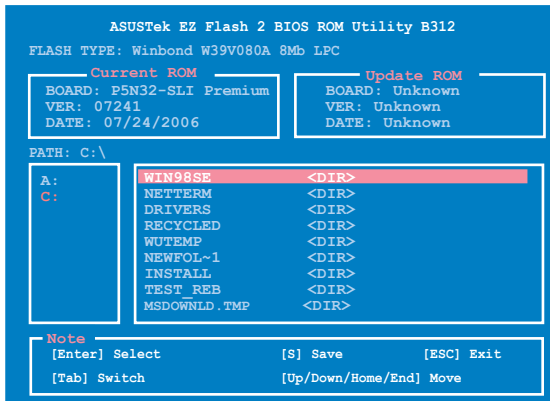
    (2) Enter the BIOS setup program. Go to the **Tools** menu to select **EZ Flash 2** and press <Enter> to enable it.

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

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

⚠️
- This function can support devices such as USB flash disk, hard disk, or floppy disk with FAT 32/16/12 format only.
- Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

4.1.4   Updating the BIOS

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

1.   Download the latest BIOS file from the ASUS web site. Save the file to a floppy disk, CD ROM or a USB flash disk in **FAT 16/12 format**.

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

2.   Copy the AwardBIOS Flash Utility (awdflash.exe) from the Software folder of the support CD to the floppy disk, CD ROM or a USB flash disk with the latest BIOS file.

3.   Boot the system in DOS mode using the bootable floppy disk, CD ROM or a USB flash disk you created earlier.

4.   Under the DOS mode, use <X:> (X stands for the name of the disk assignment) to switch to the folder of floppy disk, CD ROM or USB flash disk you saved the BIOS fileand AwardBIOS Flash Utility.

5.   At the prompt, type awdflash then press <Enter>. The Award BIOS Flash Utility screen appears.

```
        AwardBIOS Flash Utility for ASUS V1.14
   (C) Phoenix Technologies Ltd. All Rights Reserved

   For NF590-SLI-P5N32-SLI-PREMIUM      DATE:07/28/2006
   Flash Type - PMC Pm49FL004T LPC/FWH

   File Name to Program:




   Message: Please input File Name!
```

6. Type the BIOS file name in the File Name to Program field, then press <Enter>.

```
       AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program: 0107.bin




Message: Do You Want To Save Bios (Y/N)
```

7. Press <N> when the utility prompts you to save the current BIOS file. The following screen appears.

8. The utility verifies the BIOS file in the floppy disk, CD ROM or a USB flash disk and starts flashing the BIOS file.

```
       AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  0107.bin

Programming Flash Memory - 0FE00 OK


    Write OK         No Update        Write Fail
  Warning: Don't Turn Off Power Or Reset System!
```

Do not turn off or reset the system during the flashing process!

9. The utility displays a Flashing Complete message, indicating that you have successfully flashed the BIOS file. Remove the disk then press <F1> to restart the system.

```
       AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  0107.bin
              Flashing Complete
           Press <F1> to Continue


    Write OK         No Update        Write Fail
 F1 Reset
```

4.1.5   Saving the current BIOS file

You can use the AwardBIOS Flash Utility to save the current BIOS file. You can load the current BIOS file when the BIOS file gets corrupted during the flashing process.

> Make sure that the floppy disk, CD ROM or a USB flash disk has enough disk space to save the file.

To save the current BIOS file using the AwardBIOS Flash Utility:

1.   Follow steps 1 to 6 of the previous section.

2.   Press <Y> when the utility prompts you to save the current BIOS file. The following screen appears.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program: 0112.bin

Save current BIOS as:




    Message:
```

3.   Type a filename for the current BIOS file in the Save current BIOS as field, then press <Enter>.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  0112.bin
             Checksum: 810DH
Save current BIOS as:  0113.bin




    Message: Please Wait!
```

4.   The utility saves the current BIOS file to the disk, then returns to the BIOS flashing process.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF590-SLI-P5N32-SLI-PREMIUM     DATE:07/28/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  0113.bin
            Now Backup System BIOS to
                      File!




    Message: Please Wait!
```

4.1.6   ASUS CrashFree BIOS 3 utility

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

Prepare the motherboard support CD, the floppy disk or the USB flash disk containing the updated motherboard BIOS before using this utility.

Recovering the BIOS from the support CD

To recover the BIOS from the support CD:

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

```
BIOS ROM checksum error
Detecting IDE ATAPI device...
```

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

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

Recovering the BIOS from a floppy/USB flash disk

To recover the BIOS from a floppy/USB flash disk:

1.   Download the latest BIOS from the ASUS website (www.asus.com).
2.   Insert the floppy/USB flash disk that contains BIOS file to the FDD/USB port.
3.   Turn on the system.
4.   The utility will automatically checks the devices for the BIOS file When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.
5.   Restart the system after the utility completes the updating process.

•   Only the USB flash disk with FAT 32/16/12 format and single partition can support ASUS CrashFree BIOS 3. The device size should be smaller than 8GB.

•   Flash time takes around one (1) minute.

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

4.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section "4.1 Managing and updating your BIOS."

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

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

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

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

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

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Default Settings item under the Exit Menu. See section "4.8 Exit Menu."

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

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

4.2.1   BIOS menu screen

Menu items   Menu bar   Configuration fields   General help

```
                    Phoenix-Award BIOS CMOS Setup Utility
   Main    Advanced    Power    Boot    Tools    Exit

   System Time                      15 : 30 : 36              Select Menu
   System Date                      Wed, Jul 26  2006
   Language                         [English]             Item Specific Help▶

   Legacy Diskette A:               [1.44M, 3.5 in.]      Change the day, month,
                                                          year and century.
 ▶  Primary IDE Master             [ST321122A]
 ▶  Primary IDE Slave              [ASUS CDS520/A]
 ▶  SATA 1                         [None]
 ▶  SATA 2                         [None]
 ▶  SATA 3                         [None]
 ▶  SATA 4                         [None]
 ▶  SATA 5                         [None]
 ▶  SATA 6                         [None]
    HDD SMART Monitoring           [Disabled]

    Installed Memory               1024MB
    Usable Memory                  1023MB


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

Sub-menu items   Legend bar

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

Advanced   For changing the advanced system settings

Power   For changing the advanced power management (APM)
                  configuration

Boot   For changing the system boot configuration

Exit   For selecting the exit options and loading default
                  settings

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

> • The BIOS setup screens shown in this chapter are for reference purposes
> only, and may not exactly match what you see on your screen.
>
> • Visit the ASUS website (www.asus.com) to download the latest BIOS
> information.

4.2.3　Legend bar

At the bottom of the Setup screen is a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding functions.

Navigation Key	Function
<F1>	Displays the General Help screen
<F5>	Loads setup default values
<Esc>	Exits the BIOS setup or returns to the main menu from a sub-menu
Left or Right arrow (→ ←)	Selects the menu item to the left or right
Up or Down arrow (↑↓)	Moves the highlight up or down between fields
Page Down or – (minus)	Scrolls backward through the values for the highlighted field
Page Up or + (plus)	Scrolls forward through the values for the highlighted field
<Enter>	Brings up a selection menu for the highlighted field
<F10>	Saves changes and exit

4.2.4　Menu items

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

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

4.2.5　Sub-menu items

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

4.2.6　Configuration fields

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

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "4.2.7 Pop-up window."

4.2.7   Pop-up window

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

```
                    Phoenix-Award BIOS CMOS Setup Utility
 Main   Advanced   Power   Boot   Tools   Exit

 System Time                       15 : 30 : 36              Select Menu
 System Date                       Wed, Jul 26  2006
 Language                          [English]             Item Specific Help▶

 Legacy Diskette A:                [1.44M, 3.5 in.]      Change the day, month,
                                                         year and century.
 ▶  Primary IDE Mast
 ▶  Primary IDE Slav     Legacy Diskette A:
 ▶  SATA 1
 ▶  SATA 2
 ▶  SATA 3               Disabled          ..... [ ]
 ▶  SATA 4               720K , 3.5 in.    ..... [ ]
 ▶  SATA 5               1.44M, 3.5 in.    ..... [ ]
 ▶  SATA 6
    HDD SMART Monito

    Installed Memory
    Usable Memory
                         ↑↓ :Move   ENTER:Accept   ESC:Abort

 F1:Help         ↑↓                                     5: Setup Defaults
 ESC: Exit       →←   : Select Menu    Enter: Select SubMenu   F10: Save and Exit
```

Pop-up menu

4.2.8   General help

At the top right corner of the menu screen is a brief description of the selected 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    Tools    Exit

 System Time                      15 : 30 : 36              Select Menu
 System Date                      Wed, Jul 26  2006
 Language                         [English]            Item Specific Help▶

 Legacy Diskette A:               [1.44M, 3.5 in.]     Change the day, month,
                                                       year and century.
▶  Primary IDE Master             [ST321122A]
▶  Primary IDE Slave              [ASUS CDS520/A]
▶  SATA 1                         [None]
▶  SATA 2                         [None]
▶  SATA 3                         [None]
▶  SATA 4                         [None]
▶  SATA 5                         [None]
▶  SATA 6                         [None]
   HDD SMART Monitoring           [Disabled]

   Installed Memory               1024MB
   Usable Memory                  1023MB

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

4.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

4.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

4.3.3 Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English] [French] [Deutsch] [Chinese (Trad.)] [Chinese (Simp.)] [Japanese]

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

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

4.3.5 Primary IDE Master/Slave

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

```
                  Phoenix-Award BIOS CMOS Setup Utility
    Main
┌──────────────────────────────────────────────────┬──────────────────────┐
│               Primary IDE Master                  │     Select Menu      │
│                                                   │                      │
│    Primary IDE Master          [Auto]             │   Item Specific Help▶▶│
│    Access Mode                 [Auto]             │                      │
│                                                   │   Press [Auto] to set.│
│    Capacity                       82 GB           │                      │
│                                                   │                      │
│    Cylinder                       39420           │                      │
│    Head                              16           │                      │
│    Sector                           255           │                      │
│    PIO Mode                    [Auto]             │                      │
│    UDMA Mode                   [Auto]             │                      │
│    Transfer Mode                 UDMA 5           │                      │
│                                                   │                      │
│                                                   │                      │
│                                                   │                      │
├──────────────────────────────────────────────────┴──────────────────────┤
│  F1:Help        ↑↓  : Select Item     -/+: Change Value    F5: Setup Defaults │
│  ESC: Exit      →←  : Select Menu   Enter: Select SubMenu  F10: Save and Exit │
└──────────────────────────────────────────────────────────────────────────┘
```

The BIOS automatically detects the values opposite the dimmed items (Capacity, Cylinder, Head, Sector and Transfer Mode). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Primary IDE Master [Auto]

Select [Auto] to automatically detect an IDE hard disk drive. If automatic detection is successful, the BIOS automatically fills in the correct values for the remaining fields on this sub-menu. If the hard disk was already formatted on a previous system, the setup BIOS may detect incorrect parameters. Select [Manual] to manually enter the IDE hard disk drive parameters. If no drive is installed select [None]. Configuration options: [None] [Auto] [Manual]

Access Mode [Auto]

The default [Auto] allows automatic detection of an IDE hard disk drive. Select [CHS] for this item if you set the IDE Primary Master/Slave to [Manual]. Configuration options: [CHS] [LBA] [Large] [Auto]

> Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

Capacity

Displays the auto-detected hard disk capacity. This item is not configurable.

Cylinder

Shows the number of the hard disk cylinders. This item is not configurable.

Head

Shows the number of the hard disk read/write heads. This item is not configurable.

Sector

Shows the number of sectors per track. This item is not configurable.

PIO Mode [Auto]

Sets the PIO mode for the IDE device.
Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

UDMA Mode [Auto]

Disables or sets the UDMA mode. Configuration options: [Disabled] [Auto]

Transfer Mode

Shows the Transfer mode. This item is not configurable.

After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk 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 drives to active.

4.3.6   SATA 1 ~ 6

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

```
                    Phoenix-Award BIOS CMOS Setup Utility
   Main
┌──────────────────────────────────────────┬──────────────────────────────┐
│                 SATA 1                    │        Select Menu           │
├──────────────────────────────────────────┼──────────────────────────────┤
│ Extended IDE Drive           [Auto]       │ Item Specific Help▶▶          │
│ Access Mode                  [Auto]       │                              │
│                                           │ Selects the type of fixed     │
│ Capacity                     0 MB         │ disk connected to the         │
│                                           │ system.                       │
│ Cylinder                     0            │                              │
│ Head                         0            │                              │
│ Landing Zone                 0            │                              │
│ Sector                       0            │                              │
│                                           │                              │
│                                           │                              │
│                                           │                              │
│                                           │                              │
├──────────────────────────────────────────┴──────────────────────────────┤
│ F1:Help        ↑↓ : Select Item      -/+: Change Value    F5: Setup Defaults │
│ ESC: Exit      →← : Select Menu    Enter: Select SubMenu  F10: Save and Exit │
└──────────────────────────────────────────────────────────────────────────┘
```

The BIOS automatically detects the values opposite the dimmed items (Capacity, Cylinder, Head, Landing Zone and Sector). These values are not user-configurable. These items show 0 if no SATA device is installed in the system.

Extended Drive [Auto]

Selects the type of fixed disk connected to the system.
Configuration options: [None] [Auto]

Access Mode [Auto]

Sets the sector addressing mode. Configuration options: [Large] [Auto]

Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

Capacity

Displays the auto-detected hard disk capacity. This item is not configurable.

Cylinder

Shows the number of the hard disk cylinders. This item is not configurable.

Head

Shows the number of the hard disk read/write heads. This item is not configurable.

Landing Zone

Shows the number of landing zone per track. This item is not configurable.

Sector

Shows the number of sectors per track. This item is not configurable.

> After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk 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 drives to active.

4.3.7   HDD SMART Monitoring [Disabled]

Allows you to enable or disable the HDD Self-Monitoring Analysis and Reporting Technology (SMART) feature. Configuration options: [Disabled] [Enabled]

4.3.8   Installed Memory [xxx MB]

Shows the size of installed memory.

4.3.9   Usable Memory [XXX MB]

Shows the size of usable memory.

4.4 Advanced menu

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

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

```
                    Phoenix-Award BIOS CMOS Setup Utility
     Main   Advanced   Power   Boot   Tools   Exit

  ▶  JumperFree Configuration                          Select Menu
  ▶  AI NET2
  ▶  PEG Link Mode                                  Item Specific Help▶

  ▶  CPU Configuration                              Adjust system frequency/
  ▶  Chipset                                        voltage.
  ▶  PCIPnP
  ▶  Onboard Device Configuration
  ▶  USB Configuration




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

4.4.1 JumperFree Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
         Advanced

           JumperFree Configuration                      Select Menu

     AI Tuning                    [Auto]            Item Specific Help▶
  x  Overclock Options            Disabled
  x  Frequency Control                              Press [Enter] to select
  x  Voltage Control                                overclock profile.
  x  Spread Spectrum Control

  x  SLI-ready Memory




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

AI Tuning [Auto]

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

Manual	Allows you to individually set overclocking parameters.
Auto	Loads the optimal settings for the system.

Standard	Loads the standard settings for the system.
AI Overclock	Loads overclocking profiles with optimal parameters for stability when overclocking.
AI N.O.S.	The ASUS AI Non-delay Overclocking System feature intelligently determines the system load and automatically boosts the performance for the most demanding tasks.

The following item becomes user-configurable when you set **AI Tuning** to [AI Overclock].

Overclock Options [Disabled]

Allows you to set the overclock frequency.
Configuration options: [Disabled] [Overclock 5%] [Overclock 10%] [Overclock 15%] [Overclock 20%] [FSB 960/800] [FSB 1280/800] [FSB 1000/667] [FSB 1333/667] [FSB 1200/800]

The following items will become user-configurable when you set **AI Tuning** to [Manual]

Frequency Control

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

                  Frequency Control                          Select Menu

     CPU Clock Ratio               [22 x]                Item Specific Help
     NB PCIE Frequency (MHz)       [100]
     SB PCIE Frequency (MHz)       [100]                Sets the ratio between
                                                        CPU core clock and the
     System Clock Mode             [Auto]               FSB frequency
  x  New FSB Speed (QDR)        Auto
     Current FSB Speed (QDR)      533.3 MHz
     Target FSB Speed (QDR)       533.3 MHz
  x  New MEM Speed (DDR)        Auto
     Current MEM Speed (DDR)      533.3 MHz
     Target MEM Speed (DDR)       666.7 MHz




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

CPU Clock Ratio [22 x]
Allows you to set the ratio between CPU core clock and the FSB frequency. Key in a number between 14 (minimum) and 22 (maximum).

NB PCIE Frequency (MHz) [100]
Allows you to set the Northbridge PCI Express frequency. Key in a number between 100 (minimum) and 150 (maximum).

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SB PCIE Frequency (MHz) [100]
Allows you to set the Southbridge PCI Express frequency. Key in a number between 100 (minimum) and 150 (maximum).

System Clock Mode [Auto]
Set this item to [Auto] to let the system set the current FSB/memory frequency automatically. Choose [CPU Precision Tweaker] to set the FSB frequency at 1 MHz increment; the memory frequency adjusts accordingly. Choose [CPU/MEM manual-mode] to change the CPU and memory frequencies. Choose [MEM Precision Tweaker] to set the memory frequency at 1 MHz increment; the FSB frequency adjusts accordingly. Configuration options: [Auto] [CPU Precision Tweaker] [CPU/MEM manual-mode] [MEM Precision Tweaker]

The following items are non-configurable when you set **System Clock Mode** to [Auto].

New FSB Speed (QDR) [533]
Allows you to change the FSB speed. Enter any number from 523 (minimum) to 1600 (maximum). You may also use the <+> or <-> key to increase or decrease the value. This item becomes configurable when you set **System Clock Mode** to [CPU/MEM manual-mode] or [CPU Precision Tweaker].

Current FSB Speed (QDR) 533.3 MHz
This item shows the current FSB speed and is non-user configurable.

Target FSB Speed (QDR) 533.3 MHz
This item shows the target FSB speed and is non-user configurable.

New MEM Speed (DDR) Auto
Allows you to change the memory speed. Enter any number from 400 (minimum) to 1300 (maximum). You may also use the <+> or <-> key to increase or decrease the value. This item becomes configurable when you set **System Clock Mode** to [CPU/MEM manual-mode] or [MEM Precision Tweaker].

Current MEM Speed (DDR) 533.3 MHz
This item shows the current memory speed and is non-user configurable.

Target MEM Speed (DDR) 666.7 MHz
This item shows the target memory speed and is non-user configurable.

Voltage Control

```
                    Phoenix-Award BIOS CMOS Setup Utility
           Advanced
┌──────────────────────────────────────────────────┬──────────────────────┐
│              Voltage Control                       │     Select Menu      │
│                                                    │                      │
│   VCore Voltage              [Auto]                │ Item Specific Help▶▶▶│
│   1.8V Voltage               [Auto]                │                      │
│   1.2V HT Voltage            [Auto]                │ Set CPU VID to desired│
│   CPU VTT Voltage            [Auto]                │ voltage, but it will │
│   SB Core Voltage            [Auto]                │ cause other CPU power │
│   1.4VSB Voltage             [Auto]                │ management features  │
│   NB Core Voltage            [Auto]                │ (such as C1E, EIST, and│
│   Vcore Over Voltage         [Disabled]            │ TM2) to fail to control│
│                                                    │ CPU VID. Select [Auto]│
│                                                    │ to let CPU VID keep  │
│                                                    │ original value.      │
│                                                    │                      │
│                                                    │                      │
│                                                    │                      │
├──────────────────────────────────────────────────┴──────────────────────┤
│  F1:Help        ↑↓  : Select Item    -/+: Change Value    F5: Setup Defaults│
│  ESC: Exit      →←  : Select Menu     Enter: Select SubMenu  F10: Save and Exit│
└──────────────────────────────────────────────────────────────────────────┘
```

VCore Voltage [Auto]
Allows you to set CPU VID to desired voltage. Doing so may cause other
CPU power management features (such as C1E, EIST, and TM2) to fail
to control CPU VID. Select [Auto] to keep the original **CPU VID value.**
Configuration options: [Auto] [1.6000V] [1.5875V] [1.5750V] [1.5625V]
[1.5500V] [1.5375V] [1.5250V] ~ **[1.2250V]**

1.8V Voltage [Auto]
Allows you to set the 1.8V voltage.
Configuration options: **[Auto] [1.80V] [1.85V] [1.90V] [1.95V]** ~ [2.55V]

1.2V HT Voltage [Auto]
Allows you to set the 1.2V HT voltage.
Configuration options: [Auto] [1.20V] [1.25V] [1.30V] [1.35V]

CPU VTT Voltage [Auto]
Allows you to set the CPU VTT voltage.
Configuration options: [Auto] [1.20V] [1.25V] [1.30V] ~ [1.55V]

SB Core Voltage [Auto]
Allows you to set the Southbridge core voltage.
Configuration options: [Auto] [1.50V] [1.55V] [1.60V] [1.65V]

1.4VSB Voltage [Auto]
Allows you to set the 1.4V standby voltage.
Configuration options: [Auto] [1.40V] [1.50V] [1.60V]

NB Core Voltage [Auto]
Allows you to set the Northbridge core voltage.
Configuration options: [Auto] [1.40V] [1.45V] [1.50V] ~ [1.75V]

Vcore Over Voltage [Disabled]
Allows you to disable or set the Vcore voltage over 200mV.
Configuration options: [Disabled] [200mV]

Spread Spectrum Control

```
                    Phoenix-Award BIOS CMOS Setup Utility
       Advanced

             Spread Spectrum Control                    Select Menu

    CPU Spread Spectrum          [Center Spread]     Item Specific Help▶▶▶
  x PCIE Spread Spectrum             Disabled
  x MCP PCIE Spread Spectrum         Disabled
    SATA Spread Spectrum         [Disabled]
    LDT Spread Spectrum          [Disabled]




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

CPU Spread Spectrum [Center Spread]
Configuration options: [Disabled] [Center Spread] [Down Spread]
[0.5% ++ Spread]

SATA Spread Spectrum [Disabled]
Configuration options: [Disabled] [Enabled]

LDT Spread Spectrum [Disabled]
Configuration options: [Disabled] [Center] **[Down]**

The following items are non-configurable when you set **System Clock Mode** to
[AI N.O.S.].

N.O.S. Option [Disabled]

Allows you to set or disable the Non-delay Overclocking System mode.
Configuration options: [Disabled] [Overclock 3%] **[Overclock 5%]** **[Overclock 8%]**
[Overclock 10%]

4.4.2   AI NET2

```
                    Phoenix-Award BIOS CMOS Setup Utility
          Advanced

                        AI NET2                            Select Menu

     POST Check LAN Cable              [Disabled]      Item Specific Help▶▶
     POST Check LAN2 Cable             [Disabled]
                                                       Enable or disable LAN
     Pair              Status    Length                cable check during POST.
     LAN1(1-2)         Open      0.0M
     LAN1(3-6)         Open      0.0M
     LAN1(4-5)         Open      0.0M
     LAN1(7-8)         Open      0.0M

     LAN2(1-2)         Open      0.0M
     LAN2(3-6)         Open      0.0M
     LAN2(4-5)         Open      0.0M
     LAN2(7-8)         Open      0.0M



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

POST Check LAN Cable [Disabled]
POST Check LAN2 Cable [Disabled]

Allows you to enable or disable LAN cable check during POST. When enabled, the menu reports the cable faults or shorts, and displays the point (length) where the fault or short is detected. Configuration options: [Disabled] [Enabled]

4.4.3   PEG Link Mode

```
                    Phoenix-Award BIOS CMOS Setup Utility
          Advanced

                     PEG Link Mode                         Select Menu

     PEG Link Mode                     [Auto]          Item Specific Help▶▶

                                                       Press <Enter> to
                                                       Enable/Disable PCI
                                                       Express graphics card
                                                       over-clocking by
                                                       accelerating PCI-Ex
                                                       connecting mode and
                                                       determine the speed
                                                       level on it.
```

PEG Link Mode [Auto]

Sets the PCI Express graphics link mode. Setting this item to [Auto] allows the motherboard to automatically adjust the PCI Express graphics link mode to the correct frequency based on the system configuration. Three additional settings are available for overclocking the PEG Link Mode. Configuration options: [Auto] [Disabled] [Normal] [Fast] [Faster]

4.4.4   CPU Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

              CPU Configuration                        Select Menu

   CPU Type                    Genuine Intel(R) CPU    Item Specific Help▶▶
   CPU Speed                   1.86 GHz
   Cache RAM                    256 K                  Press [Enter] to select
   CPU Internal Thermal Control   [Auto]               overclock profile.
   Limit CPUID MaxVal          [Disabled]
   Execute Disable Bit         [Enabled]




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

CPU Internal Thermal Control [Auto]

Allows you to disable or set to auto the CPU Internal Thermal Control function. When set to [Auto], the BIOS automatically checks the CPU's capability to enable Thermal Monitor (TM) 1 or TM2 support. Configuration options: [Auto] [Disabled]

Limit CPUID MaxVal [Disabled]

Setting this item to [Enabled] allows legacy operating systems to boot even without support for CPUs with extended CPUID functions. When using Windows XP operating system, this item should be set to [Enabled]. Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enabled]

Allows you to enable or disable the No-Execution Page Protection Technology. Setting this item to [Enabled] forces the XD feature flag to always return to zero (0). Configuration options: [Disabled] [Enabled]

4.4.5   Chipset

```
                    Phoenix-Award BIOS CMOS Setup Utility
          Advanced

                    Chipset                              Select Menu

    ▶   Memory Timing Configuration                 Item Specific Help▶▶
        SLI Broadcast Aperture          [Disabled]
        LDT Frequency                   [ 5x]       Select [Expert] to enter
                                                    timings manually
```

Memory Timing Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
          Advanced

              Memory Timing Configuration               Select Menu

        Memory Timings              [Optimal]      Item Specific Help▶▶
    x   T(CAS)                      Auto
    x   T(RCD)                      Auto
    x   T(RP)                       Auto
    x   T(RAS)                      Auto
    x   T(RC)                       Auto
    x   Addressing Mode             Auto
```

Memory Timings [Optimal]
Keep the default setting [Optimal] to let the system set the memory timing
automatically, using the value recommended by the DIMM manufacturer. Set
this item to [Expert] to configure manually. Configuration options: [Optimal]
[Expert]

> The succeeding items become user-configurable when you set **Memory
> Timings** to [Expert].

T(CAS) [Auto]
Allows you to set the CAS latency.
Configuration options: [Auto] [1] [2] [3] [4] [5] [6]

T(RCD) [Auto]
Allows you to set the RAS-to-CAS delay.
Configuration options: [Auto] [1] [2] [3] [4] [5] [6] [7]

T(RP) [Auto]
Allows you to set the row precharge delay.
Configuration options: [Auto] [1] [2] [3] [4] [5] [6] [7]

T(RAS) [Auto]
Allows you to set the row active delay.
Configuration options: [Auto] [1] [2] [3] [4] ~ [31]

T(RC) [Auto]
Allows you to set the row cycle time.
Configuration options: [Auto] [1] [2] [3] [4] ~ [31]

Addressing Mode [Auto]
Allows you to set the two-clock addressing mode.
Configuration options: [Auto] [1 clock] [2 clock]

SLI Broadcast Aperture [Disabled]

Configuration options: [Auto] [Disabled]

LDT Frequency [Disabled]

Configuration options: [1x] [2x] [3x] [4x] [5x] [3.5x]

4.4.6   PCIPnP

```
                    Phoenix-Award BIOS CMOS Setup Utility
         Advanced

                   PCIPnP                              Select Menu

   Plug & Play O/S              [No]            Item Specific Help▶▶
   Init Display First          [PCI-E]
                                               Select Yes if you are using
                                               a Plug and Play capable
                                               operating system. Select
                                               No if you need the BIOS to
                                               configure non-boot devices.
```

Plug & Play O/S [No]

When set to [No], the BIOS configures all the devices in the system. When set to
[Yes] and if you install a Plug and Play operating system, the operating system
configures the Plug and Play devices not required for boot. Configuration options:
[No] [Yes]

Init Display First [PCI-E]

Allows you to select which graphics controller to use as primary boot device.
Configuration options: [PCI] [PCI-E]

4.4.7   Onboard Device Configuration

```
               Phoenix-Award BIOS CMOS Setup Utility
        ┌──────────────────────────────────────────────────────────┐
        │  Advanced                                                │
┌───────────────────────────────────────────────┬──────────────────┐
│         Onboard Device Configuration           │   Select Menu    │
├───────────────────────────────────────────────┼──────────────────┤
│ ▶  IDE Function Setup                          │ Item Specific Help▶▶│
│ ▶  Serial-ATA Configuration                    │                  │
│    Onboard 1st nVidia LAN         [Enabled]    │                  │
│    Onboard 2nd nVidia LAN         [Enabled]    │                  │
│    Onboard LAN Boot ROM           [Disabled]   │                  │
│    HD Audio                       [Auto]       │                  │
│    Front Panel Support Type       [AC97]       │                  │
│    Silicon SATAII Controller      [SATA Mode]  │                  │
│    Onboard 1394                   [Enabled]    │                  │
│    Serial Port1 Address           [3F8/IRQ4]   │                  │
│                                                │                  │
│                                                │                  │
│                                                │                  │
│                                                │                  │
│                                                │                  │
├───────────────────────────────────────────────┴──────────────────┤
│ F1:Help         ↑↓  : Select Item     -/+: Change Value   F5: Setup Defaults │
│ ESC: Exit       →←  : Select Menu      Enter: Select SubMenu  F10: Save and Exit │
└───────────────────────────────────────────────────────────────────┘
```

IDE Function Setup

This sub-menu contains IDE function-related items. Select an item then press
<Enter> to edit.

```
               Phoenix-Award BIOS CMOS Setup Utility
        ┌──────────────────────────────────────────────────────────┐
        │  Advanced                                                │
┌───────────────────────────────────────────────┬──────────────────┐
│              IDE Function Setup                │   Select Menu    │
├───────────────────────────────────────────────┼──────────────────┤
│    OnChip IDE Channel0            [Enabled]    │ Item Specific Help▶▶│
│    IDE DMA transfer access        [Enabled]    │                  │
│    IDE Prefetch Mode              [Enabled]    │                  │
│                                                │                  │
│                                                │                  │
│                                                │                  │
│                                                │                  │
└───────────────────────────────────────────────┴──────────────────┘
```
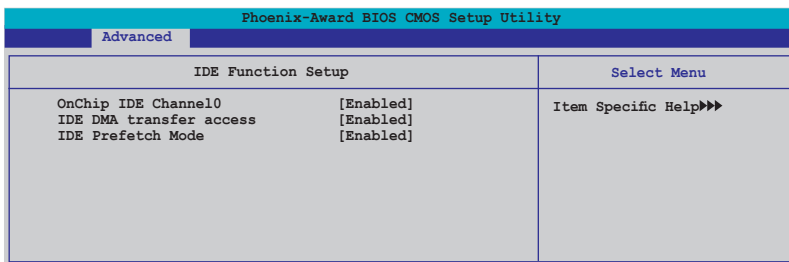
OnChip IDE Channel0 [Enabled]
Allows you to enable or disable the onchip IDE channel 0 controller .
Configuration options: [Disabled] [Enabled]

IDE DMA transfer access [Enabled]
Allows you to enable or disable the IDE DMA transfer access.
Configuration options: [Disabled] [Enabled]

IDE Prefetch Mode [Enabled]
Allows you to enable or disable the IDE prefetch mode.
Configuration options: [Disabled] [Enabled]

Serial-ATA Configuration

This sub-menu allows you to change Serial ATA settings. Select an item then press
<Enter> to edit.

```
                     Phoenix-Award BIOS CMOS Setup Utility
        Advanced

              Serial-ATA Configuration                    Select Menu

      Serial-ATA Controller          [Enabled]        Item Specific Help▶▶▶
      RAID Enabled                   [Disabled]
   x  SATA 1             RAID        Disabled
   x  SATA 2             RAID        Disabled
   x  SATA 3             RAID        Disabled
   x  SATA 4             RAID        Disabled
   x  SATA 5             RAID        Disabled
   x  SATA 6             RAID        Disabled
```

Serial-ATA Controller [Enabled]
Configuration options: [Disabled] [Enabled]

RAID Enabled [Disabled]
Enables or disables the onboard RAID controller. When set to [Enabled], the
succeeding items become user-configurable.
Configuration options: [Disabled] [Enabled]

SATA1 ~ 6 RAID [Disabled]
Enables or disables the RAID function of the Serial ATA drives.
Configuration options: [Disabled] [Enabled]

Onboard 1st/2nd nVidia LAN [Enabled]

Enables or disables the onboard NVIDIA® LAN controller.
Configuration options: [Disabled] [Enabled]

Onboard LAN Boot ROM [Disabled]

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

HD Audio [Auto]

Allows you to disable or set the High-Definition Audio function.
Configuration options: [Auto] [Disabled]

Front Panel Support Type [AC97]

Allows you to set the front panel audio connector mode to legacy AC97 or high-
definition audio, depending on the front panel audio module support.
Configuration options: [AC97] [HD Audio]

Silicon SATAII Controller [SATA Mode]

Allows you to disable or set the function of the extended SATA II controller.
Configuration options: [Disabled] [SATA Mode] [RAID Mode]

Onboard 1394 [Enabled]

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

Serial Port1 Address [3F8/IRQ4]

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

4.4.8   USB Configuration

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

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

                       USB Configuration

    USB Controller             [Enabled]              Select Menu
    USB2.0 Controller          [Enabled]
    USB Legacy support         [Enabled]          Item Specific Help▶▶
                                                  Enable or Disable the
                                                  USB Controller.
```
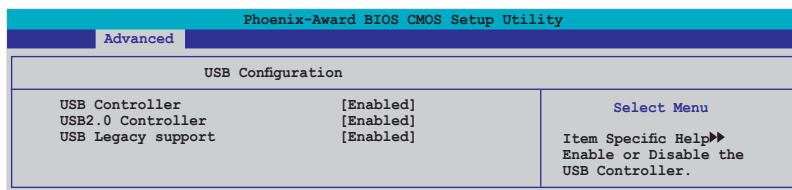
USB Controller [Enabled]

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

USB 2.0 Controller [Enabled]

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

USB Legacy Support [Enabled]

Allows you to enable or disable support for USB devices on legacy operating
systems (OS). Configuration options: [Disabled] [Enabled]

4.5 Power menu

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

```
                    Phoenix-Award BIOS CMOS Setup Utility
    Main    Advanced    Power    Boot    Tools    Exit

       ACPI Suspend Type          [S1&S3]              Select Menu
       ACPI APIC support          [Enabled]
  ▶    APM Configuration                          Item Specific Help▶▶
  ▶    Hardware Monitor




    F1:Help          ↑↓  : Select Item      -/+: Change Value     F5: Setup Defaults
    ESC: Exit        →←  : Select Menu      Enter: Select SubMenu  F10: Save and Exit
```
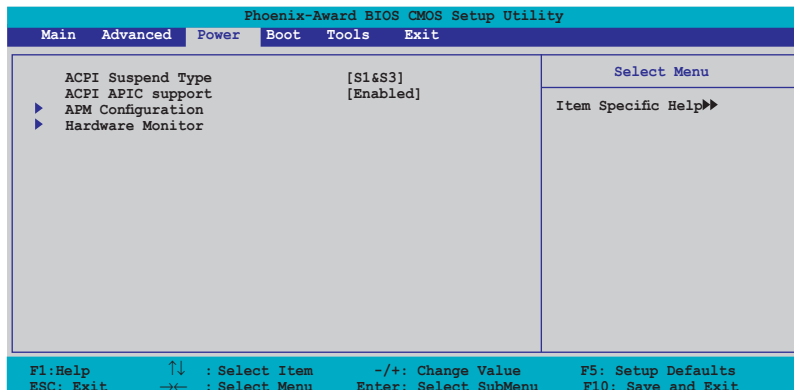
4.5.1   ACPI Suspend Type [S1&S3]

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

4.5.2   ACPI APIC Support [Enabled]

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

4.5.3 APM Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
                  Power

          APM Configuration                          Select Menu

      Restore on AC Power Loss        [Disabled]     Item Specific Help
      PWR Button < 4 secs             [Instant-Off]
      Power Up On PCI/PCIE Devices    [Disabled]     Press [Enter] to
      Power On By External Modems     [Disabled]     select whether or not
      USB Resume from S5              [Disabled]     to restart the system
      Power On by RTC Alarm           [Disabled]     after AC power loss.
   x  Date (of Month) Alarm                0
   x  Time (hh:mm:ss) Alarm            0 : 0 : 0
      Power Up By PS/2 Mouse          [Disabled]
      Power Up By PS/2 Keyboard       [Disabled]




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

Restore on AC Power Loss [Disabled]

Allows you to enable or disable the Restore on AC Power Loss function. Configuration options: [Disabled] [Enabled]

PWR Button < 4 secs [Instant-Off]

Allows you to set the event after the power button is pressed for more than 4 seconds. Configuration options: [Suspend] [Instant-Off]

Power Up On PCI/PCIE Devices [Disabled]

Allows you to enable or disable the PME to wake up from S5 by PCI/PCIE devices and onboard LAN. Configuration options: [Disabled] [Enabled]

Power On By External Modems [Disabled]

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

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

USB Resume from S5 [Disabled]

When set to [Enabled], this item allows you to use a USB keyboard or USB mouse to resume the system from S5 state. Configuration options: [Disabled] [Enabled]

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items Date of Month Alarm and Time (hh:mm:ss) Alarm items become user-configurable with set values. Configuration options: [Disabled] [Enabled]

Date (of Month) Alarm [31]

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

Alarm Time (hh:mm:ss) [Disabled]

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>.

Power On By PS/2 Mouse [Disabled]

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

Power On By PS/2 Keyboard [Disabled]

Allows you to disable the Power On by PS/2 keyboard function or set specific keys on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-ESC] [Power Key]

> Enabling ASUS Music Alarm will automatically disable the PS/2 keyboard/ power-up feature. See section "5.3.6 Music Alarm" 5-22 for details.

4.5.4   Hardware Monitor

The items in this sub-menu displays the hardware monitor values automatically detected by the BIOS. It also allows you to change CPU Q-Fan feature-related parameters. Select an item then press <Enter> to display the configuration options.

```
                    Phoenix-Award BIOS CMOS Setup Utility
                 Power

           Hardware Monitor                              Select Menu

    CPU Q-Fan Control            [Disabled]          Item Specific Help
x   CPU Q-Fan Profile           Performance
    Chassis Q-Fan Control       [Disabled]          Press [Enter] to enable
x   Chassis Q-Fan Profile       Performance         or disable.
    VCore Voltage             [    1.32V]
    3.3V Voltage              [    3.15V]
    5V Voltage                [    5.05V]
    12V Voltage               [   11.58V]

    CPU Temperature                48°C
    M/B Temperature                41°C
    CPU Fan Speed                3068 RPM
    CHA_FAN 1 Speed             3068 RPM
    CHA_FAN 2 Speed                0 RPM
    CHA_FAN 3 Speed                0 RPM
    PWR_FAN Speed                  0 RPM
    CPU Fan Speed warning      [ 800 RPM]


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

CPU Q-Fan Control [Disabled]

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

> The **CPU Q-Fan Profile** item becomes user-configurable when you enable **CPU Q-Fan Control**.

CPU Q-Fan Profile [Performance]

Allows you to set the appropriate performance level of the CPU Q-Fan. When set to [Optimal], the CPU fan automatically adjusts depending on the CPU temperature. Set this item to [Silent] to minimize fan speed for quiet CPU fan operation, or [Performance] to achieve maximum CPU fan speed. Configuration options: [Performance] [Optimal] [Silent]

Chassis Q-Fan Control [Disabled]

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

> The **Chassis Q-Fan** Control item becomes user-configurable when you enable **Chassis Q-Fan Control**.

Chassis Q-Fan Profile [Performance]

Allows you to set the appropriate performance level of the chassis Q-Fan. When set to [Optimal], the chassis fan automatically adjusts depending on the chassis temperature. Set this item to [Silent] to minimize fan speed for quiet chassis fan operation, or [Performance] to achieve maximum chassis fan speed. Configuration options: [Performance] [Optimal] [Silent]

VCore Voltage / 3.3V Voltage / 5V Voltage / 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select [Ignored] if you do not want to detect this item.

CPU Temperature / M/B Temperature

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. These items are not user-configurable.

CPU Fan Speed / CHA_FAN 1 Speed / CHA_FAN 2 Speed / CHA_FAN 3 Speed / PWR_FAN Speed

The onboard hardware monitor automatically detects and displays the fan speeds in rotations per minute (RPM). If any of the fans is not connected to the motherboard, the field shows 0. These items are not user-configurable.

CPU Fan Speed warning [800 RPM]

Allows you to set the CPU fan speed limit. If the fan speed is lower than the specified value, the system produces a warning message.
Configuration options: [Disabled] [800 RPM] [1200 RPM] [1600 RPM]

4.6 Boot menu

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

```
                Phoenix-Award BIOS CMOS Setup Utility
   Main   Advanced   Power   Boot   Tools   Exit

   ▶   Boot Device Priority                        Select Menu
   ▶   Removable Drives
   ▶   Hard Disk Drives                         Item Specific Help▶
   ▶   CDROM Drives
   ▶   Boot Settings Configuration              Press Enter to set.
   ▶   Security




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

4.6.1 Boot Device Priority

```
                Phoenix-Award BIOS CMOS Setup Utility
                      Boot

        Boot Device Priority                        Select Menu

    1st Boot Device          [Removable]        Item Specific Help▶
    2nd Boot Device          [Hard Disk]
    3rd Boot Device          [CDROM]            Select Your Boot
    4th Boot Device          [Disabled]         Device Priority
```

1st ~ 4th Boot Device [Removable]

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

4.6.2   Removable Drives

```
                  Phoenix-Award BIOS CMOS Setup Utility
                              Boot

                 Removable Drives                      Select Menu

      1. Floppy Disks                               Item Specific Help▶▶
```

1. Floppy Disks
Allows you to assign a removable drive attached to the system.

4.6.3   Hard Disk Drives

```
                  Phoenix-Award BIOS CMOS Setup Utility
                              Boot

                 Hard Disk Drives                      Select Menu

   1. 1st Master: XXXXXXXXX                         Item Specific Help▶
```

1. 1st Master: XXXXXXXXX
Allows you to assign hard disk drives attached to the system.

4.6.4   CDROM Drives

```
                  Phoenix-Award BIOS CMOS Setup Utility
                              Boot

                   CDROM Drives                        Select Menu

      1. 1st Slave: XXXXXXXXX                       Item Specific Help▶
```

1. 1st Slave: XXXXXXXXX
Allows you to assign optical drives attached to the system.

4.6.5   Boot Settings Configuration

```
                   Phoenix-Award BIOS CMOS Setup Utility
                                  Boot

             Boot Settings Configuration              Select Menu

      Case Open Warning           [Enabled]        Item Specific Help
      Quick Boot                  [Enabled]
      Boot Up Floppy Seek         [Disabled]        Press [Enter] to
      Bootup Num-Lock             [On]              enable or disable.
      Typematic Rate Setting      [Disabled]
   x  Typematic Rate (Chars/Sec)      6
   x  Typematic Delay (Msec)         250
      OS Select For DRAM > 64MB   [Non-OS2]
      Full Screen LOGO            [Enabled]
      Halt On                     [All Errors]




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

Case Open Warning [Enabled]

Enables or disables the chassis open status feature. Setting to [Enabled] clears the
chassis open status. Refer to section "2.7.2 Internal connectors" for setting details.
Configuration options: [Disabled] [Enabled]

Quick Boot [Enabled]

Allows you to enable or disable the system quick boot feature. When Enabled,
the system skips certain tests while booting. Configuration options: [Disabled]
[Enabled]

Boot Up Floppy Seek [Disabled]

Enables or disables the chassis open status feature. Setting to Enabled, clears the
chassis open status. Configuration options: [Disabled] [Enabled]

Bootup Num-Lock [On]

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

Typematic Rate Setting [Disabled]

Allows you to set the keystroke rate. Enable this item to configure the Typematic
Rate (Chars/Sec) and the Typematic Delay (Msec).
Configuration options: [Disabled] [Enabled]

The items **Typematic Rate (Chars/Sec)** and **Typematic Delay (Msec)** become
user-configurable only when you enable **Typematic Rate Setting**.

Typematic Rate (Chars/Sec) [6]

Allows you to select the rate at which a 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 keystrokes begin to repeat. Configuration options: [250] [500] [750] [1000]

OS Select for DRAM > 64MB [Non-OS2]

Set this item to OS2 only when you are running on an OS/2 operating system with an installed RAM of greater than 64 KB. Configuration options: [Non-OS2] [OS2]

Full Screen LOGO [Enabled]

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

Make sure that the above item is set to [Enabled] if you want to use the ASUS MyLogo3™ feature.

Halt On [All Errors]

Allows you to error report type.
Configuration options: [All Errors] [No Errors] [All, But Keyboard] [All, But Diskette] [All, But Disk/Key]

4.6.6   Security

```
                Phoenix-Award BIOS CMOS Setup Utility
                            Boot

              Security                        Select Menu

   Supervisor Password          Clear
   User Password                Clear         Item Specific Help▶▶
   Password Check               [Setup]
```
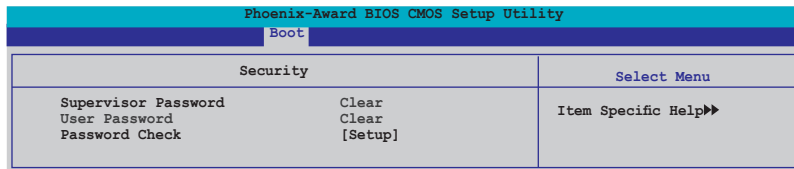
Supervisor Password
User Password

These fields allow you to set passwords:

To set a password:

1.   Select an item then press <Enter>.
2.   Type in a password using a combination of a maximum of eight (8) alpha-numeric 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.   Select the password field and press <Enter> twice. The following message appears:

```
PASSWORD DISABLED !!!
Press any key to continue...
```

2.   Press any key to continue. The password field setting is changed to Clear.

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 your 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 Jumper" for instructions.

Password Check

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   Tools menu

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

```
                 Phoenix-Award BIOS CMOS Setup Utility
  Main   Advanced   Power   Boot   Tools   Exit

 ▶  ASUS Music Alarm                                   Select Menu
 ▶  ASUS O.C. Profile
    ASUS EZ Flash 2                                 Item Specific Help▶

                                                   Press [Enter]  to
                                                   select




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

4.7.1   ASUS Music Alarm

```
                 Phoenix-Award BIOS CMOS Setup Utility
                              Tools

          ASUS Music Alarm                             Select Menu

      ASUS Music Alarm               [Disabled]     Item Specific Help▶▶
  x   Alarm Date:  Sunday            Enabled
  x               Monday             Enabled         Press [Enter] to
  x               Tuesday            Enabled         select
  x               Wednesday          Enabled
  x               Thursday           Enabled
  x               Friday             Enabled
  x               Saturday           Enabled
  x   Alarm Time (hh:mm)             0  :  0
  x   Audio CD Drive                 Primary IDE Master
  x   Detect CD                      Enter
  x   Starting Track                 N/A
  x   Repeat Track Disabled
  x   Length                         10 Mins
  x   Volume                         16

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

ASUS Music Alarm [Disabled]

Allows you to enable or disable the ASUS Music Alarm function.
Configuration options: [Disabled] [Enabled]

The succeeding items become user-configurable when you enable the ASUS Music Alarm.

ASUS P5N32-SLI Premium   4-41

Alarm Day: Sunday/Monday/Tuesday/Wednesday/Thursday/Friday/ Saturday [Enabled]

Allows you to enable or disable the alarm for a particular day.
Configuration options: [Disabled] [Enabled]

Alarm Time (hh:mm) 0 : 0

Allows you to set the alarm time. Press <Tab> to select the field, then use <+> or <-> to change the value.

Audio CD Drive [Primary IDE Master]

Allows you to select the connection configuration of the optical storage device from which the alarm music will play from. Configuration options: [Primary IDE Master] [Primary IDE Slave]

Detect CD

Press <Enter> to search the CD track number.

Starting Track

Allows you to choose the starting track from the CD from which you would like the alarm music to play.

Repeat Track [Disabled]

Allows you to enable or disable the repeat track function.
Configuration options: [Disabled] [Single] [All]

Duration [10 Mins]

Allows you to set the length of the music alarm.
Configuration options: [10 Mins] [20 Mins] [30 Mins] [1 Hour]

Volume [16]

Allows you to set the volume level of the music alarm.
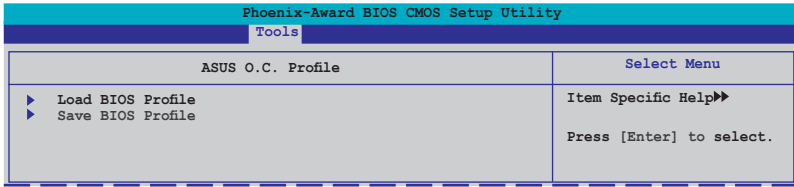Configuration options: [01] ~ [32]

- Only the IDE ATAPI devices from Southbridge can support this functon.

- The system needs standby power, so ensure that the power cord is plugged.

- You can also set the alarm time under operating system using ASUS Music Alarm Utility.

- ASUS Music Alarm only supports audio CDs.

4.7.2   ASUS O.C. Profile

This item allows you to store or load multiple BIOS settings.

```
                    Phoenix-Award BIOS CMOS Setup Utility
                              Tools

             ASUS O.C. Profile                        Select Menu

    ▶   Load BIOS Profile                      Item Specific Help▶▶
    ▶   Save BIOS Profile
                                               Press [Enter] to select.

```

Load BIOS Profile

```
                    Phoenix-Award BIOS CMOS Setup Utility
                              Tools

                 Load BIOS Profile                    Select Menu

    Load from Profile 1                        Item Specific Help▶▶
    Load from Profile 2
    Load from File                             Load BIOS Profile from
                                               Profile 1.

```
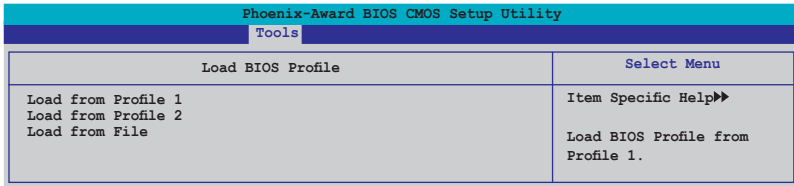
Load from Profile 1/2

Allows you to load the previous BIOS settings saved in the BIOS Flash. Press
<Enter> to load the file.

Load from File

Allows you to load the previous BIOS file saved in the hard disk/floppy disk/USB
flash disk with the FAT32/16/12 format. Follow the instructions below to load the
BIOS file.

1.   Insert the storage devices that contains the "xxx.CMO" file.

2.   Turn on the system.

3.   Enter BIOS setup program. Go to the "Tools" menu to select "Load from
      File." Press <Enter> then the setup screen will appear.

4.   Press <Tab> to switch between drives before the correct "xxx.CMO" file
      is found. Then press <Enter> to load the file.

5.   A pop-up message will inform you when the loading process finishes.

> •   We suggest that you update only the BIOS file coming from the same
>   memory/CPU configuration and BIOS version.
>
> •   Only the "xxx.CMO" file can be loaded.

Save BIOS Profile

```
                   Phoenix-Award BIOS CMOS Setup Utility
                                  Tools

              Save BIOS Profile                         Select Menu

       Save to Profile 1                          Item Specific Help▶▶
       Save to Profile 2
       Save to File                               Save current BIOS Profile
                                                  to Profile 1.
```
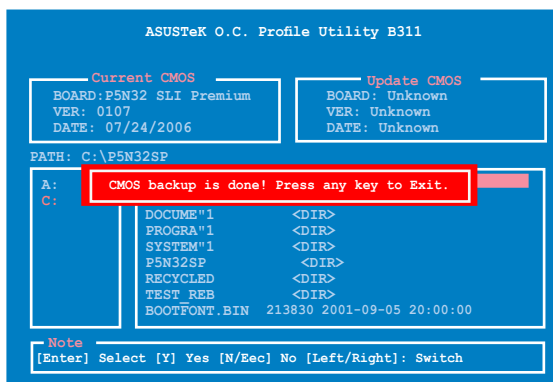
Save to Profle 1/2

Allows you to save the current BIOS file to the BIOS Flash. Press <Enter> to save the file.

Save to File

Allows you to save the current BIOS file to the hard disk/floppy disk/USB flash disk with FAT32/16/12 format. Follow the instructions below to save the BIOS file.

1.   Insert the storage devices with enough space.

2.   Turn on the system.

3.   Enter the BIOS setup program. Go to the "Tool" menu to select "Save to File." Press <Enter> then the setup screen will appear.

4.   Press <Tab> to switch between the drives. Press hot-key <S> to save the file.

5.   Key in the file name. Then press <Enter>.

6.   A pop-up message will inform you when the saving process finishes.

```
                    ASUSTeK O.C. Profile Utility B311


          ── Current CMOS ──               ── Update CMOS ──
          BOARD:P5N32 SLI Premium          BOARD: Unknown
          VER: 0107                        VER: Unknown
          DATE: 07/24/2006                 DATE: Unknown

      PATH: C:\P5N32SP

      A:           CMOS backup is done! Press any key to Exit.
      C:
                       DOCUME"1          <DIR>
                       PROGRA"1          <DIR>
                       SYSTEM"1          <DIR>
                       P5N32SP            <DIR>
                       RECYCLED          <DIR>
                       TEST_REB          <DIR>
                       BOOTFONT.BIN   213830 2001-09-05 20:00:00

          ── Note ──
          [Enter] Select [Y] Yes [N/Eec] No [Left/Right]: Switch
```

The BIOS file will be saved as "xxx.CMO".

4.7.2 ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice. Please see page 4-10, section 4.1.4 for details.

```
            ASUSTeK EZ Flash 2 BIOS ROM Utility B311
    FLASH TYPE: Winbond W39V080A 8Mb LPC
    ┌──── Current ROM ────┐      ┌──── Update ROM ────┐
    │  BOARD: P5N32-SLI Premium │  BOARD: Unknown
    │  VER: 07241            │  VER: Unknown
    │  DATE: 07/24/2006      │  DATE: Unknown

    PATH: C:\P5N32SP

     A:     │ WIN98SE        <DIR>
     C:     │ NETTERM        <DIR>
            │ DRIVERS        <DIR>
            │ RECYCLED       <DIR>
            │ WUTEMP         <DIR>
            │ NEWFOL~1       <DIR>
            │ INSTALL        <DIR>
            │ TEST_REB       <DIR>
            │ MSDOWNLD.TMP   <DIR>

    ┌ Note ─────────────────────────────────────────────┐
    │  [Enter] Select        [S] Save        [ESC] Exit
    │  [Tab] Switch          [Up/Down/Home/End] Move
```
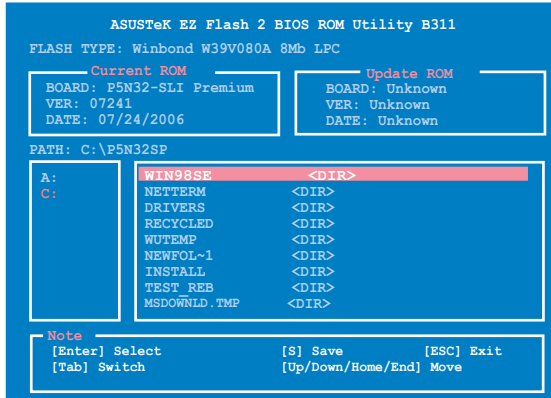
4.8 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

```
                  Phoenix-Award BIOS CMOS Setup Utility
    Main    Advanced    Power    Boot    Tools    Exit

      Exit & Save Changes                                 Select Menu
      Exit & Discard Changes
      Load Setup Default                          Item Specific Help▶
      Discard Changes
                                                  This option save data
                                                  to CMOS and exiting
                                                  the setup menu.




    F1:Help         ↑↓  : Select Item      -/+: Change Value      F5: Setup Defaults
    ESC: Exit       →←  : Select Menu      Enter: Select SubMenu     F10: Save and Exit
```
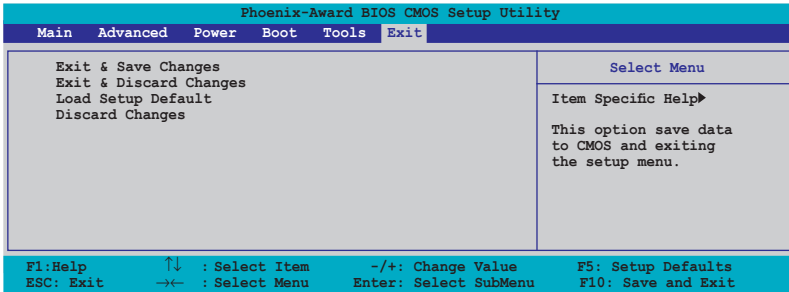
Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select YES to save changes and exit.

If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

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

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select **YES** to load default values. **Select Exit & Save Changes** or make other changes before saving the values to the non-volatile RAM.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select **YES** to discard any changes and load the previously saved values.