LanParty UT

CFX3200-DR

System Board
User's Manual

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FCC and DOC Statement on Class B

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 when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 the receiver.
- Connect the equipment into 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.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables must be used in order to comply with the emission limits.

Table of Contents

About this Manual

An electronic file of this manual is included in the CD. To view the user's manual, insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. Click the "TOOLS" icon then click "Manual" on the main menu.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

> Important:
> *Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.*

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

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

About the Package

The system board package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ One system board
- ☑ One Karajan audio module
- ☑ Two IDE round cables
- ☑ One floppy round cable
- ☑ Four Serial ATA data cables
- ☑ Two Serial ATA power cables
- ☑ One I/O shield
- ☑ One RAID driver diskette
- ☑ One "Mainboard Utility" CD
- ☑ One user's manual
- ☑ One Quick Installation Guide

The system board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System Board

Before using the system board, prepare basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter 1 - Introduction

Specifications

Processor	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ Socket 939
Front Side Bus	2000MT/s HyperTransport interface
Chipset	ATI chipset - Northbridge: ATI CrossFire CFX3200 - Southbridge: ULI M1575
System Memory	Four 184-pin DDR SDRAM DIMM sockets Supports dual channel (128-bit wide) memory interface Supports up to 4GB system memory Supports PC2100 (DDR266), PC2700 (DDR333) and PC3200 (DDR400) DDR SDRAM DIMM Supports x8/x16 non-ECC unbuffered DIMMs, up to 512Mb DDR devices
Expansion Slots	2 PCI Express x16 slots - CrossFire mode: Each x16 slot operates at x16 bandwidth. - Single VGA mode: Each x16 slot operates at x16 bandwidth. 2 PCI Express x1 slots 3 PCI slots
BIOS	Award BIOS CMOS Reloaded CPU/DRAM overclocking CPU/DRAM/Chipset overvoltage 4Mbit flash memory
Power Management	ACPI and OS Directed Power Management ACPI STR (Suspend to RAM) function Wake-On-PS/2 Keyboard/Mouse Wake-On-USB Keyboard/Mouse Wake-On-Ring Wake-On-LAN RTC timer to power-on the system AC power failure recovery
Hardware Monitor	Monitors CPU/system/chipset temperature Monitors 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip voltages Monitors the speed of the cooling fans CPU Overheat Protection function monitors CPU temperature during system boot-up
Audio	Karajan audio module - Realtek ALC882 8-channel High Definition Audio CODEC - 6 audio jacks - 1 CD-in connector - 1 front audio connector True stereo line level outputs S/PDIF-in/out interface

LAN	Dual Gigabit LAN - Marvell 88E8052 and Marvell 88E8053 Gigabit PCI LAN Fully compliant to IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T) standards
IDE	Supports two IDE connectors that allows connecting up to four UltraDMA 133Mbps hard drives
Serial ATA with RAID	Four Serial ATA ports supported by the ULI M1575 chip - SATA speed up to 3Gb/s - RAID 0, RAID 1, RAID 0+1 and JBOD Four Serial ATA ports supported by the Silicon Image Sil 3114 chip - SATA speed up to 1.5Gb/s - RAID 0, RAID 1, RAID 0+1 and RAID 5
IEEE 1394	VIA VT6307 Supports two 100/200/400 Mb/sec ports
Rear Panel I/O	1 mini-DIN-6 PS/2 mouse port 1 mini-DIN-6 PS/2 keyboard port 2 S/PDIF RCA jacks (S/PDIF-in and S/PDIF-out) Karajan audio module (6 audio jacks) 1 IEEE 1394 port 2 RJ45 LAN ports 6 USB 2.0/1.1 ports
Internal I/O	1 connector for 2 additional external USB 2.0/1.1 ports 1 connector for 1 external IEEE 1394 port 1 connector for 1 external serial port 1 connector for the Karajan audio module 1 front audio connector for external line-out and mic-in jacks (on the Karajan audio module) 1 CD-in internal audio connector (on the Karajan audio module) 1 S/PDIF connector for optical cable connection 1 IrDA connector 1 CIR connector 8 Serial ATA connectors 2 IDE connectors 1 90° floppy connector 1 24-pin ATX power connector 1 8-pin ATX 12V power connector 1 4-pin 5V/12V power connector (FDD type) 1 front panel connector 5 fan connectors 1 Debug LED EZ touch switches (power switch and reset switch)
PCB	ATX form factor 24cm (9.45") x 30.5cm (12")

Features

The system board supports the AMD Athlon™ 64 processor. AMD Athlon™ 64 provides superior computing for many software applications by allowing both 32-bit and 64-bit applications to run simultaneously on the same platform. The operating system and software are able to process more data and access a tremendous amount of memory which improves the overall system performance.

2T timing which provides better system stability is supported in CG or later revisions of the AMD Athlon™ 64 processor. You can select the memory timing in the Genie BIOS Setting submenu ("DRAM Configuration" section) of the BIOS.

The AMD Cool'n'Quiet™ technology allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by lowering its CPU speed and voltage, subsequently decreasing its noise level.

ATI's CrossFire™ technology drives your PC to a new peak of performance. By connecting a Radeon CrossFire Edition graphics card and a standard PCI Express graphics card, the power of these multiple GPUs (Graphics Processing Units) within the system will accelerate your gaming performance and improve image quality.

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The system board currently supports the physical layer of x1 and x16 lane widths. The x1 PCI Express lane supports transfer rate of 2.5 Gigabytes (250MBbps) per second. The PCI Express architecture also provides a high performance graphics infrastructure by enhancing the capability of a x16 PCI Express lane to provide 4 Gigabytes per second transfer rate.

CPU Overheat Protection has the capability of monitoring the CPU's temperature during system boot up. Once the CPU's temperature exceeded the temperature limit pre-defined by the CPU, the system will automatically shutdown. This preventive measure has been added to protect the CPU from damage and insure a safe computing environment.

Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer.

CMOS Reloaded is a technology that allows storing multiple user-defined BIOS settings by using the BIOS utility to save, load and name the settings. This is especially useful to overclockers who require saving a variety of overclocked settings and being able to conveniently switch between these settings simultaneously.

The Karajan audio module at the rear I/O panel has 6 audio jacks that provide 8-channel audio output for advanced 7.1-channel super surround sound audio system. It is also equipped with a CD-in and front audio connector.

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

SATA 3Gb/s Serial ATA is a storage interface that is compliant with SATA 1.0 specification. ULI M1575 supports 4 Serial ATA ports with speed of up to 3Gb/s which is twice as fast as the standard 1.5Gb/s speed supported by Silicon Image that controls another 4 Serial ATA ports. Serial ATA it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

The ULI M1575 chip allows configuring RAID on 4 Serial ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and JBOD.

The Silicon Image Sil 3114 chip allows configuring RAID on another 4 Serial ATA ports. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.

The Marvell 88E8052 and Marvell 88E8053 Gigabit PCI LAN support up to 1Gbps.

IEEE 1394 is fully compliant with the 1394 OHCI (Open Host Controller Interface) 1.1 specification. It supports up to 63 devices that can run simultaneously on a system. 1394 is a fast external bus standard that supports data transfer rates of up to 400Mbps. In addition to its high speed, it also supports isochronous data transfer which is ideal for video devices that need to transfer high levels of data in real-time. 1394 supports both Plug-and-Play and hot plugging.

IrDA The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices. The IRDA (Infrared Data Association) specification supports data transfers of 115K baud at a distance of 1 meter.

2.0

USB

The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

WAKE-ON-RING

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.

> **Important:**
> *If you are using a modem add-in card, the 5VSB power source of your power supply must support a minimum of ≥720mA.*

WAKE-ON-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

> **Important:**
> *The 5VSB power source of your power supply must support ≥720mA.*

WAKE-ON-PS/2

This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

> **Important:**
> *The 5VSB power source of your power supply must support ≥720mA.*

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Wake-On-USB This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.

ACPI The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows**®** 2000/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows**®** 2000/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

Important:
The 5VSB power source of your power supply must support ≥1A.

Caractéristiques et Spécifications

Processeur	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ Socket 939 Interface HyperTransport 2000MT/s
Chipset	ATI® chipset - Pont nord: ATI CrossFire CFX3200 - Pont sud: ULI M1575
Mémoire Système	4 sockets DDR SDRAM DIMM 184 broches Supporte l'interface de mémoire deux canaux (128-bit) Supporte jusqu'à 4GB de mémoire Supporte DDR SDRAM DIMM PC2100 (DDR266), PC2700 (DDR333) et PC3200 (DDR400) Supporte exclusivement les modules DIMM non-ECC x8/x16, densité de RAM jusqu'à 512Mb, DIMM non-tamponnés
Logements d'Extension	2 slots PCI Express x16 - Mode CrossFire: Chaque slot x16 fonctionne à la bande passante x16. - Mode Single VGA: Chaque slot x16 fonctionne à la bande passante x16. 2 slots PCI Express x1 3 slots PCI
BIOS	Compatible avec Award BIOS CMOS Reloaded Overclocking de CPU/DRAM Contrôle du voltage de CPU/DRAM/Chipset Mémoire Flash 4Mbit
Gestion de Puissance	ACPI et OS Directed Power Management ACPI STR (Suspend to RAM) fonction Réveil-Sur-PS/2 Clavier/Souris Réveil-Sur-USB Clavier/Souris Eveil Sonnerie Réveil Par Le Réseau Minuterie RTC pour allumer le système Récupération après Défaillance d'Alimentation CA
Fonctions de Moniteur de Matériel	Gère l'alarme de température et de surchauffe de CPU/système/chipset Gère l'alarme de voltage et d'échec de 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip Gère la vitesse de ventilateur du ventilateur Protection du CPU - supporte la mise hors circuit automatique en cas de surchauffage du système

Introduction

Audio	Karajan carte audio - Audio CODEC Realtek ALC882 8-canaux Définition Élevée - 6 prises audio - 1 connecteur CD-in - 1 connecteur audio de l'avant Sorties de niveau de lignes stéréo vraies Interface entrée/sortie S/PDIF
LAN	Deux Gigabit LAN - Marvell 88E8052 et Marvell 88E8053 Gigabit PCI LAN Supporte IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) et 802.3ab (1000BASE-T)
IDE	Supporte des disques durs jusqu'à UltraDMA 133Mbps
Serial ATA avec RAID	Quatre ports de série ATA gérés avec la puce ULI M1575 - Vitesse SATA jusqu'à 3Gb/s - RAID 0, RAID 1, RAID 0+1 et JBOD Quatre ports de série ATA gérés par Silicon Image Sil 3114 - Vitesse SATA jusqu'à 1.5Gb/s - RAID 0, RAID 1, RAID 0+1 et RAID 5
IEEE 1394	VIA VT6307 Supporte 2 100/200/400 Mb/sec ports
Panneau Arrière I/O	1 port souris PS/2 1 port clavier PS/2 2 S/PDIF RCA prises (S/PDIF-in et S/PDIF-out) 1 carte Karajan (6 prises audio) 1 port IEEE 1394 2 ports RJ45 LAN 6 ports USB 2.0/1.1
Interne I/O	1 connecteur pour 2 ports USB 2.0/1.1 supplémentaires 1 connecteur pour 1 IEEE 1394 1 connecteur pour 1 série 1 connecteur pour module audio Karajan 1 connecteur audio frontal pour les jacks de sortie externe et d'entrée micro (sur le module audio Karajan) 1 connecteur CD-in audio internes (sur le module audio Karajan) 1 S/PDIF l'assemblage pour l'adjonction de câble optique 1 connecteur IR 1 connecteur CIR 8 connecteurs Serial ATA 2 connecteurs IDE 1 connecteur de 90° FDD 1 connecteur d'alimentation 24-pin ATX 1 connecteur d'alimentation 8-pin 12V ATX 1 prises d'alimentation 4-broches 5V/12V (type-FDD) 1 connecteur devant panneau 5 connecteurs de ventilateurs 1 indicateur diagnostiques EZ interrupteurs (bouton de power et reset)
PCB	Facteur de forme de ATX 24cm (9.45") x 30.5cm (12")

Deutsch

Leistungsmerkmale und Technische Daten

Prozessor	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ Socket 939 Interface HyperTransport 2000MT/s
Chipset	ATI chipset - Nordbrücke: ATI CrossFire CFX3200 - Südbrücke: ULI M1575
Systemspeicher	4 DDR-SDRAM-DIMM- Fassungen mit 184poligem Anschlußstecker Unterhält 128-bit – Speicher mit den zwei Kanälen Unterhält bis zum 4GB-Systemspeicher Unterstützt DDR SDRAM DIMM PC2100 (DDR266), PC2700 (DDR333) und PC3200 (DDR400) Supporte exclusivement les modules DIMM non-ECC x8/x16, densité de RAM jusqu'à 512Mb, DIMM non-tamponnés
Expansion Schlitz	2 PCI Express x16-Einbauplätzen - CrossFire Modus: Beide x16 Steckplätze arbeiten mit x16 Bandbreite. - Single VGA Modus: Beide x16 Steckplätze arbeiten mit x16 Bandbreite. 2 PCI Express x1-Einbauplätzen 3 PCI-Einbauplätzen
BIOS	Kompatibilität mit Award BIOS CMOS Reloaded Die Frequenzerhöhung CPU/DRAM Spannungserhöhung CPU/DRAM/Chipset Flash-Speicher (4Mbit)
Energie Management	ACPI und OS Directed Power Management ACPI STR (Suspend to RAM) funktion Wecken bei Betätigung der PS/2 Tastatur/Maus Wecken bei USB-Tastatur/Maus Wecken bei Klingeln Wecken des Systems durch das Netzwerk RTC-Taktgeber zum Einschalten des Systems Wiederherstellung der Wechselstromversorgung nach einem Ausfall
Kleinteilmonitor	Überwachung der Temperatur des CPU/Systems/Chipset sowie Warnsignal bei Überhitzung Überwachung der Spannungen des 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip Überwachung der Geschwindigkeit des Ventilators Prozessor-Shutz - Die Ausschaltung bei der Überhitzung – die automatische Ausschaltung des Computers bei der Überhitzung

Audio	Karajan-platine - Realtek ALC882 8-Kanal Hohe Definition, Audio Codec - 6 Audio-Anschlußbuchsen - 1 interne Audioanschlüsse (CD-in) - 1 Frontaudioanschluß Naturgetreue Stereo-Leitungspegel-Ausgabe S/PDIF-In/Aus-Schnittstelle
LAN	Zwei Gigabit LAN - Marvell 88E8052 und Marvell 88E8053 Gigabit PCI LAN Unterstützt IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) und 802.3ab (1000BASE-T)
IDE	Unterstützung der Festplatten bis zum UltraDMA 133Mbps
Serial ATA mit RAID	Vier serielle Serial ATA-Ports, unterstützt von einem ULI M1575 - SATA bis zu 3Gb/s schnell - RAID 0, RAID 1, RAID 0+1 und JBOD Vier serielle ATA-Ports, unterstützt von Silicon Image Sil 3114 - SATA bis zu 1.5Gb/s schnell - RAID 0, RAID 1, RAID 0+1 und RAID 5
IEEE 1394	VIA VT6307 Unterstützt 2 100/200/400 Mb/sec porte
Porte an der Rückwand	1 Mini-DIN-6-Anschluß für eine PS/2-Maus 1 Mini-DIN-6-Anschluß für eine PS/2-Tastatur 2 S/PDIF RCA-Anschlüsse (S/PDIF-in und S/PDIF-out) Karajan-platine (6 Audio-Anschlußbuchsen) 1 IEEE 1394-Anschlüsse 2 RJ45 LAN-Anschlüsse 6 USB 2.0/1.1-Anschlüsse
Internes I/O	1 Anschlußfassung für 2 zusätzliche externe USB 2.0/1.1-Anschlüsse 1 Anschluß für eine externe IEEE 1394 Schnittstelle 1 Anschluß für eine externe serieller DB-9-Anschluß 1 Anschluß für eine Karajan Audiomodul 1 Front-Audioanschluss für externe Mikrofon-Ein- und –Ausgänge (im Karajan Audiomodul) 1 CD-in interne Audioanschlüsse (im Karajan Audiomodul) 1 S/PDIF Anschluß für die Verbindung des optischen Kabel 1 Anschluß für die IR-Schnittstelle 1 Anschluß für die CIR-Schnittstelle 8 Serial ATA-Anschlüsse 2 IDE-Anschlüsse 1 90° Floppy-Anschlüsse 1 24-polige Anschlußstecker für das ATX-Netzgerät 1 8-polige 12V Anschlußstecker für das ATX-Netzgerät 1 4-polige 5V/12V Netzstecker (für FDD) 1 Vorderseite Füllung Anschlüsse 5-ventilator-Anschlüsse 1 diagnostischen Außenindikatoren EZ Umschaltern (der Knopf der Speisung und des Auslasses)
PCB	ATX Formfaktor 24cm (9.45") x 30.5cm (12")

Español

Características y Especificaciones

Procesador	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ Socket 939 Interface de HyperTransport 2000MT/s
Chipset	ATI® chipset - Puente norte: ATI CrossFire CFX3200 - Puente sur: ULI M1575
Memoria de Sistema	4 zocalos 184-pin DDR SDRAM DIMM Soporta memoria de dos canales (128-bit) Soporta hasta 4 GB de memoria sistémica Soporta PC2100 (DDR266), PC2700 (DDR333) y PC3200 (DDR400) Soporta sólo non-ECC x8/x16 DIMM, unbuffered, apoyo hasta 512 Mb DRAM
Ranuras de Expansión	2 slot PCI Express x16 - Modo CrossFire: Los slots x16 operan con un ancho de banda x16. - Modo Single VGA: Los slots x16 operan con un ancho de banda x16. 2 slot PCI Express x1 3 slots PCI
BIOS	Award BIOS CMOS Reloaded Subida de frecuencia de CPU/DRAM Subida de voltaje de CPU/DRAM/Chipset Memoria Instante (4Mbitios)
Gerencia de la Energía	ACPI y OS Directed Power Management ACPI STR (Suspend to RAM) función PS/2 Teclado/Ratón de Wake-On USB Teclado/Ratón de Wake-On Wake-On-Ring Wake-On-LAN Temporizador de RTC para encender el sistema Recuperación de Fracaso de Energía AC
Monitor del Hardware	Monitores de los CPU/sistema/chipset temperaturas y alarma acalorada. Monitores de voltajes de 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip Vigila la velocidad del abanico del abanido Protección del procesador - Desconección en caso de recalentamiento —el ordenador se desconecta automáticamente en caso de recalentamiento

Audio	Tablero de Karajan - Realtek ALC882 8-canal Alta Definición Audio CODEC - 6 enchufes de audio - 1 conector de CD-in audio interno - 1 conectador audio delantero Auténtico salidas de nivel de línea estéreo Interfáz de S/PDIF-in/out
LAN	Dos Gigabit LAN - Marvell 88E8052 y Marvell 88E8053 Gigabit PCI LAN Soporta IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) y 802.3ab (1000BASE-T)
IDE	Soporta las unidades duras hasta de UltraDMA 133Mbps
Serial ATA con RAID	4 ports de Serial ATA soporta por ULI M1575 - SATA se acelera a 3Gb/s - RAID 0, RAID 1, RAID 0+1 y JBOD 4 ports de Serial ATA soporta por Silicon Image Sil 3114 - SATA se acelera a 1.5Gb/s - RAID 0, RAID 1, RAID 0+1 y RAID 5
IEEE 1394	VIA VT6307 Soporta 2 ports 100/200/400 Mb/sec
Panel Trasero I/O	1 puerto de ratón PS/2 1 puerto de teclado PS/2 2 enchufes de S/PDIF RCA (S/PDIF-in y S/PDIF-out) 1 tablero de Karajan (6 enchufes de audio) 1 puerto de IEEE 1394 2 puertos de RJ45 LAN 6 puertos de USB 2.0/1.1
Conectador Interno	1 conector para 2 puertos de USB 2.0/1.1 externo adicional 1 conector para un puerto de IEEE 1394 1 conector para un puerto de DB-9 serie externa 1 conector para un módulo de sonido de Karajan 1 connector de sonido delantera por linea externa y micrófono interno (en el módulo de sonido de Karajan) 1 conector de CD-in audio interno (en el módulo de sonido de Karajan) 1 S/PDIF mortaja para conección de cable óptico 1 conector de IR 1 conector de CIR 8 conectores de Serial ATA 2 conector de IDE 1 conector de 90° FDD 1 conector 24-pin de fuente de alimentación de ATX 1 conector 8-pin 12V de fuente de alimentación de ATX 1 4-fichas conectadores de energía de 5V/12V (FDD-tipo) 1 conector de panel delante 5 conectores de abanicos 1 indicadores diagnósticos EZ conmutadores (conmutadores de alimentación y reset)
PCB	ATX forme el factor 24cm (9.45") x 30.5cm (12")

Русский язык

Характеристики и свойства

Процессор	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ гнездо 939 Интерфейс системной шины 2000MT/s
Чипсет	ATI® Чипсет - Северный мост: ATI CrossFire CFX3200 - Южный мост: ULI M1575
Оперативная Память	4 184-pin DDR SDRAM DIMM Поддерживает двухканальный (128-битного) интерфейс Поддерживает до 4ГБ системной памяти Поддерживает PC2100 (DDR266), PC2700 (DDR333) и PC3200 (DDR400) DDR SDRAM DIMM Поддерживает только non-ECC x8/x16 DIMM, небуфф, Поддержка до 512Мб DRAM
управление силы	2 PCI Express x16 слотов - Режим CrossFire: Каждый слот x16 работает с пропускной способностью x16. - Режим Single VGA – Каждый слот x16 работает с пропускной способностью x16. 2 PCI Express x1 слотов 3 PCI слотов
BIOS	Award BIOS CMOS Reloaded Повышение частоты CPU/DRAM Повышение напряжения CPU/DRAM/Chipset 4Mbit Flash Память
управление силы	ACPI и OS Directed Power Management ACPI STR (Suspend to RAM) Активизация На Движение Мыши Активизация На Нажатие Кнопки USB Клавиатуры Активизация На Входящий Звонок Активизация На Сетевое Событие RTC Таймер для Включения Системы Скачки Напряжения
монитор оборудования	Мониторинг температуры процессора/системы/Чипсет Мониторинг напряжений 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip Мониторинг скорости вращения вентилятора Защита процессора - Выключение при перегреве – автоматическое выключение компьютера при перегреве

тональнозвуково	звуковой модуль Karajan - Полнодуплексный Realtek ALC882 Высокое Определение Audio Codec 8-и канальный звуковой выход - 6 гнезда для звука - 1 разъем CD-in - 1 передний аудио разъем Настоящий линейный стерео выход интерфейса S/PDIF-in/out
LAN	2 Gigabit LAN - Marvell 88E8052 и Marvell 88E8053 Gigabit PCI LAN Поддержка IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) и 802.3ab (1000BASE-T)
IDE	Поддерживает жесткие диски до UltraDMA 133Mbps
Serial ATA с RAID	Чип ULI M1575 поддерживает четыре порта Serial ATA - Скорость SATA до 3 ГБ/с - RAID 0, RAID 1, RAID 0+1 и JBOD Чип Silicon Image Sil 3114 поддерживает четыре порта Serial ATA - Скорость SATA до 1.5 ГБ/с - RAID 0, RAID 1, RAID 0+1 и RAID 5
IEEE 1394	VIA VT6307 Поддерживает 2 100/200/400 Mb/sec порта
задняя панель I/O	1 мини-DIN-6 PS/2 порт для мыши и 1 мини-DIN-6 PS/2 порт для клавиатуры 2 S/PDIF RCA звука (S/PDIF-in и S/PDIF-out) звуковой модуль Karajan (6 гнезда для звука) 1 IEEE 1394 порт и 2 RJ45 LAN порт 6 USB 2.0/1.1 порта
внутренне I/O	1 разъем для 2-х дополнительных внешних USB 2.0/1.1 портов 1 разъем для внешнего IEEE 1394 порта 1 разъем для внешнего внешнего DB-9 1 разъем для аудио-модуле Karajan 1 фронтальный аудио-разъем для внешнего линейного и микрофонного выходов (на аудио-модуле Karajan) 1 CD-in внутренних звуковых разъема (на аудио-модуле Karajan) 1 S/PDIF разъем для присоединения оптического кабеля 2 разъем для интерфейса IR и CIR 8 Serial ATA разъема 2 IDE разъема и 1 разъем 90° FDD 1 24-штырьковых разъемов питания ATX 1 8-штырьковых 12V разъемов питания ATX 1 4-штырьковых разъемов питания 5V/12V (типа FDD) 1 Фронт панель разъем и 5 Разъемы для вентилятора 1-х внешних диагностических индикаторов EZ переключатели (кнопка питания и сброса)
PCB	ATX, 24cm (9.45") x 30.5cm (12")

日本語

プロセッサ	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ ソケット939
フロントサイドバス (FSB)	2000MT/s HyperTransport インターフェース
チップセット	ATI®チップセット -ノースブリッジ: ATI CrossFire CFX3200 -サウスブリッジ: ULI M1575
システムメモリ	184ピンDDR SDRAM DIMMソケット x 4 デュアルチャネル (128ビット幅) メモリインターフェース対応 最大4GBまでのシステムメモリに対応 PC2100 (DDR266) 、PC2700 (DDR333) およびPC3200 (DDR400) DDR SDRAM DIMM対応 x8/x16 非ECC アンバッファードDIMM、512Mbまでの DDRデバイスに対応
拡張スロット	PCI Express x16 スロット x 2 -CrossFire モード: それぞれの x16 スロットが x16 の帯域で動作 -シングル VGA モード: それぞれの x16 スロットが x16 の帯域で動作 PCI Express x1 スロット x 2 PCIスロット x 3
BIOS	Award BIOS CMOS がリロード CPU/DRAM オーバークロック CPU/DRAM/チップセット過電圧 4Mビット フラッシュメモリ
電源管理機能	ACPIおよびOS主導電源管理 ACPI STR (サスペンド・トゥ・ラム) 機能 ウェイクオンPS/2キーボード/マウス ウェイクオンUSB キーボード/マウス ウェイクオンLAN (WOL) ウェイクオンリング (Wake-On-Ring) システム電源オン用RTCタイマー AC電源問題発生時のリカバリ機能
ハードウェアモニタ	CPU/システム温度のモニタリング 5V/12V/3.3V/5VSB/Vbat/Vcore/Vdimm/Vエップ電圧のモニタリング 冷却ファン速度のモニタリング CPUオーバーヒート保護機能によるシステムブートアップ中のCPU温度モニタリング
オーディオ	Karajan カラヤン・オーディオ・モジュール -Realtek ALC882 8 チャンネル AC▪7 オーディオ CODEC -オーディオジャック x 6 -CD 入力コネクタ 1 -フロントオーディオコネクタ x 1 トゥルー・ステレオ・ラインレベル出力 S/PDIF-入力/出力インターフェース

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LAN	デュアル・ギガビット LAN - Marvell 88E8052 & Marvell 88E8053 ギガビット PCI IEEE 802.3 (10BASE-T)、802.3u (100BASE-TX)および 802.3ab (1000BASE-T)基準に完全準拠
IDE	2つのIDEコネクタにより最大4台のUltraDMA 133Mbpsハードドライブと接続可能
シリアルATA (SATA)	4つのSATAポートをサポート - ULI M1575 - SATA速度は最大3Gb/s - RAID 0, RAID 1, RAID 0+1 および JBOD 4つのSATAポートをサポート - Silicon Image Sil 3114 - SATA速度は最大1.5Gb/s - RAID 0, RAID 1, RAID 0+1 および RAID 5
IEEE 1394	VIA VT6307 2つの100/200/400 Mb/秒ポートをサポート
リアパネルI/O	mini-DIN-6 PS/2マウスポート x 1 mini-DIN-6 PS/2キーボードポート x 1 光学S/PDIF x 2 カラヤン・オーディオ・モジュール (オーディオジャック x 6) IEEE 1394ポート x 1 RJ45 LANポート x 2 USB 2.0/1.1ポート x 6
内部I/O	2ポート外部USB 2.0/1.1ポート用コネクタ x 1 1つの外部COMポート用コネクタ x 1 外部IEEE 1394ポート用コネクタ x 1 カラヤン・オーディオ・モジュール用コネクタ x 1 外部ライン出力及びマイク入力ジャック用フロント オーディオ コネクタ x 1 (カラヤン・オーディオ・モジュール上) CD 入力内蔵オーディオコネクタ x 1 (カラヤン・オーディオ・モジュール上) 同軸S/PDIFコネクタ x 1 IrDAコネクタ x 1 CIRコネクタ x 1 SATAコネクタ x 8 IDEコネクタ x 2 フロッピーコネクタ x 1 24ピンATX主電源コネクタ x 1 8ピンATX12V電源コネクタ x 1 4-ピン 5V/12V 電源コネクタ x 1 (FDD タイプ) フロントパネルコネクタ x 1 ファンコネクタ x 5 診断LED x 1 EZタッチスイッチ (電源スイッチとリセットスイッチ)
PCB	ATX フォームファクタ 24cm (9.45 inches) x 30.5cm (12 inches)

Chapter 2 - Hardware Installation

System Board Layout

Warning:

Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

System Memory

Warning:

When the DRAM Power LED lit red, it indicates that power is present on the DDR sockets. Power-off the PC then unplug the power cord prior to installing any memory modules. Failure to do so will cause severe damage to the motherboard and components.
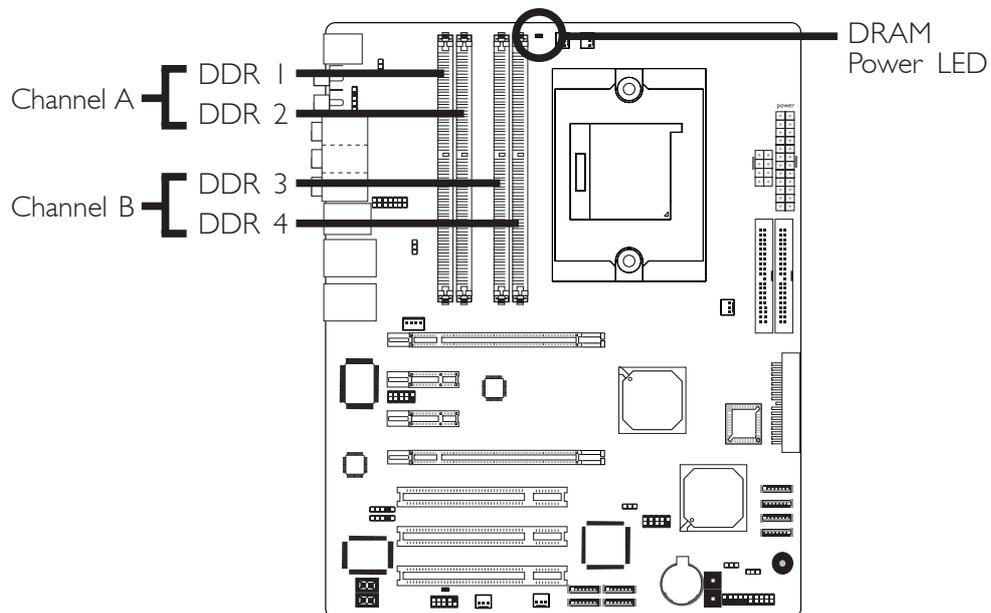
The system board supports DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer. Refer to chapter 1 (System Memory section) for detailed specification of the memory supported by the system board.

The four DDR DIMM sockets on the system board are divided into 2 channels:

Channel A - DDR 1 and DDR 2
Channel B - DDR 3 and DDR 4

The system board supports the following memory interface.

Single Channel (SC)
Data will be accessed in chunks of 64 bits (8B) from the memory channels.

Dual Channel (DC)
Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

Single Channel	• DIMMs are on the same channel. • DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs. • Not all slots need to be populated.
Dual Channel	• DIMMs of the same memory configuration are on different channels.

BIOS Setting

Configure the system memory in the Genie BIOS Setting submenu ("DRAM Configuration" section) of the BIOS.

The integrated memory controller in AMD's 64-bit Socket 939 series CPU will directly catch data transmission from DDR RAM without passing through the North bridge. Therefore when using 4 identical double side DIMMs or using 2 DIMMs in non-dual channels, the memory speed will reduce to DDR333. Please refer to the detailed memory speed shown below.

Memory Speed	DIMM 1	DIMM 2	DIMM 3	DIMM 4
DDR400	S			
DDR400			S	
DDR400	D			
DDR400			D	
DDR400	S		S	
DDR400	D		D	
DDR400	S	S		
DDR333	D	D		
DDR400	S	S	S	S
DDR333	D	D	D	D

"S": Single side DIMM
"D": Double side DIMM

A DIMM's SPD is originally fixed at 1T. When modules are inserted in DIMM 1 and DIMM 3, the SPD must be 2T for better system stability. We recommend inserting DIMMs in DIMM 2 and DIMM 4.

Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.
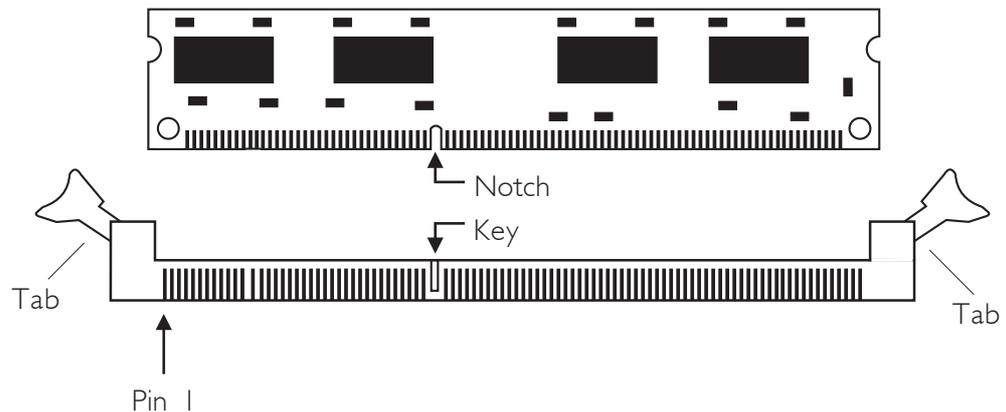
1. Pull the "tabs" which are at the ends of the socket to the side.

2. Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.

3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

CPU

Overview

The system board is equipped with a surface mount 939-pin CPU socket. This socket is exclusively designed for installing an AMD CPU.

Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.

2. Disconnect all power cords and cables.

3. Locate the 939-pin CPU socket on the system board.
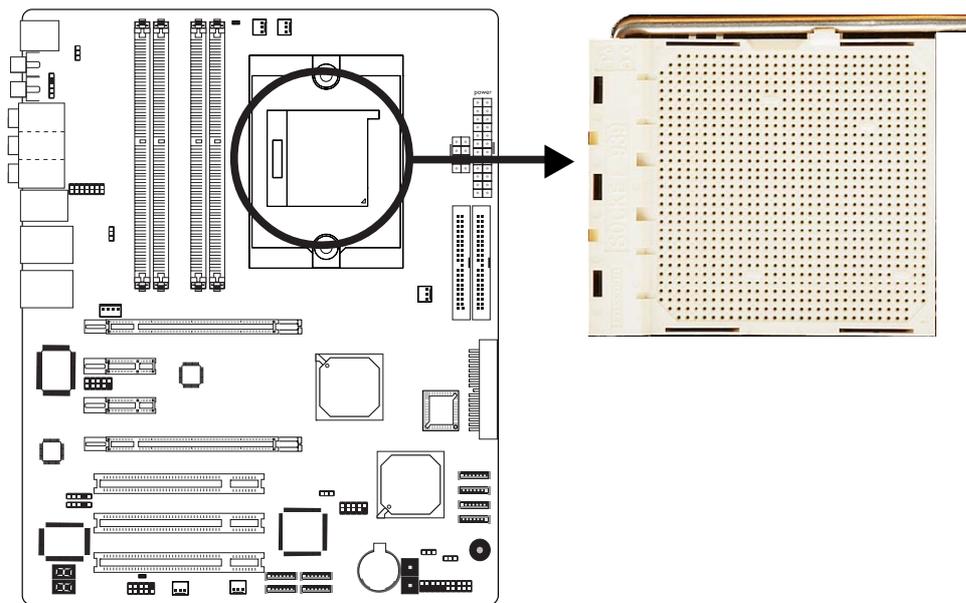
4. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the lever is lifted to at least this angle otherwise the CPU will not fit in properly.

Lever ——
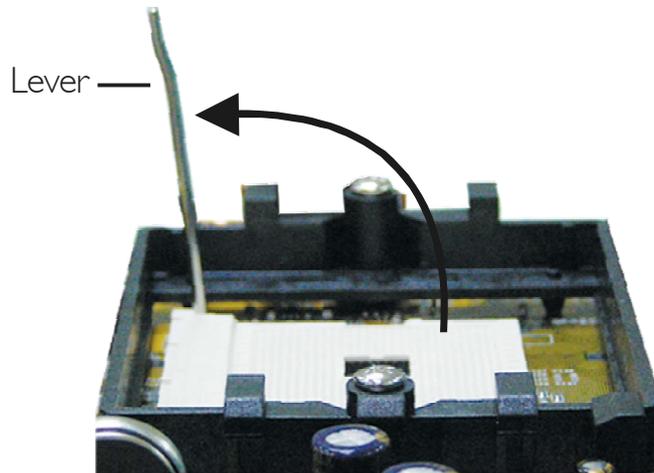
5. Position the CPU above the socket. The gold mark on the CPU must align with the corner of the CPU socket (refer to the enlarged view) shown below.

> **Important:**
> *Handle the CPU by its edges and avoid touching the pins.*

Gold mark —
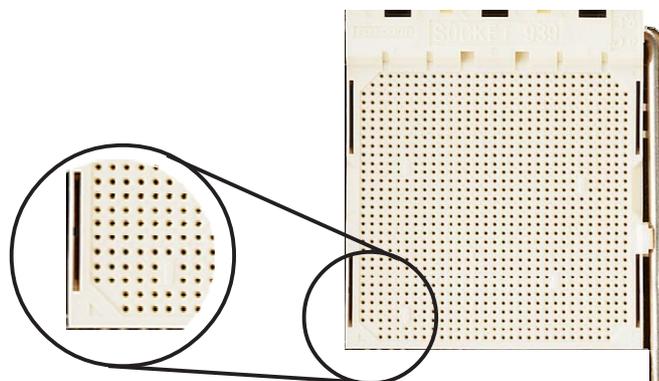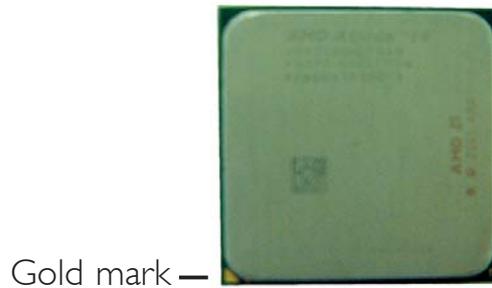
6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

> **Important:**
> *Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.*
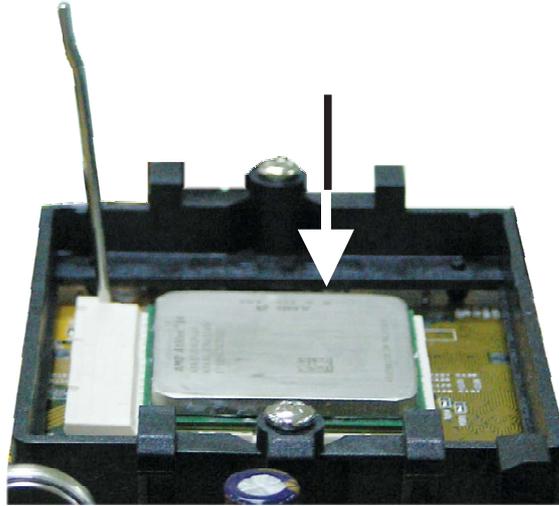
7. Once the CPU is in place, push down the lever to lock the socket. The lever should click on the side tab to indicate that the CPU is completely secured in the socket.

Side tab
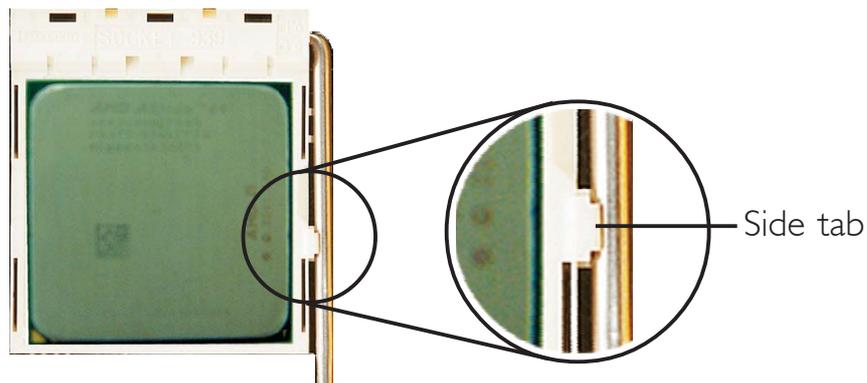
Installing the Fan and Heat Sink

The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

> **Note:**
> - *Use only certified fan and heat sink.*
> - *The fan and heat sink package usually contains the fan and heat sink assembly, and an installation guide. If the installation procedure in the installation guide differs from the one in this section, please follow the installation guide in the package.*

1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the CPU or fan heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

   Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

2. The system board comes with the retention module base already installed.

Retention module base

3. Place the heat sink on top of the CPU. Now hook one side of the retention clip onto the retention module base by fitting the holes on the retention clip into the retaining tabs of the retention module base.

Retaining tab

Retention clip
Retention module base

Side View

Retaining tabs

Retaining tabs

Top View
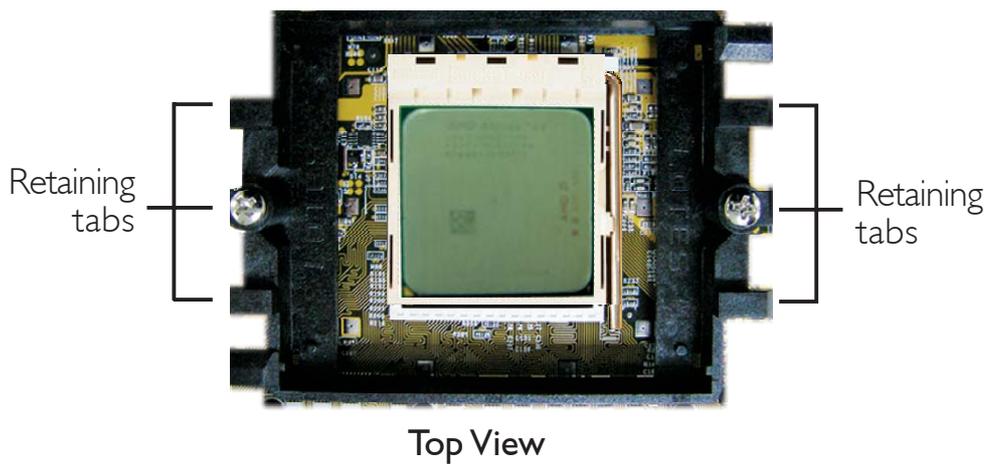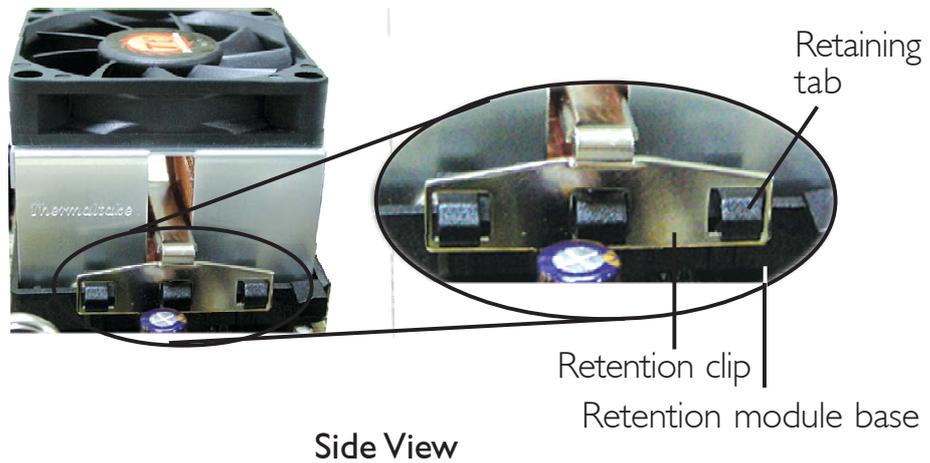
4. Hook the other side of the retention clip (the one near the retention lever) so that the holes on the retention clip also fit into the retaining tabs of the retention module base.

> **Note:**
> *You will not be able to secure the fan and heat sink assembly in place if it did not fit properly onto the retention module base.*

Retention lever

5. Move the retention lever to its opposite side then push it down to lock the fan and heat sink assembly to the retention module base.

> **Note:**
> *Make sure there is sufficient air circulation across the CPU fan and heat sink.*

6. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

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Jumper Settings

Clear CMOS Data

1-2 On: Normal
(default)

2-3 On:
Clear CMOS Data
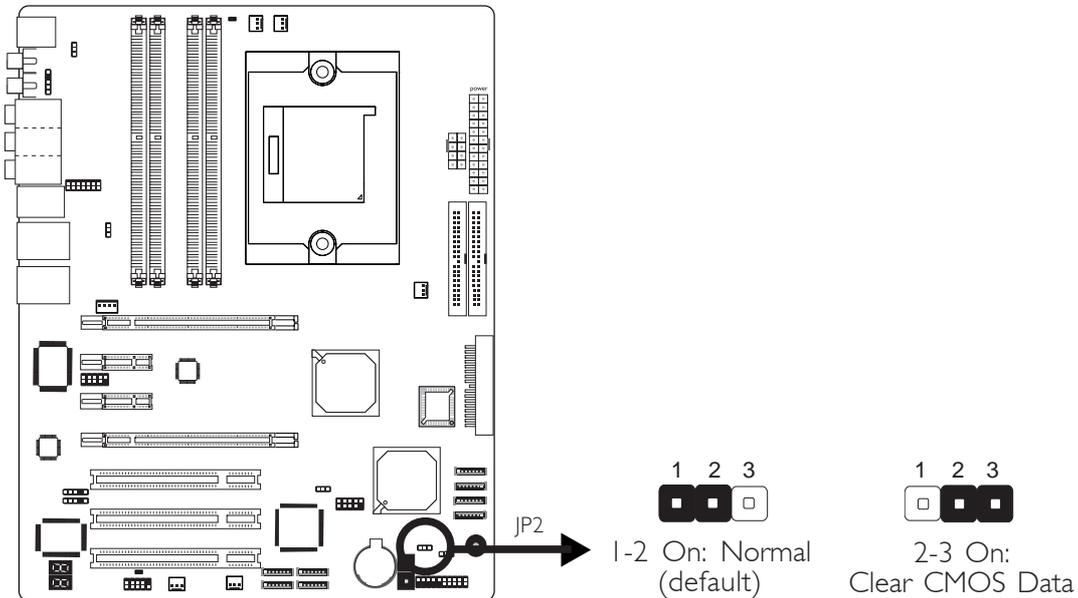
If you encounter the following,

a) *CMOS data becomes corrupted.*
b) *You forgot the supervisor or user password.*
c) *You are unable to boot-up the computer system because the processor's clock/ratio was incorrectly set in the BIOS.*

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

2. Set JP2 pins 2 and 3 to On. Wait for a few seconds and set JP2 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

   If your reason for clearing the CMOS data is due to incorrect setting of the processor's clock/ratio in the BIOS, please proceed to step 4.

4. After powering-on the system, press <Del> to enter the main menu of the BIOS.

5. Select the Genie BIOS Setting submenu and press <Enter>.

6. Set the processor's clock/ratio to its default setting or an appropriate bus clock/ratio. Refer to the Genie BIOS Setting section in chapter 3 for more information.

7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

8. Type <Y> and press <Enter>.

PS/2 Power Select

1-2 On: 5V
(default)

2-3 On: 5VSB
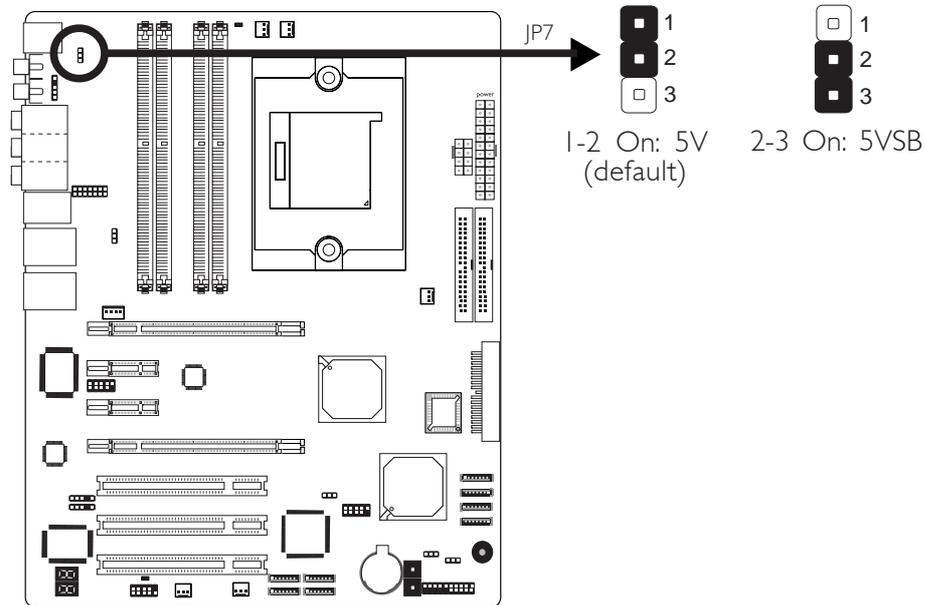
JP7 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5VSB will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

BIOS Setting

Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("I/O Setting" section) of the BIOS. Refer to chapter 3 for more information.

> **Important:**
> *The 5VSB power source of your power supply must support ≥720mA.*

USB Power Select

USB 1-6
(JP5)

```
 □  3
 ■  2
 ■  1
```
1-2 On: 5V
(default)

```
 ■  3
 ■  2
 □  1
```
2-3 On: 5VSB

USB 7-8
(JP6)

```
 3  2  1
 □  ■  ■
```
1-2 On: 5V
(default)

```
 3  2  1
 ■  ■  □
```
2-3 On: 5VSB
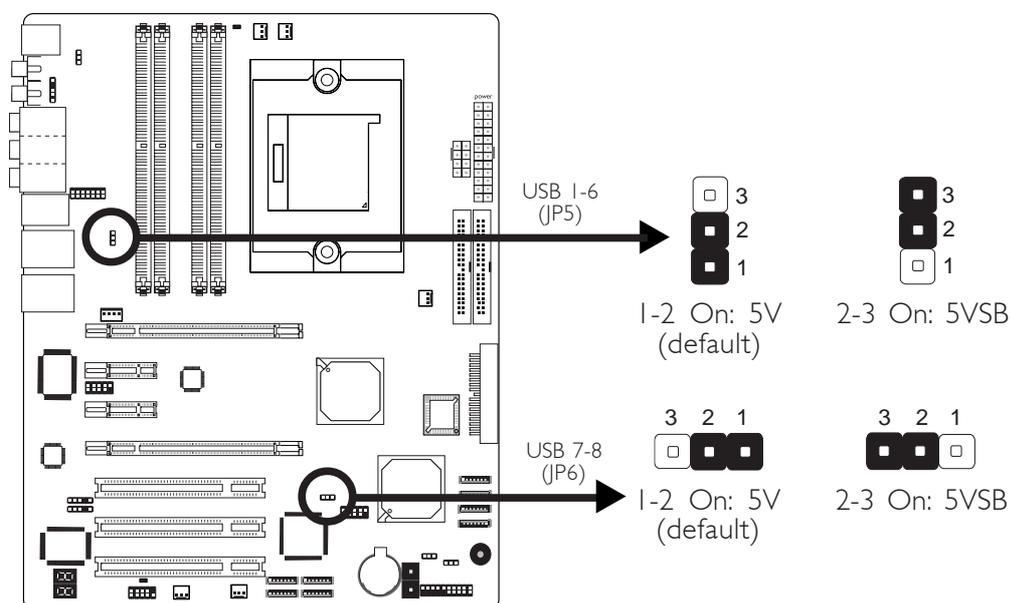
JP5 and JP6 are used to select the power of the USB ports. Selecting 5VSB will allow you to use the USB keyboard or USB mouse to wake up the system..

BIOS Setting

Configure the USB wake up function in the Power Management Setup submenu ("PowerOn/WakeUp Function" section) of the BIOS. Refer to chapter 3 for more information.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.

Speaker On/Off Select

Buzzer

JP8

1 2 3
1-2 On:
Speaker Off

1 2 3
2-3 On:
Speaker On
(default)
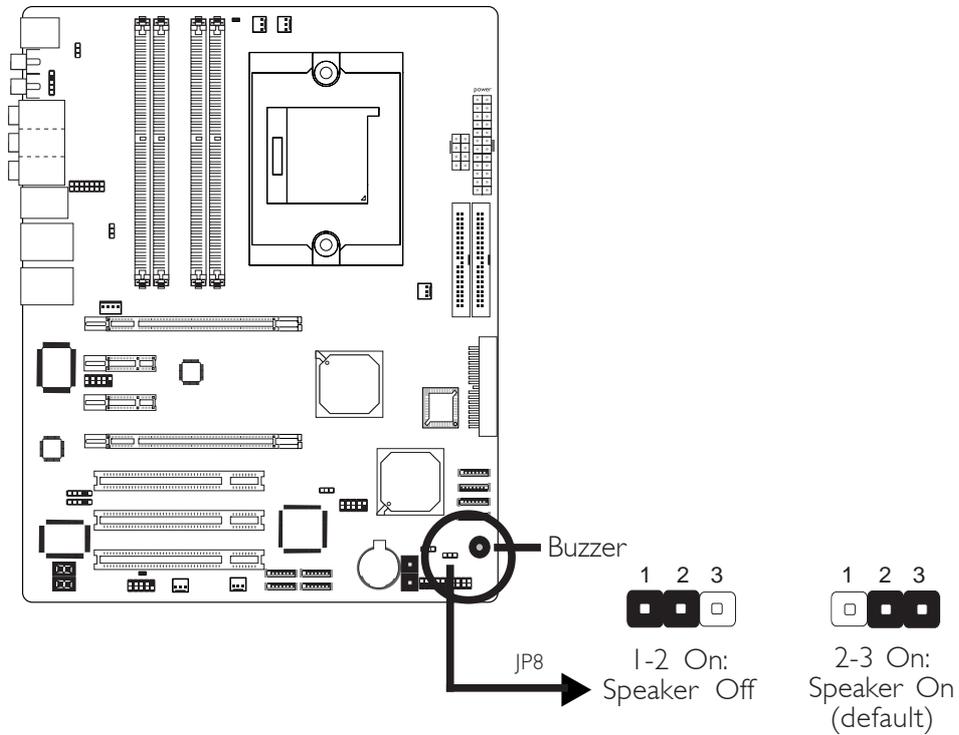
The system board is equipped with a buzzer which serves as the PC's speaker. By default the buzzer is "on" allowing you to hear the system's beep messages and warnings. If you intend to use an external speaker, turn this function off by setting JP8 pins 1 and 2 to On.

Rear Panel I/O Ports
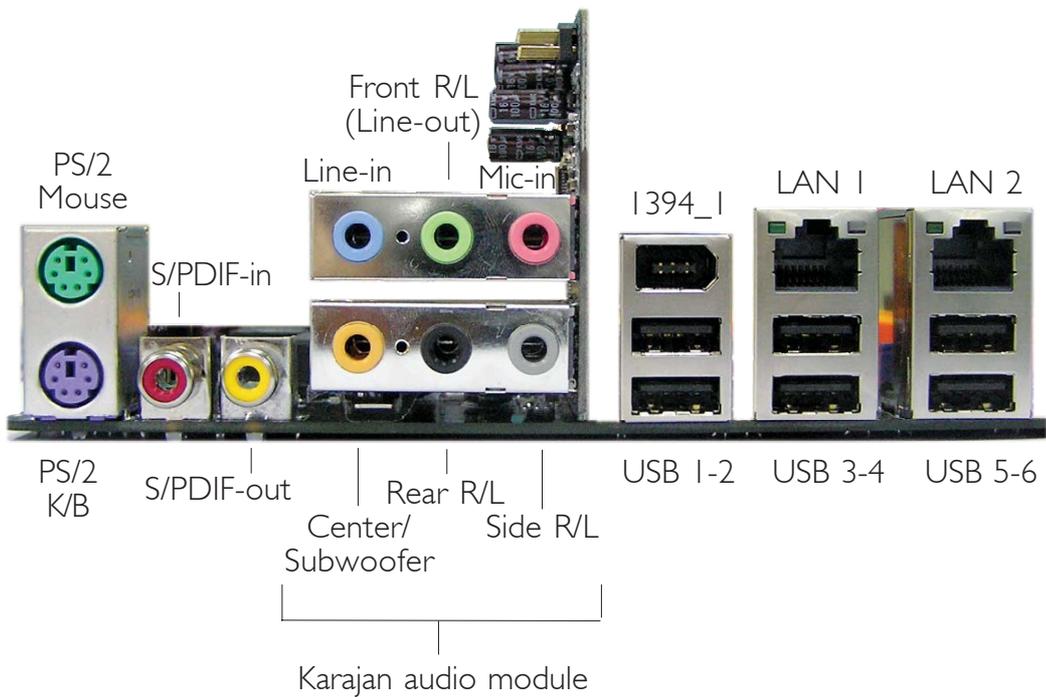
The rear panel I/O ports consist of the following:

- PS/2 mouse port
- PS/2 keyboard port
- S/PDIF-in jack
- S/PDIF-out jack
- Karajan audio module
    - Line-in jack
    - Front right/left jack (Line-out)
    - Mic-in jack
    - Center/Subwoofer jack
    - Rear right/left port jack
    - Side right/left port jack
- 1394_1 port
- USB ports
- LAN 1 Gigabit PCI Express port
- LAN 2 Gigabit PCI Express port

PS/2 Mouse and PS/2 Keyboard Ports

PS/2 Mouse
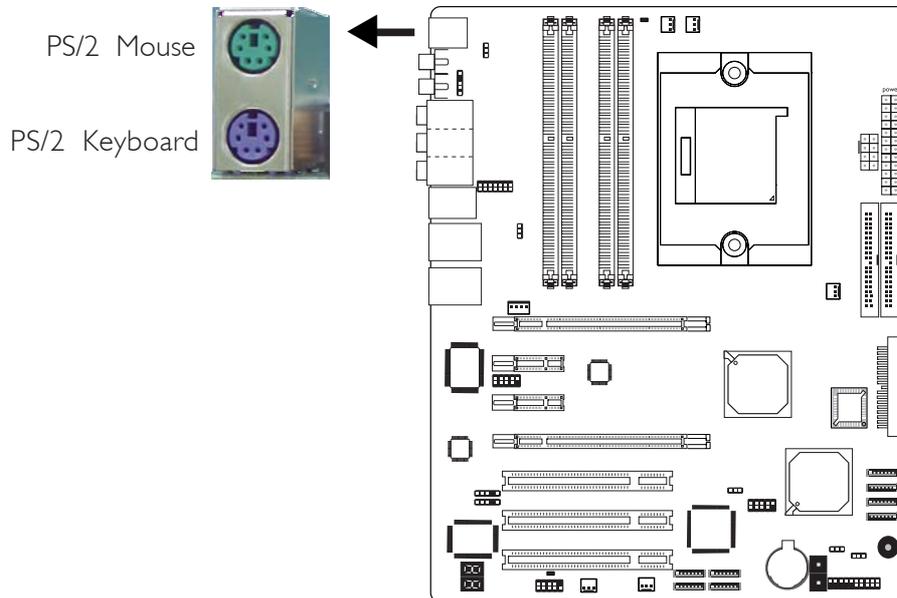
PS/2 Keyboard

The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN2 of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

> ### Warning:
> *Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.*

Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- **Jumper Setting:**
  JP7 must be set to "2-3 On: 5VSB". Refer to "PS/2 Power Select" in this chapter for more information.

- **BIOS Setting:**
  Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("I/O Setting" section) of the BIOS. Refer to chapter 3 for more information.

S/PDIF-in/out Jacks

S/PDIF-in
S/PDIF-out

+5V — 1
Key
SPDIF out
GND
SPDIF in — 5

J3
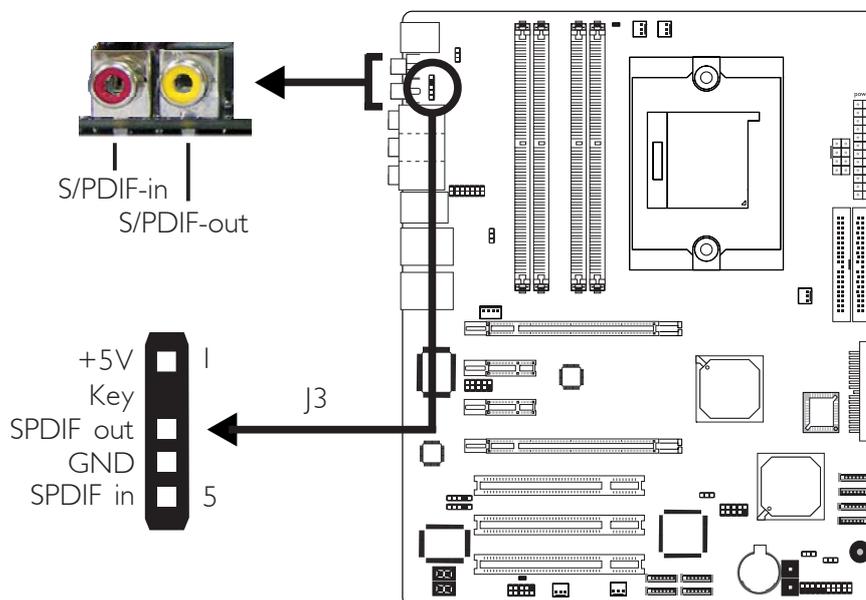
The system board is equipped with an onboard S/PDIF-in RCA jack (red) and a S/PDIF-out RCA jack (yellow) at locations CN5 and CN7 respectively.

The S/PDIF connector at location J3 is used to connect to optical S/PDIF ports. The S/PDIF ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable connector to J3. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J3.

DO NOT use RCA S/PDIF and optical S/PDIF at the same time.

Karajan Audio Module

Line-in   Mic-in
Front R/L
(Line-out)

Rear R/L

Center/   Side R/L
Subwoofer

Karajan audio module

13   1
14   2

Karajan audio connector

J7
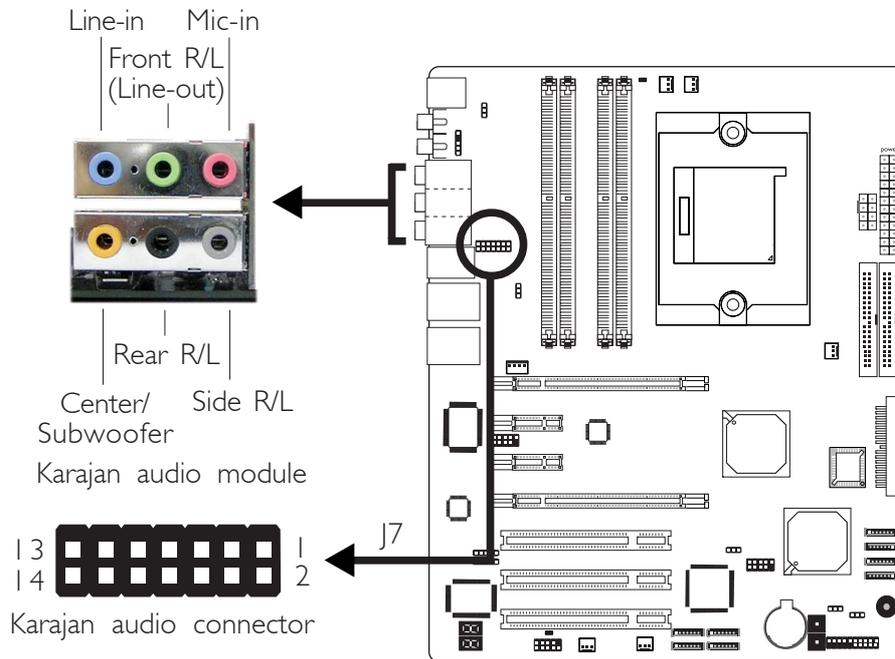
Installing the Karajan Audio Module

The system board package includes a Karajan audio module and the module holder. The module holder is used to stabilize the Karajan audio module onto the system board.

Karajan audio module

Plug ——   —— Plug
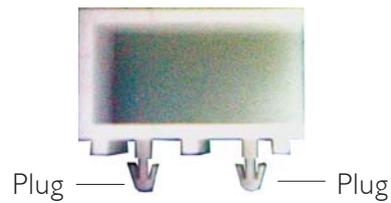
Module holder

1. Fit the module holder onto the Karajan audio module.

2. Align the module's plugs above the mounting holes then insert the plugs from the top through to the bottom of the system board. While at it, the 14-pin connector at the solder side of the module must also insert into the Karajan audio connector at location J7 of the system board. Make sure the plugs snap firmly out the bottom of the board.

14-pin connector

Plug Plug

Mounting holes

Karajan audio connector (J7)
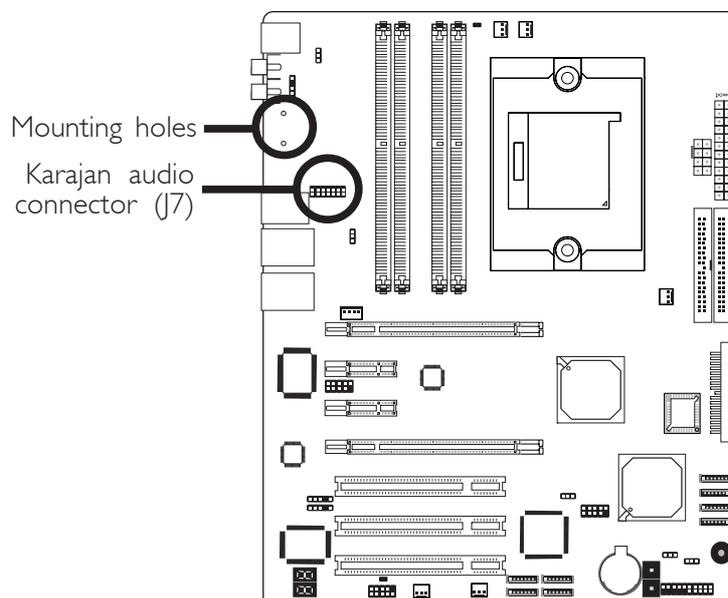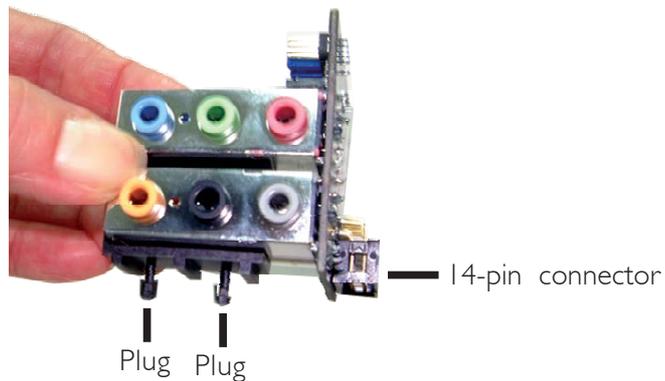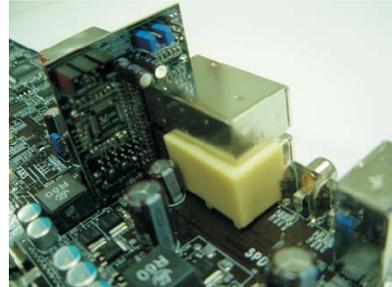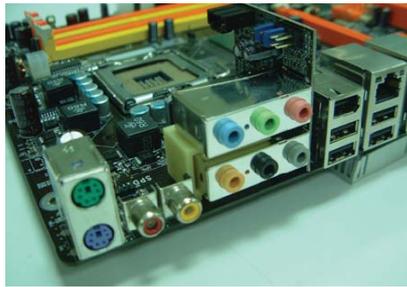
Note:
The illustrations in this section are for reference only. The color of the module holder may differ from the actual one.

Uninstalling the Karajan Audio Module

The Karajan audio module is snapped through the system board via the module holder. Pull the Karajan audio module upward. The module holder will at the same time detach from the system board.

Karajan Audio Jacks

- **Line-in (Light Blue)**
  This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.

- **Front Right/Left Jack - Line-out (Lime)**
  This jack is used to connect to the front right and front left speakers of the audio system.

- **Mic-in Jack (Pink)**
  This jack is used to connect an external microphone.

- **Center/Subwoofer Jack (Orange)**
  This jack is used to connect to the center and subwoofer speakers of the audio system.

- **Rear Right/Left Jack (Black)**
  This jack is used to connect to the rear right and rear left speakers of the audio system.

- **Side Right/Left Jack (Gray)**
  This jack is used to connect to the side left and side right speakers of the audio system.

Front Audio

The front audio connector (J4) on the Karajan audio module allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Using this connector will disable the rear audio's line-out and mic-in functions.
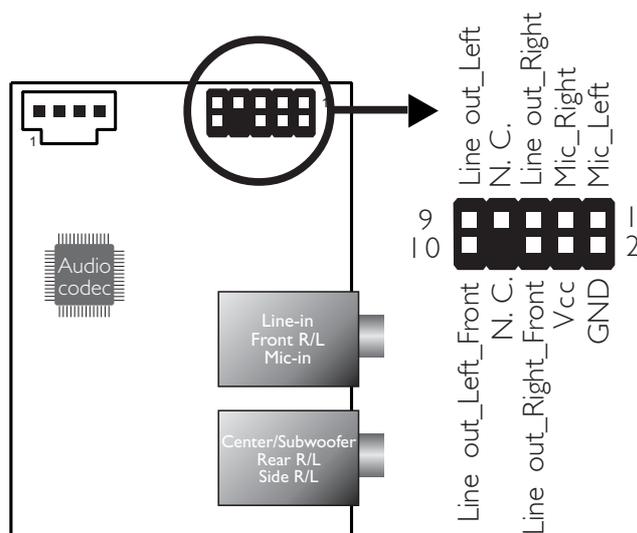
Remove the jumper caps from pins 5-6 and pins 9-10 of J4 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J4. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

Pins 5-6 and 9-10 short (default)	The front audio is disabled. The rear audio is enabled.
Pins 5-6 and 9-10 open	The front audio is enabled. The rear audio is disabled.

BIOS Setting

Configure the onboard audio in the Advanced Chipset Features submenu ("South Configuration" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the audio driver. Refer to chapter 4 for more information.

IEEE 1394
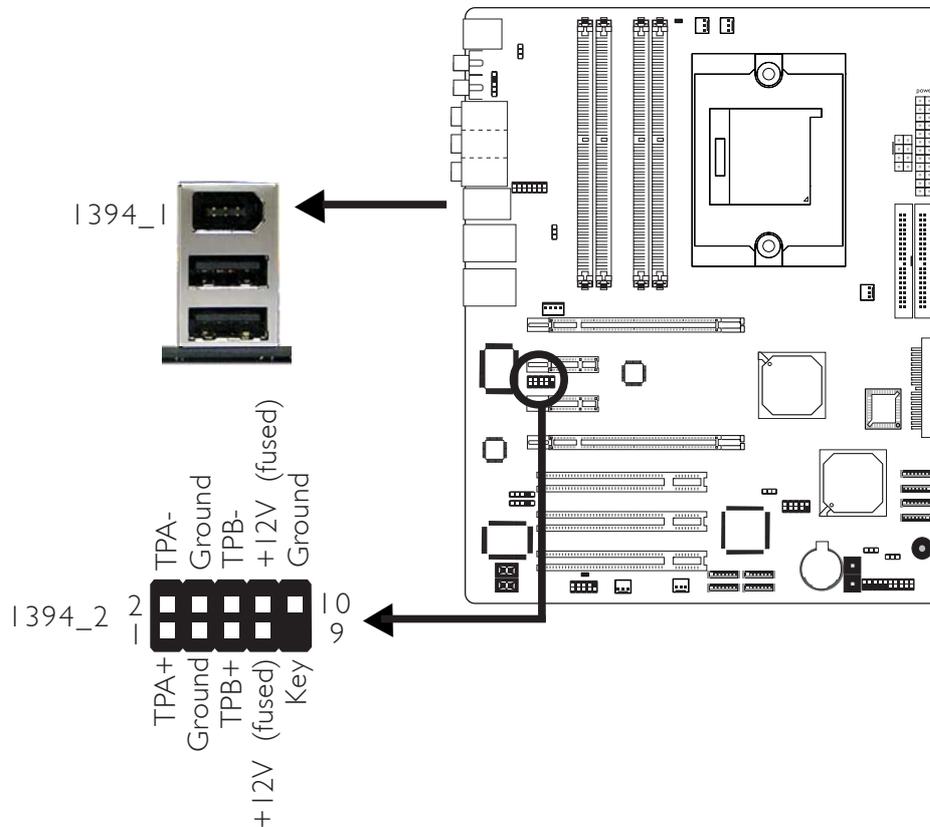
The system board is equipped with an onboard IEEE 1394 port at location CN3 (IEEE 1394_1) of the system board.

It is also equipped with an IEEE 1394 connector at location J8 (1394_2) for connecting an additional 1394 device. The 1394 port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the 1394 port cable to J8. Make sure pin 1 of the cable connector is aligned with pin 1 of the J8.

Universal Serial Bus Ports

USB 2
USB 1
USB 4
USB 3
USB 6
USB 5

USB 7-8

VCC
-Data
+Data
GND
N. C.

2 ▢▢▢▢▢ 10
1 ▢▢▢▢▢ 9

VCC
-Data
+Data
GND
Key
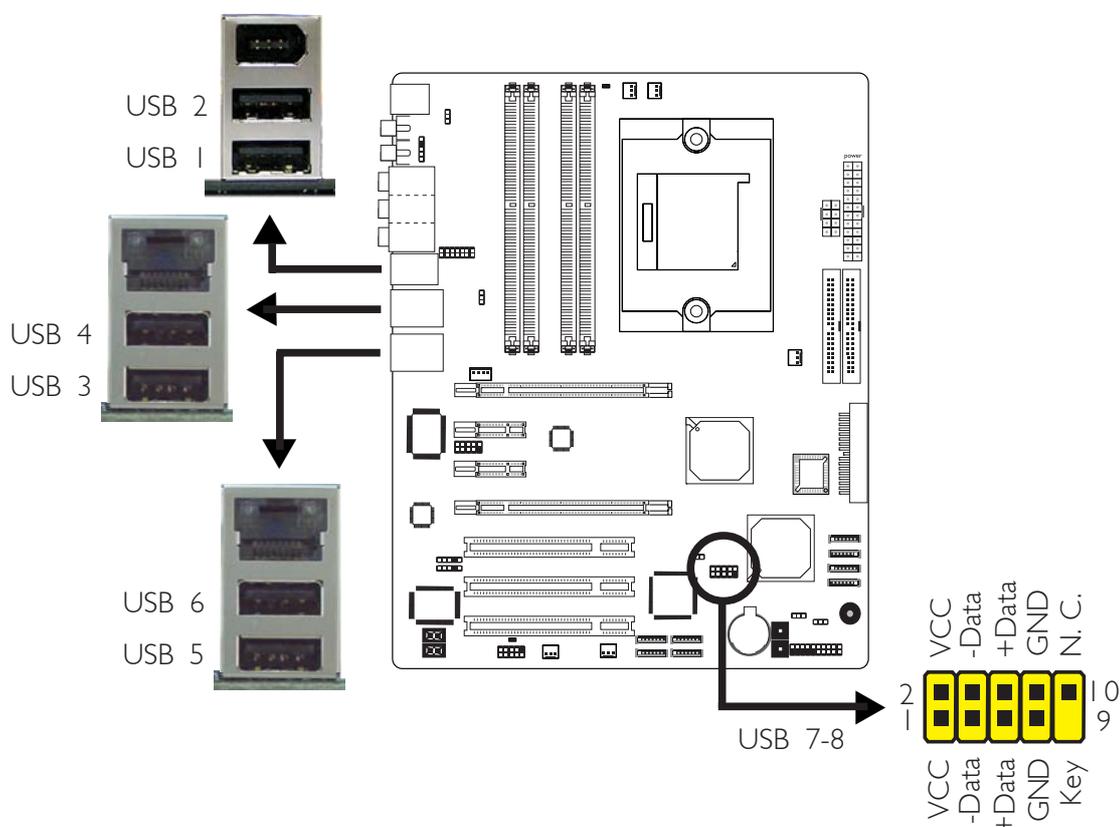
The system board supports 8 USB 2.0/1.1 ports. USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Six onboard USB 2.0/1.1 ports (Black) are at locations CN3 (USB 1-2), CN4 (USB 3-4) and CN6 (USB 5-6) of the system board.

J18 (USB 7-8) allows you to connect 2 additional USB 2.0/1.1 ports. The USB ports may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the USB port cables to J18.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.

Refer to chapter 4 for more information about installing the USB 2.0 driver.

Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- **Jumper Setting:**
  JP5 and/or JP6 must be set to "2-3 On: 5VSB". Refer to "USB Power Select" in this chapter for more information.

- **BIOS Setting:**
  Configure the USB wake up function in the Power Management Setup submenu ("PowerOn/WakeUp Function" section) of the BIOS. Refer to chapter 3 for more information.

> **Important:**
> *If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

RJ45 LAN Port
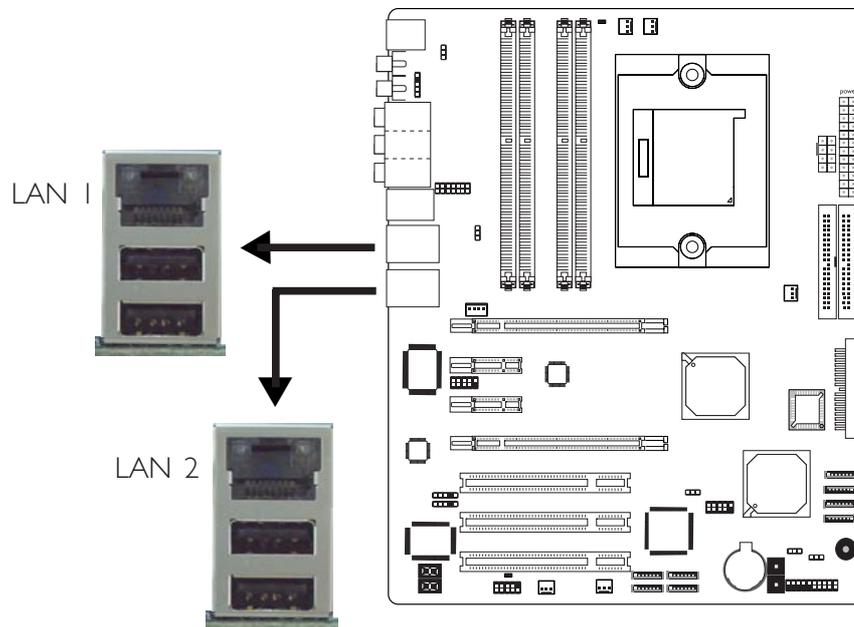
LAN 1

LAN 2

LAN 1 (CN4)
- The Marvell 88E8052 Gigabit PCI Express x1 chip controls LAN 1.

LAN 2 (CN6)
- The Marvell 88E8053 Gigabit PCI Express x1 chip controls LAN 2.

LAN allows the system board to connect to a local area network by means of a network hub.

BIOS Setting

Configure the onboard LAN in the Genie BIOS Setting submenu ("PCI Device Control" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the LAN driver. Refer to chapter 4 for more information.

I/O Connectors

CD-in Internal Audio Connector
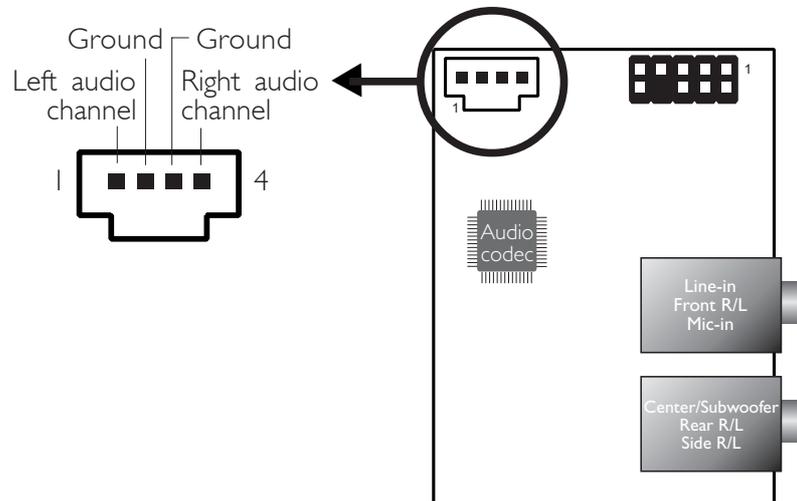
The CD-in (J2) connector on the Karajan audio module is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

Floppy Disk Drive Connector
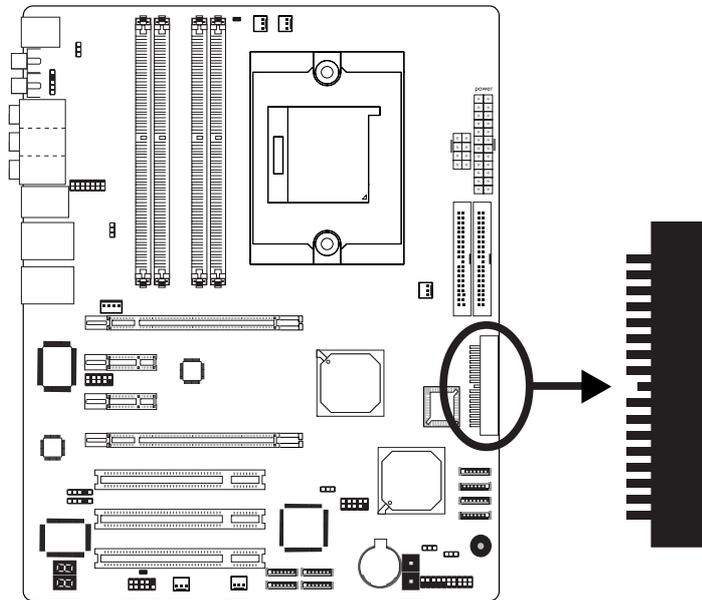
The system board is equipped with a 90° floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the shrouded floppy disk header (J23) on the system board and the other end-most connector to the drive you want to designate as Drive A. If you are connecting another drive (Drive B), install the middle connector of the cable to the drive. The colored edge of the daisy chained ribbon cable should be aligned with pin 1 of J23.

BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("I/O Setting" section) of the BIOS. Refer to chapter 3 for more information.

Serial ATA Connectors

Supported by ULI M1575

1	●●●●●●●	7	SATA 4 (J13)
7	●●●●●●●	1	SATA 3 (J11)
1	●●●●●●●	7	SATA 2 (J10)
7	●●●●●●●	1	SATA 1 (J2)

Supported by Silicon Image Sil 3114

SATA 8 (J26)   SATA 5 (J29)

| 1 | ●●●●●●● | 7 | | 1 | ●●●●●●● | 7 |
| 1 | ●●●●●●● | 7 | | 1 | ●●●●●●● | 7 |

SATA 6 (J27)   SATA 7 (J28)

1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND
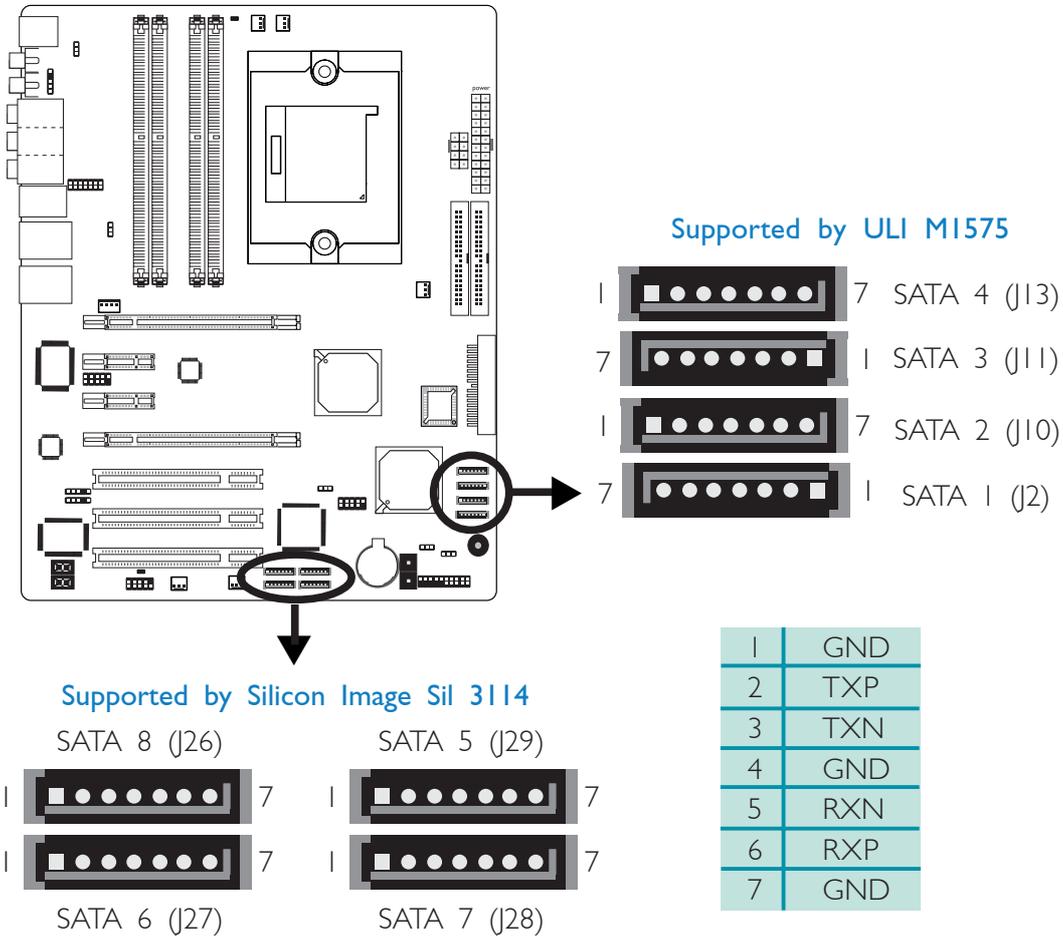
SATA 1 to SATA 4

- ULI M1575
- SATA speed up to 3Gb/s
- RAID 0, RAID 1, RAID 0+1 and JBOD

SATA 5 to SATA 8

- Silicon Image Sil 3114
- SATA speed up to 1.5Gb/s
- RAID 0, RAID 1, RAID 0+1 and RAID 5

Connecting Serial ATA Cables

Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Configure Serial ATA in the Genie BIOS Setting submenu ("PCI Device Control" section) of the BIOS. Refer to chapter 3 for more information.

Configuring RAID

The system board allows configuring RAID on Serial ATA drives. Refer to chapter 6 for steps in configuring RAID.

IDE Disk Drive Connector
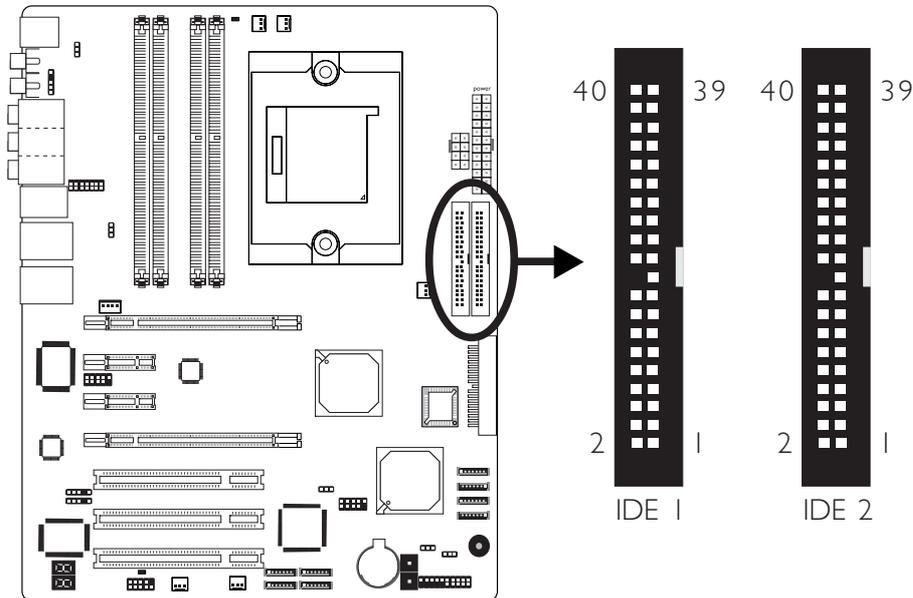
The system board is equipped with two shrouded PCI IDE headers that will interface four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, each shrouded PCI IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

Each IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable have 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connects to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

Connecting the IDE Disk Drive Cable

Install one end of the IDE cable into the IDE 1 header (J22) on the system board and the other connectors to the IDE devices.

If you are adding a third or fourth IDE device, use another IDE cable and install one end of the cable into the IDE 2 header (J25) on the system board and the other connectors to the IDE devices.

> **Note:**
> *Refer to your disk drive user's manual for information about selecting proper drive switch settings.*

Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

The system board supports up to UltraDMA 133Mbps hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

> **Important:**
> *If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.*

BIOS Setting

Configure the onboard IDE in the Integrated Peripherals submenu ("OnChip IDE Setting" section) of the BIOS. Refer to chapter 3 for more information.

Serial (COM) Port
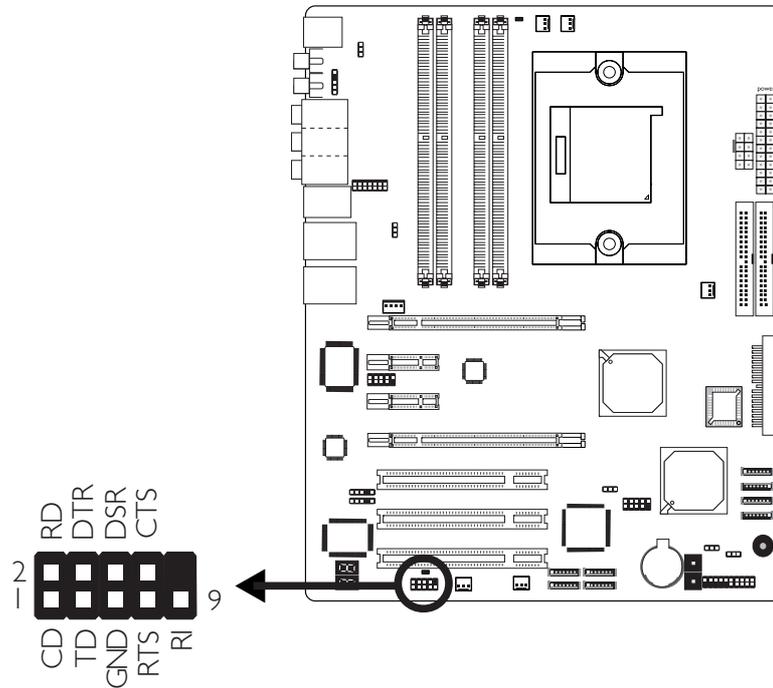
The system board is equipped with a 9-pin connector for connecting an external serial port. The serial port cable is an optional item and must be purchased separately. Insert the connector that is attached to the serial port cable to the 9-pin connector (J4) then install the serial port bracket to an available bracket slot at the rear of the system chassis. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the connector.

The serial port is an RS-232 and/or RS-485 asynchronous communication port with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

Configure the onboard serial port in the Integrated Peripherals submenu ("I/O Setting" section) of the BIOS. Refer to chapter 3 for more information.

IrDA and CIR Connectors

IRRX
Ground   N. C.
IRTX   VCC

IrDA   5   ▮▮▮ ▮   1

CIRRX
Ground   N. C.
CIRTX   5VSB

CIR   5   ▮▮▮ ▮   1
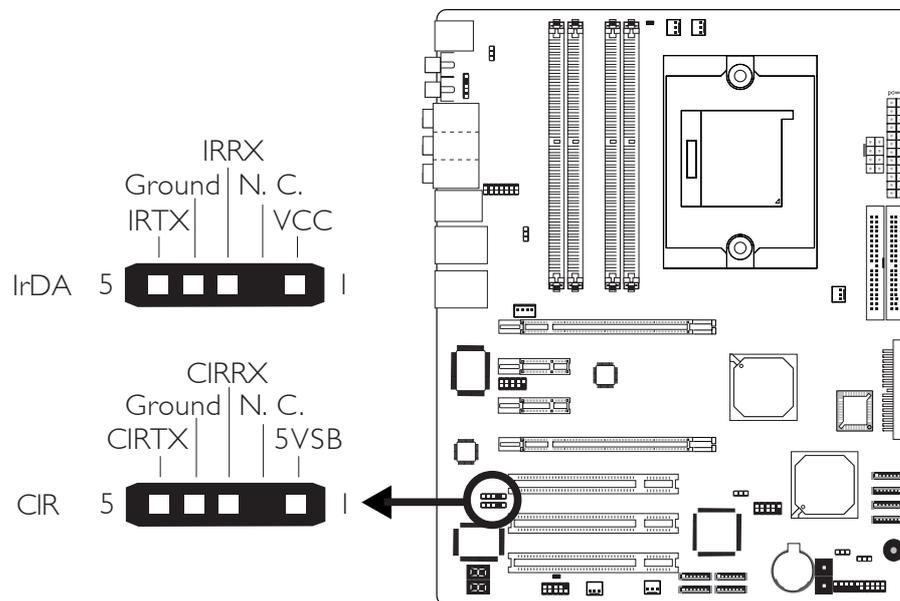
Connect the cable connector from your IrDA/CIR module to the IrDA connector (J5) or CIR connector (J14).

Note:
The sequence of the pin functions on some IrDA/CIR cable may be reversed from the pin function defined on the system board. Make sure to connect the cable connector to the IrDA/ CIR connector according to their pin functions.

BIOS Setting

Configure IrDA/CIR in the Integrated Peripherals submenu ("I/O Set- ting" section) of the BIOS.

Driver Installation

You may need to install the proper drivers in your operating system to use the IrDA/CIR function. Refer to your operating system's manual or documentation for more information.

Cooling Fan Connectors

Sense — 3
Power —
Ground — 1
CPU fan

Sense — 3
Power —
Ground — 1
Fan 2

Sense — 3
Power —
Ground — 1
Fan 3

Power
Ground | N. C.
1 — 3
Fan 4

Power
Ground | N. C.
1 — 3
Fan 5
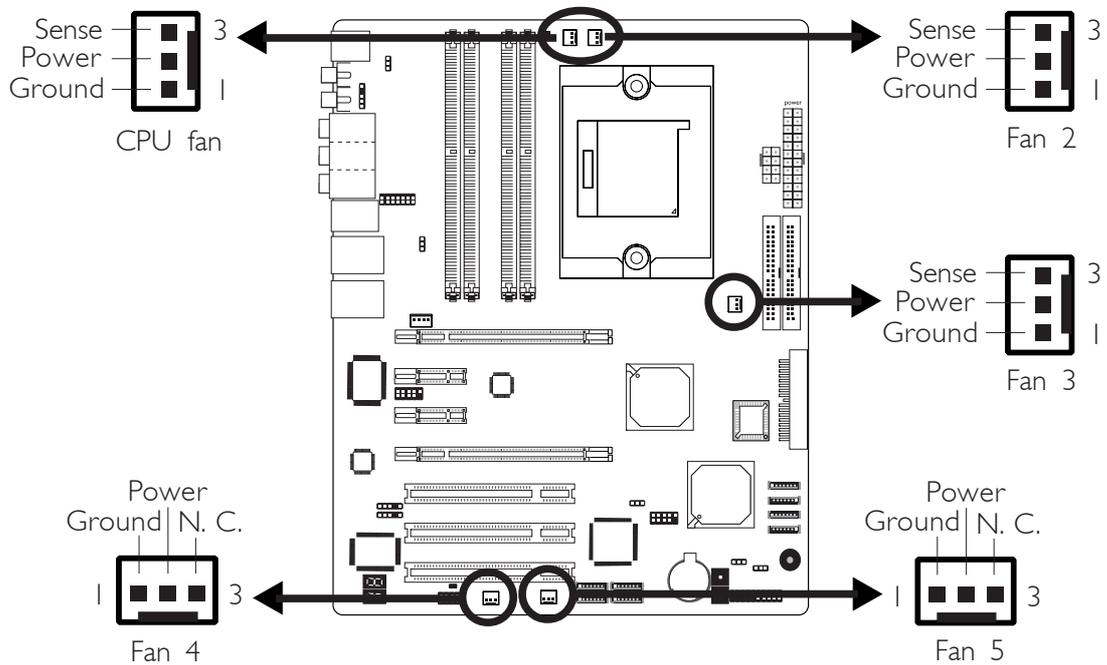
Connect the CPU fan's cable connector to the CPU fan connector (J31) on the system board. Fan 2 (J32), Fan 3 (J30), Fan 4 (J6) and Fan 5 (J9) are used to connect additional cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The "PC Health Status" submenu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

LEDs

DRAM Power LED

Debug LED
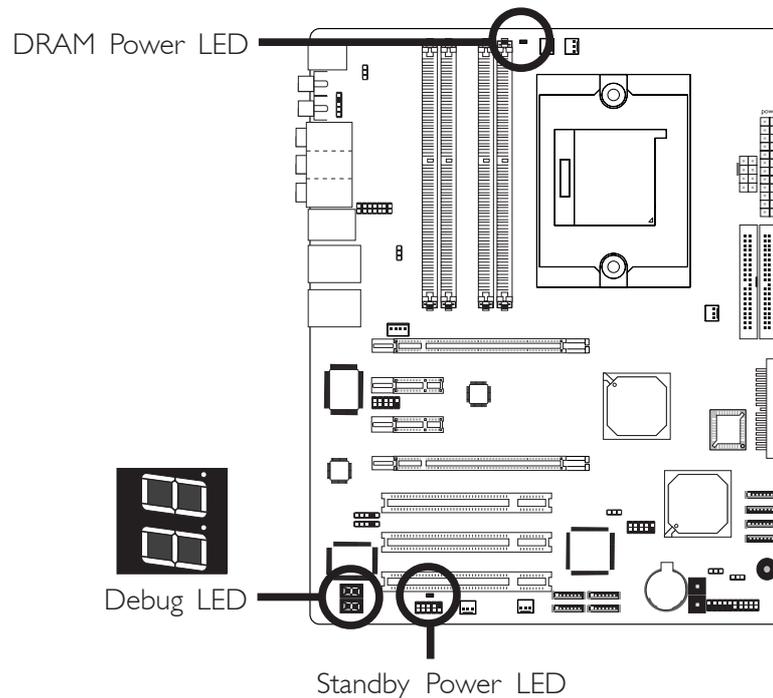
Standby Power LED

DRAM Power LED

This LED will light when the system's power is on.

Standby Power LED

This LED will light when the system is in the standby mode.

Debug LED

The Debug LED displays POST codes. POST (Power-On Self Tests) which is controlled by the BIOS is performed whenever you power-on the system. POST will detect the status of the system and its components. Each code displayed on the LED corresponds to a certain system status.

Power Connectors

Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted onto CN10.

	12 24	
+3.3VDC	• •	COM
+12VDC	• •	+5VDC
+12VDC	• •	+5VDC
+5VSB	• •	+5VDC
PWR_OK	• •	NC
COM	• •	COM
+5VDC	• •	COM
COM	• •	COM
+5VDC	• •	PS_ON#
COM	• •	COM
+3.3VDC	• •	-12VDC
+3.3VDC	• •	+3.3VDC
	1 13	

24-pin ATX
(CN10)
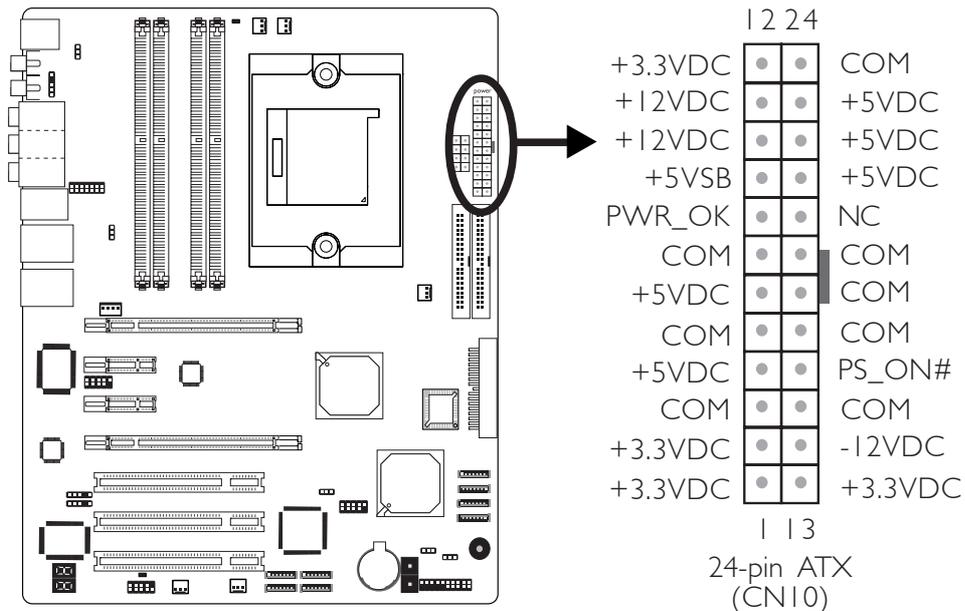
Your power supply unit may come with an 8-pin or 4-pin +12V power connector. The +12V power enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM). If available, it is preferable to use the 8-pin power; otherwise connect the 4-pin power connector to CN9 as shown below.

For 4-pin power, connect as indicated by the red dotted rectangle

+12V —   — Ground

8-pin +12V
(CN9)
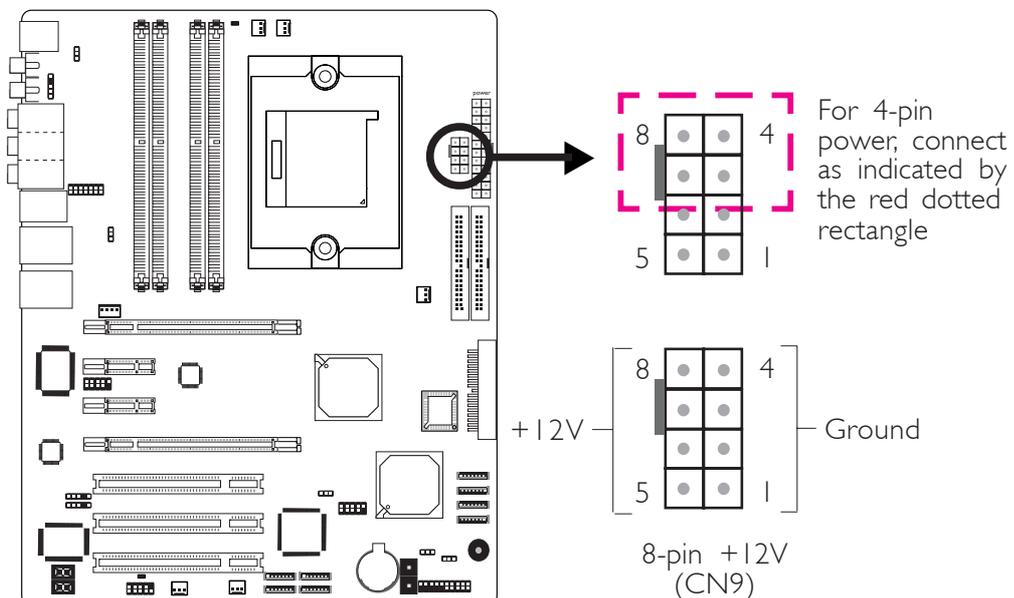
The FDD-type power connector is an additional power connector. If you are using two graphics cards, we recommend that you plug a power cable from your power supply unit onto the 5V/12V power connector at location J1. This will provide more stability to the entire system. The system board will still work even if the additional power connector is not connected.

5V/12V
(FDD-type)

1   4

+5V   +12V
Ground
    Ground
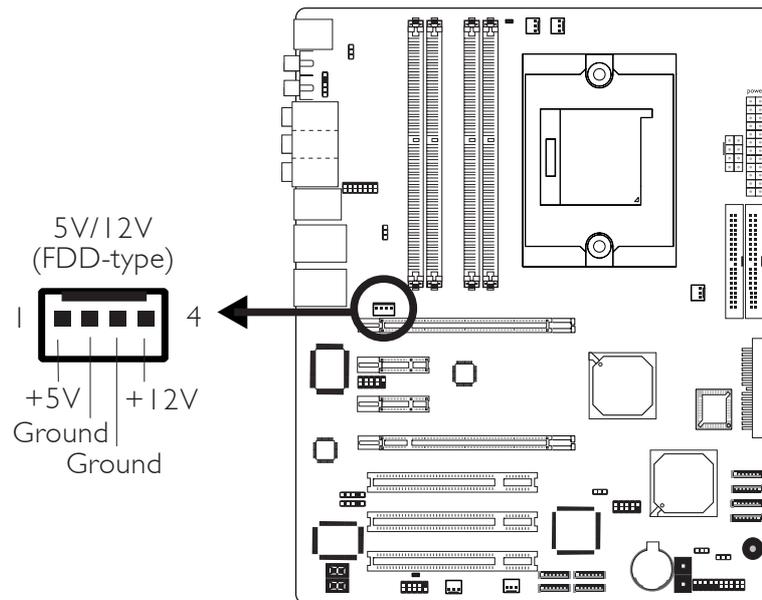
The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, **we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.**

Restarting the PC

Normally, you can power-off the PC by:

1. Pressing the power button at the front panel of the chassis.
   or
2. Pressing the power switch that is on the system board (note: not all system boards come with this switch).

If for some reasons you need to totally cut off the power supplied to the PC, switch off the power supply or unplug the power cord. Take note though that if you intend to restart it at once, please strictly follow the steps below.

1. The time where power is totally discharged varies among power supplies. It's discharge time is highly dependent on the system's configuration such as the wattage of the power supply, the sequence of the supplied power as well as the number of peripheral devices connected to the system. Due to this reason, we strongly recommend that you wait for the Standby Power LED (refer to the "LEDs" section in this chapter for the location of the Standby Power LED) to lit off.

2. After the Standby Power LED has lit off, wait for 6 seconds before powering on the PC.

   If the system board is already enclosed in a chassis which apparently will not make the Standby Power LED visible, wait for 15 seconds before you restore power connections. 15 seconds is approximately the time that will take the LED to lit off plus the time needed before restoring power.

The above will ensure protection and prevent damage to the motherboard and components.

Front Panel Connectors
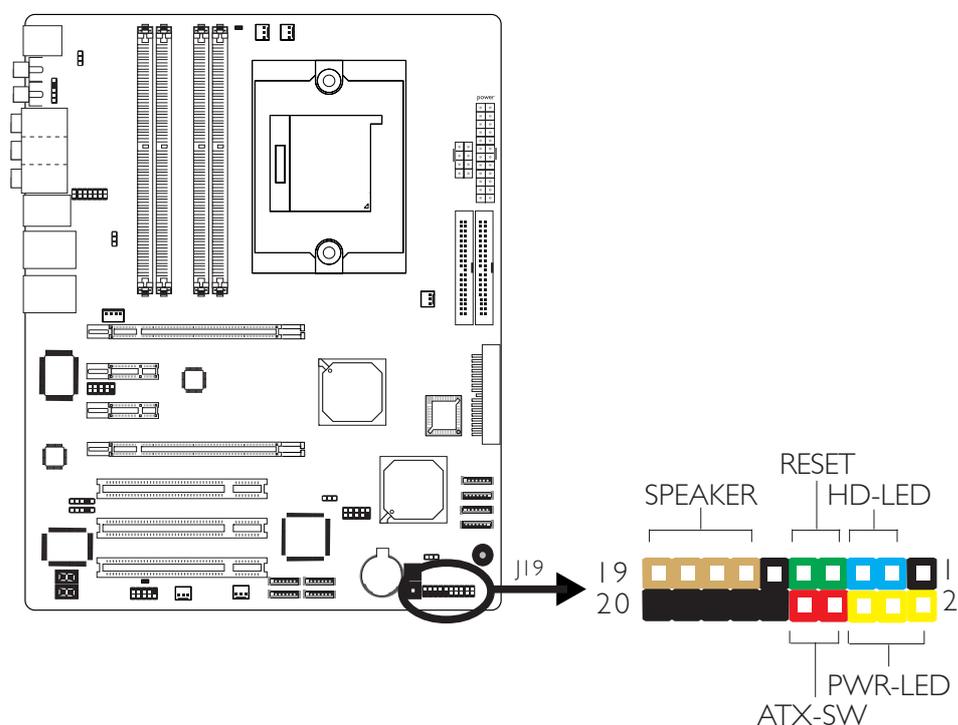
HD-LED: Primary/Secondary IDE LED
This LED will light when the hard drive is being accessed.

RESET: Reset Switch
This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

SPEAKER: Speaker Connector
This connects to the speaker installed in the system chassis.

ATX-SW: ATX Power Switch
Depending on the setting in the BIOS setup, this switch is a "dual function power button" that will allow your system to enter the Soft-Off or Suspend mode. Refer to "Soft-Off By PWR-BTTN" in the Power Management Setup section (Chapter 3).

PWR-LED: Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

Note:
If a system did not boot-up and the Power/Standby LED did not light after it was powered-on, it may indicate that the CPU or memory module was not installed properly. Please make sure they are properly inserted into their corresponding socket.

	Pin	Pin Assignment
HD-LED (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
Reserved	14 16	N. C. N. C.
ATX-SW (ATX power switch)	8 10	PWRBT+ PWRBT-
Reserved	18 20	N. C. N. C.
RESET (Reset switch)	7 9	Ground H/W Reset
SPEAKER (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
PWR-LED (Power/Standby LED)	2 4 6	LED Power (+) LED Power (+) LED Power (-) or Standby Signal

EZ Touch Switches

Reset Switch
Power Switch
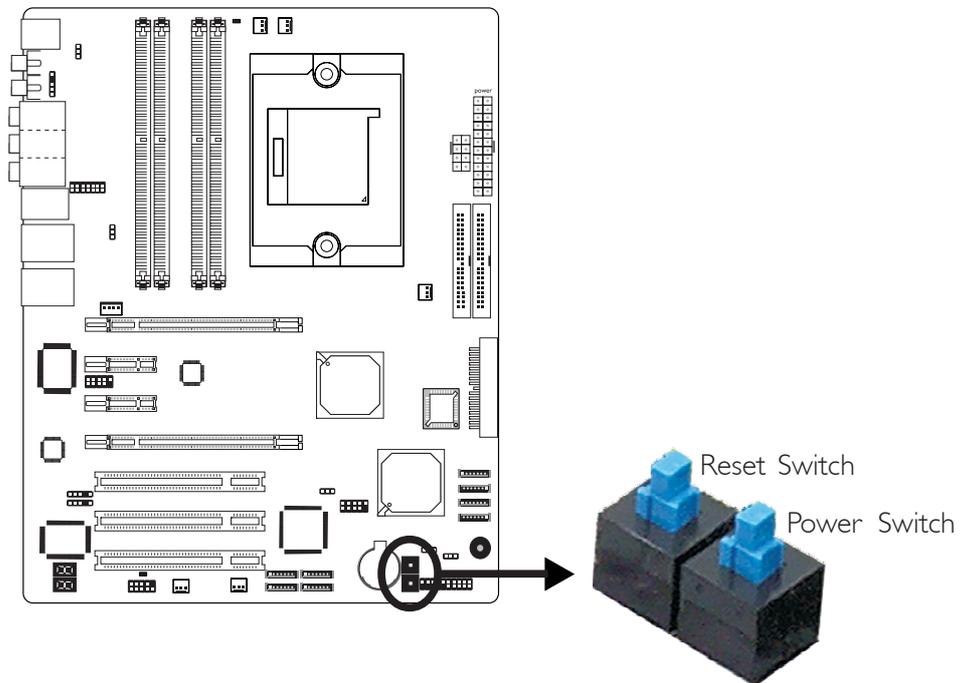
The presence of the power switch and reset switch on the system board are user-friendly especially to DIY users. They provide convenience in powering on and/or resetting the system while fine tuning the system board before it is installed into the system chassis.

PCI Express Slots

PCI Express x16
PCI Express x1
PCI Express x1
PCI Express x16
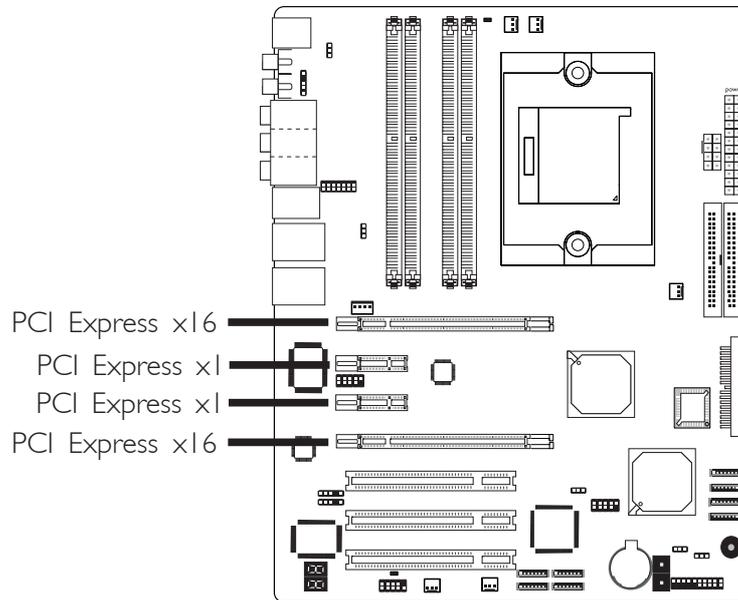
PCI Express x16

Install PCI Express x16 graphics card, that comply to the PCI Express specifications, into the PCI Express x16 slot. To install a graphics card into the x16 slot, align the graphics card above the slot then press it down firmly until it is completely seated in the slot. The retaining clip of the slot will automatically hold the graphics card in place.

Refer to chapter 7 for information about CrossFire.

PCI Express x1

Install PCI Express x1 cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x1 slot.

Battery
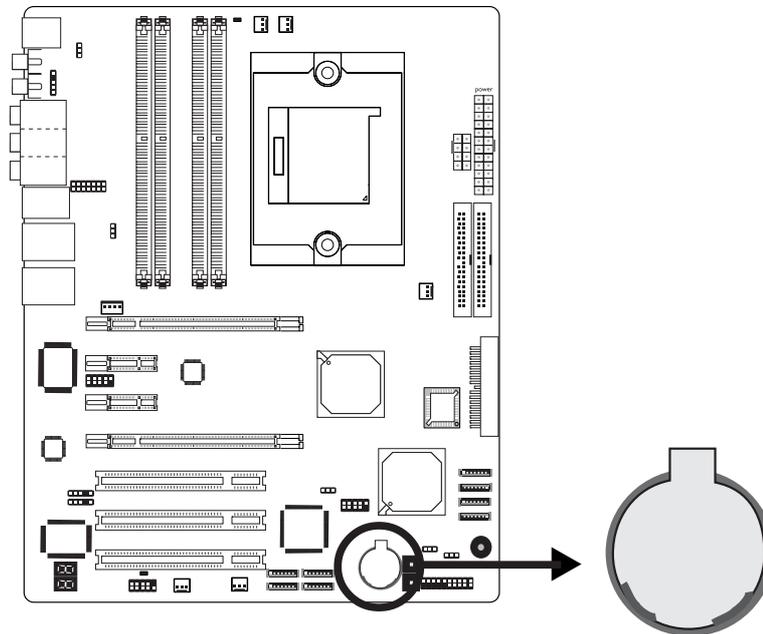
The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

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

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Chapter 3 - BIOS Setup

Award BIOS Setup Utility

The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the following message will appear on the screen:

<div align="center">Press DEL to enter setup</div>

If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

When you press <Del>, the main menu screen will appear.

```
              Phoenix - AwardBIOS CMOS Setup Utility
 ┌────────────────────────────────────────────────────────────────────┐
 │  ▶ Standard CMOS Features        ▶ Genie BIOS Setting                │
 │  ▶ Advanced BIOS Features        ▶ CMOS Reloaded                     │
 │  ▶ Advanced Chipset Features        Load Optimized Defaults          │
 │  ▶ Integrated Peripherals           Set Supervisor Password          │
 │  ▶ Power Management Setup           Set User Password                │
 │  ▶ PnP/PCI Configurations           Save & Exit Setup                │
 │  ▶ PC Health Status                 Exit Without Saving              │
 ├────────────────────────────────────────────────────────────────────┤
 │  Esc  :  Quit                   ↑ ↓ → ← : Select Item                │
 │  F10  :  Save & Exit Setup                                           │
 ├────────────────────────────────────────────────────────────────────┤
 │                 Time, Date, Hard Disk Type...                        │
 └────────────────────────────────────────────────────────────────────┘
```

Standard CMOS Features

Use the arrow keys to highlight "Standard CMOS Features" and press <Enter>. A screen similar to the one below will appear.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Standard CMOS Features

      Date  <mm:dd:yy>              Mon, Jan  9 2006           Item  Help
      Time  <hh:mm:ss>              9 : 3 : 54
                                                          Menu Level     ►
   ►  Primary  IDE  Master         ST38410A
   ►  Primary  IDE  Slave          None                  Change the day, month,
   ►  Secondary  IDE  Master       None                  year  and  century
   ►  Secondary  IDE  Slave        None
   ►  Internal Phy SATA 1          None
   ►  Internal Phy SATA 2          None
   ►  Internal Phy SATA 3          None
   ►  Internal Phy SATA 4          None

      Drive A                      1.44M, 3.5 in.
      Drive B                      None
      Halt On                      All, But Keyboard

      Base  Memory                    640K
      Extended  Memory             260096K
      Total  Memory                261120K

   ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save     ESC: Exit     F1: General Help
      F5: Previous Values            F6: Fail-Safe Defaults       F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1994 to 2079.

Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Primary IDE Master/Slave, Secondary IDE Master/Slave and Internal Phy SATA 1/2/3/4

Primary IDE Master
Primary IDE Slave
Secondary IDE Master   Used to configure Parallel ATA drives
Secondary IDE Slave

Internal Phy SATA 1
Internal Phy SATA 2
Internal Phy SATA 3   Used to configure Serial ATA drives
Internal Phy SATA 4

Note:
The fields for configuring Serial ATA drives ("Internal Phy SATA 1" to "Internal Phy SATA 4") will appear only if the "Serial ATA Controller" field is set to Enabled. This field is in the Advanced Chipset Features submenu, South Configuration section of the BIOS.

To configure IDE drives, move the cursor to a field then press <Enter>. The following screen will appear:
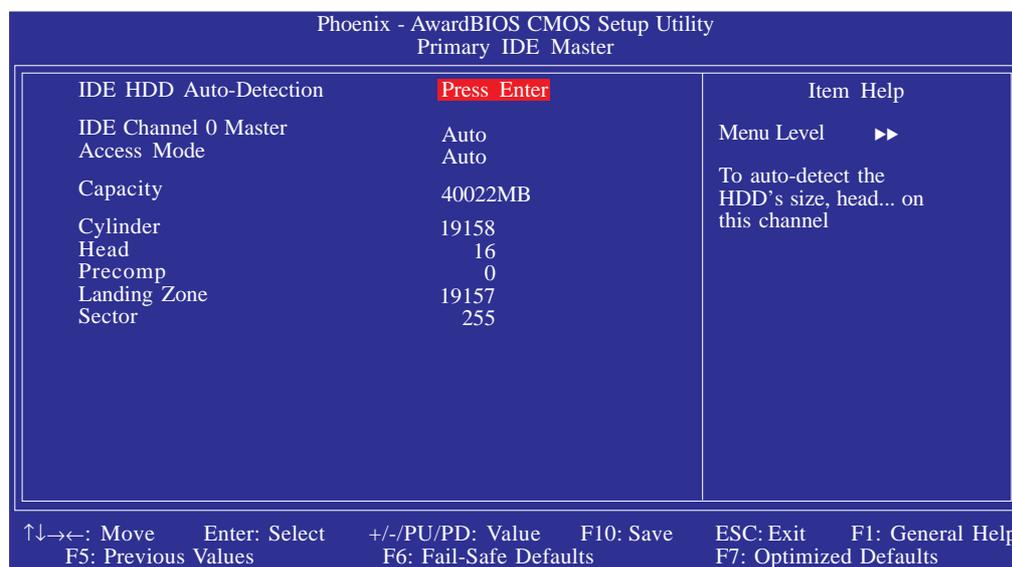
```
                  Phoenix - AwardBIOS CMOS Setup Utility
                          Primary  IDE  Master

   IDE  HDD  Auto-Detection         Press  Enter              Item  Help

   IDE Channel 0 Master             Auto              Menu Level      ▶▶
   Access  Mode                     Auto
                                                      To auto-detect the
   Capacity                         40022MB           HDD's size, head... on
                                                      this channel
   Cylinder                         19158
   Head                                16
   Precomp                              0
   Landing Zone                     19157
   Sector                             255




   ↑↓→←: Move     Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values              F6: Fail-Safe Defaults        F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Auto-Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

Primary IDE Master/Slave and Secondary IDE Master/Slave

The drive type information should be included in the documentation from your hard disk vendor. If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select CHS or Large. Please check your operating system's manual or Help desk on which one to select.

Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

This field displays the number of cylinders at which to change the write timing.

Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

Sector

This field displays the number sectors per track.

To configure Serial ATA drives, move the cursor to a field then press <Enter>. The following screen will appear:
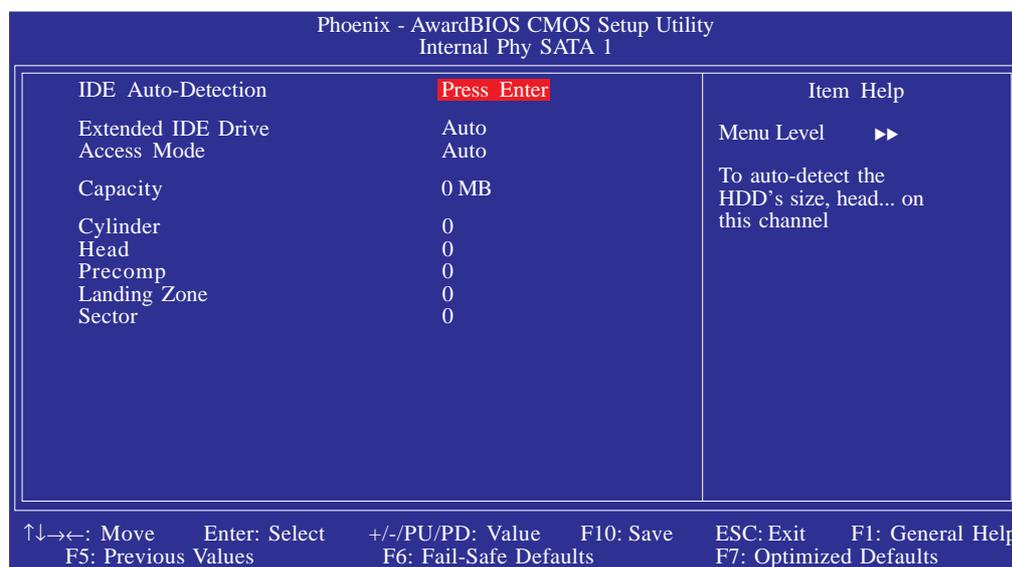
```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Internal Phy SATA 1

    IDE  Auto-Detection          Press  Enter            Item  Help

    Extended IDE Drive           Auto               Menu Level      ►►
    Access  Mode                 Auto
                                                    To auto-detect the
    Capacity                     0 MB               HDD's size, head... on
                                                    this channel
    Cylinder                     0
    Head                         0
    Precomp                      0
    Landing Zone                 0
    Sector                       0




  ↑↓→←: Move        Enter: Select     +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
      F5: Previous Values                 F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

IDE Auto-Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

Extended IDE Drive

The default is Auto. The BIOS will automatically detect the Serial ATA drives.

Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select CHS or Large. Please check your operating system's manual or Help desk on which one to select.

Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

75

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

This field displays the number of cylinders at which to change the write timing.

Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

Sector

This field displays the number sectors per track.

Drive A and Drive B

These fields identify the types of floppy disk drives installed.

None   No floppy drive is installed
360K, 5.25 in. 5-1/4 in. standard drive; 360KB capacity
1.2M, 5.25 in. 5-1/4 in. AT-type high-density drive; 1.2MB capacity
720K, 3.5 in.   3-1/2 in. double-sided drive; 720KB capacity
1.44M, 3.5 in. 3-1/2 in. double-sided drive; 1.44MB capacity
2.88M, 3.5 in. 3-1/2 in. double-sided drive; 2.88MB capacity

Halt On

This field determines whether the system will stop if an error is detected during power up. The default setting is All Errors.

No Errors The system boot will not stop for any errors detected.
All Errors   The system boot will stop whenever the BIOS detects a non-fatal error.
All, But Keyboard   The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette   The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key   The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

Displays the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                         Advanced  BIOS  Features

 ►  Removable  Device  Priority       Press  Enter         ▲       Item  Help
 ►  Hard Disk Boot Priority           Press  Enter
 ►  Network  Boot  Priority           Press  Enter             Menu Level     ►
    CPU  Internal  Cache              Enabled
    External  Cache                   Enabled                  Select Removable Boot
    Quick Power On Self Test          Enabled                  Device  Priority
    First Boot Device                 Removable
    Second  Boot  Device              Hard Disk
    Third  Boot  Device               CDROM
    Boot  Other  Device               Enabled
    Boot Up Floppy Seek               Disabled
    Boot Up NumLock Status            On
    Typematic  Rate  (Chars/Sec)      30
    Typematic  Delay  (Msec)          250
    Security  Option                  Setup
    MPS Version Control For OS        1.4
    OS  Select  For  DRAM > 64MB      Non-OS2
    HDD  S.M.A.R.T. Capability        Disabled
    Delay  For HDD  (Secs)            0
    Full Screen LOGO Show             Enabled            ▼

 ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
    F5: Previous Values             F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The screen above list all the fields available in the Advanced BIOS Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for refer- ence only. Your version may not be identical to this one.

Removable Device Priority

This field is used to select the boot sequence of the removable devices. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                    Removable Device Priority

  1. Floppy Disks        :                          Item  Help

                                                Menu Level    ▶▶

                                                Use <↑> or <↓> to
                                                select a device, then
                                                press <+> to move it up,
                                                or <-> to move it down
                                                the list. Press <ESC> to
                                                exit this menu.

 ↑↓: Move        PU/PD/+/-: Change  Priority       F10: Save        ESC: Exit
  F5: Previous Values       F6: Fail-Safe Defaults      F7: Optimized Defaults
```
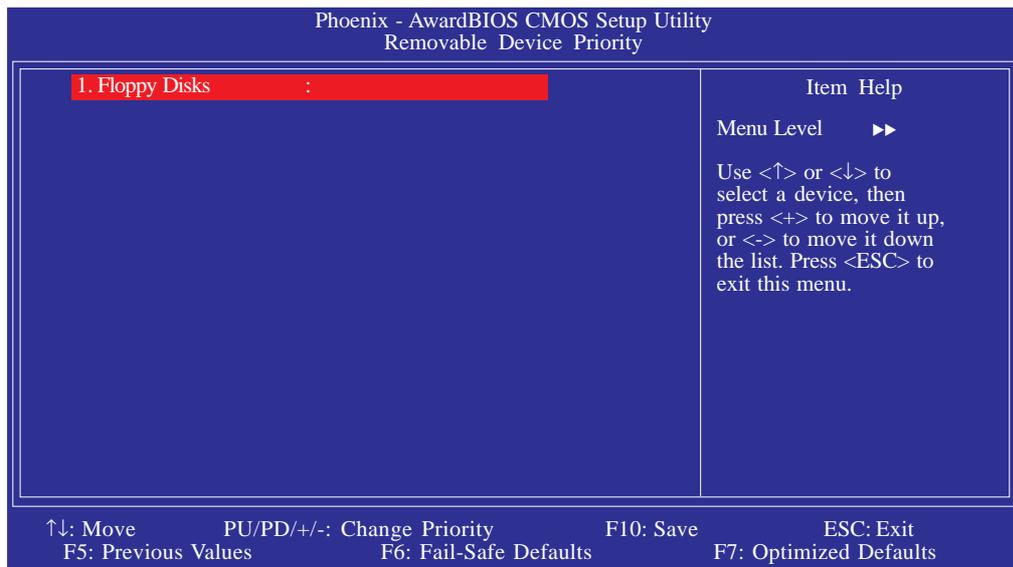
The settings on the screen are for reference only. Your version may not be identical to this one.

Hard Disk Boot Priority

This field is used to select the boot sequence of the hard drives. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.

```
                      Phoenix - AwardBIOS CMOS Setup Utility
                              Hard Disk Boot Priority

      1. Ch0 M.           :          ST38410A                  Item  Help
      2. Bootable Add-in Cards
                                                          Menu Level    ▶▶

                                                          Use <↑> or <↓> to
                                                          select a device, then
                                                          press <+> to move it up,
                                                          or <-> to move it down
                                                          the list. Press <ESC> to
                                                          exit this menu.




      ↑↓: Move        PU/PD/+/-: Change Priority      F10: Save          ESC: Exit
        F5: Previous Values          F6: Fail-Safe Defaults     F7: Optimized Defaults
```
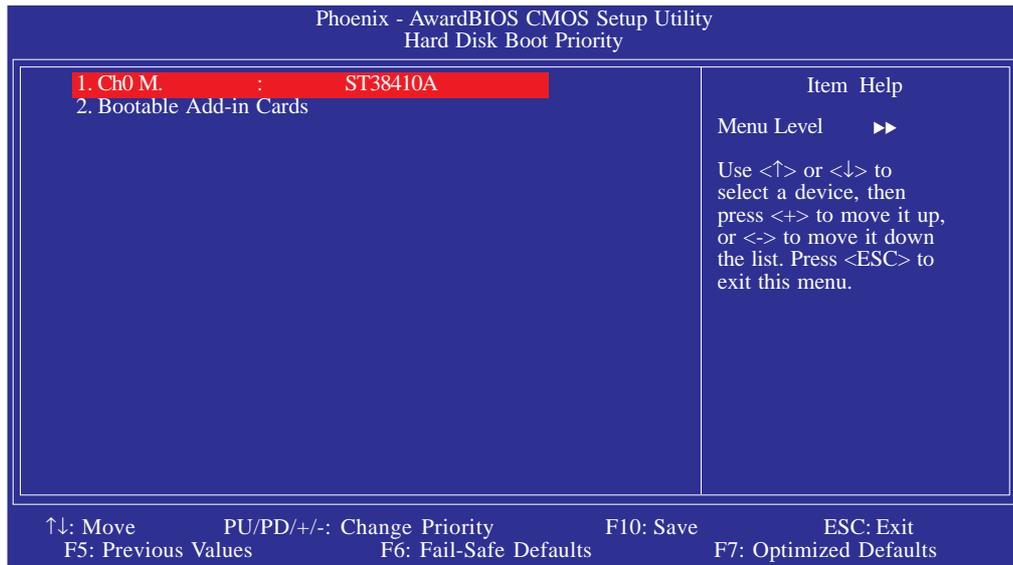
The settings on the screen are for reference only. Your version may not be identical to this one.

Network Boot Priority

This field is used to select the boot sequence of the network. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             Network Boot Priority

    1. Legacy Lan Cards           :                                Item  Help

                                                           Menu Level      ▶▶

                                                           Use <↑> or <↓> to
                                                           select a device, then
                                                           press <+> to move it up,
                                                           or <-> to move it down
                                                           the list. Press <ESC> to
                                                           exit this menu.




    ↑↓: Move        PU/PD/+/-: Change  Priority      F10: Save         ESC: Exit
      F5: Previous  Values            F6: Fail-Safe  Defaults     F7: Optimized  Defaults
```
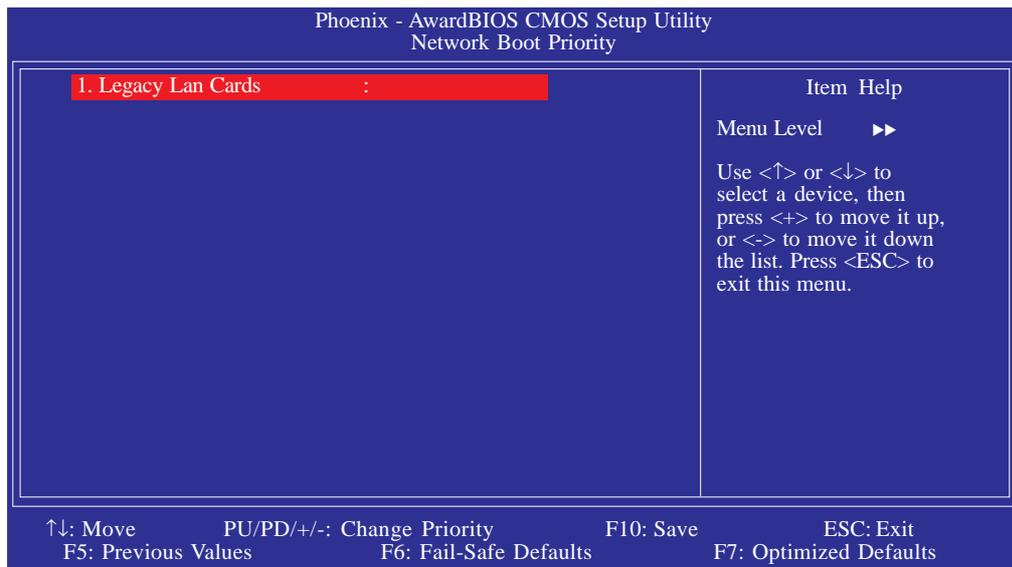
The settings on the screen are for reference only. Your version may not be identical to this one.

CPU Internal Cache and External Cache

These fields speed up the memory access. The default is Enabled, which provides better performance by enabling cache.

Quick Power On Self Test

This field speeds up Power On Self Test (POST) whenever the system is powered on. The BIOS will shorten or skip some check items during POST. To attain the shortest POST time, select "Enabled".

First Boot Device, Second Boot Device, Third Boot Device and Boot Other Device

Select the drive to boot first, second and third in the "First Boot Device" "Second Boot Device" and "Third Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set "Boot Other Device" to Enabled if you wish to boot from another device.

Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Typematic Rate (Chars/Sec)

This field allows you to select the rate at which the keys are accelerated.

Typematic Delay (Msec)

This field allows you to select the delay between when the key was first depressed and when the acceleration begins.

Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

System The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.

Setup The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

MPS Version Control for OS

This field is used to select the MPS version that the system board is using.

OS Select for DRAM > 64MB

Select the "OS2" option only if the system that is running an OS/2 operating system has greater than 64MB RAM.

HDD S.M.A.R.T. Capability

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. The default is Disabled. If you are using hard drives that support S.M.A.R.T., set this field to Enabled. SMART is supported in ATA/33 or later hard drives.

Delay for HDD (Secs)

This field is used to select the time that would delay the HDD controller's initial time. This is specially useful for some HDDs which will not be ready at first boot when you power-on the system.

Full Screen Logo Show

This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled The logo will appear in full screen during system boot-up.

Disabled The logo will not appear during system boot-up.

Advanced Chipset Features

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Advanced Chipset Features

  ▶  South Configuration              Press  Enter            Item  Help
  ▶  PCIE Configuration               Press  Enter
     AGP  Aperture  Size              64MB             Menu Level      ▶
     Memory  Hole                     Disabled
     MTRR  Mapping  Mode              Continuous       South Bridge Setting
     S/W  Memory  Hole  Remapping     Disabled
     H/W  Memory  Hole  Remapping     Disabled
     System  BIOS  Cacheable          Disabled




  ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value    F10: Save     ESC: Exit     F1: General Help
       F5: Previous  Values              F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources. **These items should not be altered unless necessary.** The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered some incompatibility or that data was being lost while using your system.

South Configuration

Move the cursor to the South Configuration field and press <Enter>. The following screen will appear.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              South Configuration

  ▶  South Bridge Feature        Press  Enter              Item  Help
     AC97 & Azalia LINK A         Azalia Only
     AC97 & Azalia LINK B         Disabled             Menu Level      ▶

                                                       South Bridge Power
                                                       Saving, Clock Gated
                                                       and  Prefetch




  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit     F1: General Help
     F5: Previous Values          F6: Fail-Safe Defaults      F7: Optimized Defaults
```
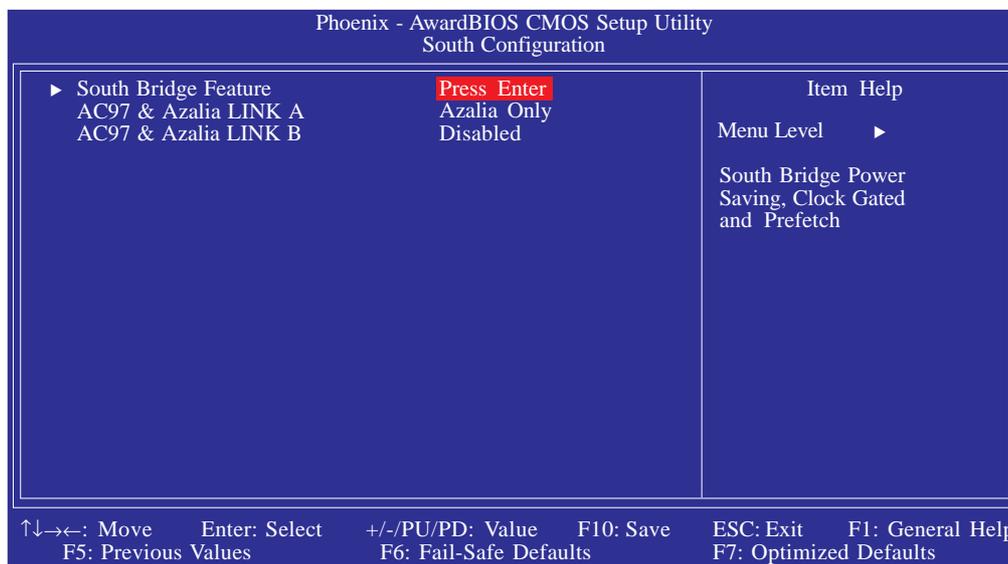
The settings on the screen are for reference only. Your version may not be identical to this one.

South Bridge Feature

Move the cursor to the South Bridge Feature field and press <Enter>. The following screen will appear.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              South Bridge Feature

     Test System Reboot          Disabled                 Item  Help
  x  Cold Reboot Time            05 Sec
     P2P Pre-fetch Queue Depth   Auto                  Menu Level      ▶
     P2P Maximum Pre-fetch DW    Pre-fetch  4x16DW
     PCI/14M/USB CLK PowerDown   Disabled
     USB Performance Mode        Enabled
     USB Power Saving Mode       Enabled
     HTTSTOP Timing              1us
     32K0 Mask Disable Function  Disabled
     ULi Throttle Function       All Disabled
  x  ULi Throttle Enable Time    When ACPi On
  x  Throttle Duty Setting       12.5% - 25%
     ULI HPET                    Disabled
     ULI WDRT                    Disabled



  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit     F1: General Help
     F5: Previous Values          F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Test System Reboot

This field allows you to test the system's reboot status.

Cold Reboot Time.

This field is used to select the time that the system will cold reboot.

P2P Pre-fetch Queue Depth

This field is used to select the P2P prefetch queue depth.

P2P Maximum Pre-fetch DW

This field is used to select the P2P maximum prefetch DW.

PCI/14M/USB CLK PowerDown

This field is used to enable or disable the PCI/14M/USB clock power down function.

USB Performance Mode

This field is used to enable or disable the USB performance mode.

USB Power Saving Mode

This field is used to enable or disable the USB power saving mode.

HTTSTOP Timing

This field is used to select the HTTSTOP timing.

32K0 Mask Disable Function

The options are Enabled and Disabled.

ULi Throttle Function

This field is used to configure the ULi throttle function.

ULi Throttle Enable Time

This field is used to select the ULi throttle enable time.

Throttle Duty Setting

This field is used to select the percent of time that the clock runs to save power.

ULI HPET

The options are Enabled and Disabled.

ULI WDRT

The options are Enabled and Disabled.

AC97 & Azalia Link A

This field is used to enable Azalia or AC97 audio.

AC97 & Azalia Link B

This field is used to enable or disable AC97 audio.

PCIE Configuration

Move the cursor to the South Configuration field and press <Enter>. The following screen will appear.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                           PCIE Configuration

   Link Width .........................GFX1    x16              Item  Help
              .........................GFX1    x16
   Payload  Size.......................GFX     64 Bytes      Menu Level    ▶
              .........................SB      64 Bytes
   Lane  Reversal......................GFX1    Disabled
              .......................GFX2       Disabled
   PowerDown  Unused  Port    GFX1             Enabled
                             GPP              Enabled
   Hide  Empty  PCIE  Port                    Enabled
   Reset GFX Slot                             Enabled
   Reset GFX2 Slot                            Enabled
   Reset GPP Slots                            Enabled
   Delay  After  PCIE  Reset  (mS)            0
   GFX Card WorkAround                         Enabled
   TXCLK Gating                                Disabled
   P2P  Write  Between  GFX1/2                Disabled
   PCIE Common Clock                          Disabled
   ASPM L1...........................GFX       Disabled
              ...........................GPP   Disabled
              ........................... SB    Disabled
   10%  Extra  Current...............GFX1      Disabled
              ...............GFX2              Disabled
              ...............GPP               Disabled
              ...............SB                Disabled

   ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
       F5: Previous  Values              F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Link Width GFX1

The options are x1, x2, x4, x8, x12 and x16.

Payload Size GFX/SB

This field is used to select the payload size of the PCI Express devices. The unit is byte.

Lane Reversal GFX1/GFX2

The options are Enabled and Disabled.

Power Down Unused Port GFX1/GPP

The options are Enabled and Disabled.

Hide Empty PCIE Port

The options are Enabled and Disabled.

Reset GFX Slot

The options are Enabled and Disabled.

Reset GFX2 Slot

The options are Enabled and Disabled.

Reset GPP Slot

The options are Enabled and Disabled.

Delay After PCIE Reset (mS)

This field is used to select the delay time after PCIE resets.

GFX Card WorkAround

The options are Enabled and Disabled.

TXCLK Gating

The options are Enabled and Disabled.

P2P Write Between GFX1/2

The options are Enabled and Disabled.

PCIE Common Clock

The options are Enabled and Disabled.

ASPM L1 GFX/GPP/SB

This field is used to configure ASPM L1 of GFX/GPP/SB.

10% Extra Current GFX1/GFX2/GPP/SB

This field allows you to provide 10% extra current to GFX1/GFX2/GPP/SB.

AGP Aperture Size (MB)

This field is used to select the size of the system RAM that can be allocated to the AGP for graphics purposes. Aperture refers to a portion of the PCI memory address range that is dedicated for the graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

Memory Hole

In order to improve system performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When enabled, the CPU assumes the 15-16MB memory range is allocated to the hidden ISA address range instead of the actual system DRAM. When disabled, the CPU assumes the 15-16MB address range actually contains DRAM memory. If more than 16MB of system memory is installed, this field must be disabled to provide contiguous system memory.

MTRR Mapping Mode

This field is used to disable or continue the MTRR mapping mode.

S/W Memory Hole Remapping

This field is used to enable the software to remap the physical memory to an address higher than 00E0.

H/W Memory Hole Remapping

This field is used to enable the hardware to remap the physical memory to an address higher than 00E0.

System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

Integrated Peripherals
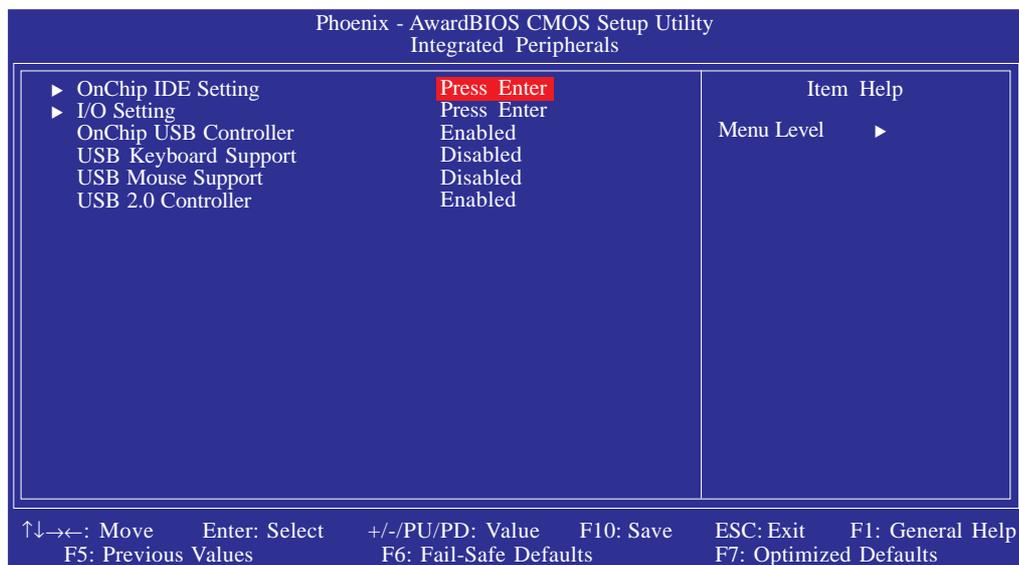
```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Integrated  Peripherals

    ▶ OnChip IDE Setting          Press  Enter          Item  Help
    ▶ I/O Setting                 Press  Enter
      OnChip USB Controller       Enabled           Menu Level    ▶
      USB Keyboard Support        Disabled
      USB Mouse Support           Disabled
      USB 2.0 Controller          Enabled




    ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
       F5: Previous Values             F6: Fail-Safe Defaults     F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

OnChip IDE Setting

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           OnChip IDE Setting

      Primary  IDE                Enabled           Item  Help
      Primary  Master  PIO        Auto
      Primary  Slave  PIO         Auto              Menu Level    ▶▶
      Primary  Master  UDMA       Auto
      Primary  Slave  UDMA        Auto
      Secondary  IDE              Enabled
      Secondary  Master  PIO      Auto
      Secondary  Slave  PIO       Auto
      Secondary  Master  UDMA     Auto
      Secondary  Slave  UDMA      Auto
      IDE  DMA  Transfer  Access  Enabled
      IDE  HDD  Block Mode        Enabled




    ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
       F5: Previous Values             F6: Fail-Safe Defaults     F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Primary IDE and Secondary IDE

These fields allow you to enable or disable the primary and secondary IDE controller. The default is Enabled. Select Disabled if you want to add a different hard drive controller.

Primary Master/Slave PIO and Secondary Master/Slave PIO

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto   The BIOS will automatically set the system according to your hard disk drive's timing.

Mode 0-4   You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

Primary Master/Slave UDMA and Secondary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

Auto   The BIOS will automatically detect the settings for you.

Disabled   The BIOS will not detect these categories.

IDE DMA Transfer Access

This field is used to enable or disable the DMA transfer function of an IDE hard drive.

IDE HDD Block Mode

Enabled   The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled   The IDE HDD uses the standard mode.

I/O Setting

```
              Phoenix - AwardBIOS CMOS Setup Utility
                          I/O Setting

       Power On By Mouse            Disabled          Item  Help
       Power On By Keyboard         Button Only
   x   Power On By Button           Enabled         Menu Level    ▶▶
   x   KB Power On Password         Enter
   x   Hot Key Power On             Ctrl-F1
       Onboard FDC Controller       Enabled
       Onboard Serial Port          Auto
       Onboard IRDA Select          Auto
       IR Mode Select               IrDA
       UR2 Duplex Mode              Half
       CIR Port Address             Disabled
   x   CIR Port IRQ                 11




   ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit     F1: General Help
     F5: Previous Values                F6: Fail-Safe Defaults    F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Power On By Mouse

Disabled   Disables the power on by mouse function.

Mouse Move When this option is selected, move the mouse to power-on the system.

Mouse Click When this option is selected, double-click the mouse button to power-on the system.

Power On By Keyboard

Button only   Uses the power button to power on the system.

Password   When this option is selected, set the password you would like to use to power-on the system in the "KB Power On Password" field.

Hot Key   When this option is selected, select the function key you would like to use to power-on the system in the "Hot Key Power On" field.

Any Key   Press any key to power-on the system.

Keyboard 98 When this option is selected, press the "wake up" key of the Windows® 98 compatible keyboard to power-on the system.

Power On By Button

Set this field to Enabled if you are using the power button to power-on the system.

KB Power On Password

Move the cursor to this field and press <Enter>. Enter your password. You can enter up to 5 characters. Type in exactly the same password to confirm, then press <Enter>.

The power button will not function once a keyboard password has been set in this field. You must type the correct password to power-on the system. If you forgot the password, power-off the system and remove the battery. Wait for a few seconds and install it back before powering-on the system.

Hot Key Power On

This field is used to select a function key that you would like to use to power-on the system.

Onboard FDC Controller

Enabled   Enables the onboard floppy disk controller.
Disabled   Disables the onboard floppy disk controller.

Onboard Serial Port

Auto   The system will automatically select an I/O address for the onboard serial port 1 and serial port 2.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.
Disabled Disables the onboard serial port 1 and/or serial port 2.

Onboard IRDA Select

Auto   Automatically detects the IrDA device.
Disabled   Disables the onboard IrDA.

IR Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter.

UR2 Duplex Mode

Half   Data is completely transmitted before receiving data.
Full   Transmits and receives data simultaneously.

CIR Port Address

This field is used to select an I/O address for the CIR device.

CIR Port IRQ

This field is used to select an IRQ for the CIR device.

OnChip USB Controller

This field is used to enable or disable the onboard USB.

USB Keyboard Support

If you are using a USB keyboard device, set this field to Enabled.

USB Mouse Support

If you are using a USB mouse, set this field to Enabled.

USB 2.0 Controller

This field is used to enable or disable USB 2.0.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                  Power Management Setup

  ACPI Function                 Enabled            Item  Help
  ACPI Suspend Type             S1(POS)
  ACPI C2 Function              Disabled        Menu Level      ▶
  ACPI C3 Function              Disabled
  Power  Management             User  Define
  Modem Use IRQ                 Disabled
  Video Off In Suspend          Suspend -> Off
  Video Off Method              V/H Sync+Blank

  HDD Power Down                Disabled
  Suspend Mode                  Disabled

  ▶ PowerOn/WakeUp  Function    Press  Enter
  ▶ Suspend Break Events        Press  Enter
    PWRON  After  PWR-Fail      Off


  ↑↓→←: Move      Enter: Select   +/-/PU/PD:  Value    F10: Save   ESC: Exit    F1:  General  Help
    F5: Previous  Values              F6: Fail-Safe Defaults       F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "HDD Power Down" field. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the field below.

ACPI Suspend Type

This field is used to select the type of Suspend mode.

S1(POS)   Enables the Power On Suspend function.
S3(STR)   Enables the Suspend to RAM function.

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ACPI C2 Function

The options are Enabled and Disabled.

ACPI C3 Function

The options are Enabled and Disabled.

Power Management Option

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the "HDD Power Down" field is activated.

Min Saving   Minimum power saving time for the "HDD Power Down" = 15 min.

Max Saving   Maximum power saving time for the "HDD Power Down" = 1 min.

User Define   Allows you to set the power saving time in the "HDD Power Down" field.

MODEM Use IRQ

This field is used to set an IRQ channel for the modem installed in your system.

Video Off In Suspend

This field is used to activate the video off feature when the system enters the Suspend mode. The options are Yes and No.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank   This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen   This option only writes blanks to the video buffer.

DPMS   Initializes display power management signaling. Use this option if your video board supports it.

HDD Power Down

This is selectable only when the Power Management field is set to User Define. When the system enters the HDD Power Down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.

Suspend Mode

This is configurable only when the Power Management field is set to "User Define". When the system enters the power saving time set in this field, the CPU and onboard peripherals will be shut off.

PowerOn/WakeUp Function
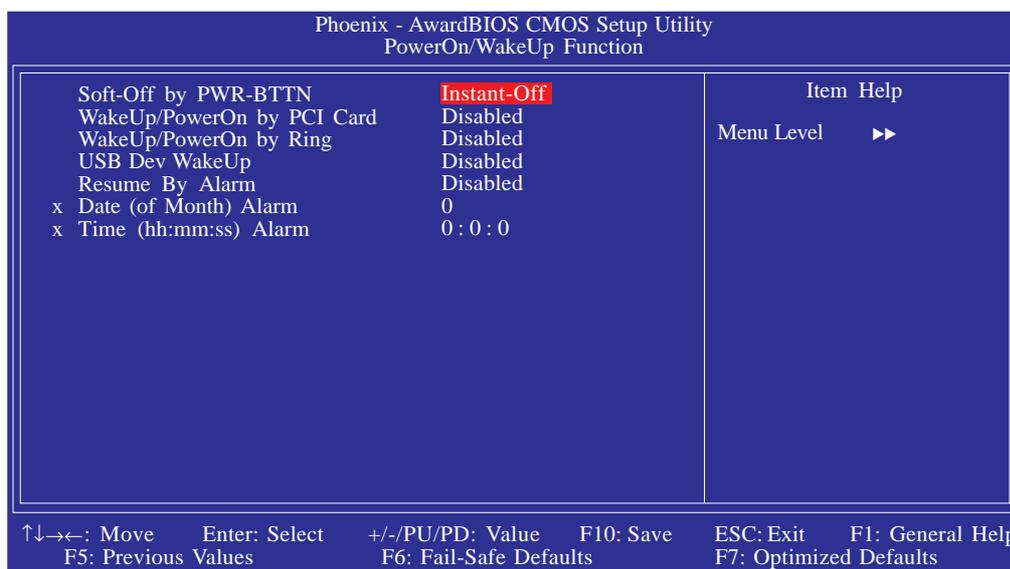
```
              Phoenix - AwardBIOS CMOS Setup Utility
                     PowerOn/WakeUp Function

    Soft-Off  by  PWR-BTTN         Instant-Off         Item  Help
    WakeUp/PowerOn  by  PCI  Card  Disabled
    WakeUp/PowerOn  by  Ring       Disabled       Menu Level    ▶▶
    USB Dev WakeUp                 Disabled
    Resume  By  Alarm              Disabled
  x Date  (of  Month)  Alarm       0
  x Time  (hh:mm:ss)  Alarm        0 : 0 : 0




  ↑↓→←: Move      Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
     F5: Previous  Values               F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Soft-Off by PWR-BTTN

This field allows you to select the method of powering off your system.

Delay 4 Sec. Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to

restore. Pushing the power button for more than 4 seconds will power off the system.

Instant-Off   Pressing and then releasing the power button at once will immediately power off your system.

WakeUp/PowerOn by PCI Card

Enabled   This field should be set to Enabled only if your PCI card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the card's documentation for more information.

Disabled   The system will not wake up despite access to the PCI card.

WakeUp/PowerOn By Ring

Set this field to Enabled to use the modem ring-on function. This will allow your system to power-on to respond to calls coming from an external modem.

USB Dev WakeUp

This field, when enabled, allows you to use a USB keyboard to wake up a system that is in the S3 (STR - Suspend To RAM) state.

Resume By Alarm

Enabled   When Enabled, you can set the time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Time (dd:hh:mm) of Alarm" field. However, if the system is being accessed by incoming calls or the network prior to the time set in the field, the system will give priority to the incoming calls or network.

Disabled   Disables the automatic power-on function. (default)

Day (of Month) Alarm

0   The system will power-on everyday according to the time set in the "Time (hh:mm:ss) Alarm" field.

1-31   Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

Time (hh:mm:ss) Alarm

This is used to set the time you would like the system to power-on.

Suspend Break Events

When enabled, access to the specified field will cause the system to wake up completely from the power management mode. When disabled, the system will not wake up from the power management mode despite access to the specified field.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Suspend Break Events

     IRQ[1]  (Keyboard)             Enabled              Item  Help
     IRQ[3]                         Disabled
     IRQ[4]                         Disabled         Menu Level    ►►
     IRQ[5]                         Disabled
     IRQ[6] (Floppy Disk)           Disabled
     IRQ[7]                         Disabled
     IRQ[8] (RTC)                   Disabled
     IRQ[9]                         Disabled
     IRQ[10]                        Disabled
     IRQ[11]                        Disabled
     IRQ[12] (PS2 Mouse)            Enabled
     IRQ[4]  (Primary  IDE)         Enabled
     IRQ[15] (Secondary  IDE)       Disabled




  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save      ESC: Exit      F1: General Help
     F5: Previous Values              F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

PWRON After PWR-Fail

Off   When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

*On*   When power returns after an AC power failure, the system will automatically power-on.

Former-Sts When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

PnP/PCI Configurations

This section describes configuring the PCI bus system. It covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       PnP/PCI Configurations

    Init Display First            PCI Express Slot    ▲        Item  Help
    Reset Configuration Data      Disabled
                                                         Menu Level    ▶
    Resources Controlled By       Auto(ESCD)
  x IRQ Resources                 Press  Enter

    PCI/VGA Palette Snoop         Disabled
    Assign IRQ For VGA            Enabled
    Assign IRQ For USB            Enabled
    PCI Latency Timer (Per 8CLK)  8
    INT Pin 1 Assignment          Auto
    INT Pin 2 Assignment          Auto
    INT Pin 3 Assignment          Auto
    INT Pin 4 Assignment          Auto
    INT Pin 5 Assignment          Auto
    INT Pin 6 Assignment          Auto
    INT Pin 7 Assignment          Auto
    INT Pin 8 Assignment          Auto

    Maximum Payload Size          4096                ▼

↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
    F5: Previous Values           F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Init Display First

This field is used to select whether to initialize PCI Express or PCI first when the system boots.

PCI Express Slot   When the system boots, it will first initialize the PCI Express x16 graphics card.

PCI Slot   When the system boots, it will first initialize PCI.

Reset Configuration Data

Enabled   The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

*Disabled*   The BIOS will not reset the configuration data.

Resources Controlled By

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

Auto(ESCD)	The system will automatically detect the settings for you.
Manual	Choose the specific IRQ in the "IRQ Resources" field.

IRQ Resources

Move the cursor to this field and press <Enter>. This field is used to set each system interrupt to either Reserved or PCI Device.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                               IRQ Resources

      IRQ-3   assigned to        PCI Device            Item  Help
      IRQ-4   assigned to        PCI Device
      IRQ-5   assigned to        PCI Device        Menu Level      ▶▶
      IRQ-7   assigned to        PCI Device
      IRQ-9   assigned to        PCI Device        Legacy ISA for devices
      IRQ-10 assigned to         PCI Device        compliant with the
      IRQ-11 assigned to         PCI Device        original PC AT bus
      IRQ-12 assigned to         PCI Device        specification.  PCI/ISA
      IRQ-14 assigned to         PCI Device        PnP  for  devices
      IRQ-15 assigned to         PCI Device        compliant with the Plug
                                                   and  Play  standard
                                                   whether designed for
                                                   PCI or ISA bus
                                                   architecture.




  ↑↓→←: Move      Enter: Select    +/-/PU/PD:  Value    F10: Save    ESC: Exit    F1: General Help
       F5: Previous Values            F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not.

Enabled	MPEG ISA/VESA VGA cards work with PCI/VGA.
Disabled	MPEG ISA/VESA VGA cards does not work with PCI/VGA.

Assign IRQ for VGA

When Enabled, the system automatically assigns an IRQ for the VGA card installed. Your VGA card will need an IRQ only when using the video capture function of the card. If you are not using this function and a new device requires an IRQ, you can set this field to Disabled. The IRQ (previously occupied by the VGA card) will be available for your new device.

Assign IRQ for USB

When Enabled, the system automatically assigns an IRQ for the USB device connected to your system. However, if you are not using USB devices and an ISA slot requires an IRQ, set this field to Disabled. The IRQ previously occupied by the USB device will be available for the ISA slot.

PCI Latency Timer (Per 8CLK)

This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for the PCI Latency Timer will reduce the effectiveness of the PCI bandwidth while higher values will improve it.

INT Pin 1 Assignment to INT Pin 8 Assignment

By default, a device is automatically assigned to each INT. You can also manually assign an INT for each device.

Maximum Payload Size

This field is used to select the maximum TLP payload size of the PCI Express devices. The unit is byte.

PC Health Status

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              PC Health Status

  Shutdown  Temperature          85ºC/185ºF              Item  Help
  CPUFan Fully ON If CPUTemp      > 50 ºC
  CPUFan Turn OFF If CPUTemp      < 25 ºC          Menu Level      ►
  CHSFan Fully ON If CHSTemp      > 35 ºC
  CHSFan Turn OFF If CHSTemp      < 25 ºC
  NB Fan Fully ON If NB Temp      > 55 ºC
  NB Fan Turn OFF If NB Temp      < 25 ºC
  ATX +3.3V  Voltage              3.16V
  ATX +5.0V  Voltage              4.89V
  ATX +12V  Voltage               11.71V
  +5V Dual  Voltage               4.89V
  Battery  Voltage                3.28V
  CPU  CORE  Temperature          41ºC
  PWM  AREA  Temperature          44ºC
  CHIPSET  Temperature            45ºC
  CPU FAN Fan Speed               0 RPM
  CHS Fan Speed                   0 RPM
  CHIPSET Fan Speed               3668 RPM

  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
       F5: Previous Values              F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Shutdown Temperature

You can prevent the system from overheating by selecting a temperature in this field. If the system detected that its temperature exceeded the one set in this field, it will automatically shutdown.

CPUFan Fully On If CPUTemp

This field is used to select the CPU temperature that will allow the CPU fan to rotate at full speed.

CPUFan Turn Off If CPUTemp

This field is used to select the CPU temperature that will allow the CPU fan to rotate at a start speed which is the slowest speed.

> Note:
> 1. If the CPU temperature runs between the highest (set in the "CPUFan Fully On If CPUTemp" field) and lowest (set in the "CPUFan Turn Off If CPUTemp" field) temperature, the system will automatically adjust the CPU fan's speed according to the temperature.
> 2. If you want to reduce the CPU fan's noise or prevent CPU overheat, select a lower temperature in the "CPUFan Fully On If CPUTemp" field to allow the CPU fan to rotate full speed at the selected lower temperature.

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CHSFan Fully On If CHSTemp

This field is used to select the system temperature that would allow Fan 2 to rotate at full speed.

CHSFan Turn Off If CHSTemp

This field is used to select the system temperature that would allow Fan 2 to rotate at a start speed which is the slowest speed.

> **Note:**
> *If the system temperature runs between the highest (set in the "CHSFan Fully On If CHSTemp" field) and lowest (set in the "CHSFan Turn Off If CHSTemp" field) temperature, the system will automatically adjust Fan 2's speed according to the temperature.*

NB Fan Fully On If NB Temp

This field is used to select the NB's temperature that would allow the NB fan to rotate at full speed.

NB Fan Turn Off If NB Temp

This field is used to select the NB's temperature that would allow the NB fan to rotate at a start speed which is the slowest speed.

> **Note:**
> *If the system temperature runs between the highest (set in the "NB Fan Fully On If NB Temp" field) and lowest (set in the "NB Fan Turn Off If NB Temp" field) temperature, the system will automatically adjust NB Fan's speed according to the temperature.*

ATX +3.3V Voltage to Chipset Fan Speed

These fields will show the output voltage, temperature and fan speed of the monitored devices or components.

Genie BIOS Setting

```
            Phoenix - AwardBIOS CMOS Setup Utility
                     Genie BIOS Setting

 ▶ DRAM Configuration           Press  Enter      ▲      Item  Help
 ▶ LDT & PCI Bus Control        Press  Enter
 ▶ PCI Device Control           Press  Enter         Menu Level    ▶
   FSB Bus Frequency            200MHz
   LDT/FSB Frequency Ratio      Auto                 DRAM timing and
   CPU/FSB Frequency Ratio      Auto                 control
   CPU VID StartUp Value        StartUp
   K8 Cool'n'Quiet Support      Disable
 x Cool'n'Quiet MAX FID         Auto

   CPU VID Control              Auto
   CPU VID Special Control      Auto
   DRAM Voltage Control         2.65V
   SB PCIE Voltage              1.80V
   NB Analog Voltage            1.2V
   LDT Bus Voltage              1.2V
   NB Core Voltage              1.2V

   CPU Core Voltage             1.31V
   LDT Bus Voltage              1.18V
   SB PCIE Voltage              1.92V
   DRAM 2.6V Voltage            2.54V           ▼

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
    F5: Previous Values        F6: Fail-Safe Defaults       F7: Optimized Defaults
```

The screen above list all the fields available in the Genie BIOS Setting submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

DRAM Configuration

Move the cursor to this field and press <Enter>. The following screen will appear:

```
            Phoenix - AwardBIOS CMOS Setup Utility
                      DRAM Configuration

    DRAM Frequency Set (MHz)       By DRAM SPD Value ▲     Item  Help
    Command Per Clock (CPC)        Auto
    CAS Latency Control (Tcl)      Auto                 Menu Level    ▶▶
    RAS# to CAS# Delay (Trcd)      Auto
    Min RAS# Active Time (Tras)    Auto
    Row Precharge Time (Trp)       Auto
    Row Cycle Time (Trc)           Auto
    Row Refresh Cyc Time (Trfc)    Auto
    Row to Row Delay (Trrd)        Auto
    Write Recovery Time (Twr)      Auto
    Write to Read Delay (Twtr)     Auto
    Read to Write Delay (Trwt)     Auto
    Refresh Period (Tref)          Auto
    DRAM Bank Interleaving         Enabled

    DQS Skew Control               Auto
    DQS Skew Value                 0
    DRAM Drive Strength            Auto
    DRAM Data Drive Strength       Auto
    Skew Control A                 Auto
    Skew Control B                 Auto
    Buttom of 32-bit[31:24] IO     E0
    Max Async Latency              Auto
    Read Preamble Time             Auto
    Idle Cycle Limit               Auto
    Dynamic Counter                Auto
    R/W Queue Bypass               Auto
    Bypass Max                     Auto
    32 Byte Granularity            Auto
    Burst Length                   4 beats ▼

↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
  F5: Previous Values          F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The screen above list all the fields available in the DRAM Configuration submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

DRAM Frequency Set (Mhz)

This field is used to set a memory clock limit on the system. This will prevent the memory speed from running faster than this frequency.

Command Per Clock (CPC)

This field is used to enable the DRAM commands and address that will be driven for 2 clock cycles and select the second phase of the 2 clock command and address.

CAS Latency Control (Tcl)

This field is used to select the clock cycle of the CAS latency time. The option selected specifies the timing delay before SDRAM starts a read command after receiving it.

RAS# to CAS# Delay (Trcd)

When DRAM refreshes, both rows and columns are addressed separately. This field is used to select the delay time from RAS (Row Address Strobe) to CAS (Column Address Strobe) when reading and writing to the same bank. The lesser the clock cycle, the faster the DRAM's performance.

Min RAS# Active Time (Tras)

This field is used to select the minimum time RAS takes to read from and write to a memory cell.

Row Precharge Time (Trp)

This field is used to select the number of cycles that is allowed for Row Address Strobe (RAS) to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refreshes, refreshing may be incomplete and DRAM may fail to retain data.

Row Cycle Time (Trc)

This field is used to select the row cycle time, RAS# active or auto refresh of the same bank.

Row Refresh Cyc Time (Trfc)

This field is used to select the row refresh cycle time. Auto refresh active to RAS# active or RAS# to auto refresh - similar to Trc.

Row to Row Delay (Trrd)

This field is used to select the row to row delay time of different banks.

Write Recovery Time (Twr)

This field is used to select the write recovery time when the DRAM safely registers the last write data. This is the time from the last write data to precharge.

Write to Read Delay (Twtr)

This field is used to select the write to read delay time. This is measured from the rising edge of the last non-masked data strobe to the rising edge of the next read command.

Read to Write Delay (Trwt)

This field is used to select the read to write delay time. Although this is not a DRAM specified timing parameter, it is related to the routing latencies on the clock forwarded bus. This is measured from the first address bus slot which is not associated with part of the read burst.

Refresh Period (Tref)

This field is used to select the number of clock cycles between each refresh.

DRAM Bank Interleaving

The options are Enabled and Disabled.

DQS Skew Control

The options are Auto, Increase Skew and Decrease Skew.

DQS Skew Value

This field is used to select a DQS skew value.

DRAM Drive Strength

This field is used to select a level of the DRAM drive strength.

DRAM Data Drive Strength

The options are Auto, Level 1, Level 2, Level 3 and Level 4.

Skew Control A and Skew Control B

These fields are used to select a value for Skew Control A and Skew Control B.

Bottom of 32-bit [31:24] IO

This field is used to select the memory that will be remapped to another address higher than 00E0.

Max Async Latency

This field is used to select the DRAM maximum asynchronous latency time.

Read Preamble Time

This field is used to select the time prior to the max-read DOS return when the DOS receiver is turned on.

Idle Cycle Limit

This field is used to select the cycle of MemCLKs before forcibly closing (precharging) an open page.

Dynamic Counter

This field is used to enable the dynamic idle cycle counter.

R/W Queue Bypass

This field is used to select the number of times the first operation in the DCI read/write queue can be bypassed before the arbiter is overridden and the first operation is chosen.

Bypass Max

This field is used to select the number of times the first entry in DCQ can be bypassed in arbitration before the arbiter choice is disallowed.

32 Byte Granularity

This field is used to determine whether the burst counter should be enabled to optimize data bus bandwidth for 32-byte access.

Burst Length

This field is used to select the DRAM's burst length. The DRAM will predict the address of the next memory location to be accessed after the first address is accessed. To use the burst feature, select the burst length which is the actual length of burst plus the starting address and allows internal address counter to properly generate the next memory location. The larger the size, the faster the DRAM performance.

LDT & PCI Bus Control

Move the cursor to the South Configuration field and press <Enter>. The following screen will appear:

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      LDT & PCI Bus Control

   LDT Configuration          Enabled                    Item  Help
   Upstream LDT Bus Width      16 bit
   Downstream LDT Bus Width    16 bit            Menu Level    ►
   LDT/FSB Frequency Ratio     Auto
   PCIE  Reset  Delay          Disabled




   ↑↓→←: Move     Enter: Select   +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values            F6: Fail-Safe Defaults          F7: Optimized Defaults
```
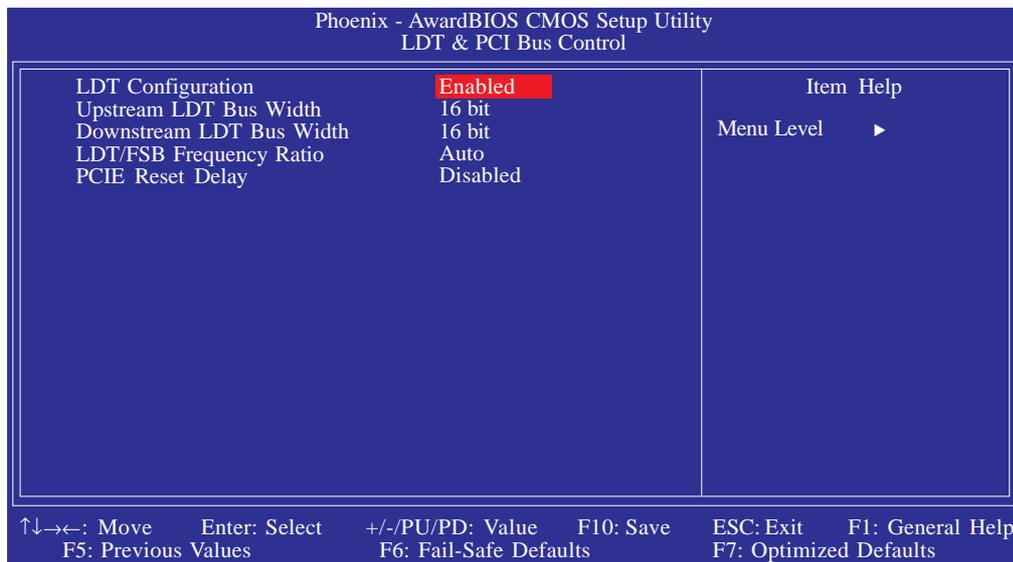
The settings on the screen are for reference only. Your version may not be identical to this one.

LDT Configuration

Set this field to Enabled to configure LDT.

Upstream LDT Bus Width

This field is used to select the utilized upstream data width of the HyperTransport link.

Downstream LDT Bus Width

This field is used to select the utilized downstream data width of the HyperTransport link.

LDT/FSB Frequency Ratio

This field is used to select the maximum bus frequency of the link's transmitter clock.

PCIE Reset Delay

This field is used to enable or disable the reset delay of the PCI Express slot.

PCI Device Control
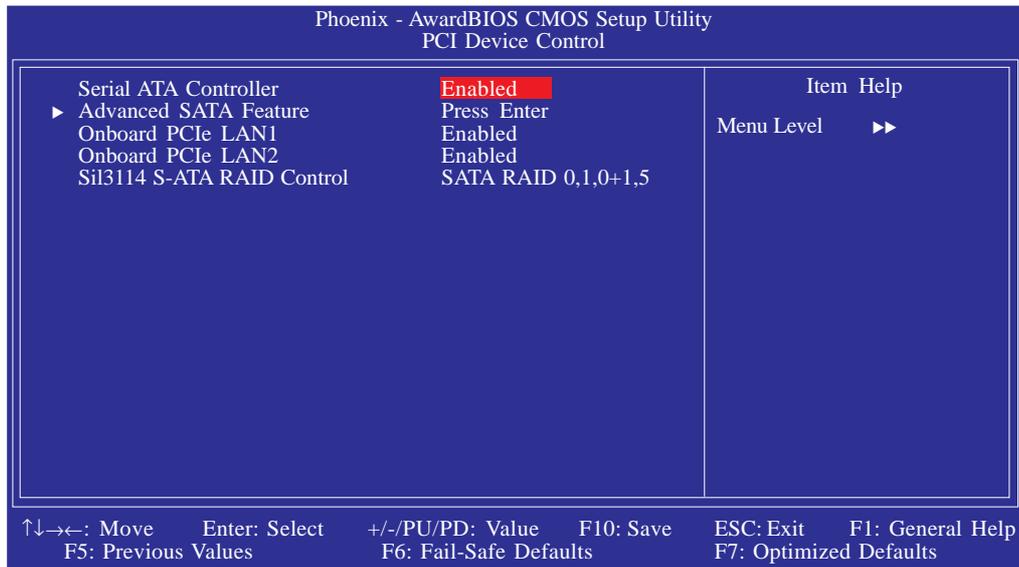
```
              Phoenix - AwardBIOS CMOS Setup Utility
                        PCI Device Control

     Serial ATA Controller            Enabled              Item  Help
   ▶ Advanced  SATA  Feature          Press  Enter
     Onboard  PCIe  LAN1              Enabled           Menu Level    ▶▶
     Onboard  PCIe  LAN2              Enabled
     Sil3114 S-ATA RAID Control       SATA RAID 0,1,0+1,5




  ↑↓→←: Move      Enter: Select     +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values              F6: Fail-Safe Defaults       F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Serial ATA Controller

This field is used to enable or disable the Serial ATA supported by the ULI south bridge chip.

Advanced SATA Feature

Move the cursor to the South Bridge Feature field and press <Enter>. The following screen will appear.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                        Advanced  SATA  Feature

     RAID Function                    Disabled             Item  Help
     SATA Mode Select                 Emulated  PATA  Mode
     Power Down SATA PHY              Always  On         Menu Level    ▶

                                                        Support SATA RAID
                                                        Function




  ↑↓→←: Move      Enter: Select     +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values              F6: Fail-Safe Defaults       F7: Optimized Defaults
```
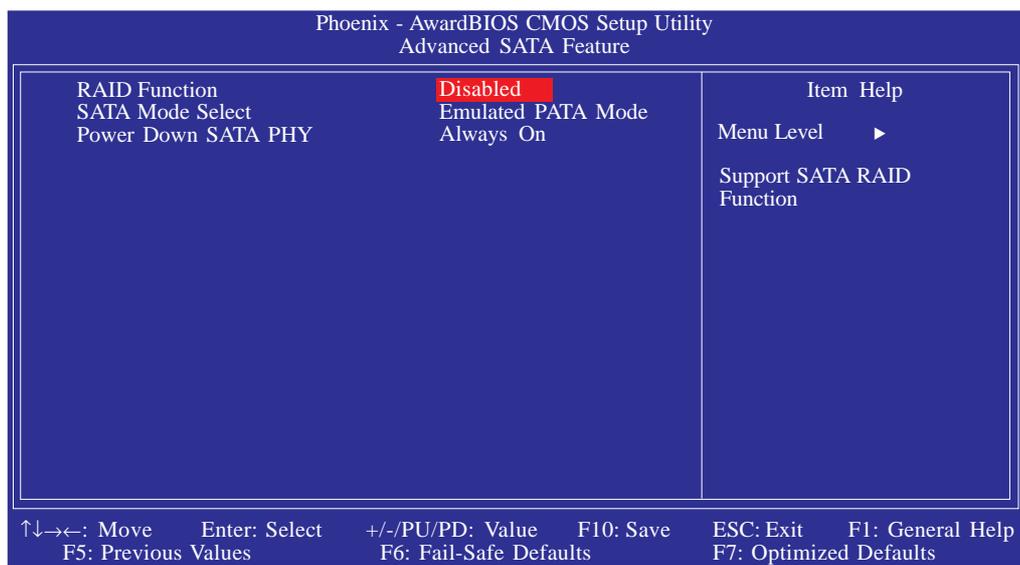
The settings on the screen are for reference only. Your version may not be identical to this one.

RAID Function

This field is used to enable or disable Serial ATA's RAID function.

SATA Mode Select

This field is used to set Serial ATA to Emulated PATA Mode or AHCI Mode.

Power Down SATA Phy

The options are Always On and Auto Mode.

Onboard PCIe LAN1

This field is used to enable or disable the onboard LAN 1.

Onboard PCIe LAN2

This field is used to enable or disable the onboard LAN 2.

Sil3114 S-ATA RAID Control

This field is used to configure SATA 5 to SATA 8 that is supported by the Silicon Image Sil 3114 chip.

FSB Bus Frequency

This field provides several options for selecting the FSB of the CPU. The available options allow you to adjust the CPU's bus clock by 1MHz increment.

> **Important:**
> *Selecting a bus frequency other than the default setting may result to the CPU's or system's instability and are not guaranteed to provide better system performance.*

LDT/FSB Frequency Ratio

This field is used to select the frequency ratio of the LDT/FSB.

CPU/FSB Frequency Ratio

This field is used to select the frequency ratio of the CPU/FSB.

CPU VID StartUp Value

This field provides more options to further adjust the voltage of the CPU.

K8 Cool'n'Quiet Support

Auto   Enables AMD's Cool'n'Quiet technology. This function allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by changing its CPU speed and voltage, subsequently decreasing its noise level.

Disabled Disables AMD's Cool'n'Quiet technology.

Cool'n'Quiet MAX FID

This field is used to select a value for the Cool 'n' Quiet FID.

CPU VID Control

This field allows you to manually adjust to a higher core voltage that is supplied to the CPU. If you want to use the CPU's default core voltage, leave this field in its default setting. The CPU's Vcore will be generated according to the CPU VID configuration.

CPU VID Special Control

This field provides more options to further adjust the voltage of the CPU.

DRAM Voltage Control

This field allows you to manually select higher voltage supplied to the DRAM.

SB PCIE Voltage

This field allows you to manually select higher voltage supplied to the south bridge's PCIE.

NB Analog Voltage

This field allows you to manually select higher voltage supplied to the north bridge chip.

LDT Bus Voltage

This field allows you to manually select higher voltage supplied to the LDT bus.

NB Core Voltage

This field allows you to manually select the NB's core voltage.

CPU Core Voltage

This field will show the CPU's current voltage.

LDT Bus Voltage

This field will show the LDT bus voltage.

SB PCIE Voltage

This field will show the SB PCIE's current voltage.

DRAM 2.6V Voltage

This field will show the DRAM's current voltage.

CMOS Reloaded

The CMOS Reloaded submenu allows you to save different configu-
rations and when needed, allows you to conveniently restore one of
these previously saved configurations. Highlight CMOS Reloaded in
the main menu then press <Enter>.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                          CMOS Reloaded

                                                       Item  Help
   Auto Save Bootable Setting       Enabled
   Load Last Bootable Setting       Load             Menu Level    ▶▶

   Save Setting to Bank with        Last Saved CMOS   This item will
   ═════ User Defined Setting Bank #1 ═════           immediately  decide
   ── Description ──           ┌── Options ──         which setting will be
                              Bank description        saved to User Defined
                              Save to this bank       Setting Banks. The option
                              Load from this bank     is one of following:
                              Hotkey => 1             1. Current BIOS setting
   ── Description ──            ── Options ──          2. Last BIOS setting
   ═════ User Defined Setting Bank #2 ═════           which already exists in
   ── Description ──           ┌── Options ──         CMOS.
                              Bank description
                              Save to this bank
                              Load from this bank
                              Hotkey => 1
   ── Description ──            ── Options ──
   ═════ User Defined Setting Bank #3 ═════
   ── Description ──           ┌── Options ──
                              Bank description
                              Save to this bank
                              Load from this bank
                              Hotkey => 1
   ── Description ──            ── Options ──
   ═════ User Defined Setting Bank #4 ═════
   ── Description ──           ┌── Options ──
                              Bank description
                              Save to this bank
                              Load from this bank
                              Hotkey => 1
   ── Description ──            ── Options ──

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values         F6: Fail-Safe Defaults      F7: Optimized Defaults
```

The screen above list all the fields available in the CMOS Reloaded submenu, for
ease of reference in this manual. In the actual CMOS setup, you have to use the
scroll bar to view the fields. The settings on the screen are for reference only. Your
version may not be identical to this one.

CMOS Reloaded is especially helpful to overclockers who often go
through the tiresome trial and error process of repeatedly changing
the BIOS settings to come up with the most ideal overclocked set-
ting. By being able to save and load the settings, it eliminates the
tedious job of remembering several settings and/or repeatedly reset-
ting settings during the trial process. The settings are stored in the
SEEPROM. SEEPROM is divided into 5 banks - the backup bank
and the 4 user defined banks.

Auto Save Bootable Setting

This field is used to automatically save the last bootable setting from CMOS to an area in the SEEPROM referred to as the backup bank. To use this function:

1. Set this field to Enabled.
2. Select "Save & Exit Setup" in the main menu then press <Enter>.
3. Type <Y> then press <Enter>.

If the changes to the setting allowed the system to boot, the setting will be stored in the SEEPROM. In other words, if the system did not boot up, the setting will not be stored. You may then follow the steps in the next section to load the last bootable setting.

Load Last Bootable Setting

If, during the trial and error process, the setting resulted to the system's instability or worse yet, not being able to boot up the system, please follow the steps below to use the Load function.

> **Note:**
> *You can use the Load function only if you have set the "Auto Save Bootable Setting" to Enabled.*

1. If the system did not boot up properly but you were able to enter the BIOS utility:
    a. Select "CMOS Reloaded" in the main menu then press <Enter>.
    b. Move the cursor to "Load Last Bootable Setting" then press "Load".
    c. Press <Y> to load the last bootable setting that was stored in the backup bank.
2. If you cannot enter the BIOS utility:
    a. Use the Clear CMOS jumper to clear the CMOS. Refer to chapter 2 for more information about clearing CMOS.
    b. Enter the BIOS utility then perform steps 1a to 1c.

Saving, Loading and Naming BIOS Settings

For overclockers who require different sets of settings for various system environments or operating systems, CMOS Reloaded allows you to save, load and name up to four sets of BIOS settings - in the "User Defined Setting Bank #1" to "User Defined Setting Bank #4" fields.

Save Setting to Bank With

This field is used to select the type of setting you would like saved to a User Defined Setting Bank when you use the "Save to this Bank" function of that bank.

Current BIOS Setting   This option will save the current BIOS setting to the User Defined Setting Bank.

Last BIOS Setting   This option will save the last saved BIOS setting to the User Defined Setting Bank.

User Defined Setting Bank #1/2/3/4

Bank Description
To name the BIOS setting, move the cursor to "Bank Description" then press <Enter>. You can enter up to 60 characters. Providing a name to the BIOS setting will allow you to easily remember the settings in the bank.

Save to this Bank
To save the BIOS setting, move the cursor to "Save to this Bank" then press <Enter>. Type <Y> then press <Enter>. This will save the current setting or the last saved setting to this bank; depending on the option selected in the "Save Setting to Bank With" field.

If you want to immediately reboot to use the new settings, make sure to save before you exit the BIOS setup utility by selecting "Y" in the "Save & Exit Setup" submenu.

Load from this Bank

To load the setting saved in the bank, move the cursor to "Load from this Bank" then press <Enter>. The setting in this bank will replace the current setting. Make sure to save before you exit the BIOS setup utility by selecting "Y" in the "Save & Exit Setup" submenu.

Hotkey

You can now load a BIOS setting during system boot up; bypassing the lengthy process of entering the BIOS utility to load a setting. Move the cursor to "Hotkey" then press <Enter>. Select the key you would like to use to load the settings from the bank. When the system boots up, press the key to load the setting.

Load Optimized Defaults

The "Load Optimized Defaults" option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.

```
                  Phoenix - AwardBIOS CMOS Setup Utility

   ▶  Standard CMOS Features          ▶  Genie BIOS Setting
   ▶  Advanced BIOS Features          ▶  CMOS Reloaded
   ▶  Advanced Chipset Features          Load Optimized Defaults
   ▶  Integrated  Peripherals            Set Supervisor Password
   ▶  Power Management                             word
   ▶  PnP/PCI Configurat    Load Optimized Defaults (Y/N)?    etup
   ▶  PC Health Status                             aving

   Esc  :  Quit                ↑ ↓ → ← : Select Item
   F10  :  Save & Exit Setup

                        Load Optimized Defaults
```

Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.
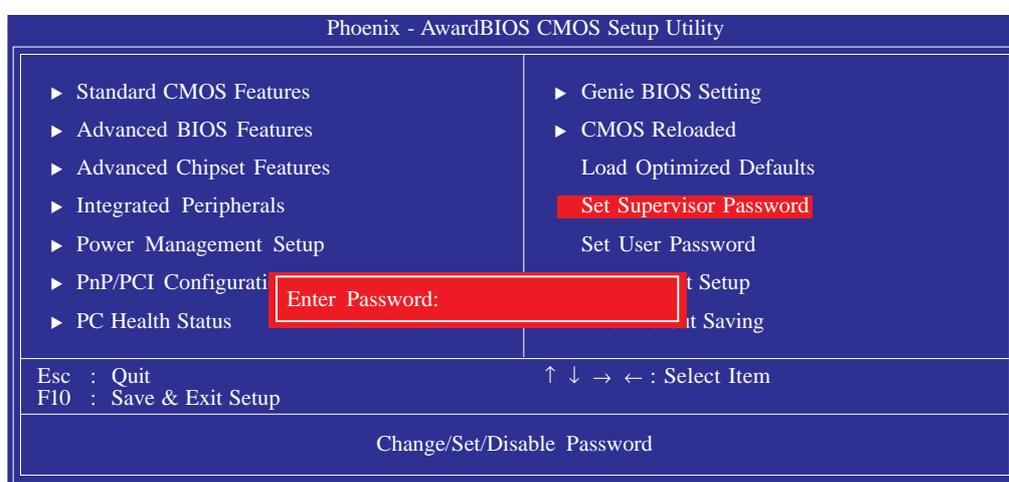
```
                     Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features              ▶ Genie BIOS Setting
   ▶ Advanced BIOS Features              ▶ CMOS Reloaded
   ▶ Advanced Chipset Features              Load Optimized Defaults
   ▶ Integrated Peripherals                 Set Supervisor Password
   ▶ Power Management Setup                 Set User Password
   ▶ PnP/PCI Configurati┌──────────────────────────────┐t Setup
   ▶ PC Health Status    │ Enter Password:              │t Saving
                         └──────────────────────────────┘
   Esc  :  Quit                          ↑ ↓ → ← : Select Item
   F10  :  Save & Exit Setup

                      Change/Set/Disable  Password
```

Type in the password. You are limited to eight characters. When done, the message below will appear:

<div align="center">Confirm Password:</div>

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features.

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied.

Use the arrow keys to highlight "Set User Password" and press <Enter>.
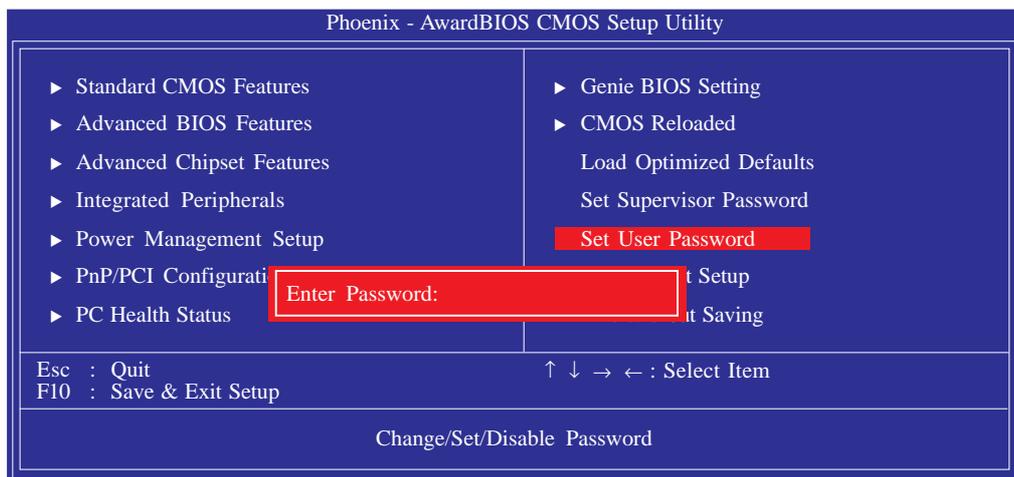
```
              Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ Genie BIOS Setting
  ▶ Advanced BIOS Features          ▶ CMOS Reloaded
  ▶ Advanced Chipset Features          Load Optimized Defaults
  ▶ Integrated  Peripherals            Set Supervisor Password
  ▶ Power  Management Setup            Set User Password
  ▶ PnP/PCI Configurati                               t Setup
                        Enter  Password:
  ▶ PC Health Status                                  t Saving

  Esc  :  Quit                  ↑ ↓ → ← : Select Item
  F10  :  Save & Exit Setup

              Change/Set/Disable  Password
```

Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set User Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

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Save & Exit Setup

When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.

```
              Phoenix - AwardBIOS CMOS Setup Utility

    ▶ Standard CMOS Features          ▶ Genie BIOS Setting
    ▶ Advanced BIOS Features          ▶ CMOS Reloaded
    ▶ Advanced Chipset Features          Load Optimized Defaults
    ▶ Integrated Peripherals             Set Supervisor Password
    ▶ Power Management┌──────────────────────────┐sword
    ▶ PnP/PCI Configurat│  SAVE to CMOS and EXIT (Y/N)?  │Setup
    ▶ PC Health Status  └──────────────────────────┘ Saving

    Esc  :  Quit                    ↑ ↓ → ← : Select Item
    F10  :  Save & Exit Setup

                      Save Data to CMOS
```

Type "Y" and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

Exit Without Saving

When you do not want to save the changes you have made, high-light "Exit Without Saving" and press <Enter>.

```
            Phoenix - AwardBIOS CMOS Setup Utility
  ▶ Standard CMOS Features          ▶ Genie BIOS Setting
  ▶ Advanced BIOS Features          ▶ CMOS Reloaded
  ▶ Advanced Chipset Features          Load Optimized Defaults
  ▶ Integrated Peripherals             Set Supervisor Password
  ▶ Power Management          ┌──────────────────────────────┐ssword
  ▶ PnP/PCI Configurat        │ Quit Without Saving (Y/N)? N  │ Setup
  ▶ PC Health Status          └──────────────────────────────┘t Saving

  Esc  :  Quit                      ↑ ↓ → ← : Select Item
  F10  :  Save & Exit Setup

                    Abandon All Data
```

Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simulta-neously or <Del> after memory testing is done.

RAID BIOS

ULI RAID BIOS

The ULI RAID BIOS utility is used to configure and manage RAID on Serial ATA drives connected to SATA 1 to SATA 4.

After you power up the system and all drives have been detected, the ULI RAID BIOS status message screen will appear. Press the <Ctrl> and <A> keys simultaneously to enter the utility. The utility allows you to build a RAID system using four Serial ATA hard drives.

Sil3114 SataRAID BIOS

The Sil3114 SataRAID BIOS utility, supported by the Silicon Image Sil 3114 chip, is used to configure and manage RAID on Serial ATA drives connected to SATA 5 to SATA 8.

After you power up the system and all hard disk drives have been detected, the Sil3114 SataRAID BIOS status message screen will appear. Press the <Ctrl-S> or <F4> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

> **Important:**
> *Before creating RAID, make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.*

Refer to chapter 6 for steps in configuring RAID.

Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. You can download them from DFI's web site or contact technical support or your sales representative.

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.

2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".

3. Save the setting and reboot the system.

4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear.

```
┌─────────────────────────────────────────────────────────┐
│              Award BIOS Flash Utility V.8.15B             │
│        (C) Phoenix Technologies Ltd. All Rights Reserved. │
├─────────────────────────────────────────────────────────┤
│                                                           │
│   (The current BIOS information will appear in this area.)│
│                                                           │
│   File Name to Program :  [                    ]          │
│                                                           │
│                                                           │
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
```
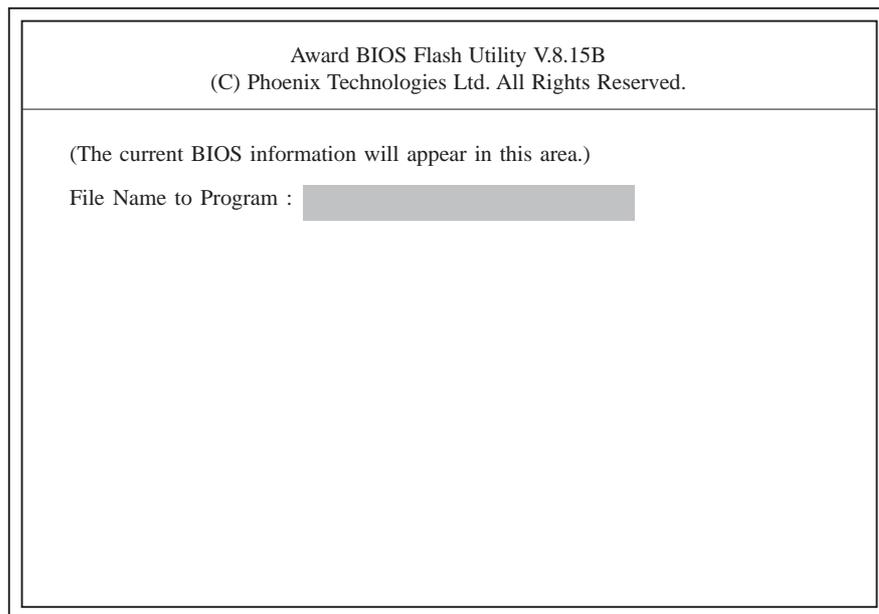
5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.

6. The following will appear.

    Do You Want to Save BIOS (Y/N)

    This question refers to the current existing BIOS in your system. We recommend that you save the current BIOS and its flash utility; just in case you need to reinstall the BIOS. To save the current BIOS, press <Y> then enter the file name of the current BIOS. Otherwise, press <N>.

7. The following will then appear.

    Press "Y" to Program or "N" to Exit

8. Press <Y> to flash the new BIOS.

Chapter 4 - Supported Software

Drivers, Utilities and Software Applications

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".
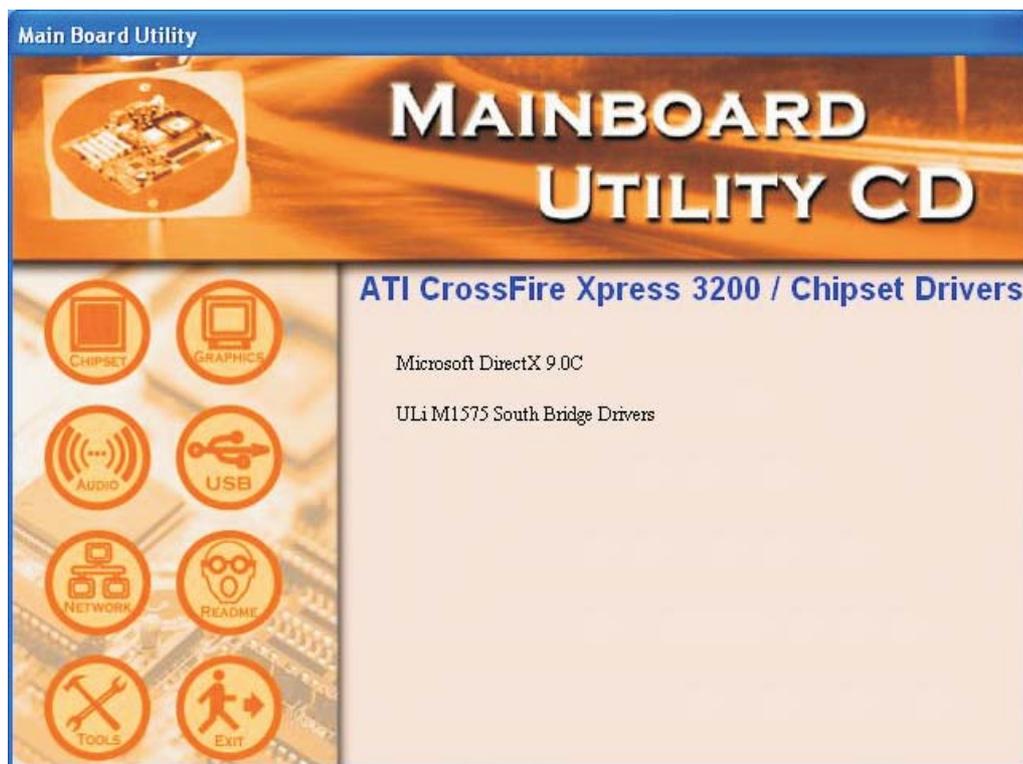
> **Important:**
> *You must first install Microsoft DirectX 9.0C and Microsoft's .NET version 1.1 Framework prior to installing any drivers.*

Microsoft DirectX 9.0C

When you insert the CD, the default menu that will appear is the Chipset Drivers menu. If in any case it is not, click the "CHIPSET" icon that is on the left side of the autorun screen.

1. Click "Microsoft DirectX 9.0C" on the main menu.
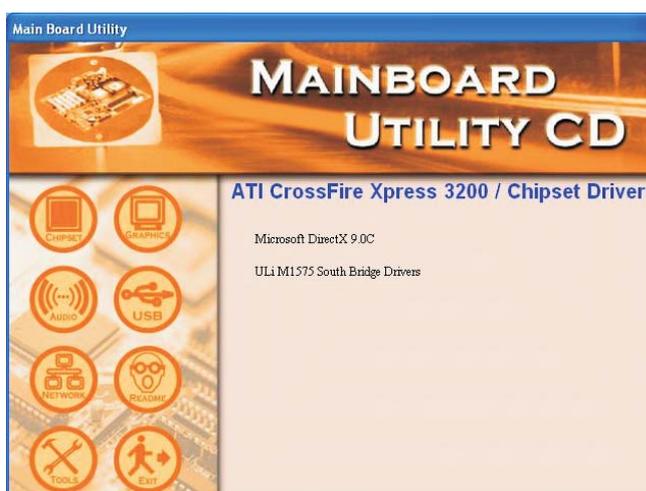
2. Read the license agreement then click "I accept the agreement". Click Next.

3. You are now ready to install DirectX. Click Next.

Installing Microsoft(R) DirectX(R)

DirectX Setup
    Install DirectX runtime components

DirectX 9.0 Runtime Install:
    This install package will search for updated DirectX Runtime Components and update as necessary. It may take a few minutes.

    To start installation, please click Next.

    [< Back] [Next >] [Cancel]
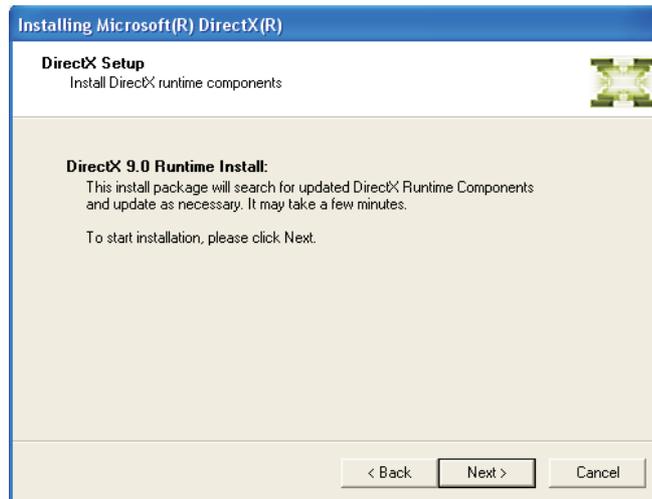
4. Click Finish. Reboot the system for DirectX to take effect.

Installing Microsoft(R) DirectX(R)

Installation Complete

The components installed are now ready for use.

[< Back] [Finish] [Cancel]
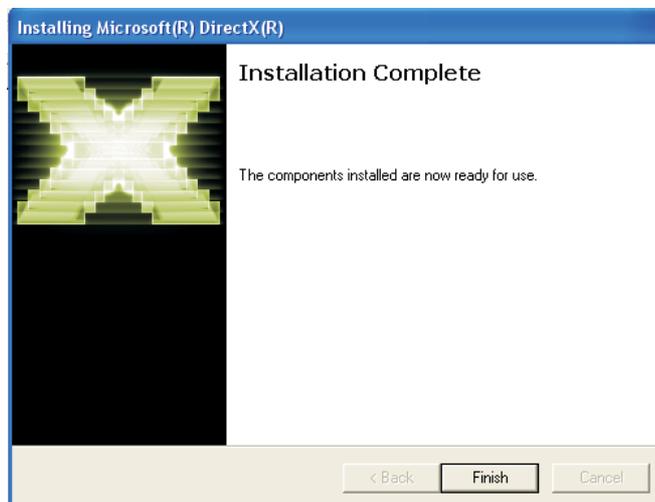
Microsoft's .NET version 1.1 Framework

On the left side of the autorun screen, click the "GRAPHICS" icon.

1. Click "Microsoft's .NET version 1.1 Framework" on the main menu.
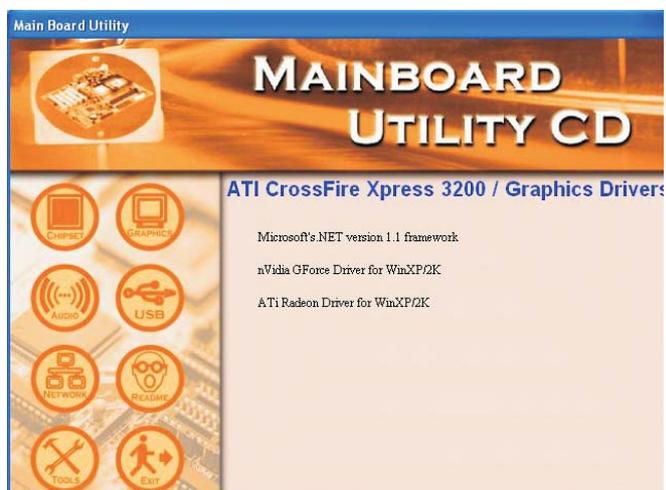
2. Click "Yes" to install the Framework package.
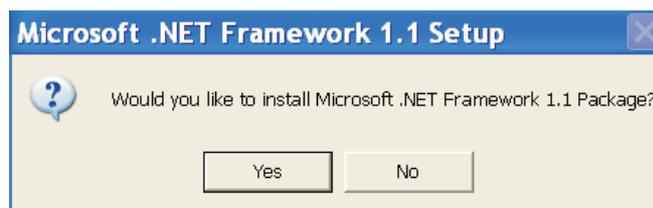
3. Setup is currently installing the files onto your computer.

   Follow the prompts on the screen to complete installation.

   Restart the system to allow the new driver installation to take effect.
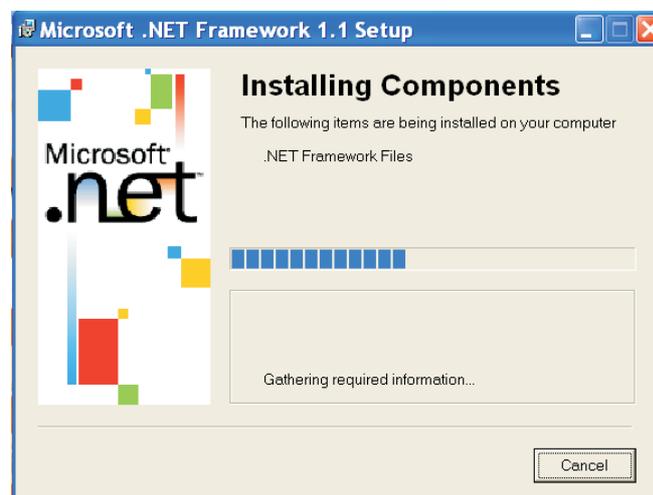
ULi M1575 South Bridge Drivers

On the left side of the autorun screen, click the "CHIPSET" icon.

1. Click "ULi M1575 South Bridge Drivers" on the main menu.
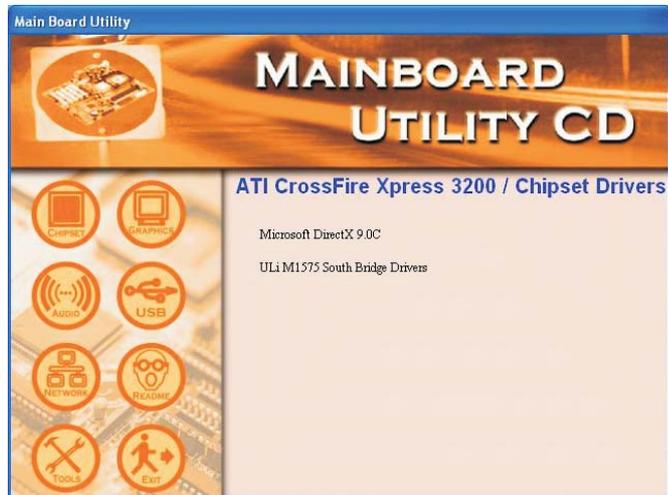
2. The installation wizard will extract the files needed to install the driver. After all files have been extracted, click Next.
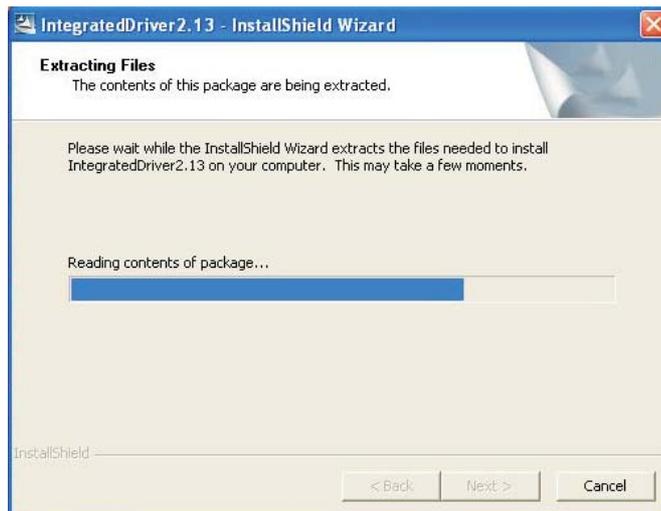
3. Setup is now ready to install the driver. Click Next.
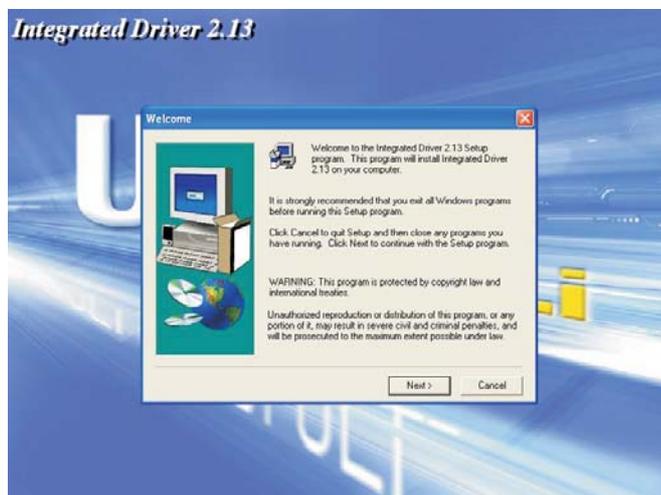
4. Select the driver you want to install then click Next. Setup will now install the driver.

5. Click "Yes, I want to restart my computer now" then click OK.

   Restarting the system will allow the new driver installation to take effect.

Supported Software ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Graphics Drivers

On the left side of the autorun screen, click the "GRAPHICS" icon.

The CD provides both nVidia and ATI drivers. Select the driver according to the graphics card you are using.
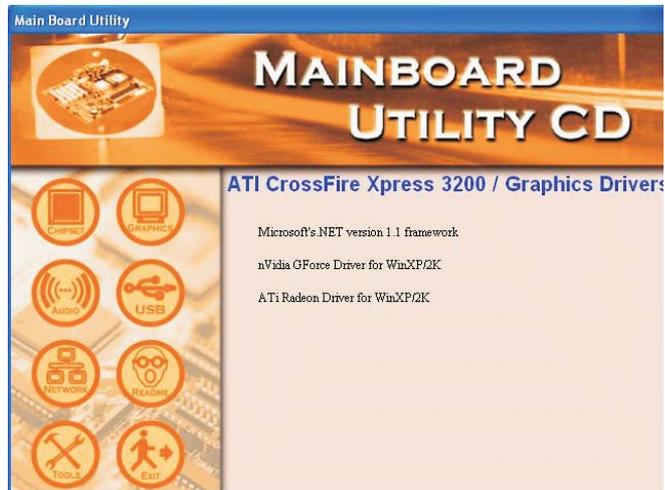
nVidia GForce Driver for WinXP/2K

1. Click "nVidia GForce Driver for WinXP/2K" on the main menu.

   Read the license agree-ment then click "I accept the terms in the license agreement". Click Next.

2. The installation wizard will extract the files needed to install the driver. After all files have been extracted, click Next.

3. Follow the prompts on the screen to complete installation.

4. Reboot the system for the driver to take effect.

ATI Radeon Driver for WinXP/2K

1. Click "ATI Radeon Driver for WinXP/2K" on the main menu.

   Click Install to install to the destination folder or click Browse to select another folder.
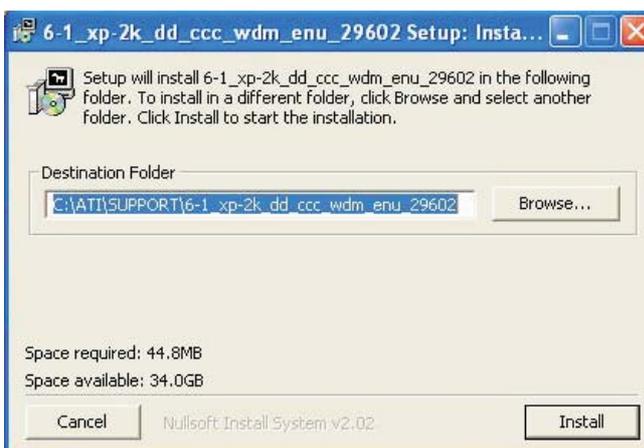
2. The installation wizard will extract the files needed to install the driver. After all files have been extracted, click Next.
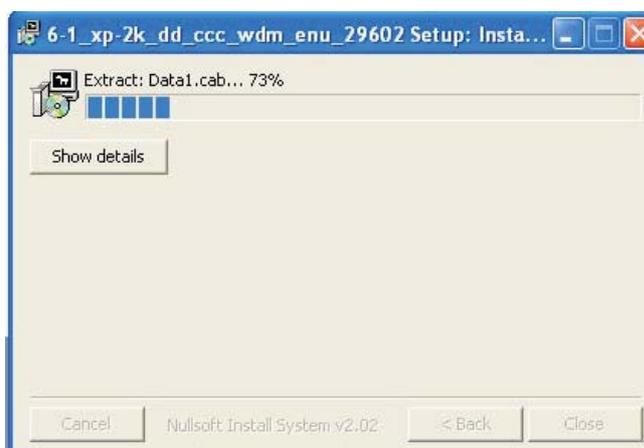
3. Setup is now ready to install the driver. Click Next.

4. Read the license agreement then click Yes.

5. Select the component you want to install then click Next.

6. Click "Yes, I want to restart my computer now" then click Finish.

    Restarting the system will allow the new driver installation to take effect.

Supported Software ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪
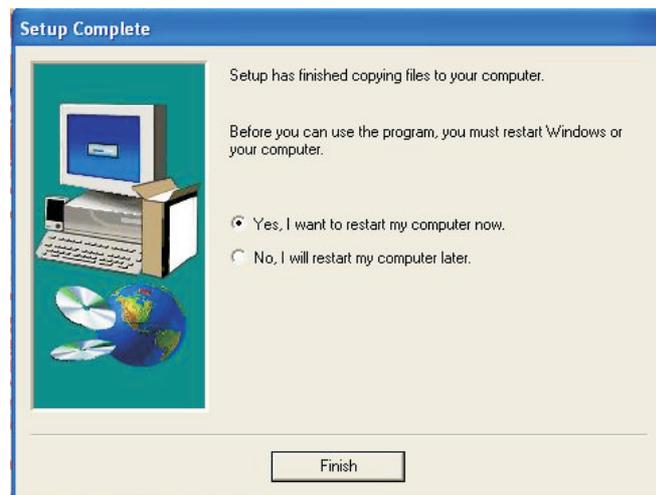
Audio Drivers

On the left side of the autorun screen, click the "AUDIO" icon.

1. Click "Realtek High Definition Audio Drivers" on the main menu.
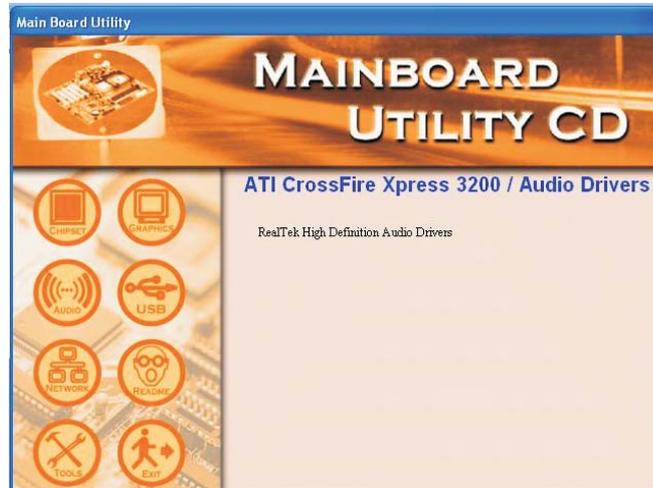
2. Setup is now preparing the installation wizard. Click Next to continue.
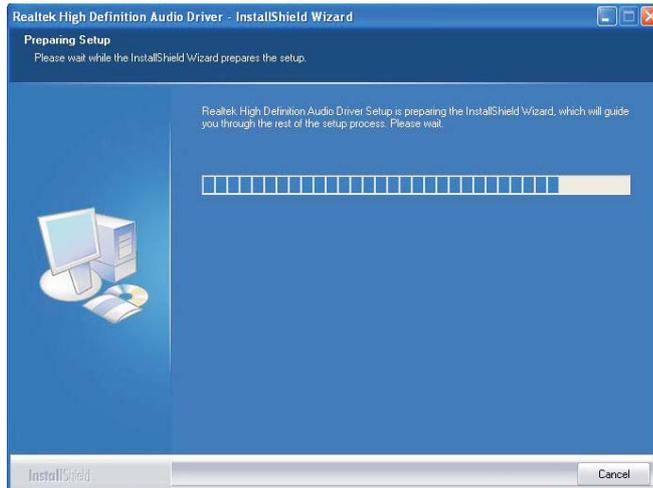
3. Setup will now install the driver. Click Next.
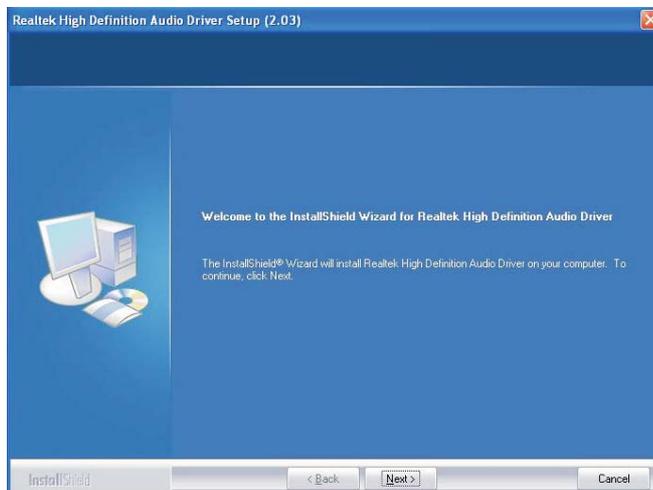
4. Setup is now configuring the new software installation.
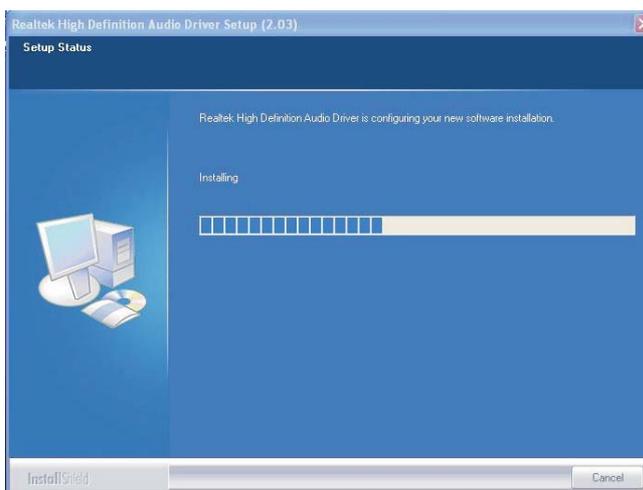
5. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new driver installation to take effect.

Marvell LAN Driver

On the left side of the autorun screen, click the "NETWORK" icon.

1. Click "Marvell LAN Drivers" on the main menu.
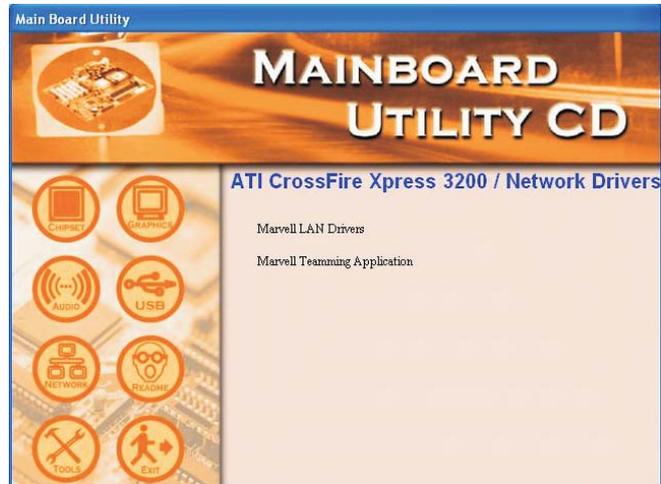
2. Setup is now preparing the installation wizard.

3. Setup will now install the driver. Click Next.

4. Click Finish.

5. Reboot the system for the driver to take effect.

Marvell Teamming Application

On the left side of the autorun screen, click the "NETWORK" icon.

1. Click "Marvell Teamming Application" on the main menu.
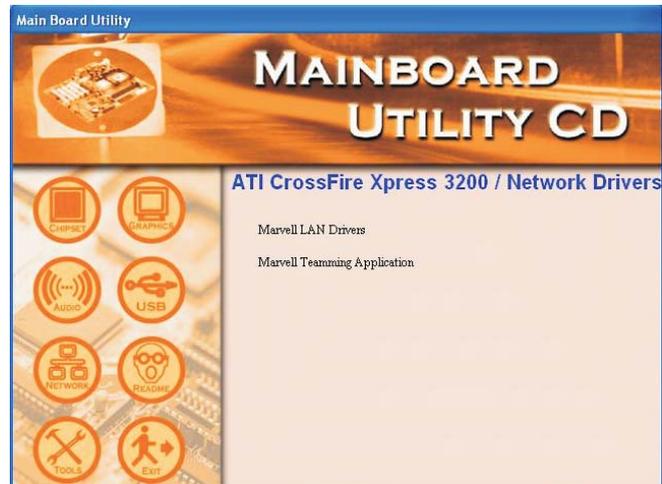
2. Setup is now preparing the installation wizard.

3. Setup will now install the driver. Click Next.

4. Read the license agreement then click "I accept the terms in the license agreement". Click Next.

5. The Readme Information contains important installation notes. Before you proceed, please read it carefully then click Next.
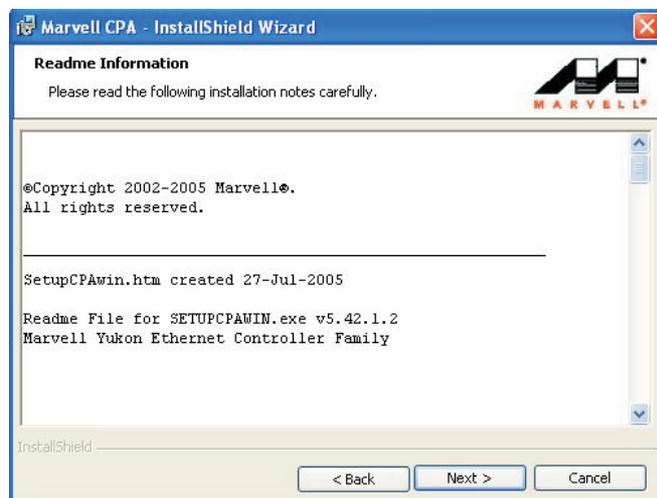
6. Click Install to begin installation.
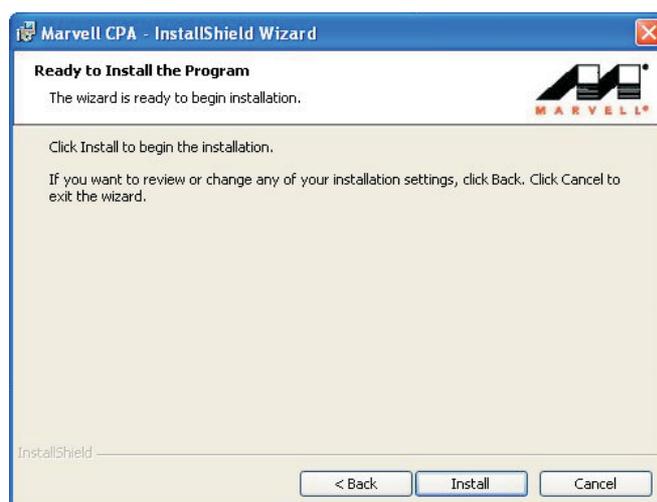
Supported Software

7. Click Finish.

8. Reboot the system for the driver to take effect.

ITE Smart Guardian

The system board comes with the ITE Smart Guardian utility. This utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility can also be configured so that a beeping alarm will sound whenever an error occurs. We recommend that you use the "Default Setting" which is the ideal setting that would keep the system in good working condition.

On the left side of the autorun screen, click the "TOOLS" icon.

1. Click "ITE Smart Guardian" on the main menu.
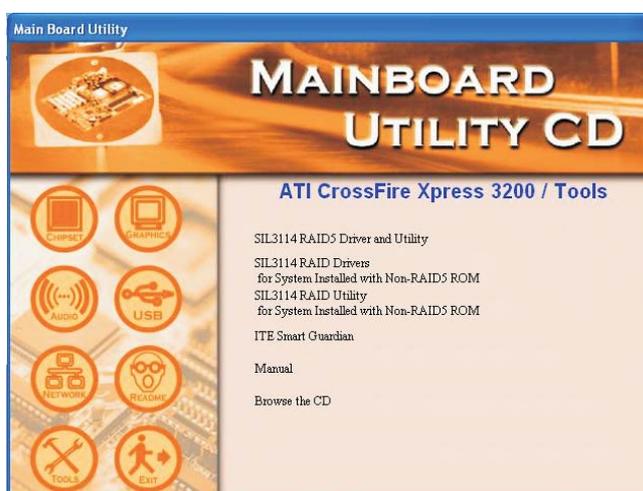
2. Setup will prepare the installation wizard.
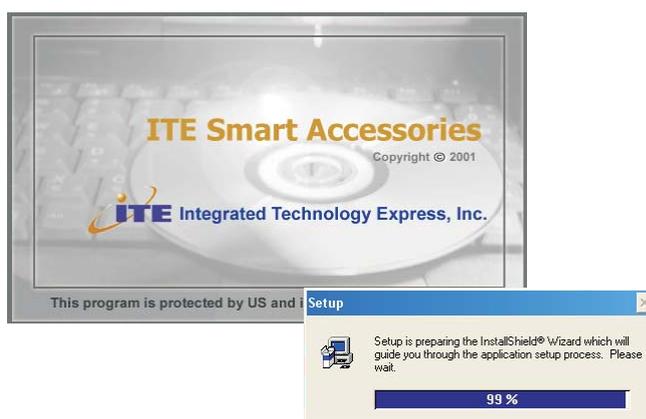
3. You are now ready to install Smart Guardian. Click Next to install or click Browse to select another folder.
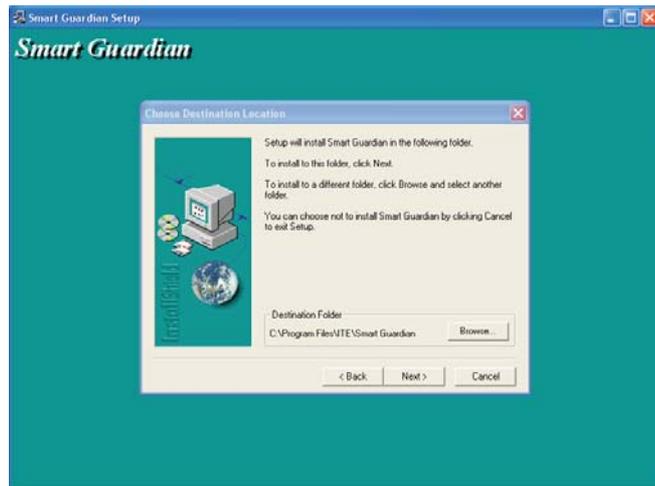
4. Click Next to add the program icon to the Program Folder.
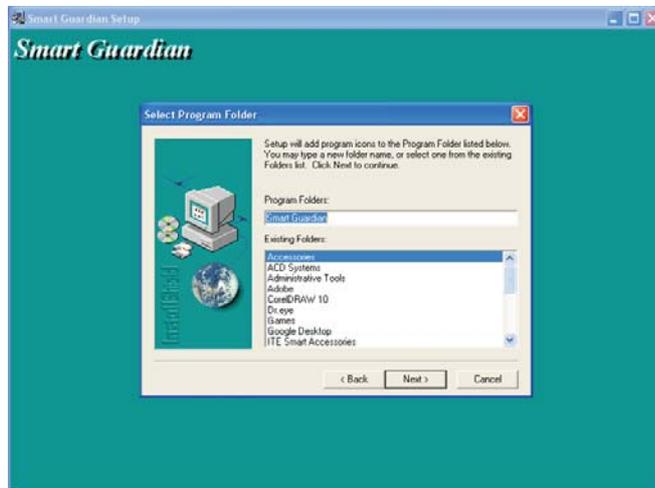
5. Click Finish. Reboot the system for the driver to take effect.
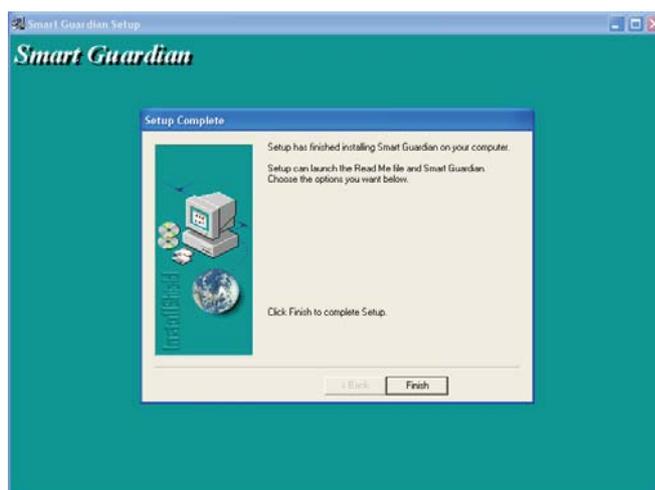
USB 2.0 Drivers

Windows® XP

If your Windows® XP CD already includes Service Pack 1, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 1, it is available for download at Microsoft's Windows Update website.

Windows® 2000

If your Windows® 2000 CD already includes Service Pack 4, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 4, it is available for download at Microsoft's Windows Update website.

Installation Notes

1. "Autorun" ONLY supports the Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

2. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please go to DFI's web site at "http://www.dfi.com/support1/download2.asp" for the latest version of the drivers or software applications.

Chapter 5 - Cool'n'Quiet Technology

Cool'n'Quiet Technology

The AMD Cool'n'Quiet™ technology allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by lowering its CPU speed and voltage, subsequently decreasing its noise level.

To enable the Cool'n'Quiet™ technology, the following settings are required.

1. Enable Cool'n'Quiet™ in the BIOS.
2. Install the Cool'n'Quiet™ driver.
3. Configure Power Management in Windows.

Step 1: Enable Cool'n'Quiet™ in the BIOS

1. Power-on the system then press <Del> to enter the main menu of the BIOS.

2. Select the Genie BIOS Setting submenu then press <Enter>.

3. Set the "K8 Cool'n'Quiet Support" field to Auto.

```
                     Phoenix - AwardBIOS CMOS Setup Utility
                              Genie BIOS Setting

  ▶  DRAM Configuration          Press  Enter              Item  Help
  ▶  LDT & PCI Bus Control        Press  Enter
  ▶  PCI Device Control           Press  Enter        Menu Level    ▶
     FSB Bus Frequency            200MHz
     LDT/FSB Frequency Ratio      Auto                DRAM timing and
     CPU/FSB Frequency Ratio      Auto                control
     CPU VID StartUp Value        StartUp
     K8 Cool'n'Quiet Support      Auto
     Cool'n'Quiet MAX FID         Auto

     CPU VID Control              Auto
     CPU VID Special Control      Auto
     DRAM Voltage Control         2.65V
     SB PCIE Voltage              1.80V
     NB Analog Voltage            1.2V
     LDT Bus Voltage              1.2V
     NB Core Voltage              1.2V

     CPU Core Voltage             1.31V
     LDT Bus Voltage              1.18V
     SB PCIE Voltage              1.92V
     DRAM 2.6V Voltage            2.54V

  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values              F6: Fail-Safe Defaults       F7: Optimized Defaults
```

4. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

5. Type <Y> and press <Enter>.

6. Reboot the system.

Step 2: Install the Cool'n'Quiet™ Driver

AMD's website provides free download of the Cool'n'Quiet™ driver. Make sure to install the appropriate driver for the CPU that you are using.

Step 3: Configure Power Management in Windows

1. On the Windows desktop, click Start then select Control Panel.

2. In Control Panel, double-click the Power Options icon.
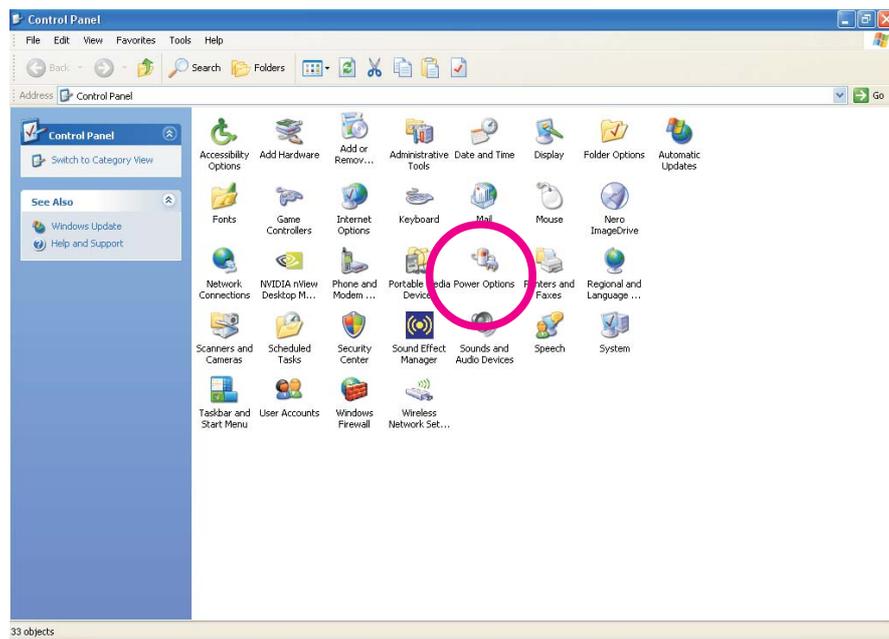
3. In the Power Schemes tab, select Minimal Power Management under the Power schemes section then click OK.
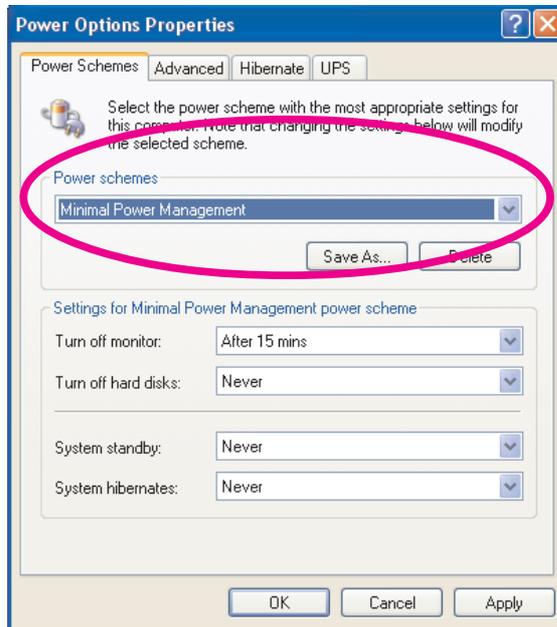
Chapter 6 - RAID

The ULI M1575 chip allows configuring RAID on Serial ATA drives connected to SATA 1 to SATA 4. It supports RAID 0, RAID 1, RAID 0+1 and JBOD.

The Silicon Image Sil 3114 chip allows configuring RAID on Serial ATA drives connected to SATA 5 to SATA 8. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

RAID 0 uses two new identical hard disk drives to read and write data in parallel, interleaved stacks. Data is divided into stripes and each stripe is written alternately between two disk drives. This improves the I/O performance of the drives at different channel; however it is not fault tolerant. A failed disk will result in data loss in the disk array.

RAID 1 (Mirroring Disk Array with Fault Tolerance)

RAID 1 copies and maintains an identical image of the data from one drive to the other drive. If a drive fails to function, the disk array management software directs all applications to the other drive since it contains a complete copy of the drive's data. This enhances data protection and increases fault tolerance to the entire system. Use two new drives or an existing drive and a new drive but the size of the new drive must be the same or larger than the existing drive.

RAID 0+1 (Striping and Mirroring)

RAID 0+1 is a combination of data striping and data mirroring providing the benefits of both RAID 0 and RAID 1. Use four new drives or an existing drive and three new drives for this configuration.

RAID 5

RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

JBOD (Spanning)

JBOD redundantly stores the same data on multiple disks that appear as a single disk on the operating system.

Settings

To enable the RAID function, the following settings are required.

1. Connect Serial ATA drives.
2. Configure Serial ATA in the Award BIOS.
3. Configure RAID in the ULI RAID BIOS and/or Sil3114 SataRAID BIOS.
3. Install RAID driver.

Step 1: Connect Serial ATA Drives

SATA 1-4 supported by ULI M1575 chip

SATA 5-8 supported by Sil 3114 chip
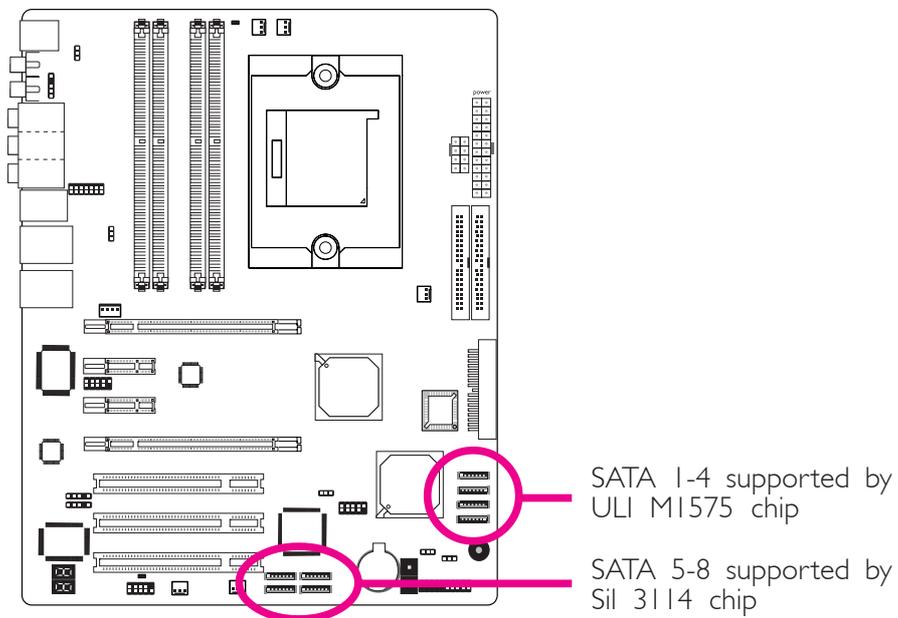
Refer to chapter 2 for details about Serial ATA.

> **Important:**
> *Make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.*

Step 2: Configure Serial ATA in the Award BIOS

Settings for Drives Supported by ULI M1575

1. Power-on the system then press <Del> to enter the main menu of the Award BIOS.

2. Select the Genie BIOS Setting submenu -> PCI Device Control section of the BIOS.

3. Set the "Serial ATA Controller" field to "Enabled".

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              PCI Device Control

     Serial ATA Controller          Enabled                Item  Help
  ▶  Advanced  SATA  Feature         Press Enter
     Onboard  PCIe  LAN1             Enabled         Menu Level    ▶▶
     Onboard  PCIe  LAN2             Enabled
     Sil3114 S-ATA RAID Control      SATA RAID 0,1,0+1,5




  ↑↓→←: Move     Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
     F5: Previous Values          F6: Fail-Safe Defaults          F7: Optimized Defaults
```

4. Select the "Advanced SATA Feature" field then press <Enter>.

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5. The Advanced SATA Feature submenu allows you to configure the onboard Serial ATA for RAID function.
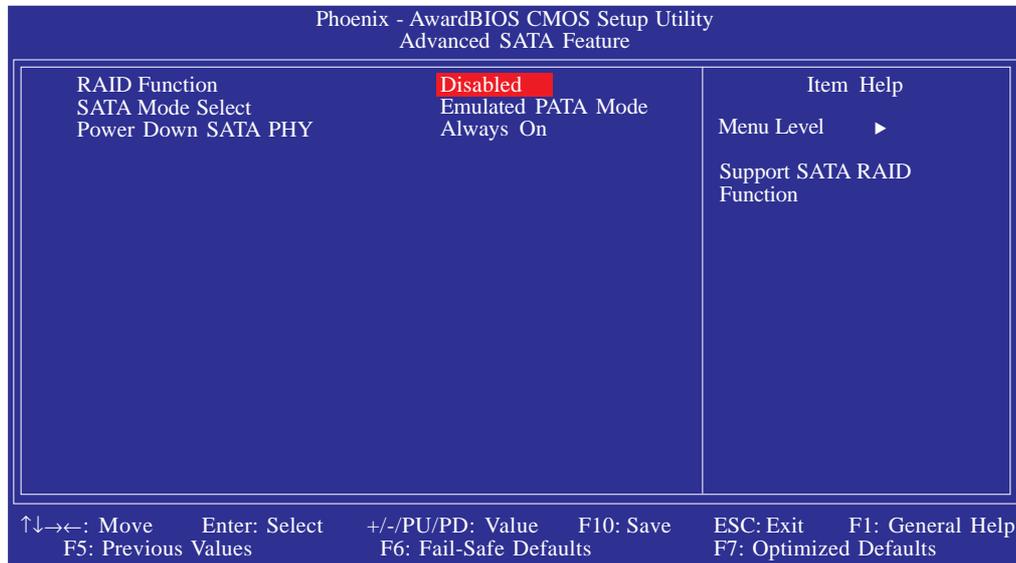
```
                  Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced SATA Feature

     RAID Function              Disabled              Item  Help
     SATA Mode Select           Emulated PATA Mode
     Power Down SATA PHY        Always On          Menu Level      ▶

                                                   Support SATA RAID
                                                   Function













  ↑↓→←: Move      Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
     F5: Previous Values           F6: Fail-Safe Defaults           F7: Optimized Defaults
```

6. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

7. Type <Y> and press <Enter>.

8. Reboot the system.

Settings for Drives Supported by Silicon Image Sil 3114

1. Power-on the system then press <Del> to enter the main menu of the Award BIOS.

2. Select the Genie BIOS Setting submenu -> PCI Device Control section of the BIOS.

3. Configure the "Sil3114 S-ATA RAID Control" field.
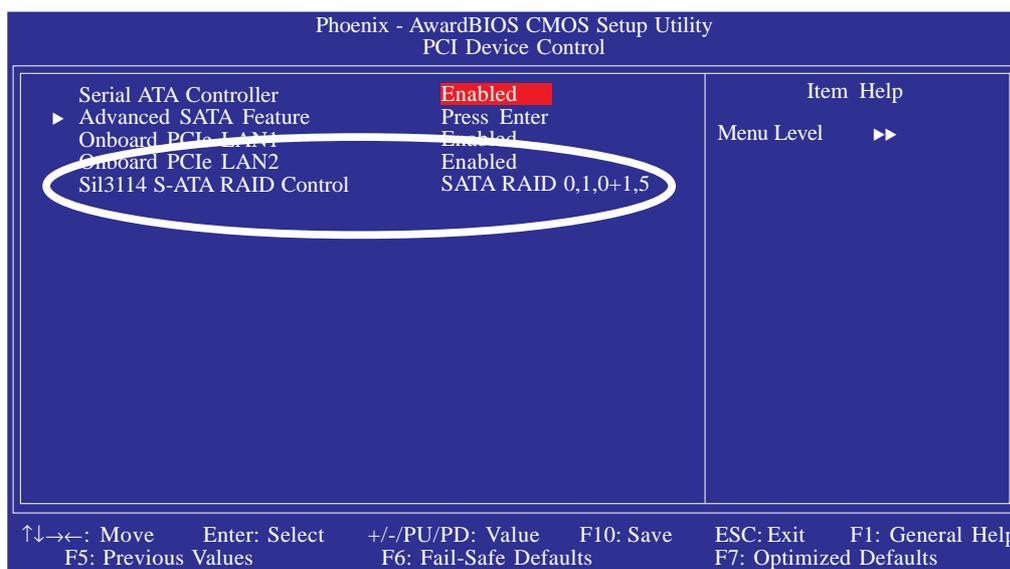
```
            Phoenix - AwardBIOS CMOS Setup Utility
                      PCI Device Control

   Serial ATA Controller          Enabled              Item Help
 ► Advanced SATA Feature          Press Enter
   Onboard PCIe LAN1              Enabled        Menu Level    ►►
   Onboard PCIe LAN2              Enabled
   Sil3114 S-ATA RAID Control     SATA RAID 0,1,0+1,5




↑↓→←: Move     Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit    F1: General Help
   F5: Previous Values            F6: Fail-Safe Defaults      F7: Optimized Defaults
```

4. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

5. Type <Y> and press <Enter>.

6. Reboot the system.

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Step 3: Configure RAID in the RAID BIOS

Configure RAID in the ULI RAID BIOS

After you power up the system and all drives have been detected, the ULI RAID BIOS status message screen will appear. Press the <Ctrl> and <A> keys simultaneously to enter the utility. The utility allows you to build a RAID system using four Serial ATA hard drives.

Configure RAID in the Sil3114 SataRAID BIOS

When the system powers-up and all drives have been detected, the Sil3114 SataRAID BIOS status message screen will appear. Press the <Ctrl-S> or <F4> key to enter the utility. The utility allows you to build a RAID system using four Serial ATA hard drives.

Step 4: Install the RAID Driver

If you are in the process of installing Windows® XP or Windows® 2000 on RAID configured drives, you will need the provided RAID driver floppy diskette. If you are installing the driver on existing Windows® XP or Windows® 2000, install the corresponding RAID driver that is in the provided CD.

Installing ULI RAID Driver While in the Process of Installing Windows® XP or Windows® 2000

The steps below will instruct you on installing the RAID driver while in the process of installing Windows® XP or Windows® 2000 on RAID configured drives.

1. Start Windows Setup by booting from the installation CD.

2. Press <F6> when prompted at the beginning of Windows setup.

3. Press <S> to select "Specify Additional Device".

4. At this point you will be prompted to insert a floppy disk containing the RAID driver. Insert the provided RAID driver diskette.

5. Locate for the drive where you inserted the diskette then select "ALI SATA/RAID Controller". Press <Enter> to install the driver.

6. Now press <S> again to specify another device.

7. This time, select "ALI ATA/RAID Controller". Press <Enter> to install the driver.

8. If you need to install other devices, please do so at this time otherwise please proceed to the next step.

9. Follow the prompts on the screen to complete installation.

10. After installing the operating system, if in any case necessary, create the hard drives' partition.

Installing the Sil 3114 RAID Driver While in the Process of Installing Windows® XP or Windows® 2000

1. Start Windows Setup by booting from the installation CD.

2. Press <F6> when prompted at the beginning of Windows setup.

3. Press <S> to select "Specify Additional Device".

4. At this point you will be prompted to insert a floppy disk containing the RAID driver. Insert the provided RAID driver diskette.

5. Locate for the drive where you inserted the diskette then select the Silicon Image controller. Press <Enter> to install the driver.

6. If you need to install other devices, please do so at this time otherwise please proceed to the next step.

7. Follow the prompts on the screen to complete installation.

Installing the Sil 3114 RAID Driver on Existing Windows® XP or Windows® 2000

1. Insert the provided CD into a CD-ROM drive.

2. On the left side of the autorun screen, click the "TOOLS" icon.

3. Click "Silicon Image RAID Drivers". A "readme" screen which contains the RAID drivers installation instructions will appear.

4. Follow the installation instructions to complete installtion.

5. Reboot the system for the driver to take effect.

Important:

Treat the hard drives' cables with extreme caution especially while creating RAID. A damaged cable will ruin the entire installation process and operating system. The system will not boot and you will lost all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

Chapter 7 - ATI CrossFire Technology

ATI's CrossFire technology drives your PC to a new peak of performance. By connecting a Radeon CrossFire Edition graphics card and a standard PCI Express graphics card, the power of these multiple GPUs (Graphics Processing Units) within the system will accelerate your gaming performance and improve image quality.

How CrossFire Works

CrossFire's key objective is to maximize the speed of a multi-GPU system. This is achieved by dividing the rendering workload to each of the two GPUs. When each GPU has completed its assigned tasks for a given frame, the Compositing Engine on the CrossFire Edition graphics card combines the results from each GPU (according to the selected operating mode) then sends the final frames out to the display device. The result will be a complete frame rendered at up to twice the performance of a single graphics card.

Features

Regardless of the type of operating mode used, the completed frames from both GPUs are sent to the Compositing Engine on the CrossFire Edition graphics card, which then sends them on to the display device.

- **Supertile Mode**

  Supertiling divides your screen image into subsections like "tiles" in alternating tile pattern such that half of the tiles are assigned to each of the two GPUs.

- **Scissor Mode**

  In Scissor mode, each frame is split into two sections, either horizontal or vertical, with each section being processed by one GPU.

- **Alternate Frame Rendering (AFR)**

  In AFR mode, all even frames are rendered on one GPU, while all odd frames are rendered on the other.

- **Super AA (Anti-Aliasing)**

  The Super AA mode provides even higher quality anti-aliasing on multi-GPU systems. It works by having each GPU render the same frame with anti-aliasing enabled but using different sample locations for each. When both versions of the frame are completed, they are blended in the CrossFire Compositing engine. The resulting image is twice the number of samples, so 4x and 6x AA become 8x and 12x Super AA respectively.

Graphics Cards Requirements

1. One Radeon® X850 / Radeon® X800 CrossFire Edition graphics card.
2. One standard PCI Express Radeon® X850 or Radeon® X800 graphics card.

   The Radeon® X850 CrossFire Edition card works with any standard PCI Express Radeon X850 graphics card (Radeon X850 PRO, Radeon X850 XT or Radeon X850 XT Platinum Edition) from ATI or any of its partners including cards previously sold.

   The Radeon® X800 CrossFire Edition card works with any standard PCI Express Radeon X800 graphics card (Radeon X800, Radeon X800 PRO, Radeon X800 XL, Radeon X800 XT or Radeon X800 XT Platinum Edition) from ATI or any of its partners.

   Note:
   If the clock speed of the CrossFire Edition graphics card and standard PCI Express graphics card are different, both cards will operate at their individual clock speeds.

The PCI Express Slots
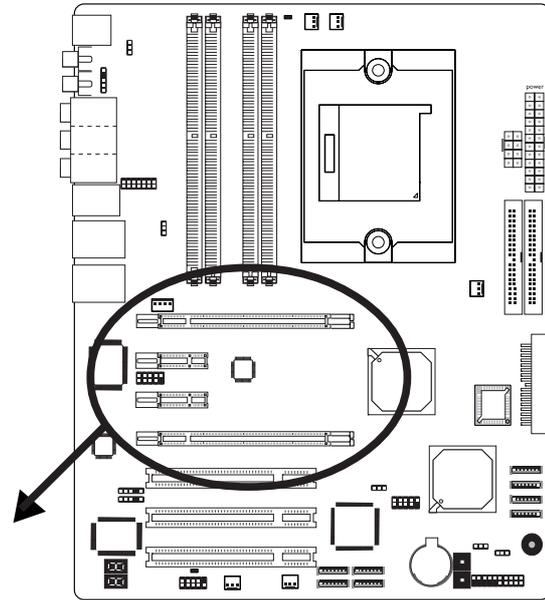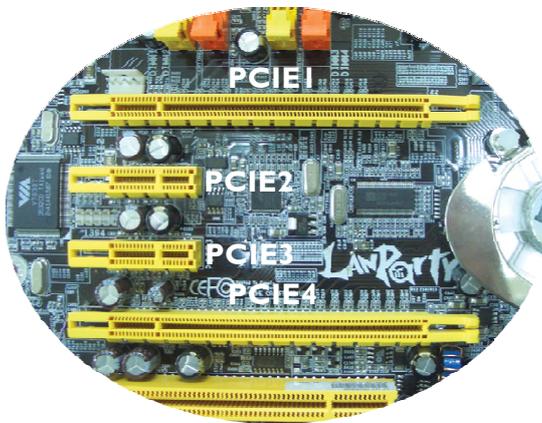
- PCIE1 and PCIE4 are PCI Express x16 slots
    - In both CrossFire mode and Single VGA mode, each x16 slot oper-
      ates at x16 bandwidth.

- PCIE2 and PCIE3 are PCI Express x1 slots

CrossFire Setup

1. Power-off the system and monitor then unplug the power cord.

2. Remove the screw of the bracket that is opposite the PCIE1 slot then remove the bracket.

PCIE1 ▬▬▬▬▬▬▬
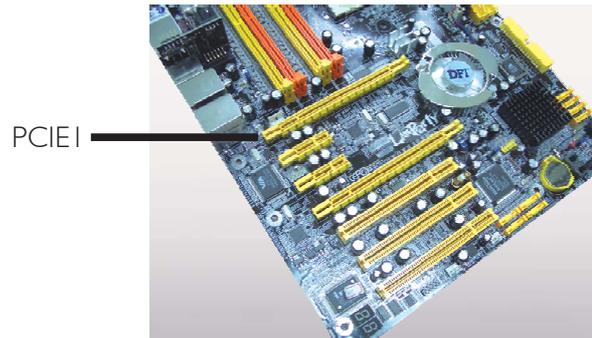
3. Align the CrossFire Edition graphics card (Master) above the PCIE1 slot then press it down firmly until it is completely seated in the slot.

CrossFire Edition graphics card
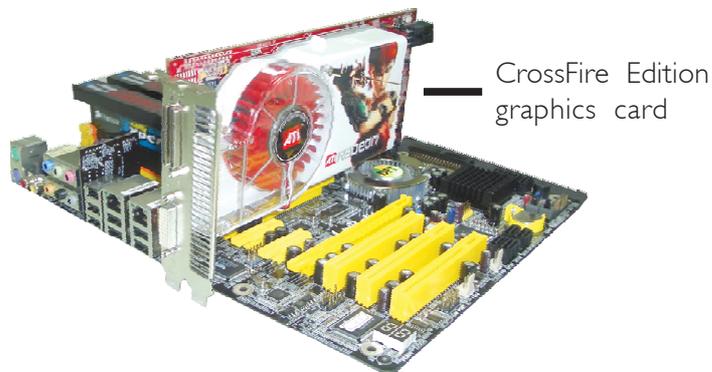
4. Secure the graphics card with the screw you removed in step 2.

5. Remove the screw of the bracket that is opposite the PCIE4 slot then remove the bracket.
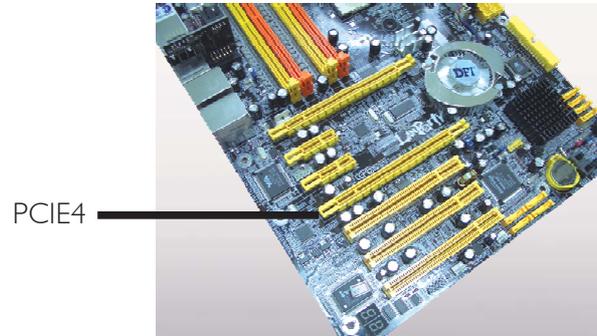
PCIE4

6. Align the standard PCI Express graphics card (Slave) above the PCIE4 slot then press it down firmly until it is completely seated in the slot.

Standard
PCI Express
graphics card

7. Secure the graphics card with the screw you removed in step 5.

8. The CrossFire Edition graphics card comes with a cable. Plug the cable connector to a connector on the CrossFire Edition graphics card as shown below.
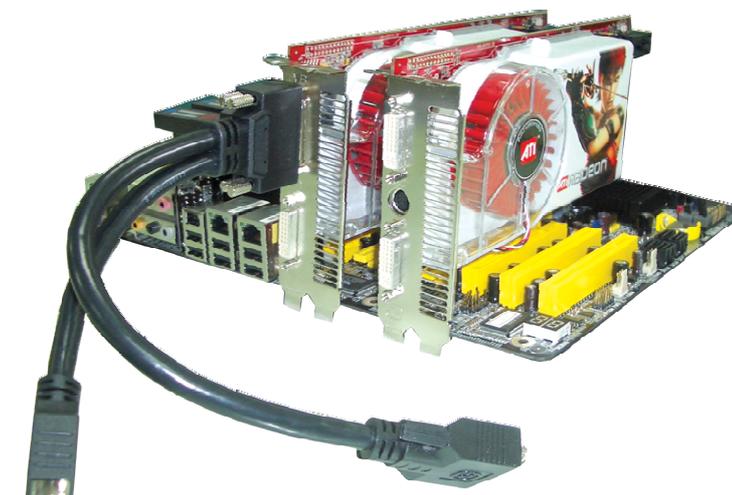
9. Now plug the other cable connector to the DVI-I connector on the standard PCI Express graphics card then the last cable connector to a display device.

Plug to display device
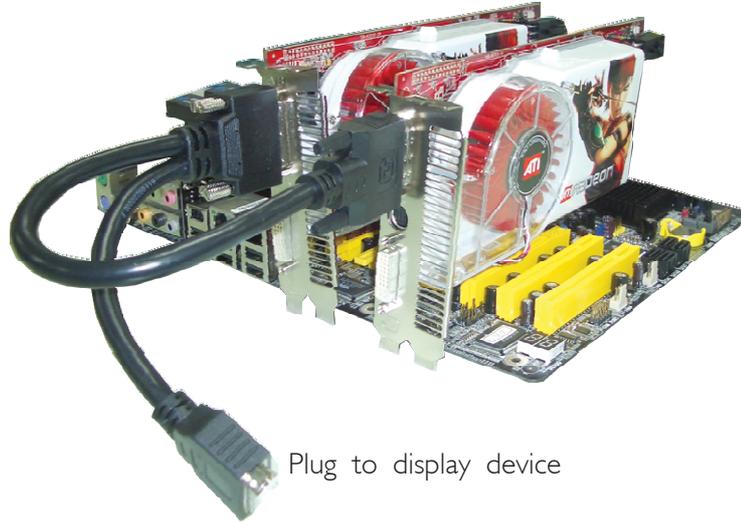
10. Connect auxiliary power source from the power supply unit to the graphics cards.

11. Install the graphics cards' drivers then restart the system for the drivers to take effect.

12. When you enter the operating system, you will no-tice the ATI Catalyst Control Center icon added onto your desktop. Double-click this icon.

13. Click the View tab then select Custom View.

14. In the Graphics Settings menu (left side of screen), click CrossFire. The CrossFire Settings screen will appear on the main window. Click "Enable CrossFire" then click "Yes" to continue.

15. The screen on the right indicates that CrossFire has been enabled. Make sure to restart the PC for CrossFire to take effect.

Appendix A - System Error Message

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occured and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other code indicates that a DRAM error has occured. This beep code consists of a single long beep.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIOSes:

CMOS BATTERY HAS FAILED
The CMOS battery is no longer functional. It should be replaced.

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

CMOS CHECKSUM ERROR
Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISPLAY SWITCH IS SET INCORRECTLY
The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different

setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

FLOPPY DISK(S) fail (80)
Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)
Floppy type mismatch.

Hard Disk(s) fail (80)
HDD reset failed.

Hard Disk(s) fail (40)
HDD controller diagnostics failed.

Hard Disk(s) fail (20)
HDD initialization error.

Hard Disk(s) fail (10)
Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)
Sector Verify failed.

Keyboard is locked out - Unlock the key
The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present
Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop
System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted
The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail
The BIOS reports memory test fail if the memory has error(s).

Appendix B - Troubleshooting

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Parallel Port

The parallel printer doesn't respond when you try to print.

1. Make sure that your printer is turned on and that the printer is on-line.
2. Make sure your software is configured for the right type of printer attached.
3. Verify that the onboard LPT port's I/O address and IRQ settings are configured correctly.
4. Verify that the attached device works by attaching it to a parallel port that is working and configured correctly. If it works, the printer can be assumed to be in good condition. If the printer remains inoperative, replace the printer cable and try again.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.
2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
2. Check the jumper settings to ensure that the jumpers are properly set.
3. Verify that all memory modules are seated securely into the memory sockets.
4. Make sure the memory modules are in the correct locations.
5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.