



System Board User's Manual

935-N59SMI-000G
92210629

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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.

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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.

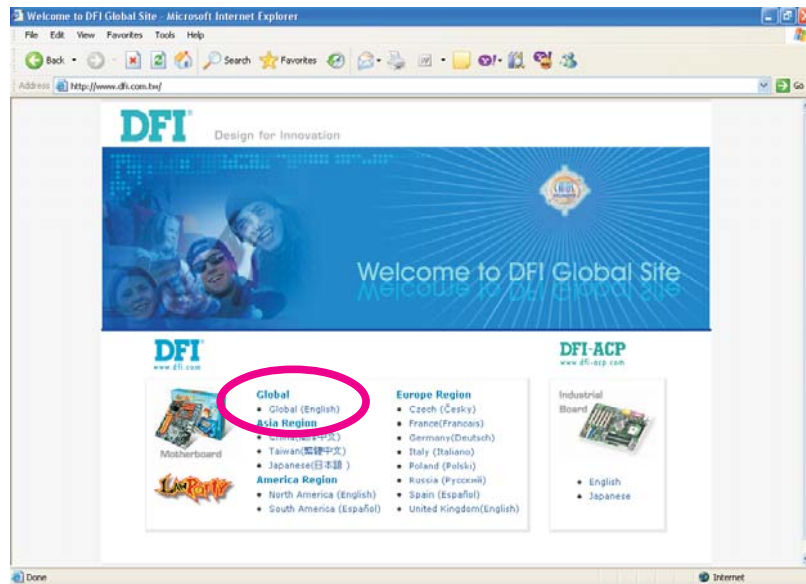
Warranty

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 consequential damages to the product that has been modified or altered.

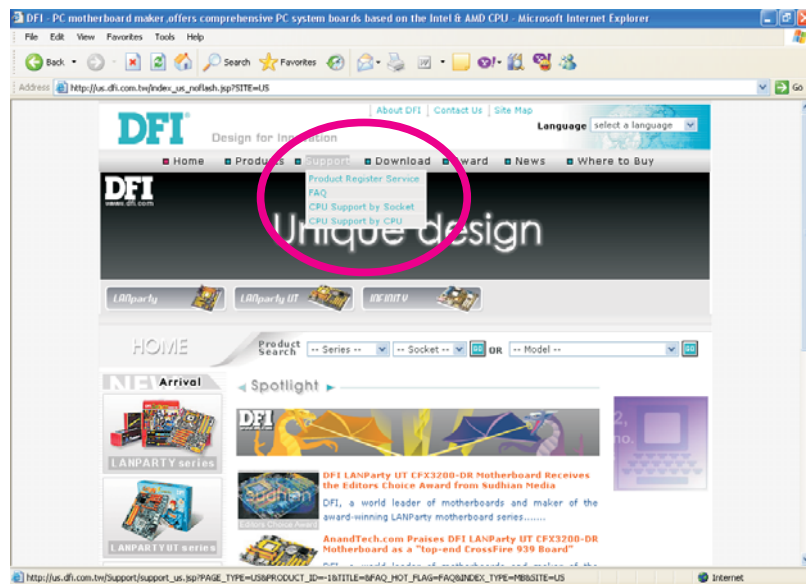
Registering the Product

We encourage you to register your DFI product online. DFI's product registration service entitles you to notifications about product updates, special discounts and/or promotional offers; and puts your licensing information on file so that we may efficiently assist you if in any case needed. Please follow the steps below to access the product registration page.

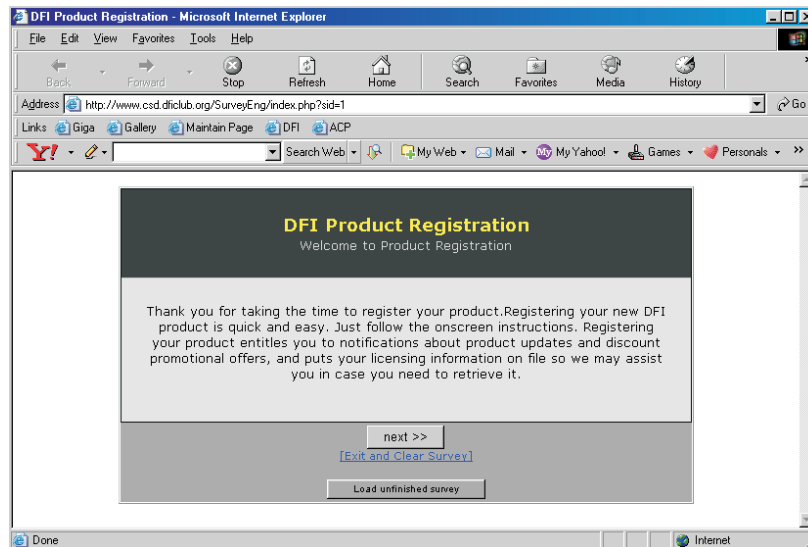
1. Run Internet Explorer then type www.dfi.com.tw in the Address bar. On DFI's homepage, click Global or the language of your choice.



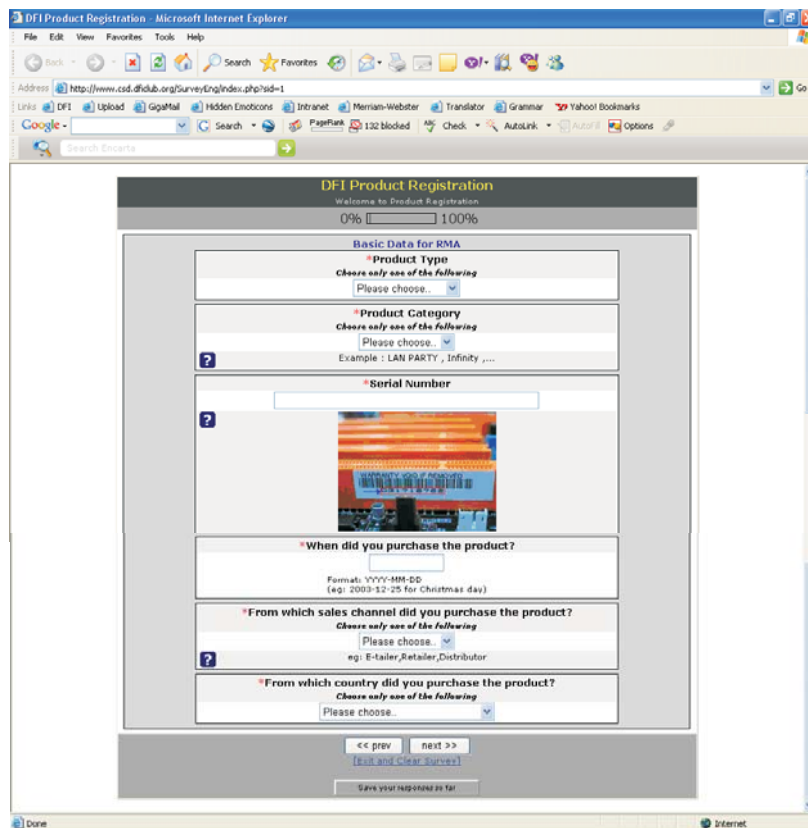
2. Click the Support menu then select Product Register Service.



3. The DFI Product Registration page will appear. Click Next to continue.



4. Select or fill in the necessary information to complete the registration.



5. Thank you for registering your DFI product.

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
- ☑ One SLI bridge
- ☑ One IDE round cable
- ☑ 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	<ul style="list-style-type: none">• AMD® Athlon™ 64 FX / Athlon™ 64 X2 / Athlon™ 64• Socket AM2
HyperTransport	<ul style="list-style-type: none">• 2000MT/s HyperTransport interface
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 590 SLI MCP<ul style="list-style-type: none">- Northbridge: NVIDIA® C51XE- Southbridge: NVIDIA® MCP55PXE
System Memory	<ul style="list-style-type: none">• Four 240-pin DDR2 DIMM sockets• Supports DDR2 533 and DDR2 667 DIMMs• Supports dual channel (128-bit wide) memory interface• Supports up to 4GB system memory• Supports non-ECC x8 and x16 DIMMs• Supports unbuffered DIMMs
Expansion Slots	<ul style="list-style-type: none">• 2 PCI Express x16 slots<ul style="list-style-type: none">- In SLI or Single VGA mode, each slot operates at full speed x16 lanes.- Use identical SLI-ready PCI Express x16 graphics cards• 1 PCI Express x1 slot• 1 PCI Express x8 slot• 3 PCI slots
BIOS	<ul style="list-style-type: none">• Award BIOS• CMOS Reloaded• CPU/DRAM overclocking• CPU/DRAM/Chipset overvoltage• 4Mbit flash memory
Power Management	<ul style="list-style-type: none">• ACPI and OS Directed Power Management• ACPI STR (Suspend to RAM) function• Wake-On-PS/2 Keyboard/Mouse• Wake-On-LAN• RTC timer to power-on the system• AC power failure recovery
Hardware Monitor	<ul style="list-style-type: none">• 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
LAN	<ul style="list-style-type: none">• NVIDIA® MCP55PXE integrated with Gigabit MAC (Media Access Control) technology• Two Vitesse VSC8601 Gigabit Phy chips• Fully compliant to IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T) standards

Audio	<ul style="list-style-type: none"> • Karajan audio module <ul style="list-style-type: none"> - Realtek ALC885 8-channel High Definition Audio CODEC - 6 audio jacks - 1 CD-in connector - 1 front audio connector • DAC SNR/ADC SNR of 106dB/101dB • Full-rate lossless content protection technology • S/PDIF-in/out interface
IDE	<ul style="list-style-type: none"> • One IDE connector allows connecting up to two UltraDMA 133Mbps hard drives
Serial ATA with RAID	<ul style="list-style-type: none"> • Six Serial ATA ports supported by NVIDIA® MCP55PXE <ul style="list-style-type: none"> - SATA speed up to 3Gb/s - RAID 0, RAID 1, RAID 0+1 and RAID 5 • Two Serial ATA ports supported by Silicon Image SiI 3132 <ul style="list-style-type: none"> - SATA speed up to 3Gb/s - RAID 0, RAID 1 and RAID 0+1
IEEE 1394	<ul style="list-style-type: none"> • VIA VT6307 • Supports two 100/200/400 Mb/sec ports
Rear Panel I/O	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 2 connectors for 4 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 • 1 IDE connector • 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	<ul style="list-style-type: none"> • ATX form factor • 24cm (9.45") x 30.5cm (12")

Features



The system board supports the AMD Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ processor for Socket AM2. 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.

COOL'N'QUIET™

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.



The NVIDIA® SLI™ (Scalable Link Interface) technology connects two SLI-ready PCI Express graphics cards in a single and scalable system. The two identical graphics cards, which are connected via the SLI bridge, will provide extreme performance allowing you to enjoy games with the most visual effects and the most graphics demanding multimedia utilities. Dual GPUs provide increased 3D graphics and doubles the graphics performance.



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, x8 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

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.



DDR2 is a higher performance DDR technology whose data transfer rate delivers bandwidth of 4.3 GB per second and beyond. That is twice the speed of the conventional DDR without increasing its power consumption. DDR2 SDRAM modules work at 1.8V supply compared to 2.6V memory voltage for DDR modules. DDR2 also incorporates new innovations such as the On-Die Termination (ODT) as well as larger 4-bit pre-fetch against DDR which fetches 2 bits per clock cycle.



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. NVIDIA[®] MCP55PXE and Silicon Image SiI 3132 both support speed of up to 3Gb/s. Serial ATA improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.



The NVIDIA[®] MCP55PXE chip allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.



The Silicon Image SiI 3132 chip allows configuring RAID on another 2 Serial ATA ports. It supports RAID 0, RAID 1 and RAID 0+1.



The Gigabit MAC (Media Access Control) technology integrated in the NVIDIA[®] MCP55PXE chip, together with the dual Vitesse VSC8601 Gigabit Phy chips provide fully functional Gigabit LAN ports.



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.



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-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 $\geq 720\text{mA}$.

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 $\geq 720\text{mA}$.

RTC

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

STR

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 $\geq 1A$.

**POWER FAILURE
RECOVERY**

When power returns after an AC power failure, you may choose to either power-on the system manually, let the system power-on automatically or return to the state where you left off before power failure occurs.

Caractéristiques et Spécifications

Processeur	<ul style="list-style-type: none">• AMD® Athlon™ 64 FX / Athlon™ 64 X2 / Athlon™ 64• Socket AM2• Interface HyperTransport 2000MT/s
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 590 SLI MCP- Pont nord: NVIDIA® C51XE- Pont sud: NVIDIA® MCP55PXE
Mémoire Système	<ul style="list-style-type: none">• 4 sockets DIMM DDR2 240-pin• Supporte les modules DIMM DDR2 533 et DDR2 667• Supporte l'interface de mémoire deux canaux (128-bit)• Supporte jusqu'à 4GB de mémoire système• Supporte exclusivement les modules DIMM non-ECC x8 et x16• Supporte les DIMM non-tamponnés
Logements d'Extension	<ul style="list-style-type: none">• 2 slots PCI Express x16- Mode SLI ou Mode VGA Seul: Chaque slot fonctionne à la bande passante x16.- Utiliser les cartes graphiques PCI Express x16 de SLI-prêtes identiques• 1 slot PCI Express x1• 1 slot PCI Express x8• 3 slots PCI
BIOS	<ul style="list-style-type: none">• Compatible avec Award BIOS• CMOS Reloaded• Overclocking de CPU/DRAM• Contrôle du voltage de CPU/DRAM/Chipset• Mémoire Flash 4Mbit
Gestion de Puissance	<ul style="list-style-type: none">• ACPI et OS Directed Power Management• ACPI STR (Suspend to RAM) fonction• Réveil-Sur-PS/2 Clavier/Souris• Eveil Sonnerie• Minuterie RTC pour allumer le système• Récupération après Défaillance d'Alimentation CA
Fonctions de Moniteur de Matériel	<ul style="list-style-type: none">• 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
LAN	<ul style="list-style-type: none">• NVIDIA® MCP55PXE_avec la technologie intégrée Gigabit MAC (Media Access Control)• 2 Vitesse VSC8601 Gigabit Phy• Supporte IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) et 802.3ab (1000BASE-T)

Audio	<ul style="list-style-type: none"> • Karajan carte audio <ul style="list-style-type: none"> - Realtek ALC885 8-canaux Définition Élevée audio CODEC - 6 prises audio - 1 connecteur CD-in - 1 connecteur audio de l'avant • DAC SNR/ADC SNR de 106dB/101dB • Technologie protection de contente lossless à toute vitesse • Interface entrée/sortie S/PDIF
IDE	<ul style="list-style-type: none"> • Supporte des disques durs jusqu'à UltraDMA 133Mbps
Serial ATA avec RAID	<ul style="list-style-type: none"> • 6 ports de série ATA gérés avec la puce NVIDIA® MCP55PXE <ul style="list-style-type: none"> - Vitesse SATA jusqu'à 3Gb/s - RAID 0, RAID 1, RAID 0+1 et RAID 5 • 2 ports de série ATA gérés par Silicon Image Sil 3132 <ul style="list-style-type: none"> - Vitesse SATA jusqu'à 3Gb/s - RAID 0, RAID 1 et RAID 0+1
IEEE 1394	<ul style="list-style-type: none"> • VIA VT6307 • Supporte 2 100/200/400 Mb/sec ports
Panneau Arrière I/O	<ul style="list-style-type: none"> • 1 port souris PS/2 et 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	<ul style="list-style-type: none"> • 2 connecteurs pour 4 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 • 1 connecteur 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	<ul style="list-style-type: none"> • Facteur de forme de ATX • 24cm (9.45") x 30.5cm (12")

Leistungsmerkmale und Technische Daten

Prozessor	<ul style="list-style-type: none">• AMD® Athlon™ 64 FX / Athlon™ 64 X2 / Athlon™ 64• Socket AM2• Interface HyperTransport 2000MT/s
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 590 SLI MCP- Nordbrücke: NVIDIA® C51XE- Südbrücke: NVIDIA® MCP55PXE
Systemspeicher	<ul style="list-style-type: none">• 4 Sockel 240-pin DDR2 DIMM• Unterhält DDR2 533 und DDR2 667 DIMMs• Unterhält 128-bit – Speicher mit den zwei Kanälen• Unterhält bis zum 4GB-Systemspeicher• Unterhält nur non-ECC x8 und x16 DIMMs• Unterhält DIMMs ohne Dämpfer
Expansion Schlitz	<ul style="list-style-type: none">• 2 PCI Express x16-Einbauplätzen- SLI-Modus oder Single-VGA-Modus: - Die Bandbreite der Steckplätze beträgt jeweils x16- Benutzen Sie identische SLI-bereite PCI ausdrückliche Karten der Graphiken x16• 1 PCI Express x1-Einbauplätzen• 1 PCI Express x8-Einbauplätzen• 3 PCI-Einbauplätzen
BIOS	<ul style="list-style-type: none">• Kompatibilität mit Award BIOS• CMOS Reloaded• Die Frequenzerhöhung CPU/DRAM• Spannungserhöhung CPU/DRAM/Chipset• Flash-Speicher (4Mbit)
Energie Management	<ul style="list-style-type: none">• ACPI und OS Directed Power Management• ACPI STR (Suspend to RAM) funktion• Wecken bei Betätigung der PS/2 Tastatur/Maus• Wecken des Systems durch das Netzwerk• RTC-Taktgeber zum Einschalten des Systems• Wiederherstellung der Wechselstromversorgung nach einem Ausfall
Kleinteilmonitor	<ul style="list-style-type: none">• 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
LAN	<ul style="list-style-type: none">• NVIDIA® MCP55PXE integriert mit Gigabit MAC (Media Access Control) Technologie• 2 Vitesse VSC8601 Gigabit Phy• Unterstützt IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) und 802.3ab (1000BASE-T)

Audio	<ul style="list-style-type: none"> • Karajan-platine <ul style="list-style-type: none"> - Realtek ALC885 8-Kanal-Hohe-Definition-audio-CODEC - 6 Audio-Anschlußbuchsen - 1 interne Audioanschlüsse (CD-in) - 1 Frontaudioanschluß • DAC SNR/ADC SNR von 106dB/101dB • Lossless zufriedene Schutzvollwegtechnologie • S/PDIF-In/Aus-Schnittstelle
IDE	<ul style="list-style-type: none"> • Unterstützung der Festplatten bis zum UltraDMA 133Mbps
Serial ATA mit RAID	<ul style="list-style-type: none"> • 6 serielle Serial ATA-Ports, unterstützt von einem NVIDIA® MCP55PXE <ul style="list-style-type: none"> - SATA bis zu 3Gb/s schnell - RAID 0, RAID 1, RAID 0+1 und RAID 5 • 2 serielle ATA-Ports, unterstützt von Silicon Image Sil 3132 <ul style="list-style-type: none"> - SATA bis zu 3Gb/s schnell - RAID 0, RAID 1 und RAID 0+1
IEEE 1394	<ul style="list-style-type: none"> • VIA VT6307 • Unterstützt 2 100/200/400 Mb/sec porte
Porte an der Rückwand	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 2 Anschlußfassung für 4 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 CIR-Schnittstelle • 8 Serial ATA-Anschlüsse • 1 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	<ul style="list-style-type: none"> • ATX Formfaktor • 24cm (9.45") x 30.5cm (12")

Características y Especificaciones

Procesador	<ul style="list-style-type: none">• AMD® Athlon™ 64 FX / Athlon™ 64 X2 / Athlon™ 64• Socket AM2• Interface de HyperTransport 2000MT/s
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 590 SLI MCP<ul style="list-style-type: none">- Puente norte: NVIDIA® C51XE- Puente sur: NVIDIA® MCP55PXE
Memoria de Sistema	<ul style="list-style-type: none">• 4 240-pin DDR2 DIMM asientos• Soporta DDR2 533 y DDR2 667 DIMMs• Soporta memoria de dos canales (128-bit)• Soporta hasta 4GB de memoria sistémica• Soporta sólo non-ECC x8 y x16 DIMM• Soporta unbuffered DIMM
Ranuras de Expansión	<ul style="list-style-type: none">• 2 slot PCI Express x16<ul style="list-style-type: none">- Tipo SLI o Tipo Individual de VGA: El ancho de banda de cada slot es x16- Utilice las tarjetas SLI-listas idénticas de los gráficos x16 del PCI expresas• 1 slot PCI Express x1• 1 slot PCI Express x8• 3 slots PCI
BIOS	<ul style="list-style-type: none">• Award BIOS• CMOS Reloaded• Subida de frecuencia de CPU/DRAM• Subida de voltaje de CPU/DRAM/Chipset• Memoria Instante (4Mbitios)
Gerencia de la Energía	<ul style="list-style-type: none">• ACPI y OS Directed Power Management• ACPI STR (Suspend to RAM) función• PS/2 Teclado/Ratón de Wake-On• Wake-On-LAN• Temporizador de RTC para encender el sistema• Recuperación de Fracaso de Energía AC
Monitor del Hardware	<ul style="list-style-type: none">• 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 - Desconexión en caso de recalentamiento –el ordenador se desconecta automáticamente en caso de recalentamiento
LAN	<ul style="list-style-type: none">• NVIDIA® MCP55PXE integrado con la tecnología Gigabit MAC (Media Access Control)• 2 Vitesse VSC8601 Gigabit Phy• Completamente a IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) y 802.3ab (1000BASE-T) estándar

Audio	<ul style="list-style-type: none"> • Tablero de Karajan <ul style="list-style-type: none"> - Realtek ALC885 8-canal Alta Definición audio CODEC - 6 enchufes de audio - 1 conector de CD-in audio interno - 1 conector audio delantero • DAC SNR/ADC SNR de 106dB/101dB • Tecnología protección de la contenta lossless de exploración completa • Interfáz de S/PDIF-in/out
IDE	<ul style="list-style-type: none"> • Soporta las unidades duras hasta de UltraDMA 133Mbps
Serial ATA con RAID	<ul style="list-style-type: none"> • 6 ports de Serial ATA soporta por NVIDIA® MCP55PXE <ul style="list-style-type: none"> - SATA se acelera a 3Gb/s - RAID 0, RAID 1, RAID 0+1 y RAID 5 • 2 ports de Serial ATA soporta por Silicon Image Sil 3132 <ul style="list-style-type: none"> - SATA se acelera a 3Gb/s - RAID 0, RAID 1 y RAID 0+1
IEEE 1394	<ul style="list-style-type: none"> • VIA VT6307 • Soporta 2 ports 100/200/400 Mb/sec
Panel Trasero I/O	<ul style="list-style-type: none"> • 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 y 2 puertos de RJ45 LAN • 6 puertos de USB 2.0/1.1
Conector Interno	<ul style="list-style-type: none"> • 2 conectores para 4 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 conexión de cable óptico • 1 conector de IR • 1 conector de CIR • 8 conectores de Serial ATA • 1 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 y 5 conectores de abanicos • 1 indicadore diagnósticos • EZ conmutadores (conmutadores de alimentación y reset)
PCB	<ul style="list-style-type: none"> • ATX forme el factor • 24cm (9.45") × 30.5cm (12")

Русский язык

Характеристики и свойства

Процессор	<ul style="list-style-type: none">• AMD® Athlon™ 64 FX / Athlon™ 64 X2 / Athlon™ 64• гнездо AM2• Интерфейс системной шины 2000MT/s
Чипсет	<ul style="list-style-type: none">• NVIDIA nForce® 590 SLI MCP- Северный мост: NVIDIA® C51XE- Южный мост: NVIDIA® MCP55PXE
Оперативная Память	<ul style="list-style-type: none">• 4 240-pin DDR2 DIMM гнезда• Поддерживает DDR2 533 и DDR2 667 DIMMs• Поддерживает двухканальную память (128-бит)• Поддерживает до 4ГБ системной памяти• Поддерживает только non-ECC x8 и x16 DIMM• Поддерживает небуфф. DIMM
управление силы	<ul style="list-style-type: none">• 2 PCI Express x16 слотов- Режим SLI или Режим одного VGA: Пропускная способность каждого слота составляет x16- 2 видеокарты SLI-ready (используйте одинаковые платы) на слотах PCI Express x16• 1 PCI Express x1 слотов• 1 PCI Express x8 слотов• 3 PCI слотов
BIOS	<ul style="list-style-type: none">• Award BIOS• CMOS Reloaded• Повышение частоты CPU/DRAM• Повышение напряжения CPU/DRAM/Chipset• 4Mbit Flash Память
управление силы	<ul style="list-style-type: none">• ACPI и OS Directed Power Management• ACPI STR (Suspend to RAM)• Активизация На Движение Мыши• Активизация На Входящий Звонок• RTC Таймер для Включения Системы• Скачки Напряжения
монитор оборудования	<ul style="list-style-type: none">• 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
LAN	<ul style="list-style-type: none">• NVIDIA® MCP55PXE со встроенной технологией Gigabit MAC (Media Access Control)• 2 Vitesse VSC8601 Gigabit Phy• Поддерживает IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) и 802.3ab (1000BASE-T)

Тональнозвуково	<ul style="list-style-type: none"> • звуковой модуль Karajan <ul style="list-style-type: none"> - Realtek ALC885 8-канал Высокое Определение CODEC - 6 гнезда для звука и 1 разъем CD-in - 1 передний аудио разъем • DAC SNR/ADC SNR 106dB/101dB • Full-rate lossless содержимая технология предохранения • интерфейса S/PDIF-in/out
IDE	<ul style="list-style-type: none"> • Поддерживает жесткие диски до UltraDMA 133Mbps
Serial ATA с RAID	<ul style="list-style-type: none"> • 6 серийных портов ATA поддерживанных NVIDIA® MCP55PXE <ul style="list-style-type: none"> - Скорость SATA до 3 ГБ/с - RAID 0, RAID 1, RAID 0+1 и RAID 5 • 2 серийных портов ATA поддерживанных Silicon Image Sil 3132 <ul style="list-style-type: none"> - Скорость SATA до 3 ГБ/с - RAID 0, RAID 1 и RAID 0+1
IEEE 1394	<ul style="list-style-type: none"> • VIA VT6307 • Поддерживает 2 100/200/400 Mb/sec порта
задняя панель I/O	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 2 разъем для 4-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 • 1 IR разъем • CIR разъем • 8 Serial ATA разъема • 1 IDE разъема • 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	<ul style="list-style-type: none"> • ATX • 24cm (9.45") x 30.5cm (12")

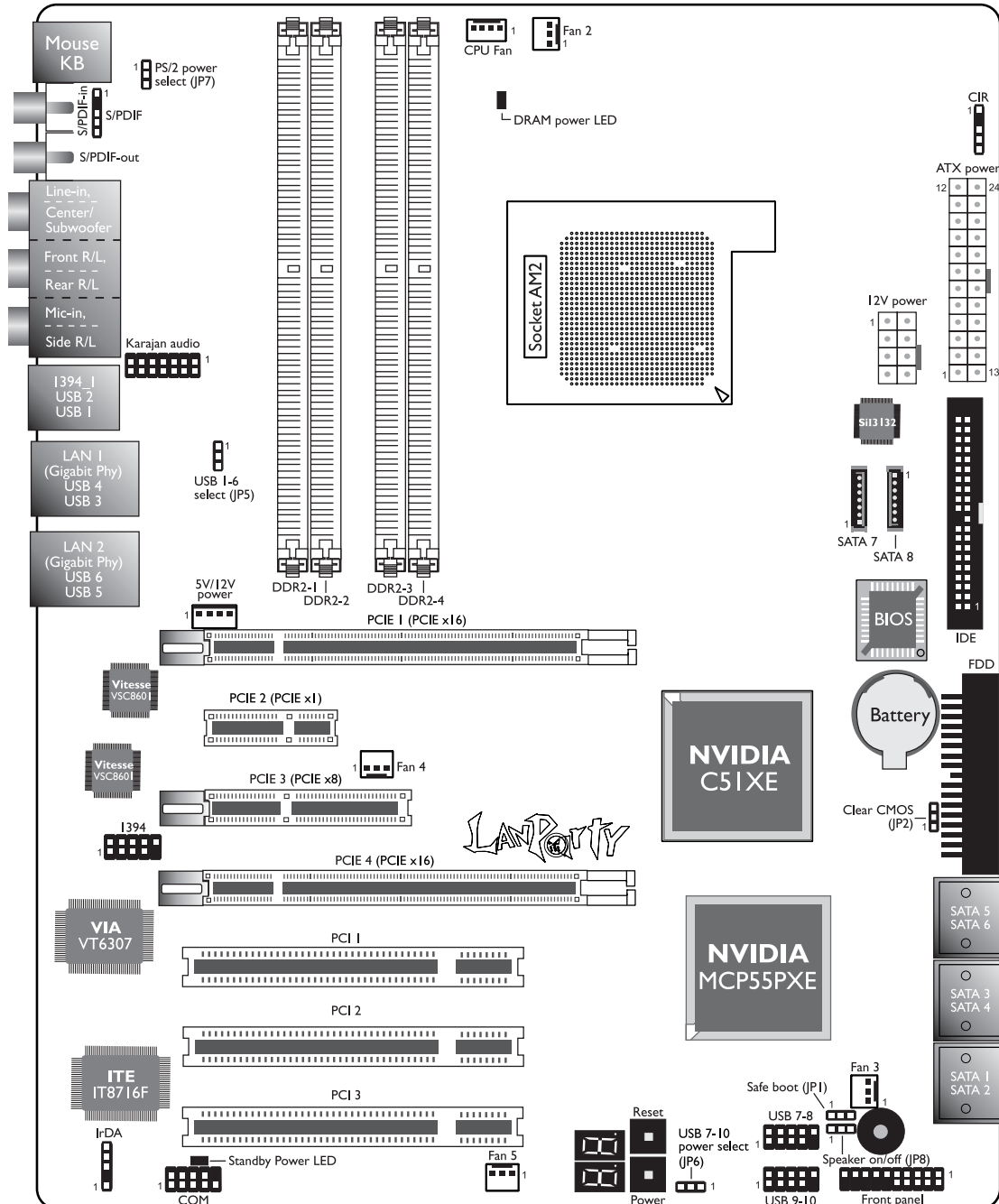
日本語

プロセッサ	AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 ソケットAM2
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	NVIDIA nForce® 590 SLI MCP チップセット - ノースブリッジ: NVIDIA® C51XE - サウスブリッジ: NVIDIA® MCP55PXE
システムメモリ	240ピンDDR2 DIMMソケット x 4 DDR2 533 および DDR2 667 DIMMs 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 x8/x16 非ECC アンバッファードDIMM
拡張スロット	PCI Express x16 スロット x 2 - SLI モードおよびシングル VGA モード: それぞれの x16 スロットが x16 の帯域で動作 - PCI Express x16 スロットで 2 枚の SLI 対応 PCI Express x16 グラフィックカード (同じカードを使用) を使用。 PCI Express x1 スロット x 1 PCI Express x8 スロット x 1 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LAN (WOL) 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	カラヤン・オーディオ・モジュール - Realtek ALC885 8チャンネルオーディオ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 106dB/101dB のDAC SNR/ADC SNR 標準スピードのlossless満足な保護技術 S/PDIF-入力/出力インターフェース

LAN	NVIDIA® MCP55PXE (Gigabit MAC technology) 2 Vitesse VSC8601 Gigabit Phy IEEE 802.3
IDE	IDEコネクタにより最大2台のUltraDMA 133Mbpsハードドライブと接続可能
シリアルATA (SATA)	6つのSATAポートをサポート - NVIDIA® MCP55PXE - SATA速度は最大3Gb/s - RAID 0, RAID 1, RAID 0+1 および RAID 5 2つのSATAポートをサポート - Silicon Image Sil 3132 - SATA速度は最大3Gb/s - RAID 0, RAID 1 および RAID 0+1
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	4ポート外部USB 2.0/1.1ポート用コネクタ x 2 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 1 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



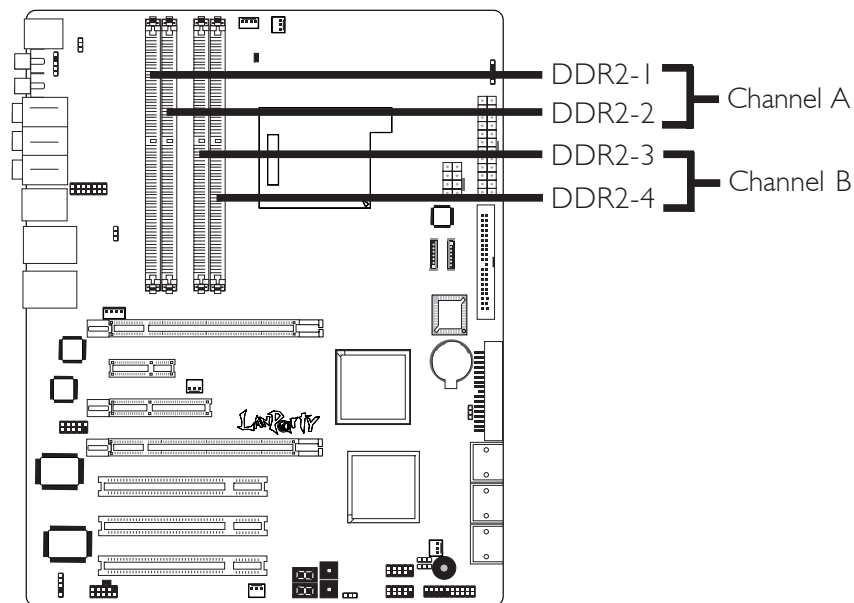
**Warning:**

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 DDR2 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 DDR2 SDRAM DIMM. The four DDR2 DIMM sockets on the system board are divided into 2 channels:

Channel A - DDR2-1 and DDR2-2

Channel B - DDR2-3 and DDR2-4

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.

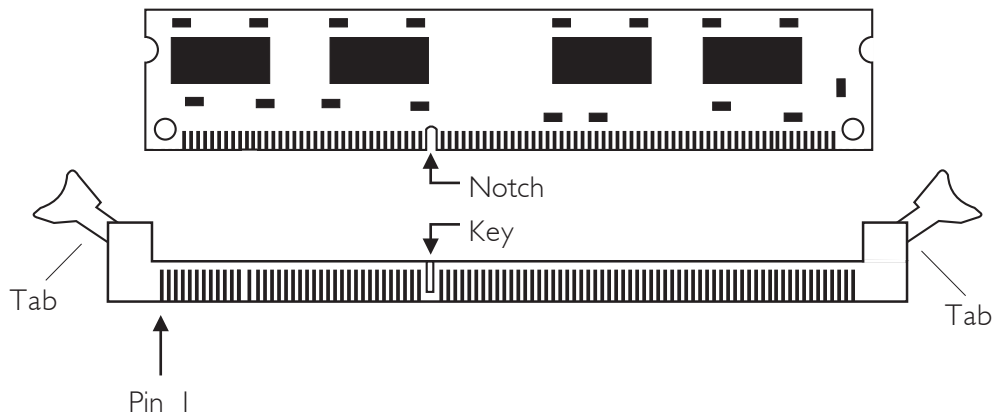
Single Channel	<ul style="list-style-type: none">• DIMMs are on the same channel.• DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs.• Not all slots need to be populated.
Dual Channel	<ul style="list-style-type: none">• DIMMs of the same memory configuration are on different channels.

BIOS Setting

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

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.

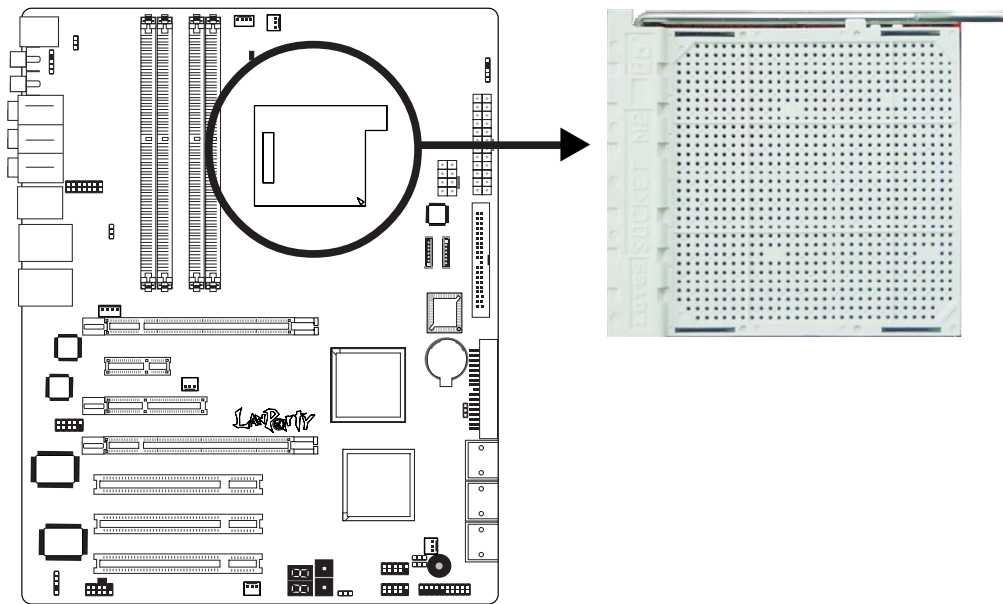
CPU

Overview

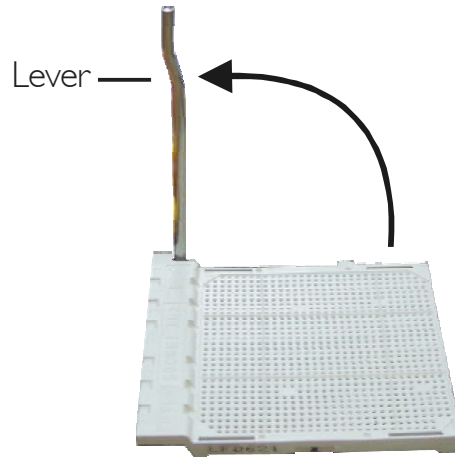
The system board is equipped with Socket AM2 for installing an AMD CPU designed for this socket.

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 Socket AM2 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.



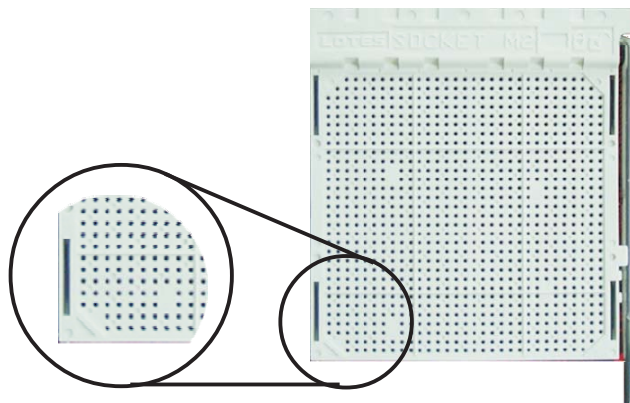
5. Position the CPU above the socket. The gold mark on the CPU must align with the corner of the CPU socket (refer to the enlarged image) shown below.

**Important:**

Handle the CPU by its edges and avoid touching the pins.



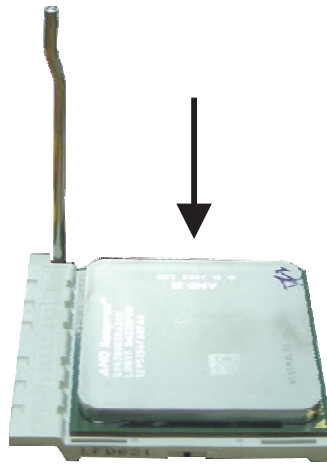
Gold mark —



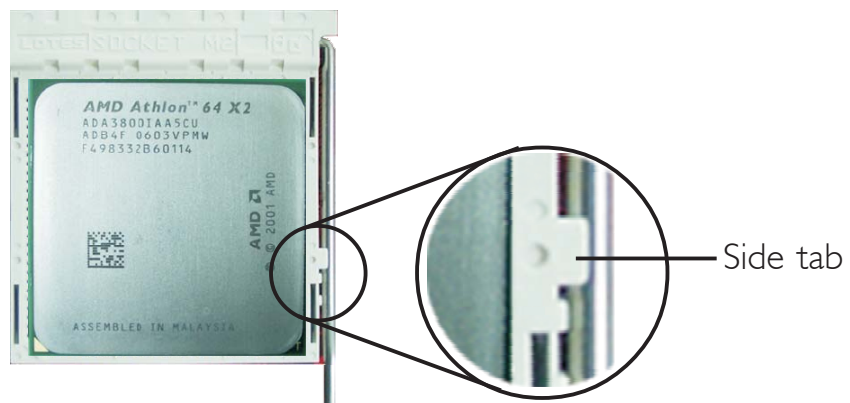
6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

**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.



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.

The fan / heat sink assembly must provide airflow adequate to ensure appropriate internal temperature and cooling of the components in the system. Failure to use the appropriate cooling system may result in reduced performance or, in some instances, damage to the system board.

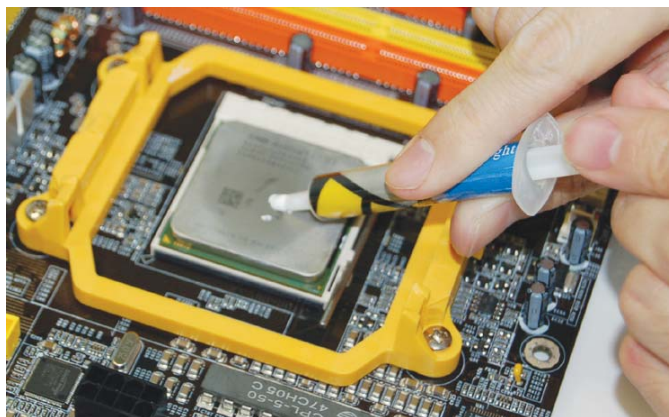


Note:

- 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.

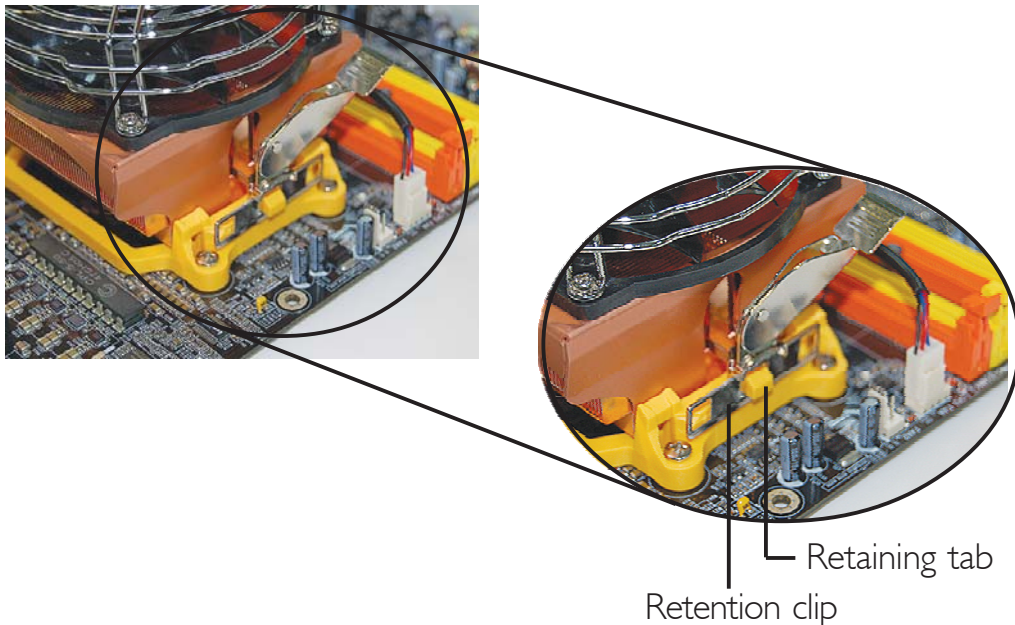
Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.



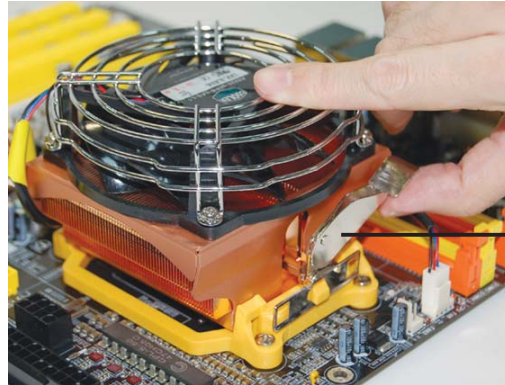
2. The system board comes with the retention module base already installed.



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 hole(s) on the retention clip into the retaining tab(s) of the retention module base. Hook the other side of the retention clip so that the hole(s) on the retention clip also fit into the retaining tab(s) of the retention module base.



4. 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.



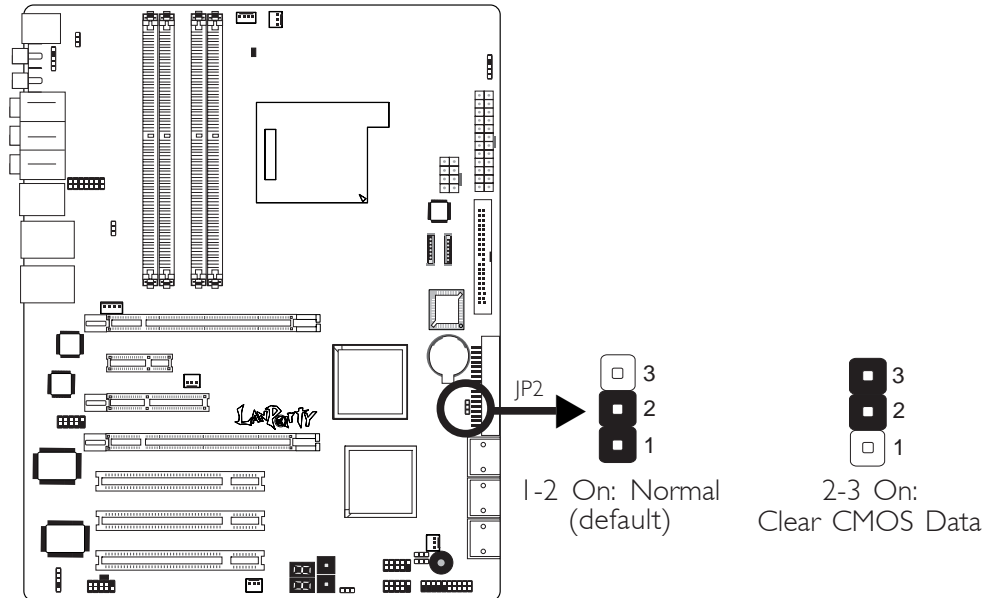
Retention lever

**Note:**

1. 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.
 2. Make sure there is sufficient air circulation across the CPU fan and heat sink.
5. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

Jumper Settings

Clear CMOS Data



If you encounter the following,

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

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

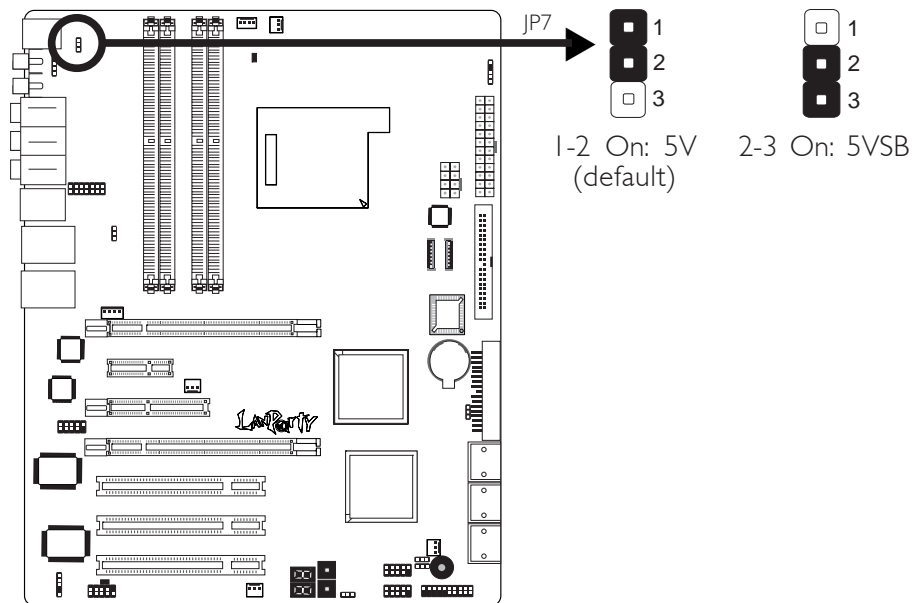
To load the default values stored in the ROM BIOS, please follow the steps below.

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 ratio/clock in the BIOS, please proceed to step 4.

4. After powering-on the system, press 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 setting. 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



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

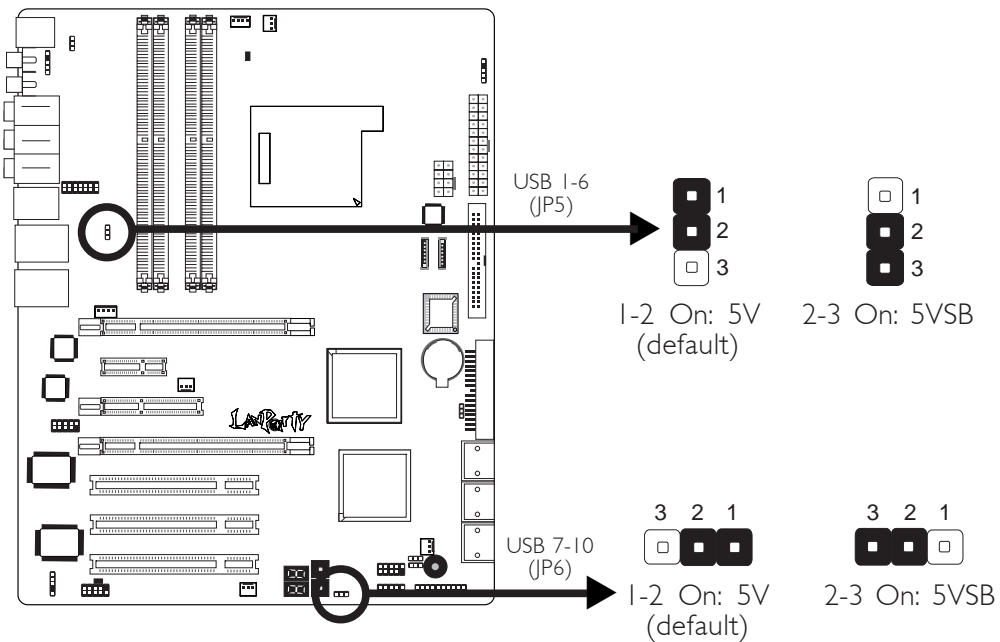
Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.



Important:

The 5VSB power source of your power supply must support $\geq 720\text{mA}$.

USB Power Select

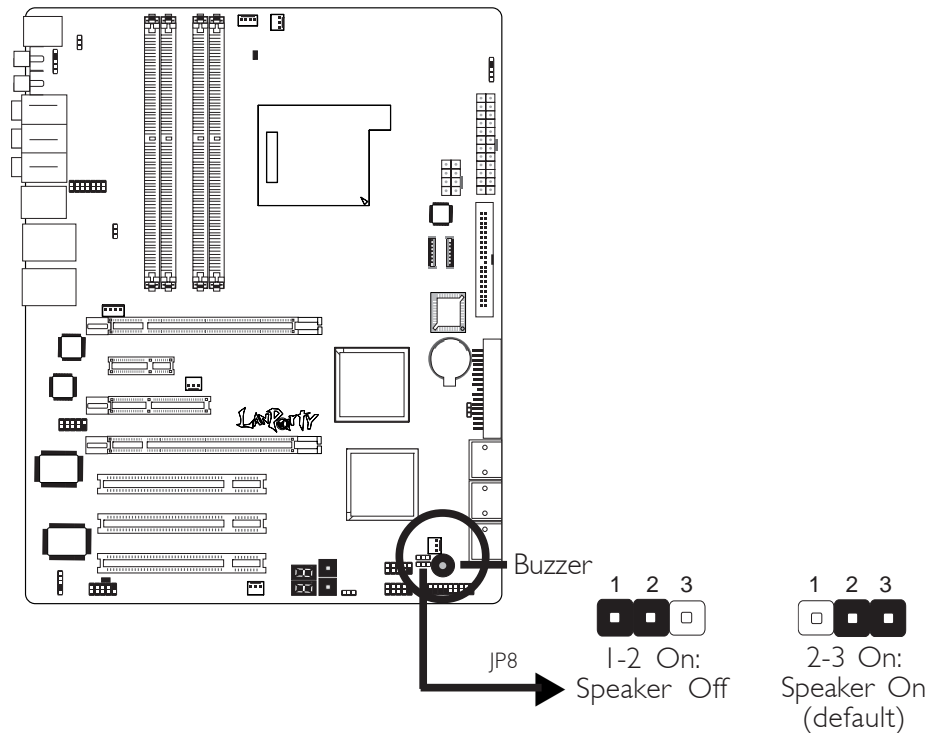


JP5 and JP6 are used to select the power of the USB ports. Selecting 5VSB will allow you to use the USB keyboard or USB mouse to wake up the system..

**Important:**

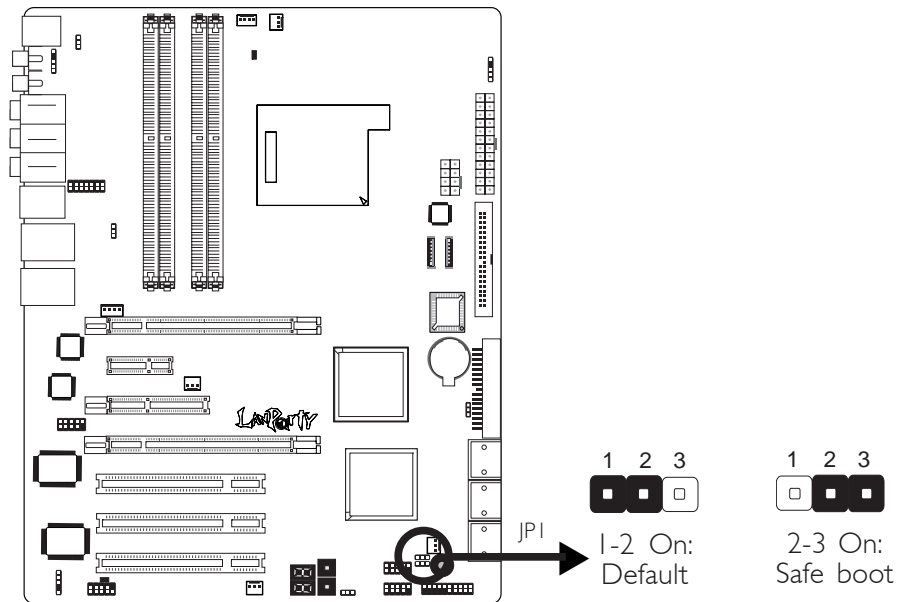
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support $\geq 1.5A$. For 3 or more USB ports, the 5VSB power source of your power supply must support $\geq 2A$.

Speaker On/Off Select



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.

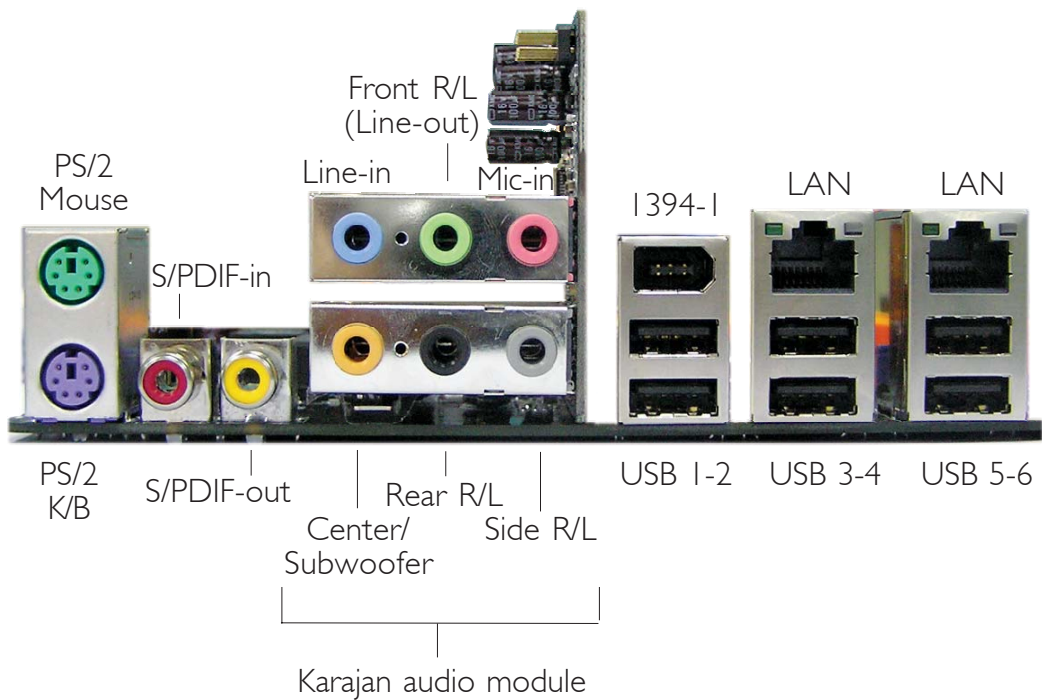
Safe Boot



JPI is used to safely reboot the system whenever the system hangs and you are unable to restart the system.

1. Power-off the system and unplug the power cord.
2. Set JPI pins 2 and 3 to On. Wait for a few seconds then set JPI back to its default setting, pins 1 and 2 On.
3. Plug the power cord and power-on the system. The system will reboot normally without losing all data stored in the CMOS.

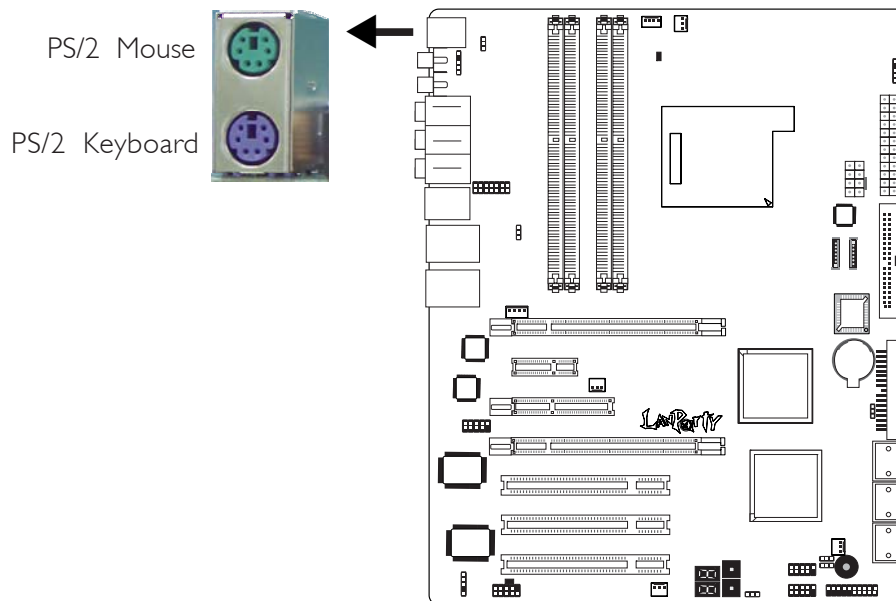
Rear Panel I/O Ports



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-I port
- 6 USB ports
- 2 LAN (Gigabit Phy) ports

PS/2 Mouse and PS/2 Keyboard Ports



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:**

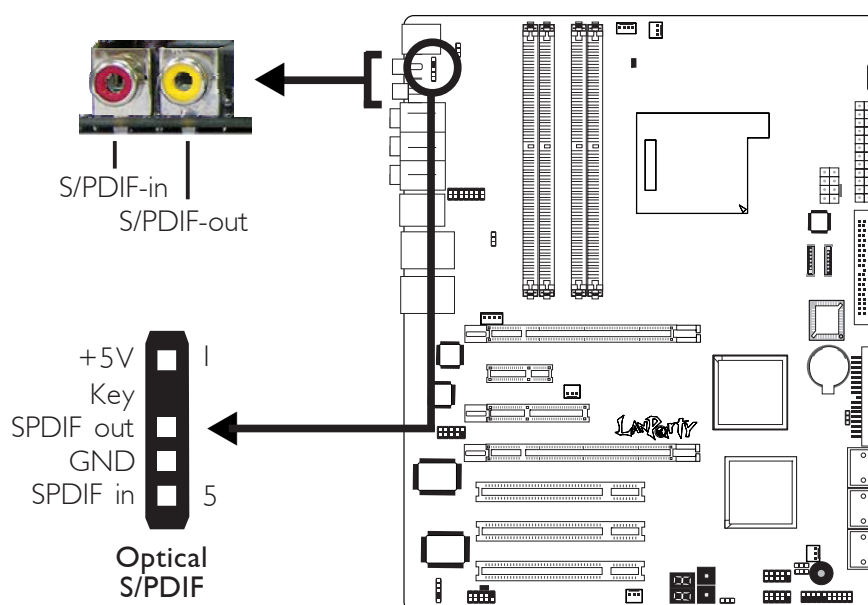
Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.

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 wake up function in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

S/PDIF-in/out Jacks



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.

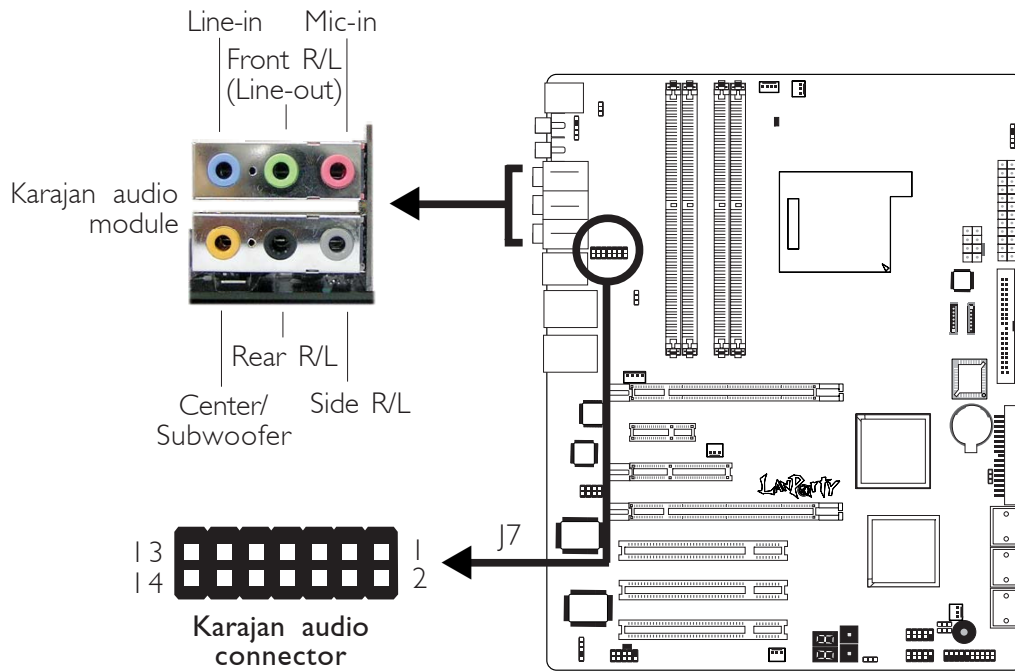
The S/PDIF connector at location J3 is used to connect optical S/PDIF ports. The S/PDIF ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable connector to J3. Make sure pin 1 of the audio cable connector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



Important:

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

Karajan Audio Module

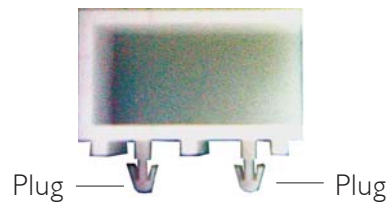


Installing the Karajan Audio Module

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.

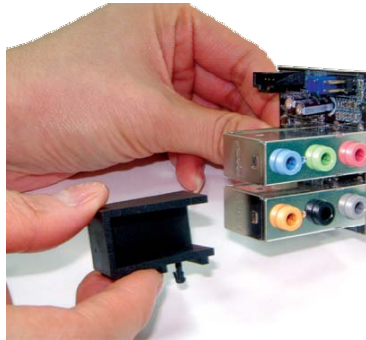


Karajan audio module

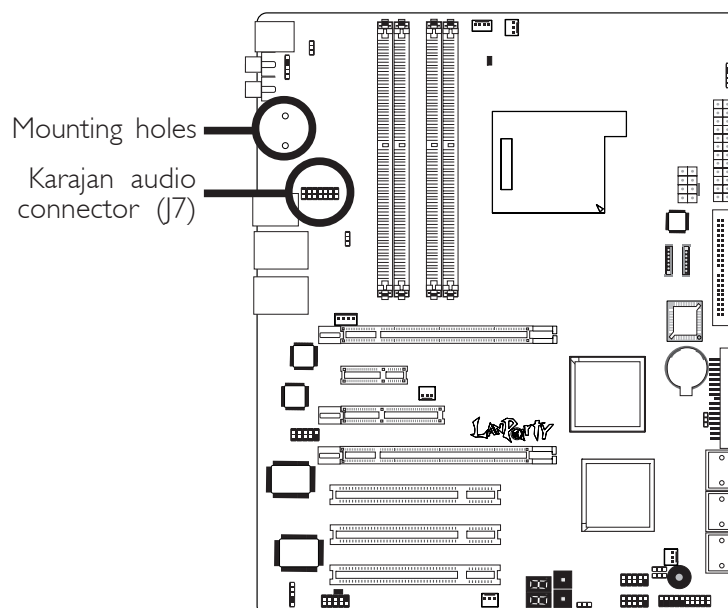
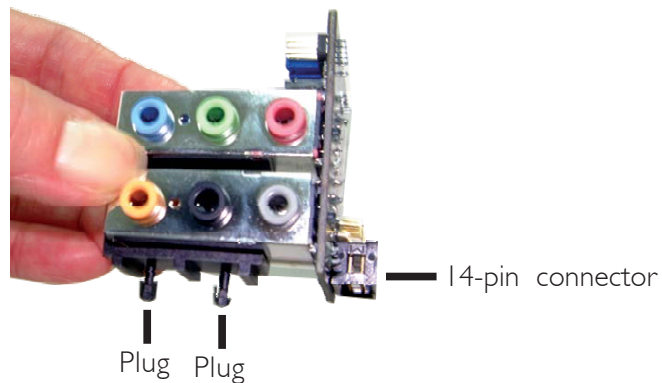


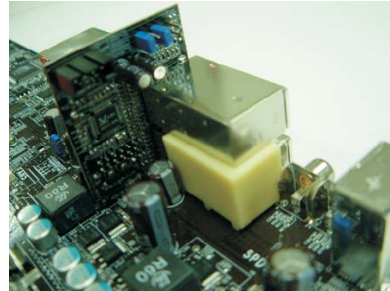
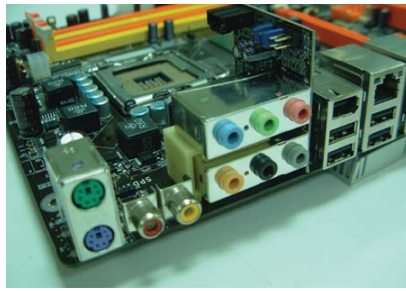
Module holder

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.



**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

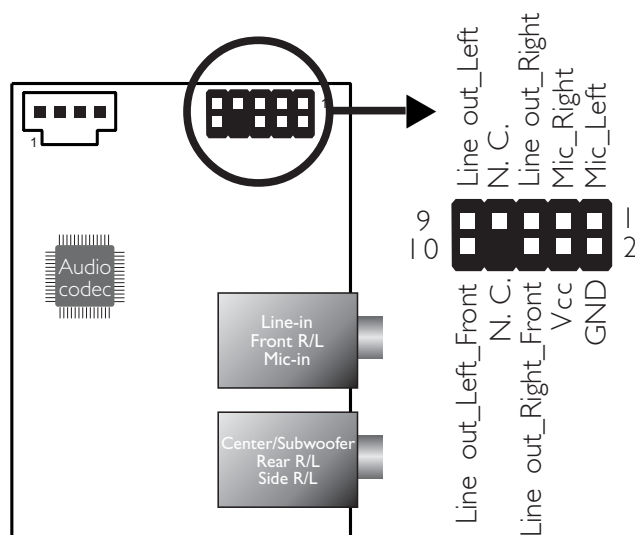
The Karajan audio module is snapped through the system board via the module holder. Pull the Karajan audio module upward. The module holder will at the same time detach from the system board.

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.

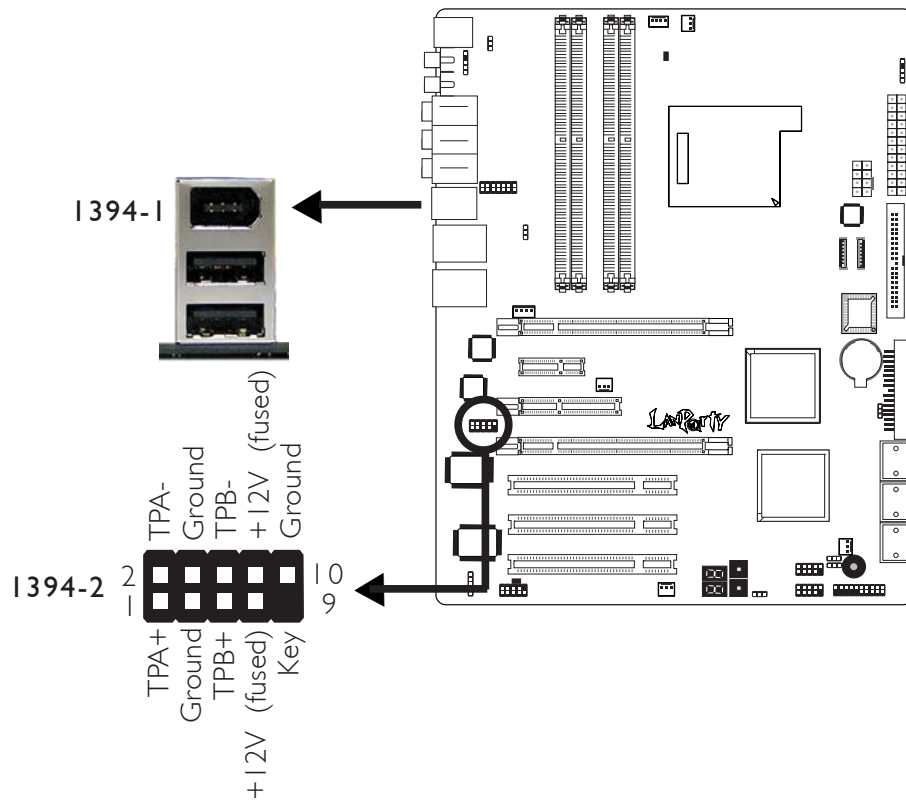
BIOS Setting

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

Driver Installation

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

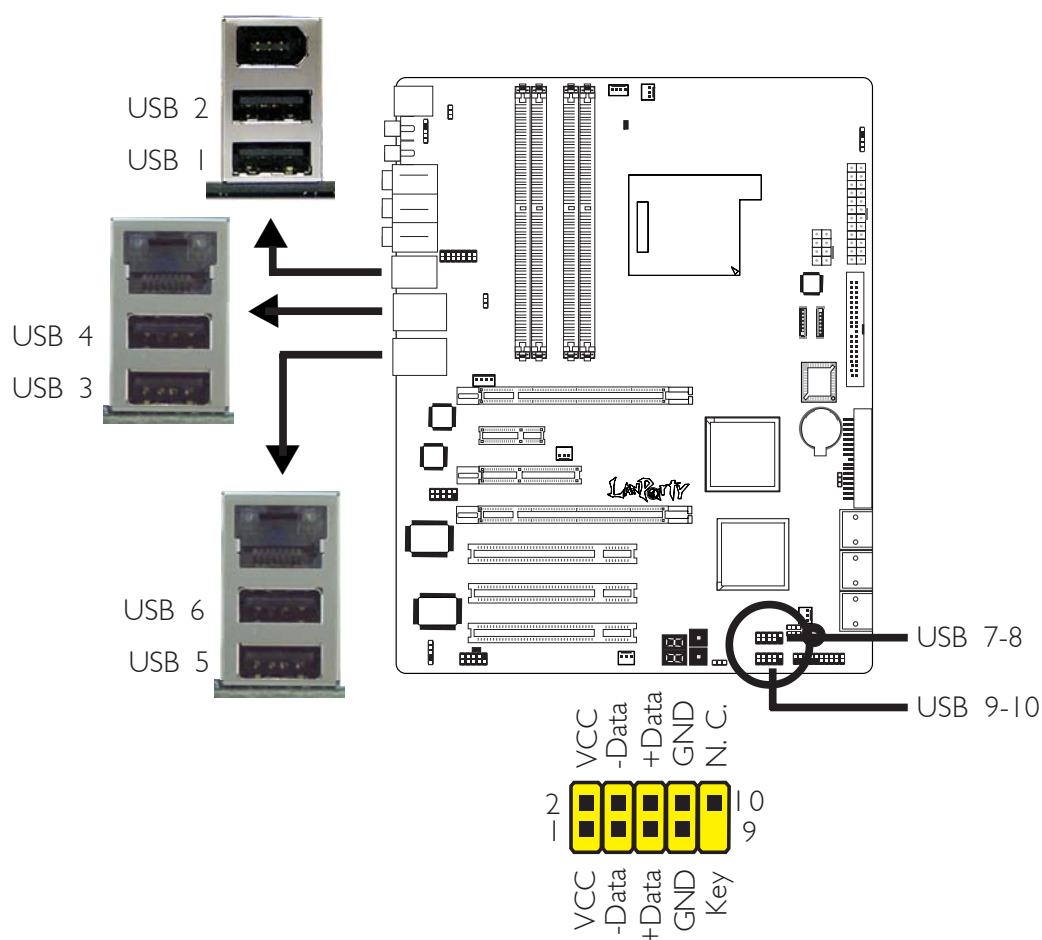
IEEE 1394 Ports



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.

USB (Universal Serial Bus) Ports



The system board supports 10 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.

The J18 (USB 7-8) and J33 (USB 9-10) connectors allow you to connect 4 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 or J33.

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 device to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

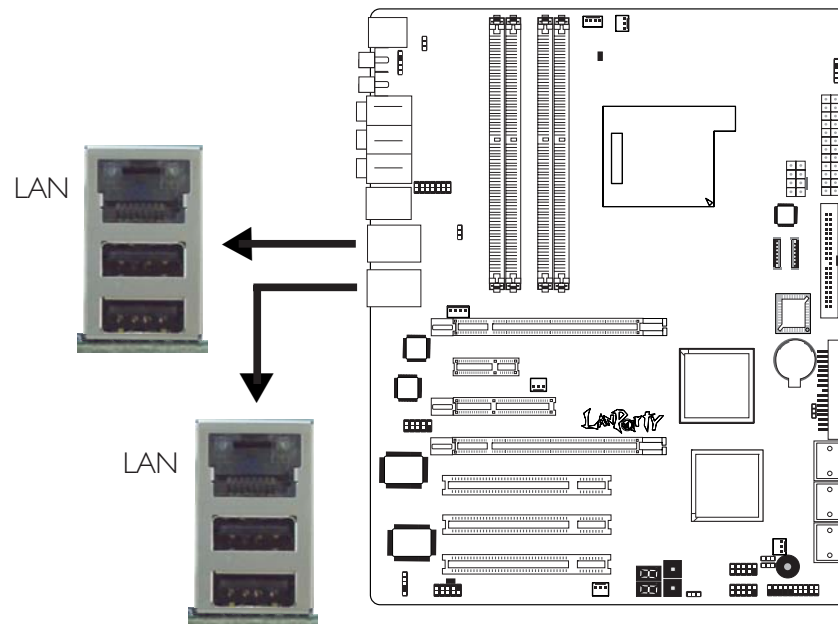
- **Jumper Setting:**
JP5 and/or JP6 must be set to "2-3 On: 5VSB". Refer to "USB Power Select" in this chapter for more information.



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 $\geq 1.5A$. For 3 or more USB ports, the 5VSB power source of your power supply must support $\geq 2A$.

RJ45 LAN Ports



The onboard LAN ports are at locations CN4 and CN6 of the system board. 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” submenu) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

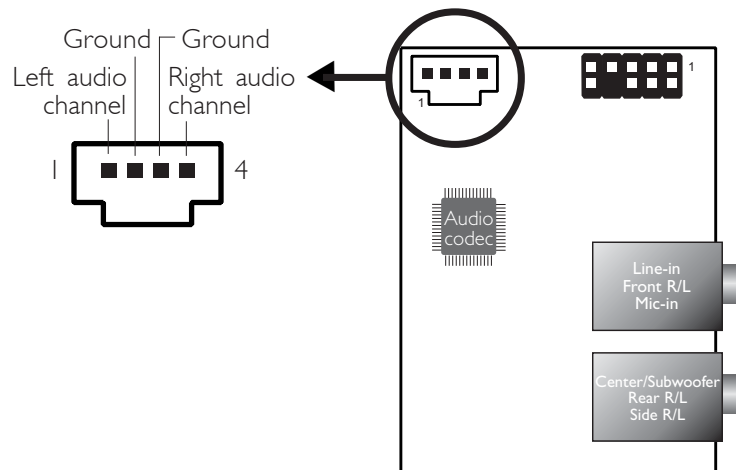
Install the LAN driver. Refer to chapter 4 for more information.

2

Hardware Installation

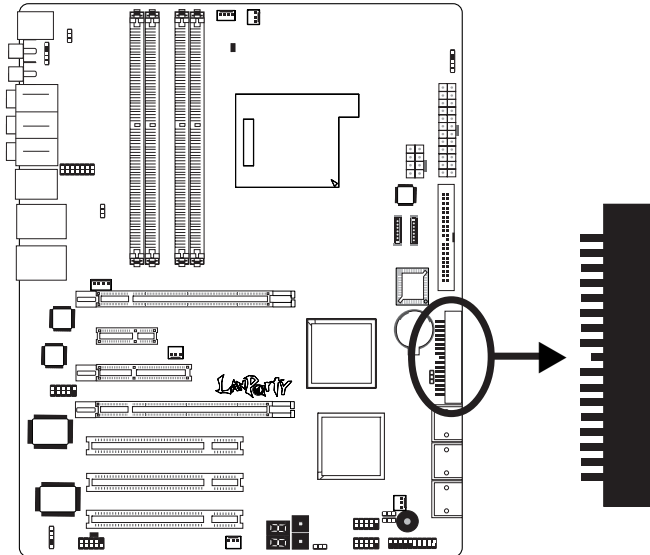
I/O Connectors

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

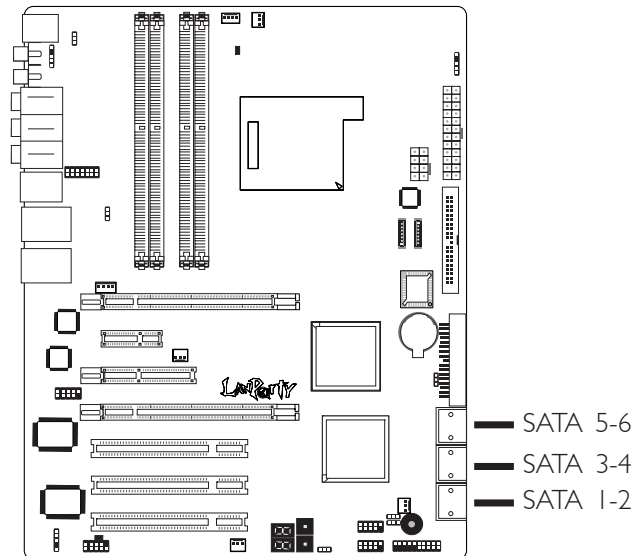
Install one end of the floppy disk drive cable into the shrouded floppy disk header (J23) on the system board and the other end-most connector to the drive you want to designate as Drive A. If you are connecting another drive (Drive B), install the middle connector of the cable to the drive. The colored 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 of the BIOS. Refer to chapter 3 for more information.

Serial ATA Connectors

Six Serial ATA ports supported by the NVIDIA MCP55PXE chip



- SATA speed up to 3Gb/s
- RAID 0, RAID 1, RAID 0+1 and RAID 5

Connecting Serial ATA Cables

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

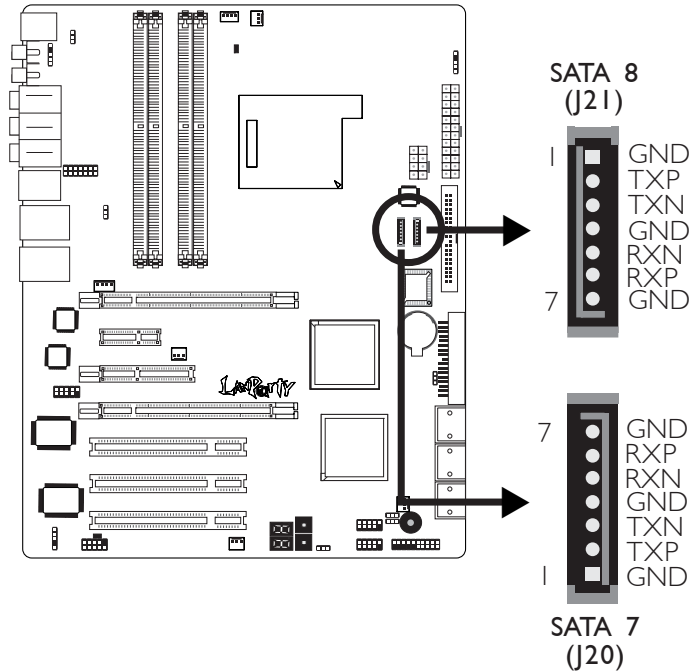
BIOS Setting

Configure Serial ATA in the Genie BIOS Setting submenu ("PCI Device Control -> RAID Config" 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.

Two Serial ATA ports supported by the Silicon Image Sil 3132 chip



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

Connecting Serial ATA Cables

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

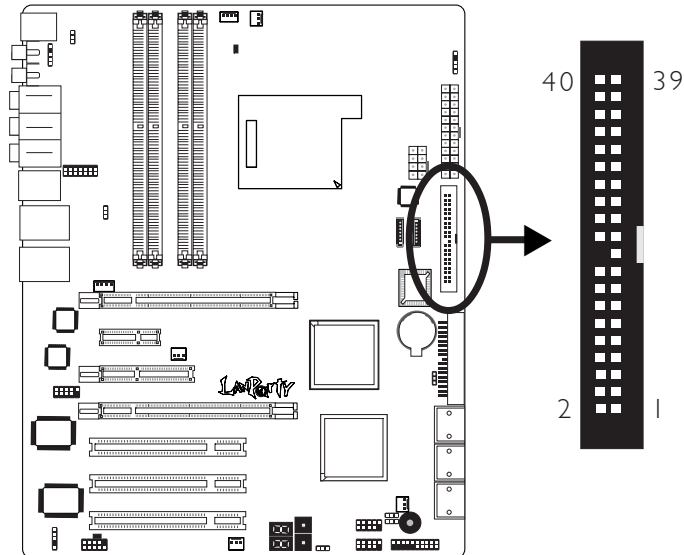
BIOS Setting

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 a shrouded PCI IDE header that will interface two 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 has 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connect 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 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 Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 or ATA/133 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.

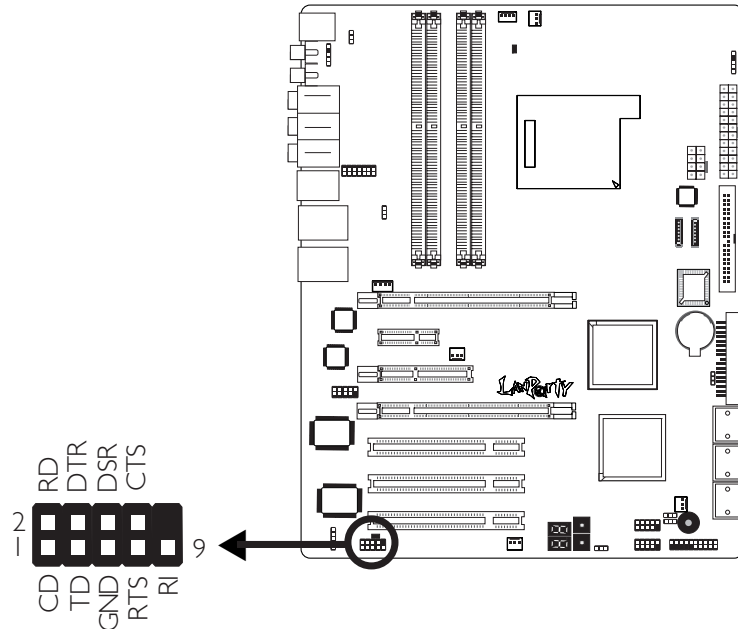
BIOS Setting

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

2

Hardware Installation

Serial (COM) Port



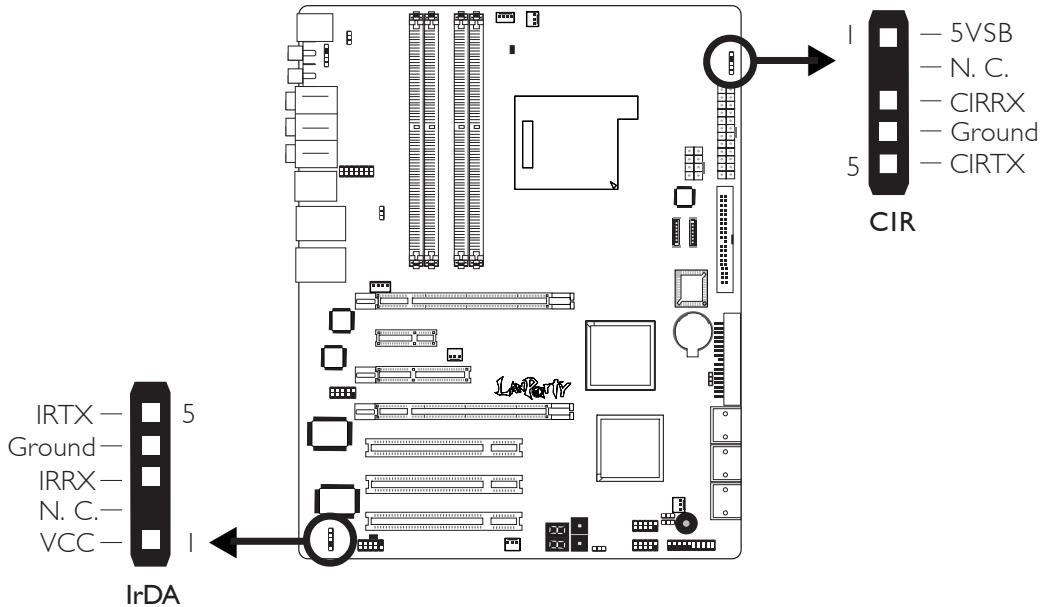
The system board is equipped with a 9-pin connector for connecting an external serial port. The serial port cable is an optional item and must be purchased separately. Insert the connector that is attached to the serial port cable to the 9-pin connector (J4) then install the serial port bracket to an 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 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 serial port in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

IrDA Connector



Connect the cable connector from your IrDA module to the IrDA connector (J5) or CIR connector (J15).



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.

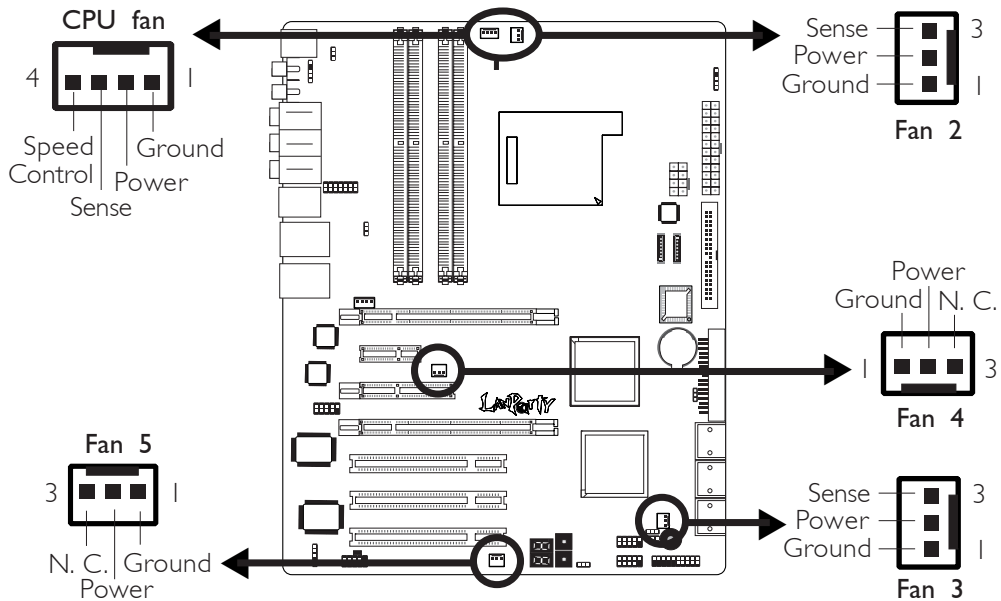
BIOS Setting

Configure IrDA/CIR in the Integrated Peripherals submenu 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

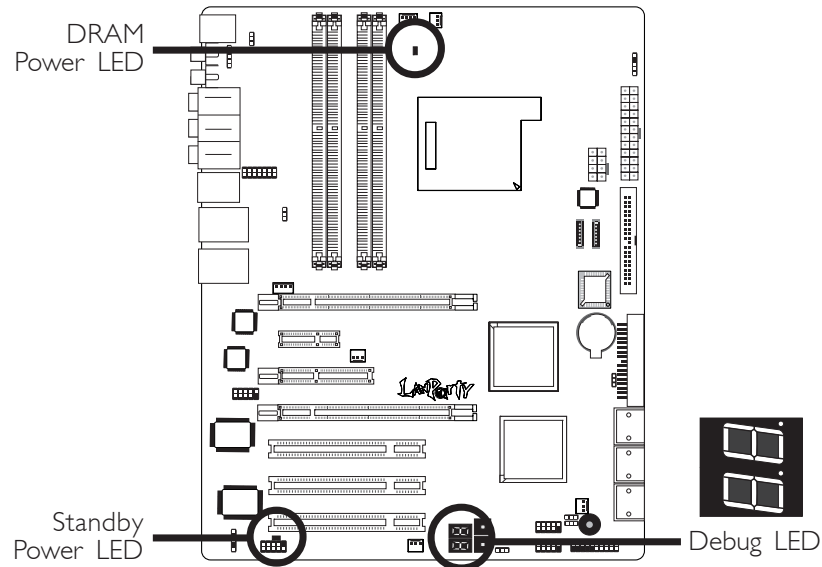


Connect the CPU fan's cable connector to the CPU fan connector (J31) on the system board. Fan 2 (J32), Fan 3 (J30), Fan 4 (J9) and Fan 5 (J6) are used to connect additional cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board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

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

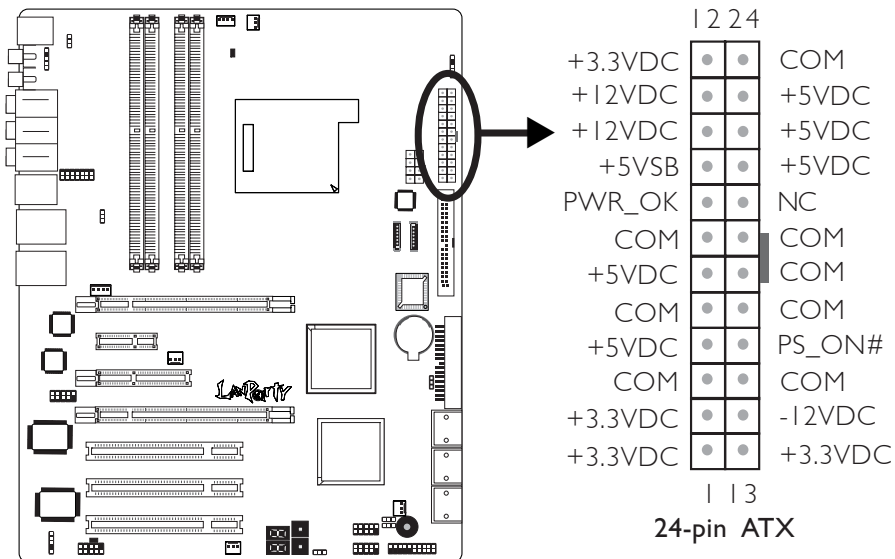
The Debug LED displays POST codes. POST (Power-On Self Tests) which is controlled by the BIOS is performed whenever you power-on the system. POST will detect the status of the system and its components. Each code displayed on the LED corresponds to a certain system status.

**Warning:**

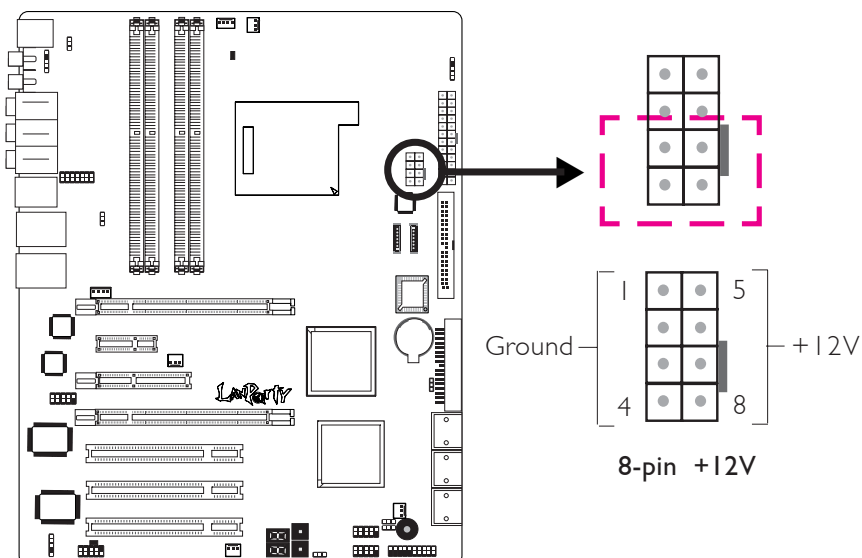
When the DRAM Power LED and/or Standby Power LED lit red, it indicates that power is present on the DDR2 sockets and/or PCI slots. Power-off the PC then unplug the power cord prior to installing any memory modules or add-in cards. Failure to do so will cause severe damage to the motherboard and components.

Power Connectors

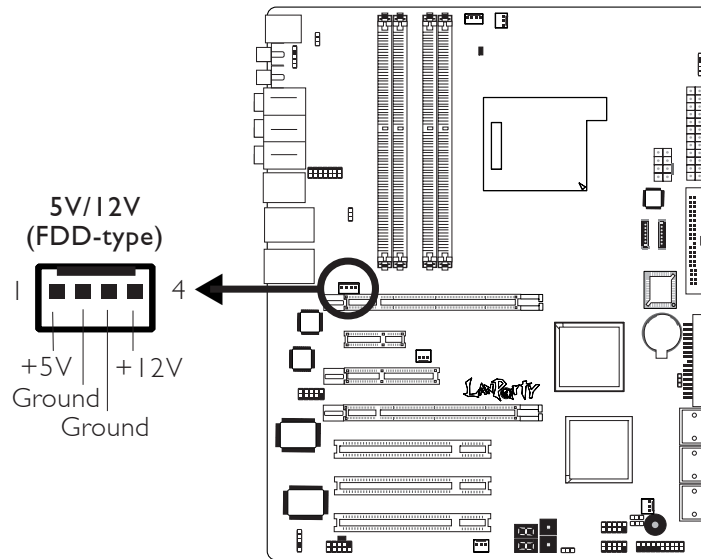
Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted onto CN10.



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 a 4-pin power connector to CN9 as shown below.



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.



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.**

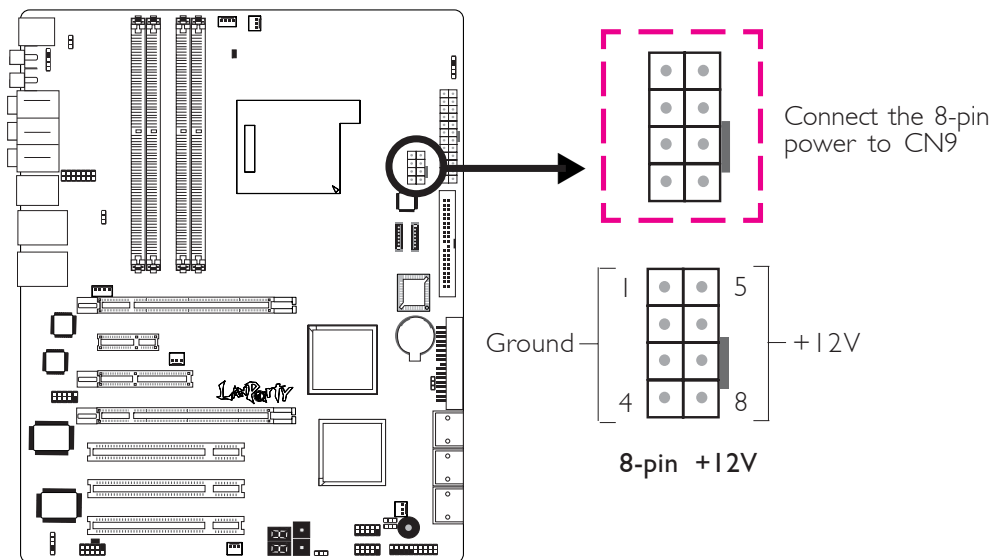
Power Supply Requirements

This section contains information about the minimum power required which were calculated based on the following basic peripheral configuration.

- One hard drive
- Two optical drives
- One floppy drive
- One sound card
- Two sticks of memory

For NVIDIA® SLI™ Configuration

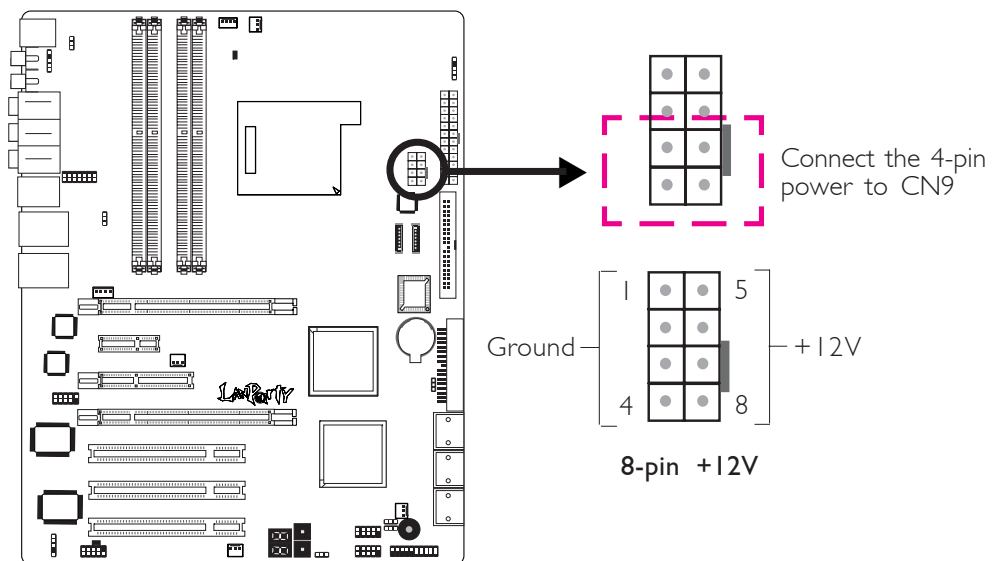
ATX 12V 2.0 compliant - with a 24-pin ATX main power connector, dual 12V rails ($12V_1$ and $12V_2$) and an 8-pin EPS server style 12V power connector. The +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM). It is preferable to use the 8-pin power (rather than the usual 4-pin power); connect to CN9 as shown below.



High-End 7900GTX	Mid-Range 6800GT	Entry-Level 6600GT
≥500 Watt	≥420 Watt	≥350 Watt
w/min. +12V @ 30A	w/min. +12V @ 25A	w/min. +12V @ 20A

For Single PCI Express x16 Graphics Card

ATX 12V 2.0 compliant - with a 24-pin ATX main power connector, dual 12V rails ($12V_1$ and $12V_2$). Your power supply unit may come with an 8-pin EPS server style 12V power connector or 4-pin +12V power connector. The +12V power connector 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.



High-End 7900GTX	Mid-Range 6800GT	Entry-Level 6600GT
≥480 Watt	≥450 Watt	≥400 Watt
w/min. +12V @ 24A	w/min. +12V @ 22A	w/min. +12V @ 20A

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).

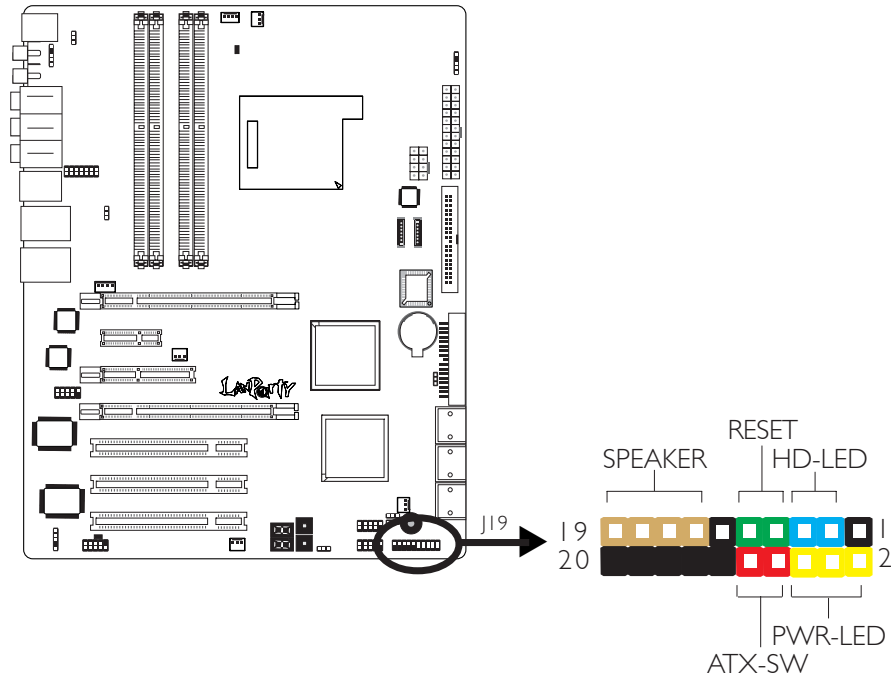
If for some reasons you need to totally cut off the power supplied to the PC, switch off the power supply or unplug the power cord. Take note though that if you intend to restart it at once, please strictly follow the steps below.

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 and 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 PBTN” in the Power Management Setup (Chapter 3).

PWR-LED: Power/Standby LED

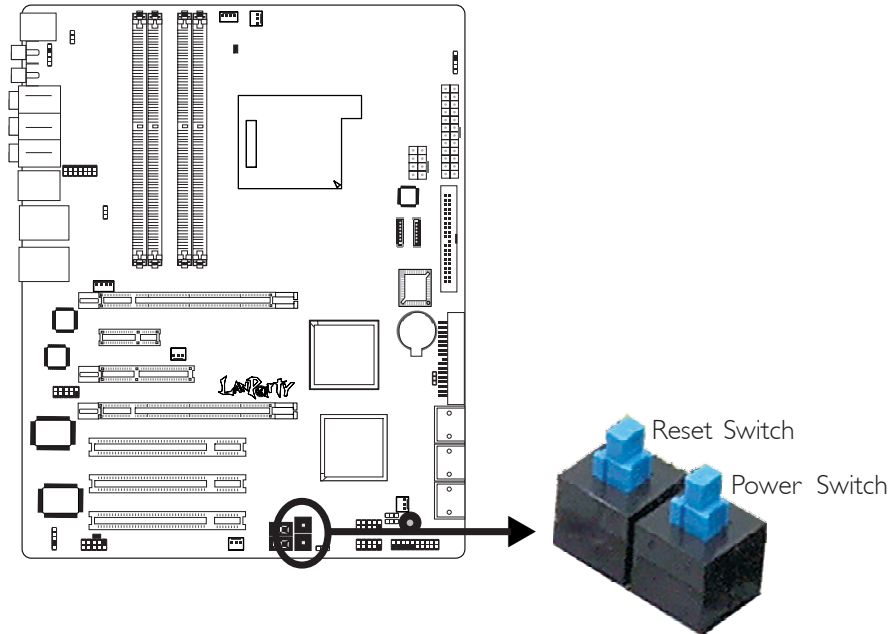
When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

**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.

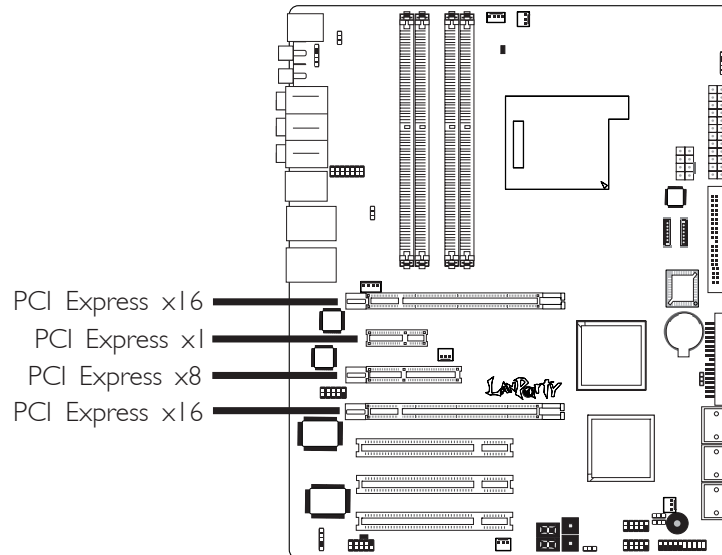
	Pin	Pin Assignment
HD-LED (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
Reserved	14 16	N. C. N. C.
ATX-SW (ATX power switch)	8 10	PWRBT+ PWRBT-
Reserved	18 20	N. C. N. C.
RESET (Reset switch)	7 9	Ground H/W Reset
SPEAKER (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
PWR-LED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

EZ Touch Switches



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

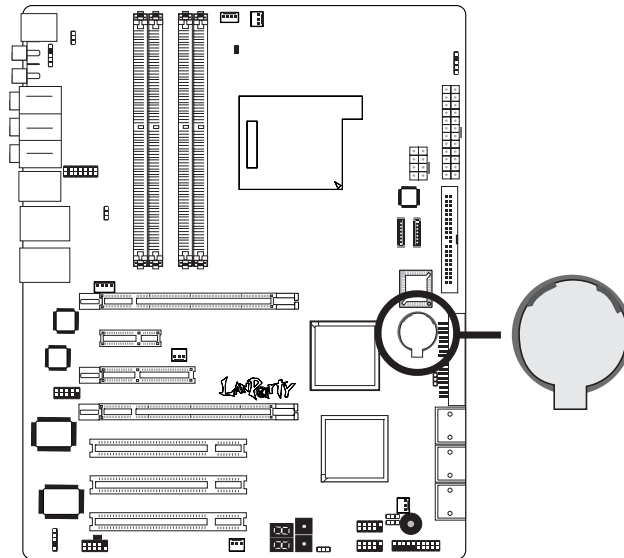
Install PCI Express x16 graphics card, that comply to the PCI Express specifications, into the PCI Express x16 slot. To install a graphics card into the x16 slot, align the graphics card above the slot then press it down firmly until it is completely seated in the slot. The retaining clip of the slot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

Refer to chapter 7 for information on configuring SLI.

PCI Express x1/x8

Install PCI Express x1/x8 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.

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

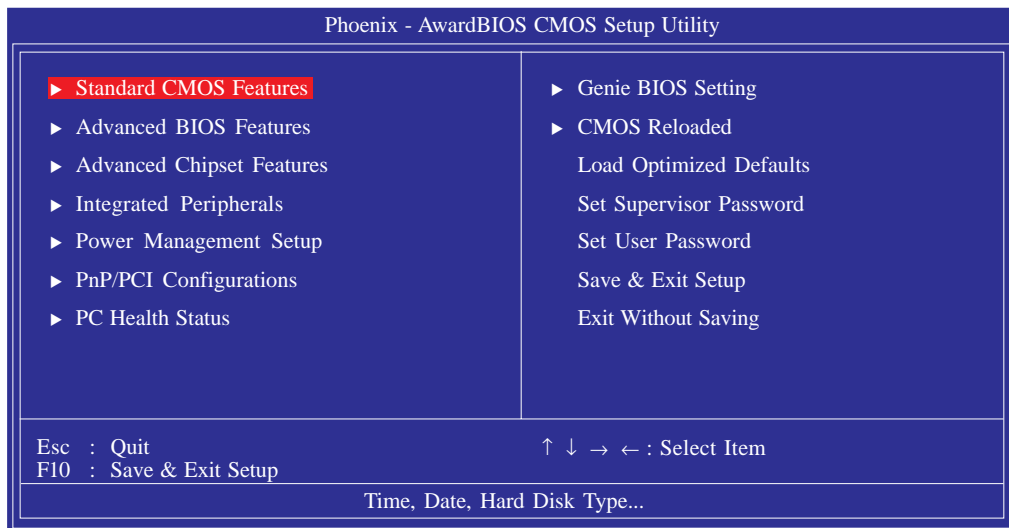
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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:

Press DEL to enter setup

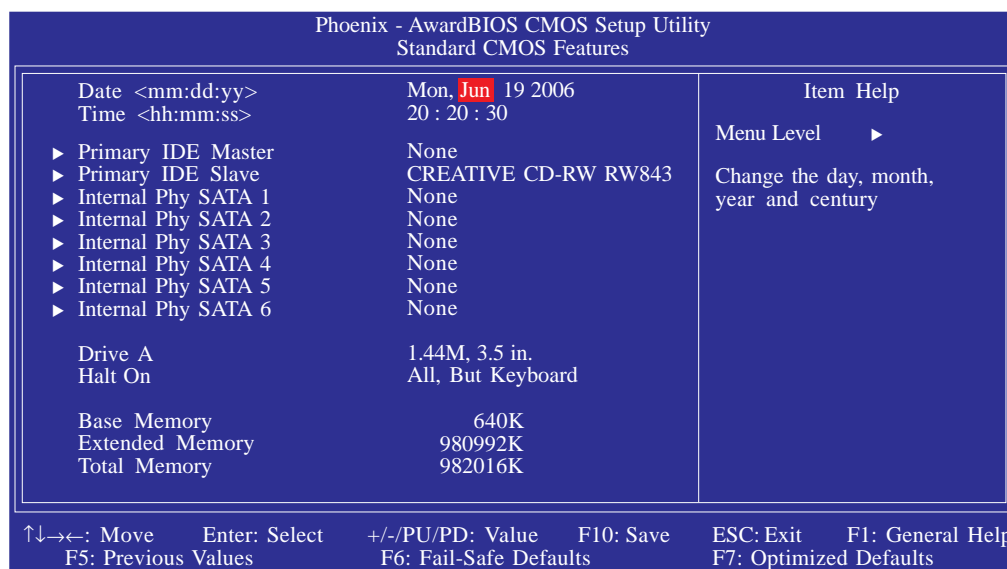
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and keys simultaneously.

When you press , the main menu screen will appear:



Standard CMOS Features

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



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 to Internal Phy SATA 1/2/3/4/5/6

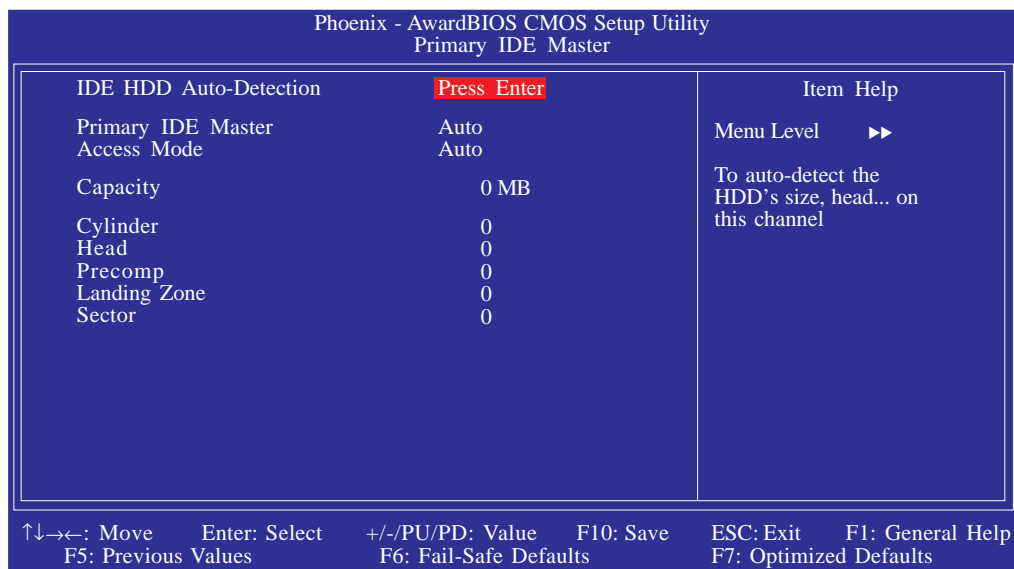
Primary IDE Master	}	Used to configure Parallel ATA drives
Primary IDE Slave		
Internal Phy SATA 1	}	Used to configure Serial ATA drives
Internal Phy SATA 2		
Internal Phy SATA 3		
Internal Phy SATA 4		
Internal Phy SATA 5		
Internal Phy SATA 6		



Note:

The fields for configuring Serial ATA drives (“Internal Phy SATA 1” to “Internal Phy SATA 6”) will appear only if the “Serial-ATA Controller” field is set to Enabled. This field is in the Genie BIOS Setting - PCI Device Control - RAID Config section of the BIOS.

To configure IDE drives, move the cursor to a field then press <Enter>. The following screen will appear:



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 and Primary IDE 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.

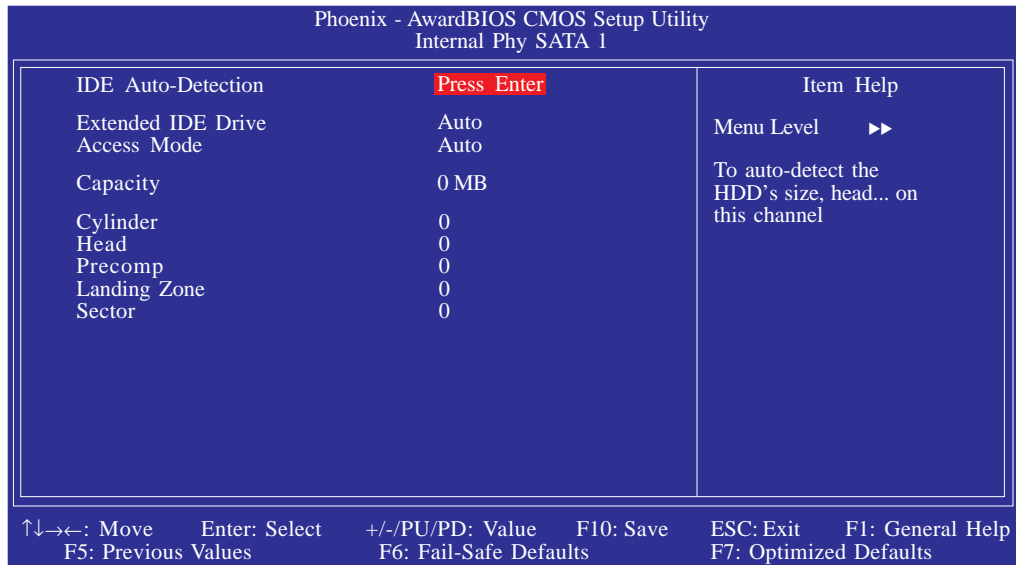
Landing Zone

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:



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.

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

These fields identify the types of floppy disk drives installed.

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

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

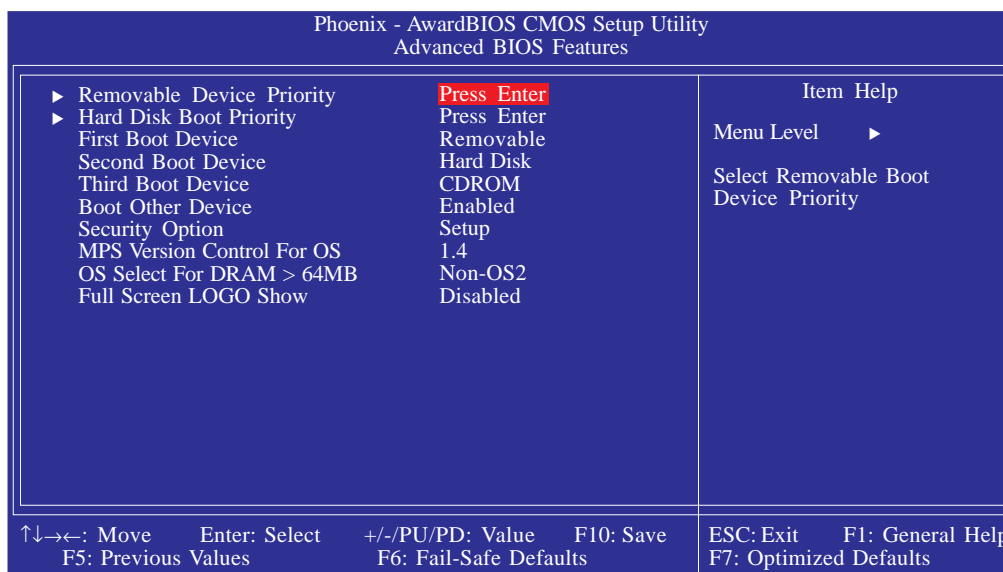
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

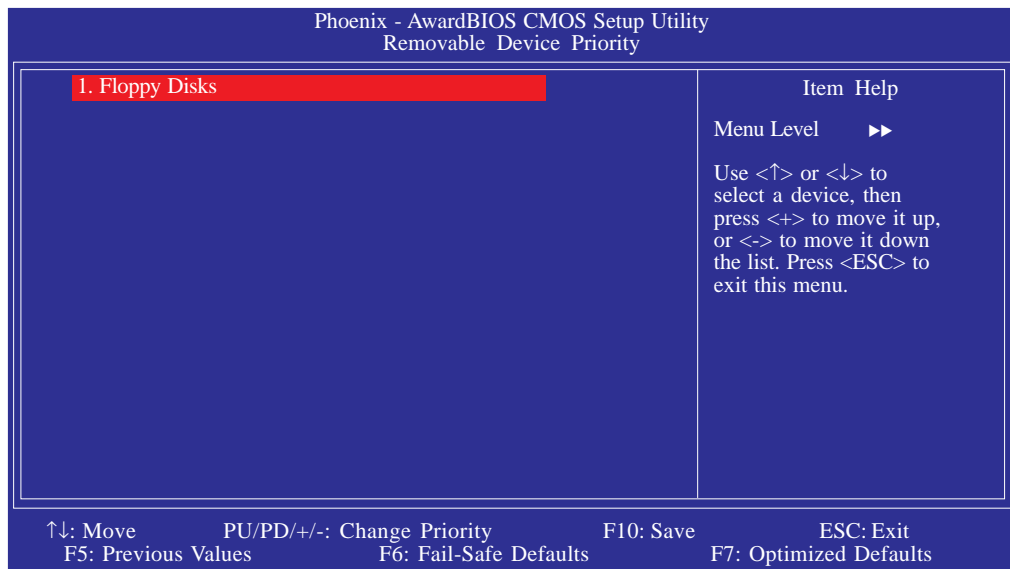
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



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

Removable Device Priority

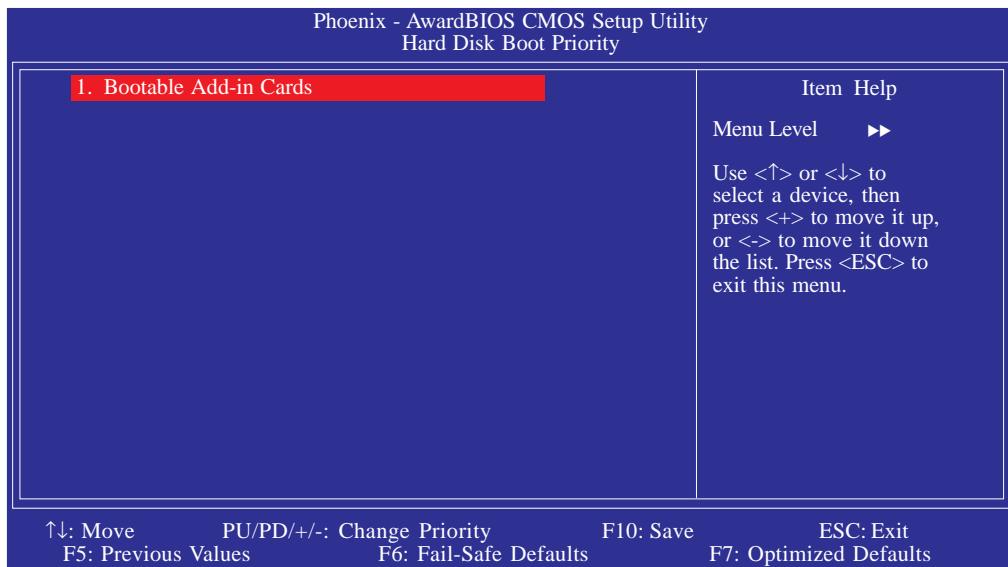
This field is used to select the boot sequence of the removable devices. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



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.



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

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.

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.

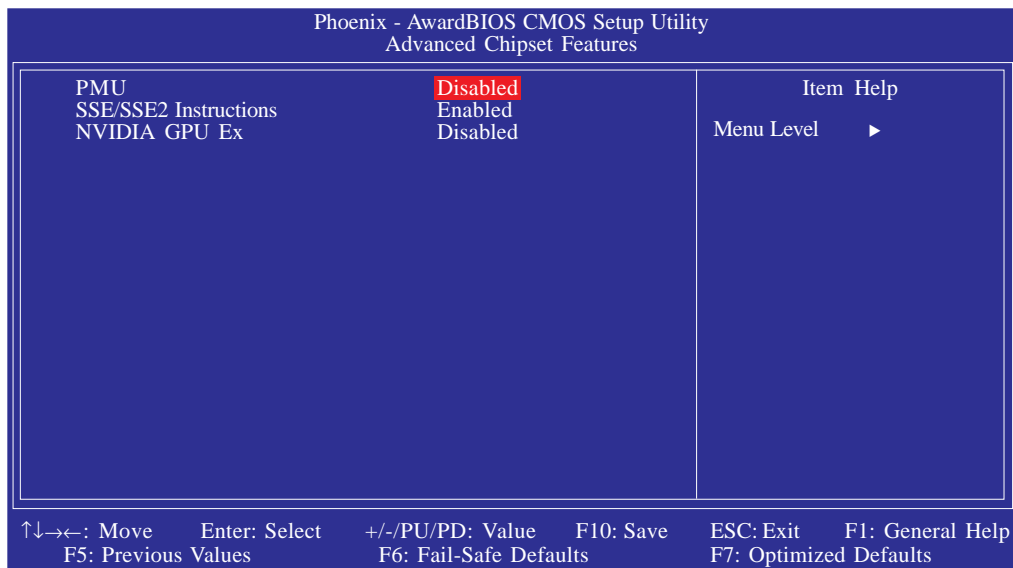
Full Screen Logo Show

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



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.

PMU

The options are Auto and Disabled.

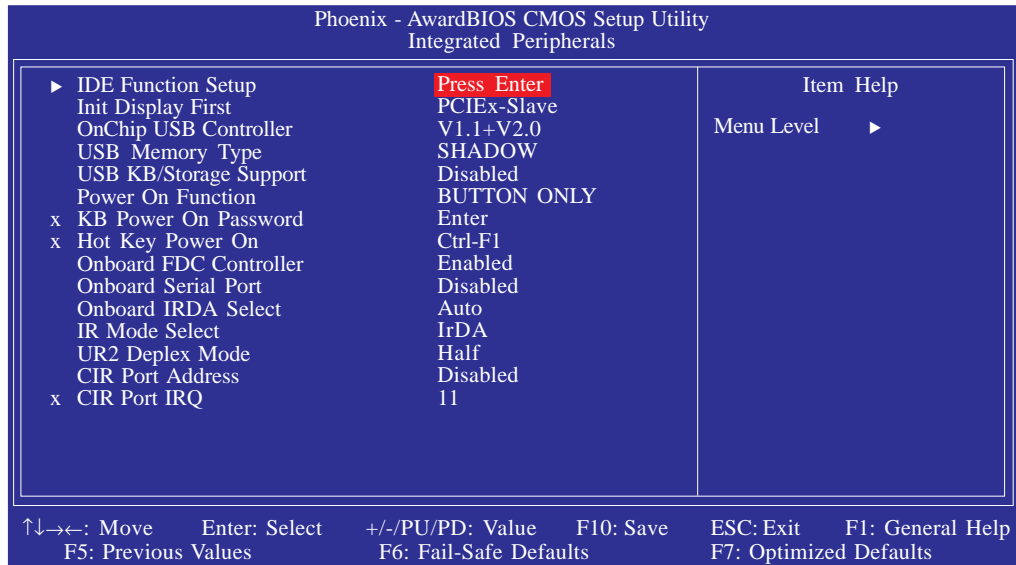
SSE/SSE2/SSE3 Instructions

The options are Enabled and Disabled.

NVIDIA GPU Ex

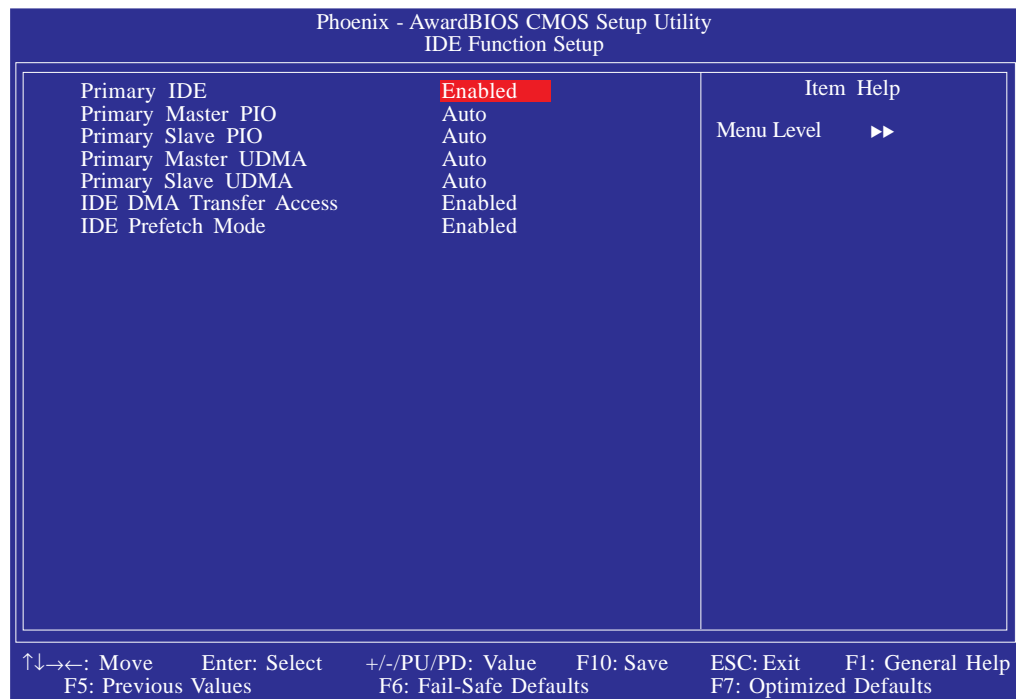
The options are Auto and Disabled.

Integrated Peripherals



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

IDE Function Setup



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

Primary IDE

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

Primary Master PIO and Primary 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 UDMA and Primary 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 Prefetch Mode

This allows data and addresses to be stored in the internal buffer of the chip, thus reducing access time. Enable this field to achieve better performance.

Init Display First

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

<i>PCIEx-Master</i>	When the system boots, it will first initialize the PCI Express Master graphics card.
<i>PCIEx-Slave</i>	When the system boots, it will first initialize the PCI Express Slave graphics card.
<i>PCI Slot</i>	When the system boots, it will first initialize PCI.

OnChip USB Controller

This field is used to enable or disable USB 1.1 and/or USB 2.0.

USB Memory Type

This field is used to select the memory allocated for USB. The options are Shadow and Base Memory (640K).

USB KB/Storage Support

If you are using a USB keyboard or USB storage under DOS, set this field to Enabled.

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices.

If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

Power On Function

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

<i>Button only</i>	Default setting. Uses the power button to power on the system.
<i>Password</i>	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.
<i>Hot Key</i>	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.
<i>Mouse Move</i>	Move the PS/2 mouse to wake up the system.
<i>Mouse Click</i>	Click the PS/2 mouse to wake up the system.
<i>Any Key</i>	Press any key to power-on the system.
<i>Keyboard 98</i>	When this option is selected, press the “wake up” key of the Windows®98 compatible keyboard 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

<i>Enabled</i>	Enables the onboard floppy disk controller.
<i>Disabled</i>	Disables the onboard floppy disk controller.

Onboard Serial Port

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

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

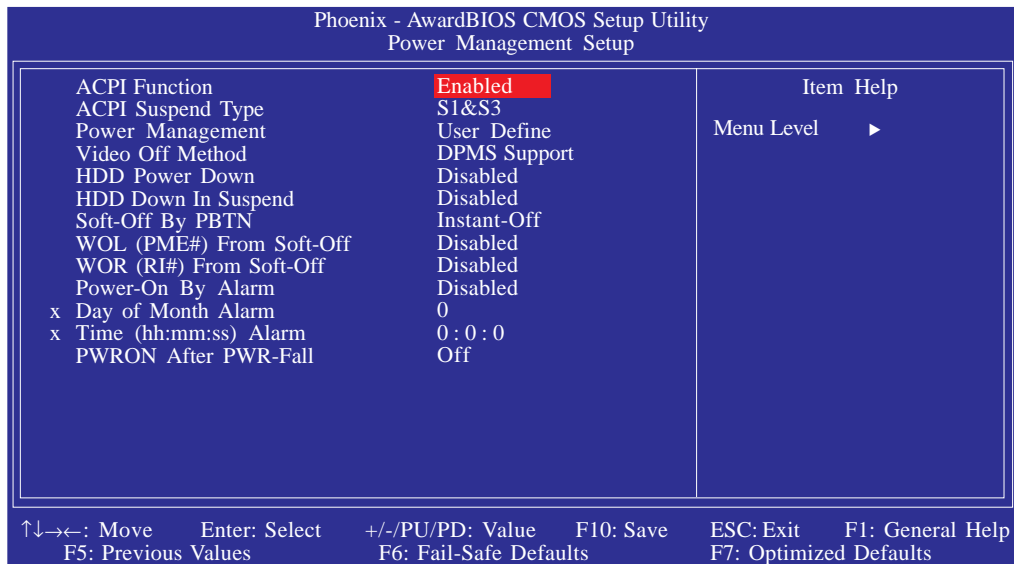
This field is used to select an I/O address for the CIR device.

CIR Port IRQ

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

Power Management Setup

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



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.

Power Management

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.

<i>Min Saving</i>	Minimum power saving time for the “HDD Power Down” = 15 min.
<i>Max Saving</i>	Maximum power saving time for the “HDD Power Down” = 1 min.
<i>User Define</i>	Allows you to set the power saving time in the “HDD Power Down” field.

Video Off Method

This determines the manner in which the monitor is blanked.

<i>V/H SYNC + Blank</i>	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
<i>Blank Screen</i>	This option only writes blanks to the video buffer.
<i>DPMS Support</i>	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.

HDD Down In Suspend

The default setting is Disabled. When enabled, the hard drive will be powered off once the system enters the Suspend mode.

Soft-Off by PBTN

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.

WOL (PME#) From Soft-Off

Set this field to Enabled to wake up the system via the onboard LAN or via a LAN card that uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card will cause the system to wake up. Refer to the card's documentation for more information.

WOR (RI#) From Soft-Off

Set this field to Enabled to wake up the system via an external modem or via a modem card that uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the modem card will cause the system to wake up. Refer to the card's documentation for more information.

Power-On 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) of Alarm

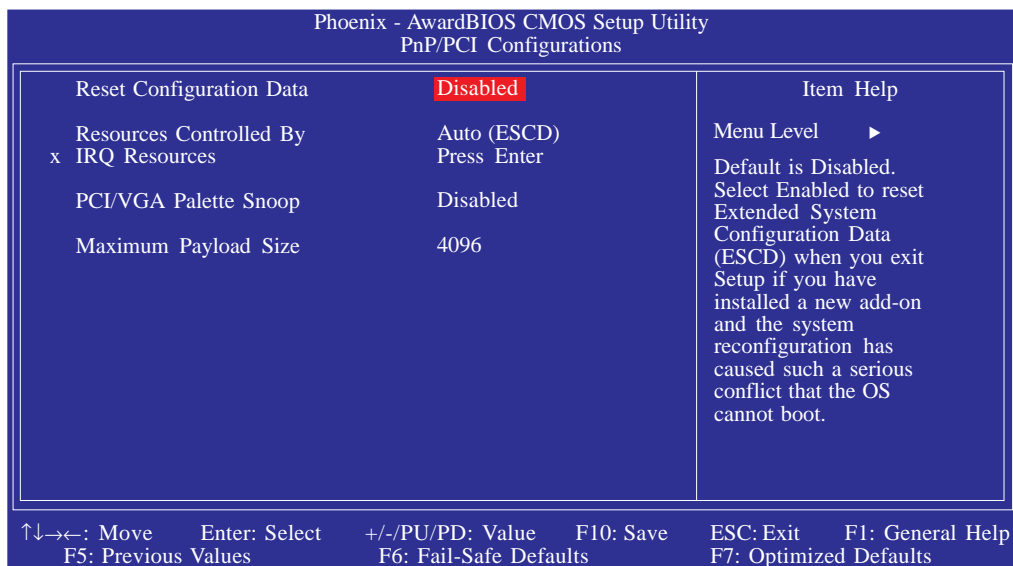
This is used to set the time you would like the system to power-on.

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.



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

Reset Configuration Data

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

Disabled The BIOS will not reset the configuration data.

Resources Controlled By

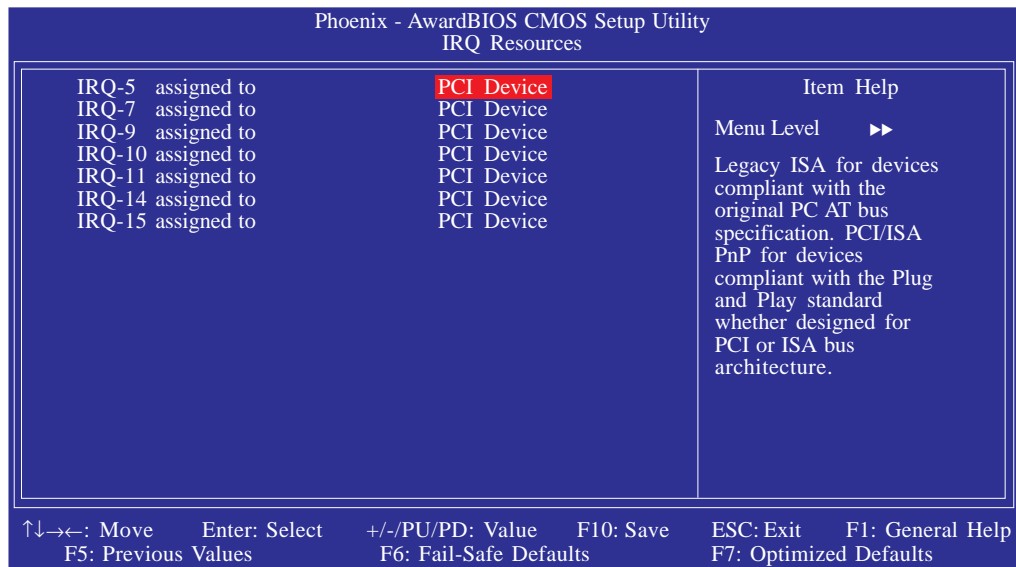
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

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.



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.

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		Item Help
PC Health Status		Menu Level ▶
Shutdown Temperature	85°C/185°F	
CPUFan Fully ON If CPUTemp	> 50°C	
CPUFan Turn OFF If CPUTemp	< 25°C	
CHSFan Fully ON If CHSTemp	> 35°C	
CHSFan Turn OFF If CHSTemp	< 25°C	
NB Fan Fully ON If NB Temp	> 55°C	
NB Fan Turn OFF If NB Temp	< 25°C	
NB Core Voltage	1.45V	
ATX +5.0V Voltage	4.27V	
ATX +12V Voltage	10.56V	
+5V Dual Voltage	4.24V	
Battery Voltage	2.78V	
PWM AREA Temperature	39°C	
CHIPSET Temperature	42°C	
CPU FAN Speed	2860 RPM	
CHS FAN Speed	0 RPM	
CHIPSET FAN Speed	1622 RPM	
CPU CORE Temperature	62°C	

↑↓→←: 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's 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's 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.

CHSFan Fully On If CHSTemp

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

CHSFan Turn Off If CHSTemp

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



Note:

If the system's 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 the chassis fan's speed according to the temperature.

NB Fan Fully On If NB Temp

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

NB Fan Turn Off If NB Temp

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



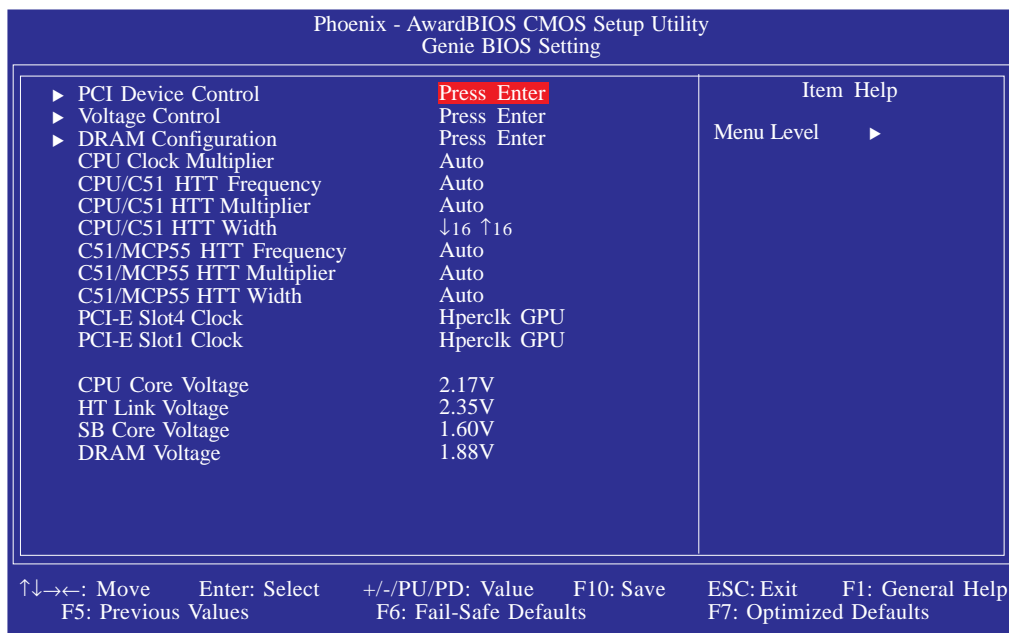
Note:

If the north bridge chip's 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 the north bridge chip fan's speed according to the temperature.

NB Core Voltage to CPU Core Temperature

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

Genie BIOS Setting



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

PCI Device Control

Voltage Control

DRAM Configuration

Refer to the following pages for more information on these submenus.

CPU Clock Multiplier

This field is used to select the operating CPU multiplier. The options are Auto and 4x to 25x. Options may vary in accordance to the type of CPU installed.

CPU/C51 HTT Frequency

This field is used to select the CPU to Northbridge HT frequency.

CPU/C51 HTT Multiplier

This field is used to select the CPU to Northbridge HT multiplier.

CPU/C51 HTT Width

This field is used to select the CPU to Northbridge HT width.

C5I/MCP55 HTT Frequency

This field is used to select the Northbridge to Southbridge HT frequency.

C5I/MCP55 HTT Multiplier

This field is used to select the Northbridge to Southbridge HT multiplier.

C5I/MCP55 HTT Width

This field is used to select the Northbridge to Southbridge HT width.

PCI-E Slot4 Clock

This field is used to select the clock of PCIE 4.

PCI-E Slot1 Clock

This field is used to select the clock of PCIE 1.

CPU Core Voltage

This field will show the CPU's current voltage.

HT Link Voltage

This field will show the HT Link's current voltage.

SB Core Voltage

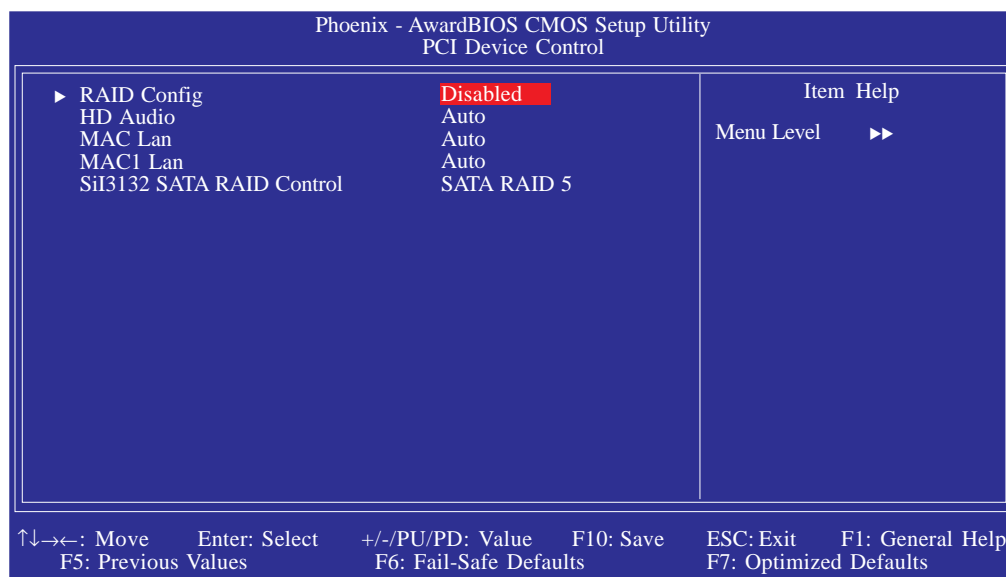
This field will show the Southbridge's current voltage.

DRAM Voltage

This field will show the DRAM's current voltage.

PCI Device Control

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



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

RAID Config

Please refer to the following pages for more information on this submenu.

HD Audio

- Auto* The system automatically detects the onboard High Definition audio CODEC.
- Disabled* Disables the onboard audio. Disable the onboard audio when using an audio PCI card

MAC LAN

- Auto* The system automatically detects the onboard LAN 1.
- Disabled* Disables the onboard LAN 1.

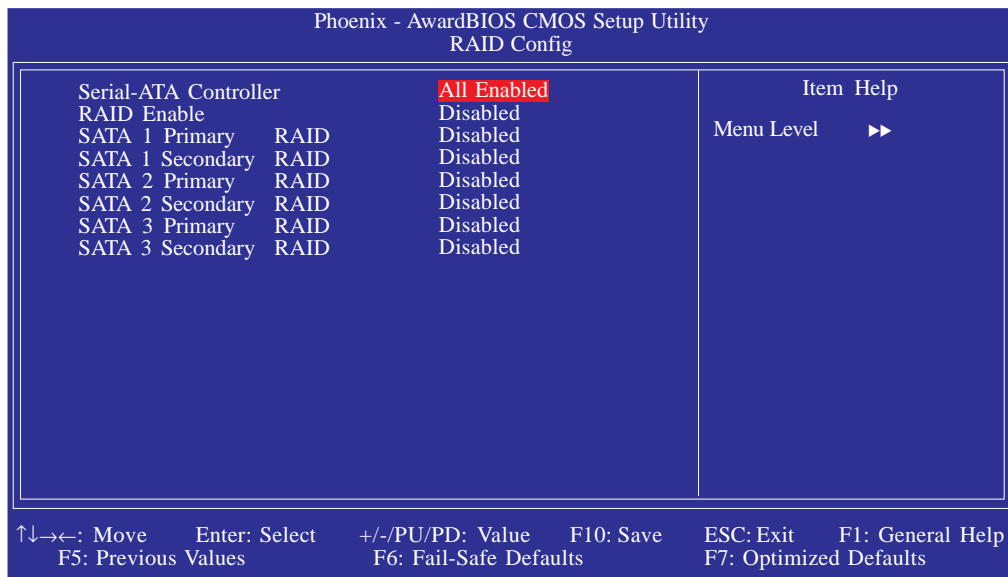
MAC1 LAN

- Auto* The system automatically detects the onboard LAN 2.
- Disabled* Disables the onboard LAN 2.

SiI3132 SATA RAID Control

This field is used to configure the Serial ATA ports supported by the Silicon Image SiI3132 chip.

RAID Config



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 select the Serial ATA channels you want enabled.

RAID Enable

This field is used to enable or disable the RAID function of the Serial ATA drives.

SATA 1 Primary RAID and SATA 1 Secondary RAID

These fields are used to enable or disable the RAID function of SATA 1's primary and/or secondary channel (SATA 1 and SATA 2 on the system board).

SATA 2 Primary RAID and SATA 2 Secondary RAID

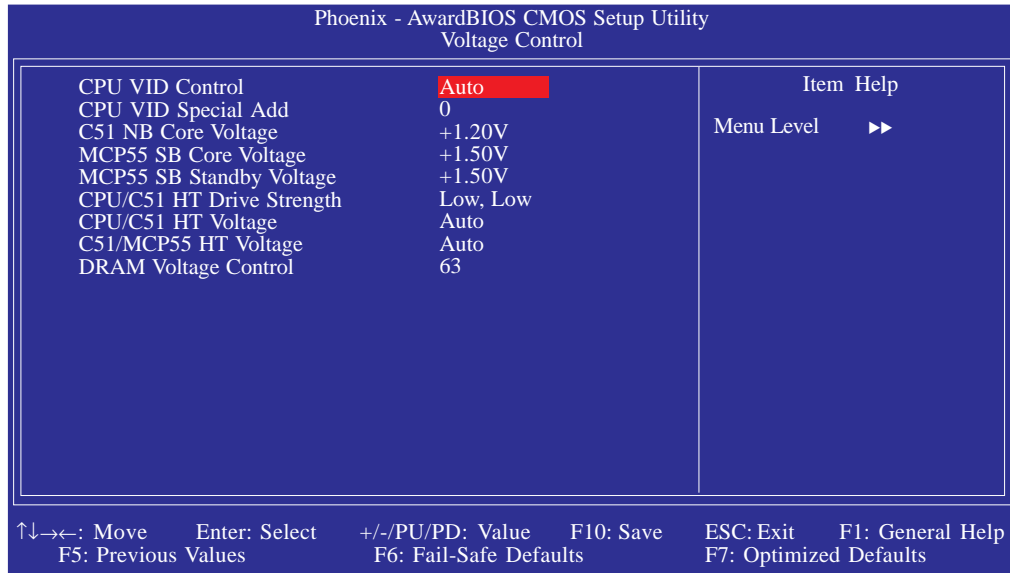
These fields are used to enable or disable the RAID function of SATA 2's primary and/or secondary channel (SATA 3 and SATA 4 on the system board)..

SATA 3 Primary RAID and SATA 3 Secondary RAID

These fields are used to enable or disable the RAID function of SATA 3's primary and/or secondary channel (SATA 5 and SATA 6 on the system board)..

Voltage Control

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



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

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.



Important:

Although this function is supported, we do not recommend that you use a higher voltage because unstable current may be supplied to the system board causing damage.

CPU VID Special Add

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

C51 NB Core Voltage

This field allows you to manually select the voltage supplied to the Northbridge chip.

MCP55 SB Core Voltage

This field allows you to manually select the voltage supplied to the Southbridge chip.

MCP55 SB Standby Voltage

This field is used to select the Southbridge chip's standby voltage. The options are +1.5V, +1.6V, +1.7V and +1.8V.

CPU/C5I HT Drive Strength

This field is used to configure the CPU/C5I HT driving strength.

CPU/C5I HT Voltage

This field is used to select the CPU/C5I HT voltage.

C5I/MCP55 HT Voltage

This field is used to select the C5I/MCP55 HT voltage.

DRAM Voltage Control

This field allows you to manually select higher voltage supplied to the DRAM. If you want to use the DRAM's default voltage, leave this field in its default setting.

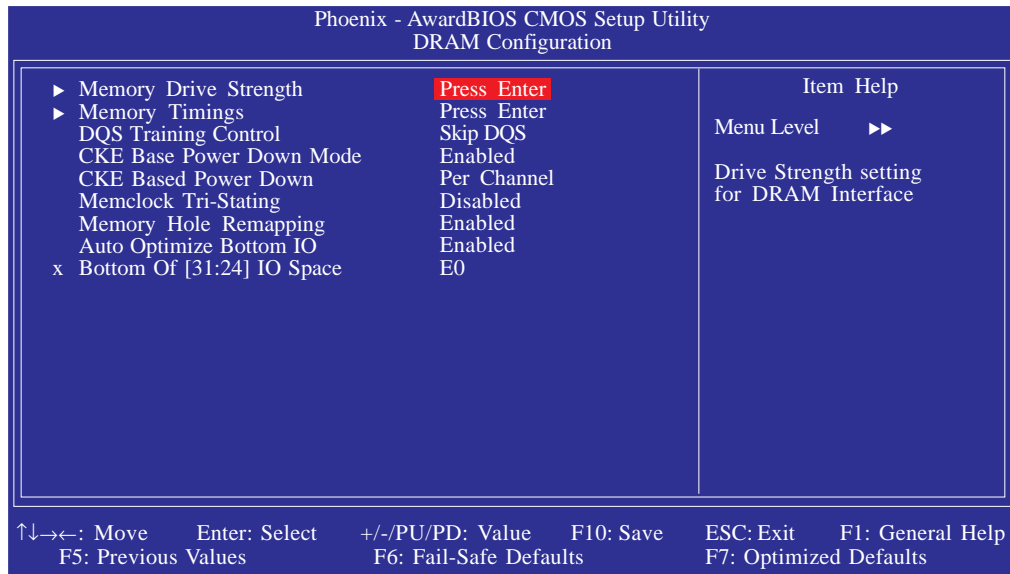


Important:

Although this function is supported, we do not recommend that you use a higher voltage because unstable current may be supplied to the system board causing damage.

DRAM Configuration

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



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

Memory Drive Strength

Memory Timings

Refer to the following pages for more information on these submenus.

DQS Training Control

The options are Skip DQS and Perform DQS.

CKE Based Power Down Mode

The options are Enabled and Disabled.

CKE Based Power Down

The options are Per Channel and Per CS.

Memclock Tri-Stating

The options are Enabled and Disabled.

Memory Hole Remapping

The options are Enabled and Disabled.

Auto Optimize Bottom IO

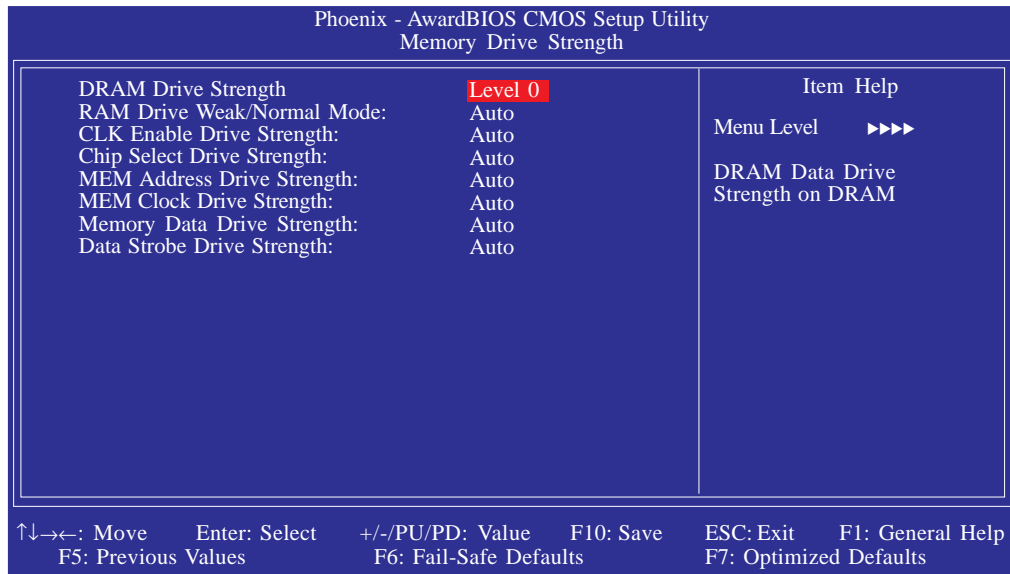
The options are Enabled and Disabled.

Bottom Of [31:24] IO Space

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

Memory Drive Strength

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



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

DRAM Drive Strength

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

RAM Drive Weak/Normal Mode

The options are Auto, Weak and Normal.

CLK Enable Drive Strength

The options are Auto, 1.00 X, 1.25 X, 1.50 X and 2.00 X.

Chip Select Drive Strength

The options are Auto, 1.00 X, 1.25 X, 1.50 X and 2.00 X.

MEM Address Drive Strength

The options are Auto, 1.00 X, 1.25 X, 1.50 X and 2.00 X.

MEM Clock Drive Strength

The options are Auto, 0.75 X, 1.00 X, 1.25 X and 1.50 X.

Memory Data Drive Strength

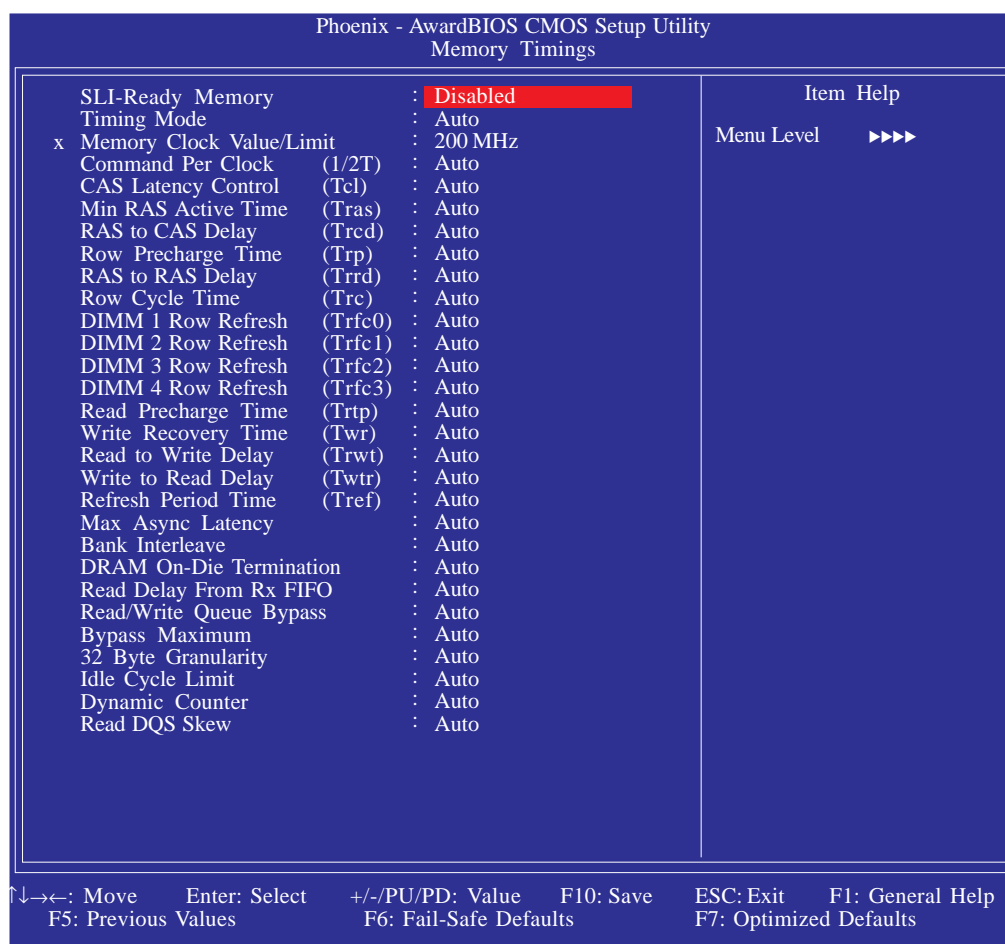
The options are Auto, 0.75 X, 1.00 X, 1.25 X and 1.50 X.

Data Strobe Drive Strength

The options are Auto, 0.75 X, 1.00 X, 1.25 X and 1.50 X.

Memory Timings

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



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

SLI-Ready Memory

This field is used to configure the SLI-ready memory modules.

Timing Mode

- | | |
|----------------|---|
| <i>Auto</i> | The BIOS will automatically detect all DRAM timing. |
| <i>Max CLK</i> | This option uses the maximum DRAM clock. |
| <i>Manual</i> | This option allows you to manually select the DRAM's clock speed. |

Memory Clock Value/Limit

This field is used to select the clock speed of the DIMM.

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.

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.

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.

Row Precharge Time (Trp)

The field is used to select the row precharge time, precharge to active or auto-refresh of the same bank.

RAS to RAS Delay (Trrd)

This field is used to select the delay time from RAS (Row Address Strobe) to the next RAS (Row Address Strobe) when reading to the same bank. The lesser the clock cycle, the faster the DRAM's performance.

Row Cycle Time (Trc)

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

DIMM 1 Row Refresh (Trfc0) to DIMM 4 Row Refresh (Trfc3)

This field is used to select the row refresh cycle time of DIMM 1 to DIMM 4.

Read Precharge Time (Trtp)

The options are Auto, 002 CLK and 003 CLK.

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.

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.

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.

Refresh Period Time (Tref)

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

Max Async Latency

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

Bank Interleave

The options are Auto, Enabled and Disabled.

DRAM On-Die Termination

The options are Auto, Disabled, 075 ohm, 150 ohm, 050 ohm.

Read Delay From Rx FIFO

This field is used to select the delay from DQS receiving to first data read from Rx FIFO. The options are Auto, 0.5 CLK, 1.0 CLK, 1.5 CLK, 2.0 CLK, 2.5 CLK, 3.0 CLK, 3.5 CLK and 4.0 CLK.

Read/Write 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 Maximum

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.

Idle Cycle Limit

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

Dynamic Counter

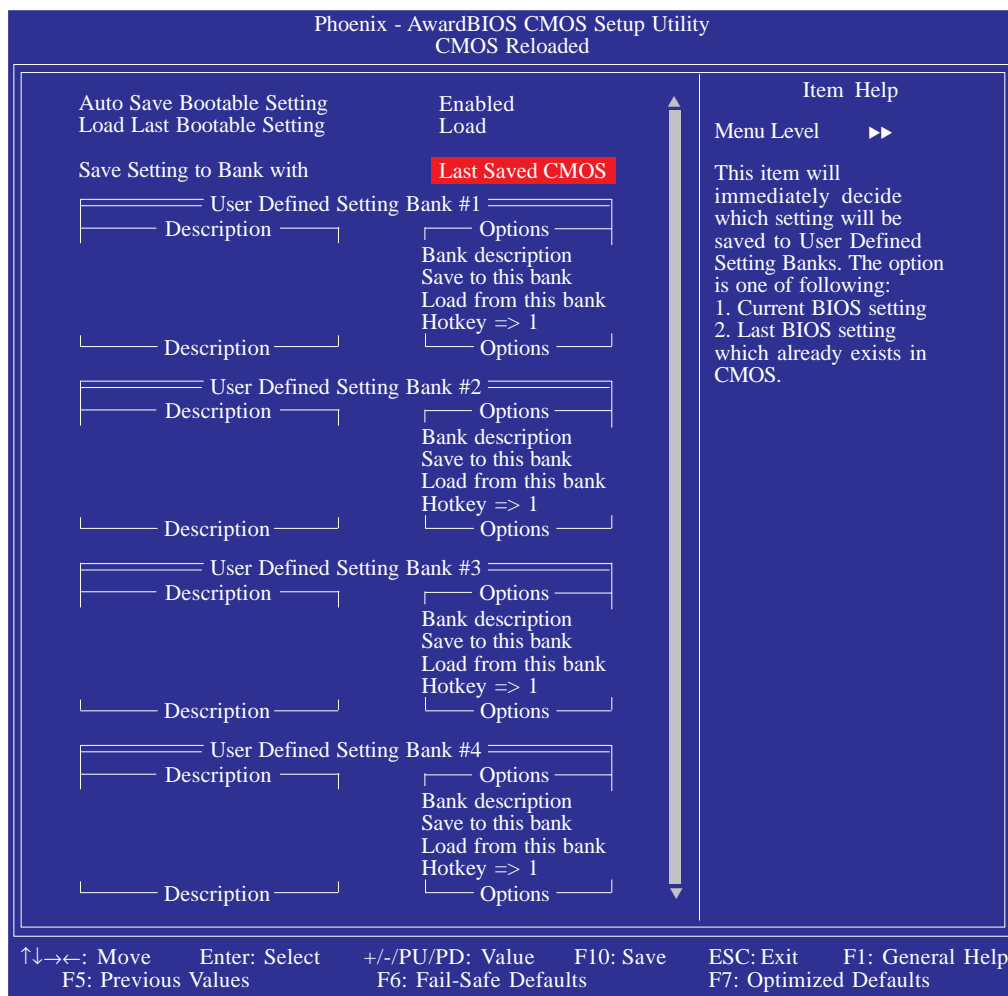
This field is used to enable the dynamic idle cycle counter.

Read DQS Skew

This field is used to select a value of the read DQS delay with respect to the data. 1/96 MEMCLK per unit. The options are Auto, -01/096 to -10/096 and +01/096 to +08/096.

CMOS Reloaded

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



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 setting. By being able to save and load the settings, it eliminates the tedious job of remembering several settings and/or repeatedly resetting 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

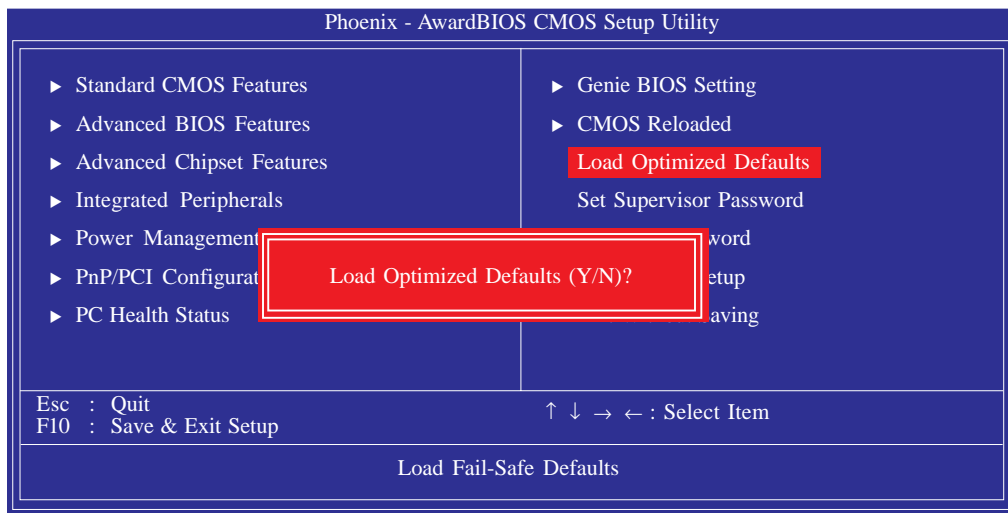
To load the setting saved in the bank, move the cursor to “Load from this Bank” then press <Enter>. The setting in this bank will replace the current setting. Make sure to save before you exit the BIOS setup utility by selecting “Y” in the “Save & Exit Setup” submenu.

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>.

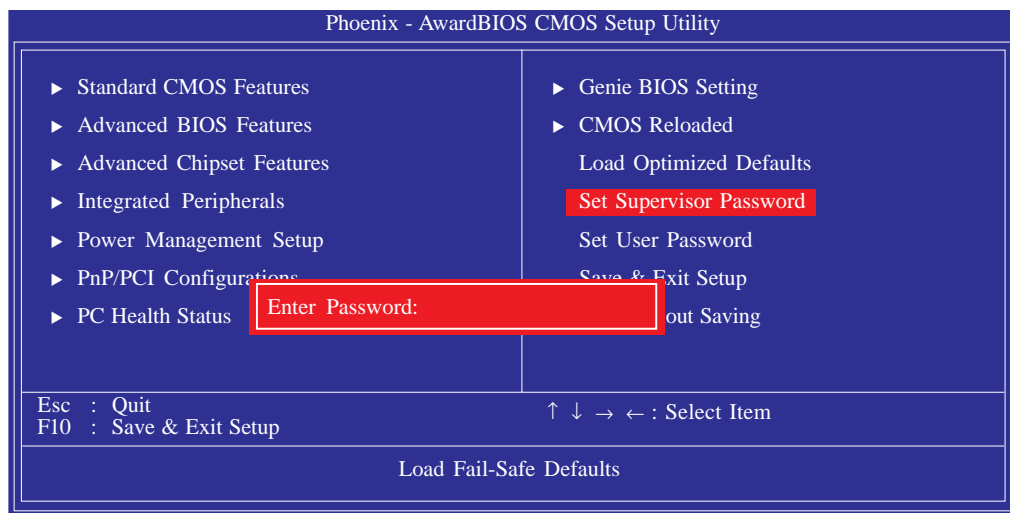


Type <Y> and press <Enter> to load the Setup default values.

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>.



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

Confirm Password:

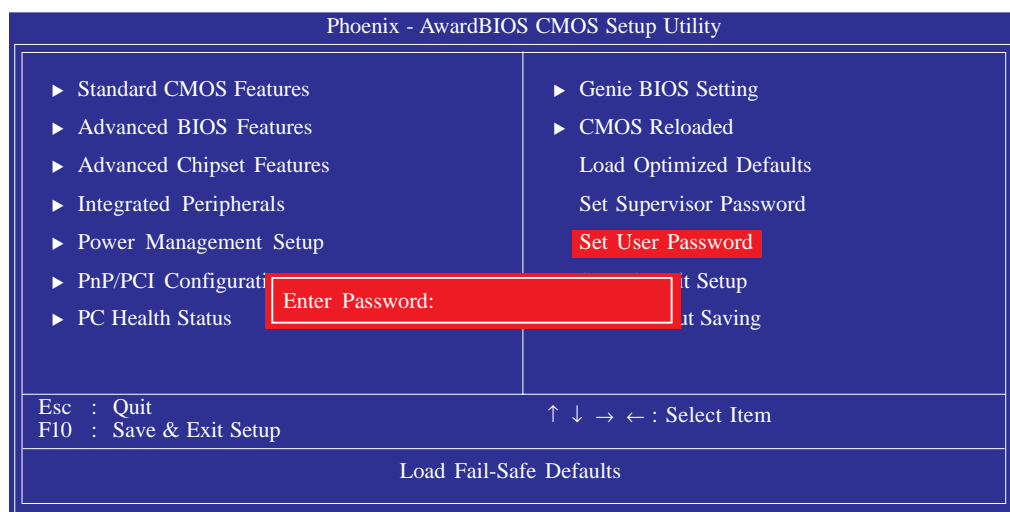
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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



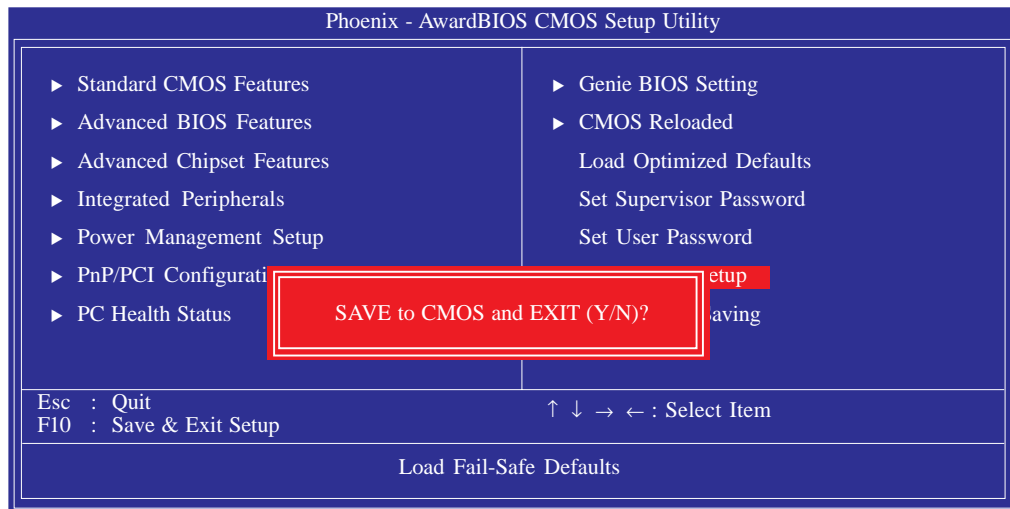
Type in the password. You are limited to eight characters. When done, the message below will appear:

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.

Save & Exit Setup

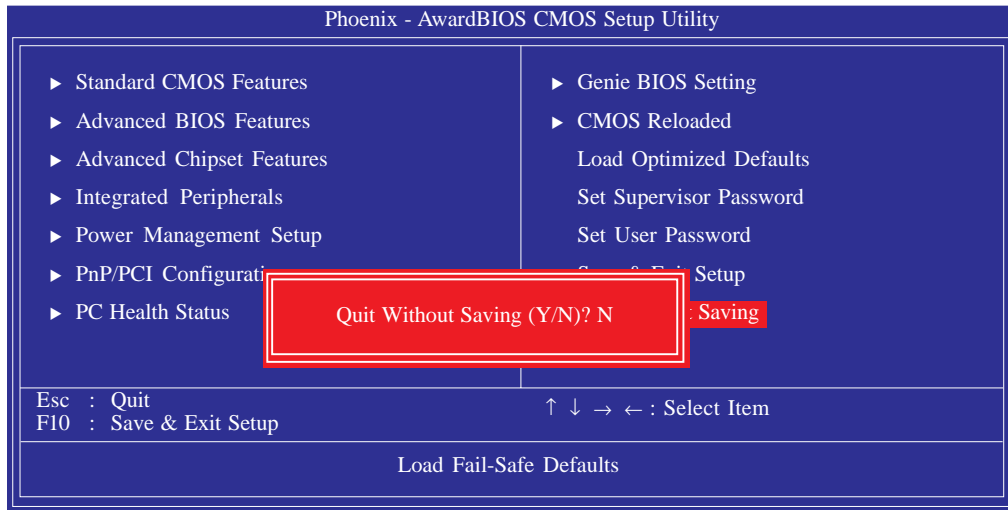
When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>.



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 after memory testing is done.

Exit Without Saving

When you do not want to save the changes you have made, highlight “Exit Without Saving” and press <Enter>.



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> simultaneously or after memory testing is done.

RAID BIOS

NVRAID BIOS

The NVRAID BIOS utility is used to configure and manage RAID on Serial ATA drives connected to SATA 1 to SATA 6.

After you power up the system and all drives have been detected, the NVRAID BIOS status message screen will appear. Press the <F10> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

Sil3132 SataRAID BIOS

The Sil3132 SataRAID BIOS utility, supported by the Silicon Image Sil 3132 chip, is used to configure and manage RAID on Serial ATA drives connected to SATA 7 and SATA 8.

After you power up the system and all hard disk drives have been detected, the Sil3132 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:

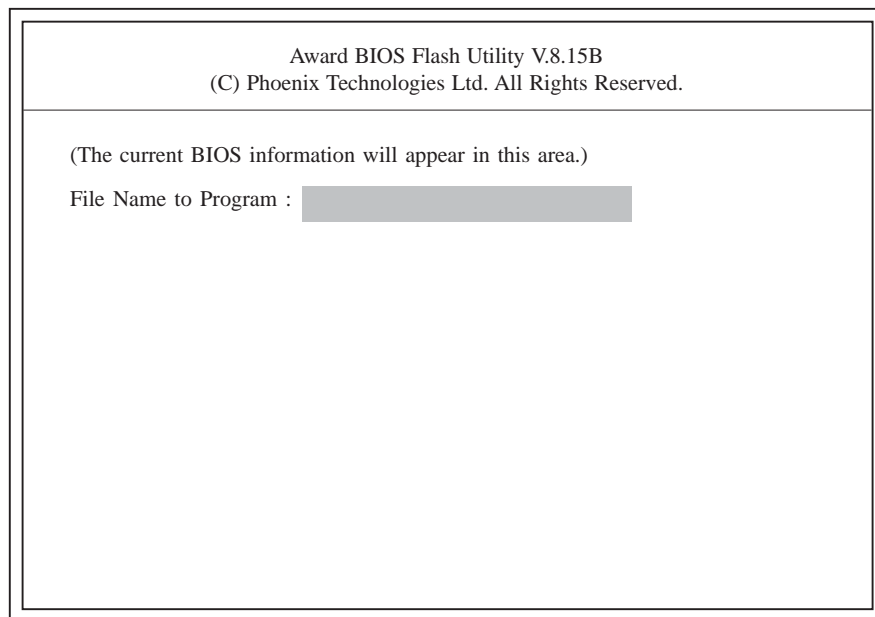
Before creating RAID, make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.

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:



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, please go directly to the root directory of the CD and double-click "Setup".

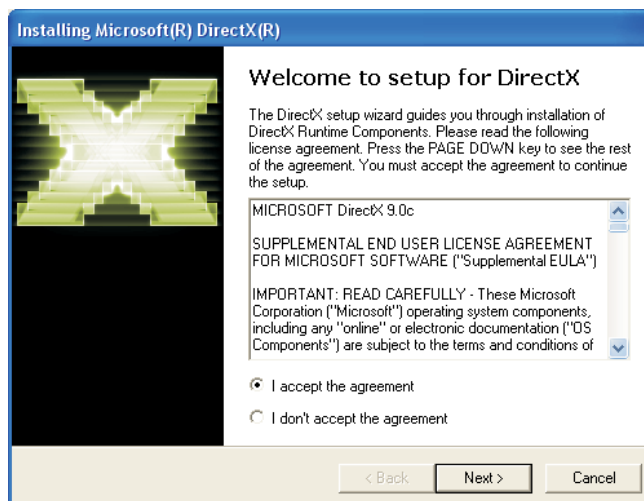


Important:

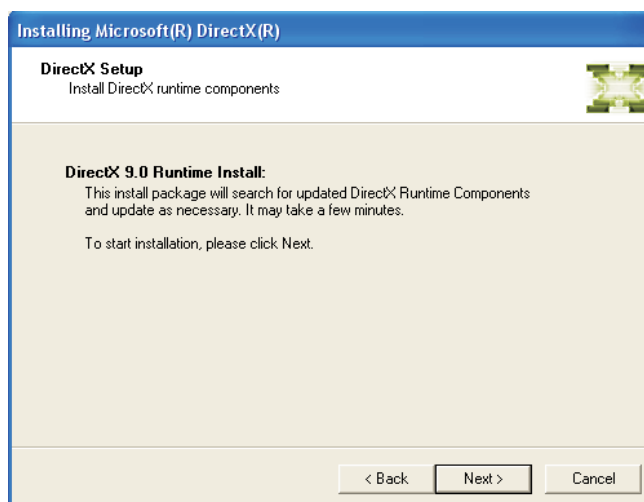
You must first install Microsoft DirectX 9.0C prior to installing any drivers.

Microsoft DirectX 9.0C

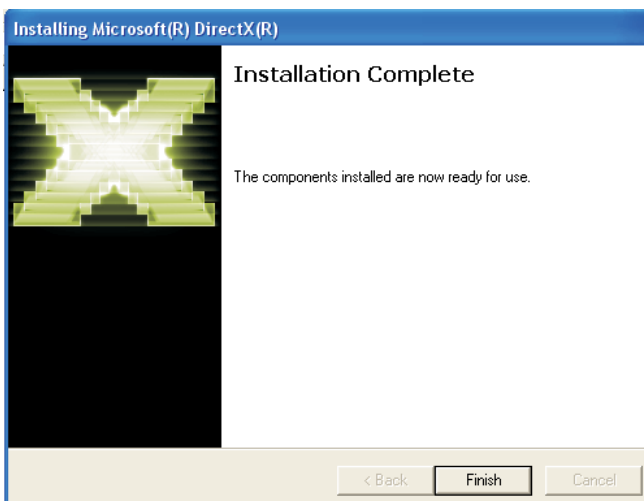
1. Click "Microsoft DirectX 9.0C" on the main menu.
2. Read the license agreement then click "I accept the agreement". Click Next.



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



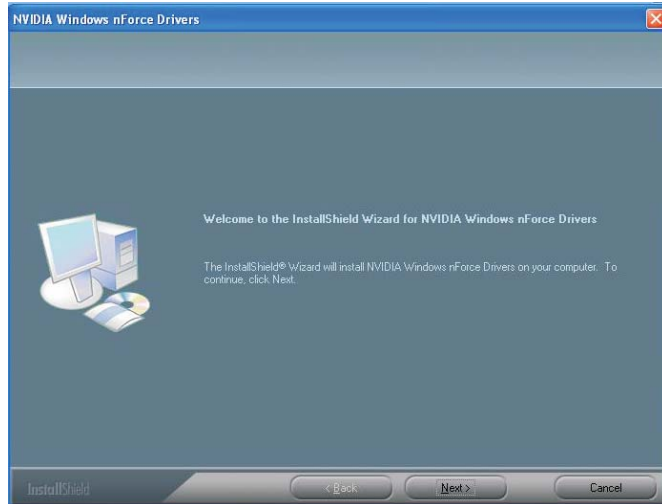
4. Click Finish. Reboot the system for DirectX to take effect.



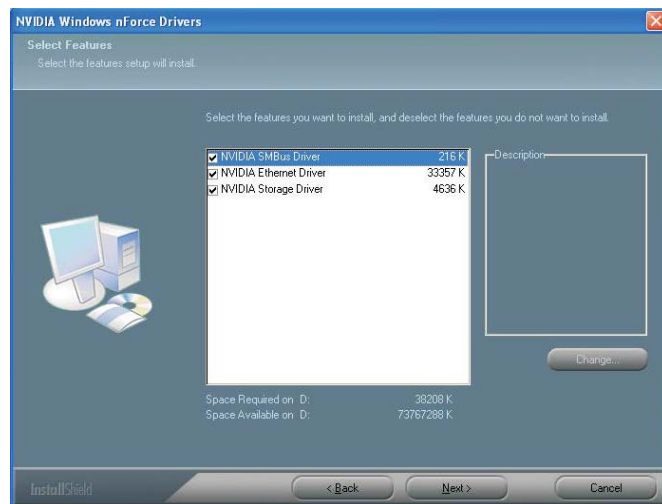
nVidia nForce500 System Drivers

1. Click “nVidia nForce500 System Drivers” on the main menu.

2. The installation wizard will install NVIDIA Windows nForce Drivers on your computer. Click Next to continue.



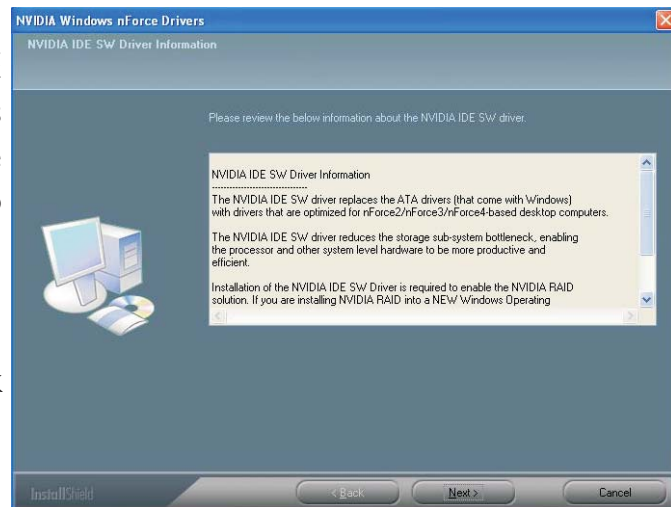
3. Select the drivers you want to install. The drivers will be installed automatically. Click “Next” to continue.



4. Setup is currently installing the ethernet driver.



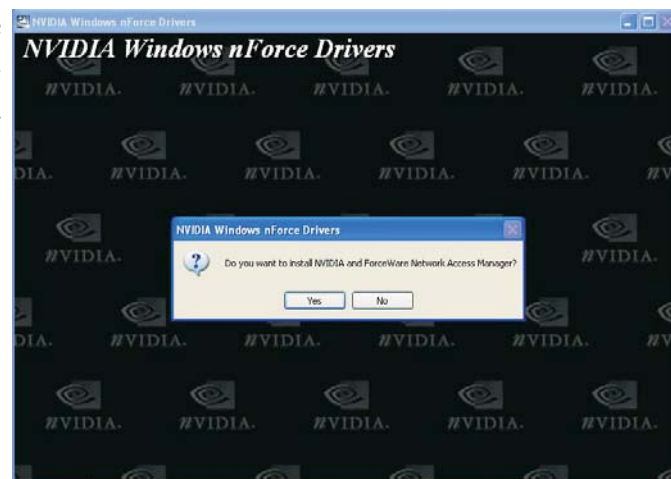
5. Read the information about the NVIDIA IDE software driver. This driver will replace the Windows ATA drivers to enable the processor and other system level hardware to be more productive and efficient. Click Next.



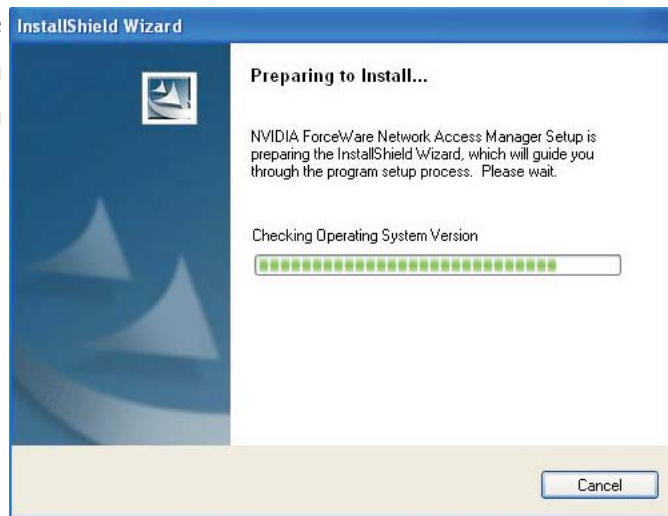
6. Click Yes to install the NVIDIA IDE driver.



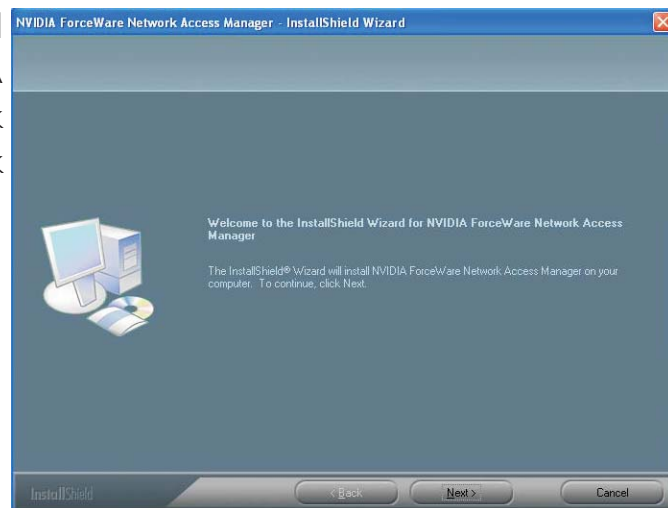
7. If you want to install the NVIDIA and ForceWare Network Access Manager, click Yes.



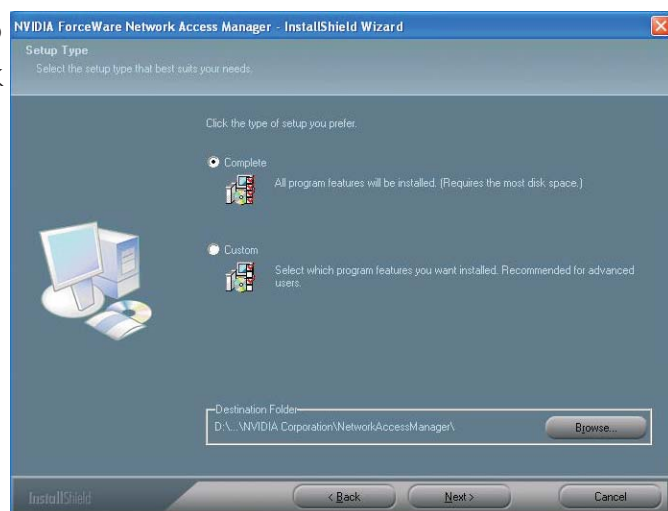
8. Setup is preparing the InstallShield wizard which will guide you through the installation process.



9. The InstallShield wizard will now install NVIDIA and ForceWare Network Access Manager. Click Next to continue.



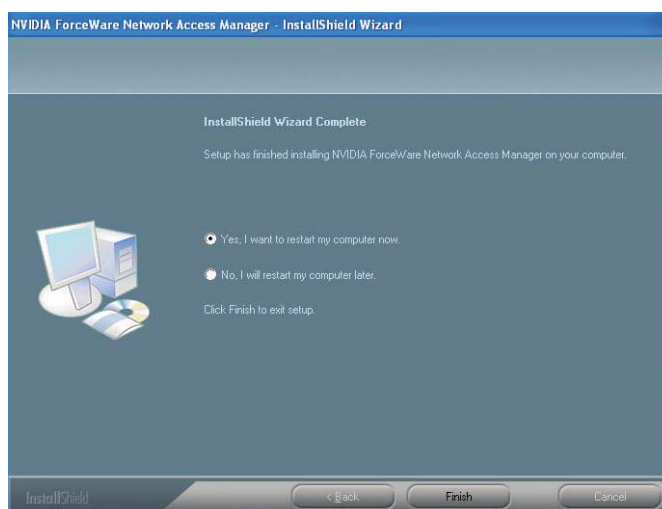
10. Click the type of setup you prefer then click Next.



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

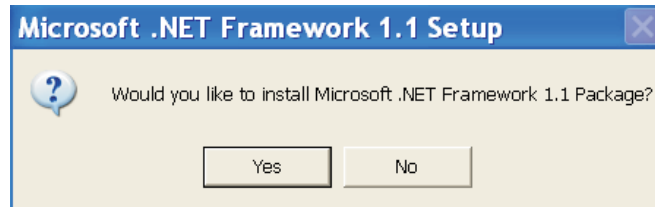
Click “Yes, I want to restart my computer now” then click Finish.

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



Microsoft .NET version 1.1 Framework

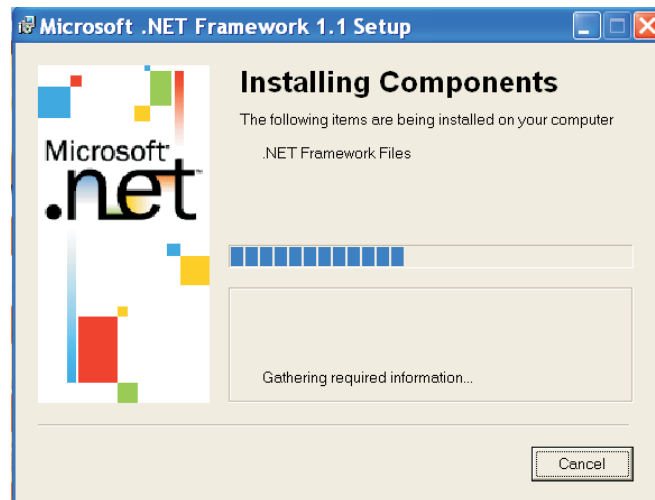
1. Click “Microsoft .NET version 1.1 Framework” on the main menu.
2. Click “Yes” to install the Framework package.



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.



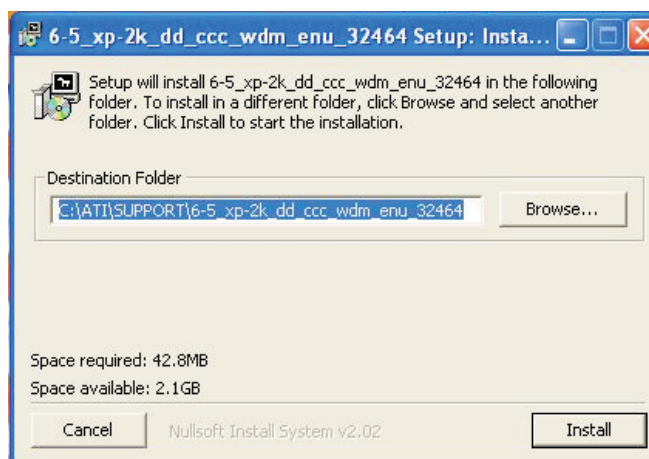
Graphics Drivers

The CD provides both ATI Radeon and nVidia GeForce drivers. Select the driver according to the graphics card you are using.

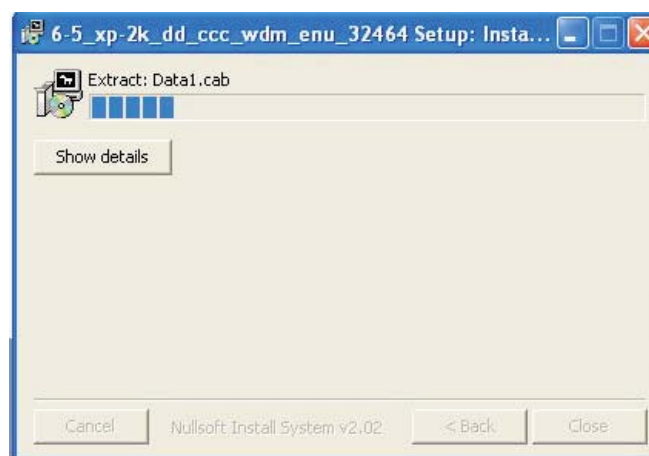
ATI Radeon Driver

1. Click “ATI Radeon Driver” on the main menu.

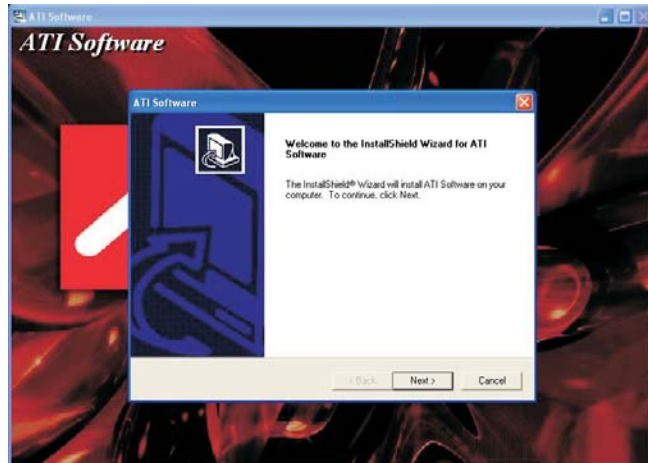
Click Install to install to the destination folder or click Browse to select another folder.



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.

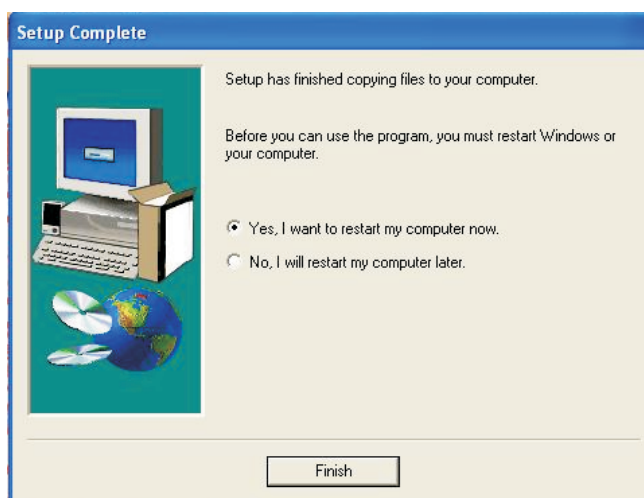


5. Select the component you want to install then click Next.



- Click “Yes, I want to restart my computer now” then click Finish.

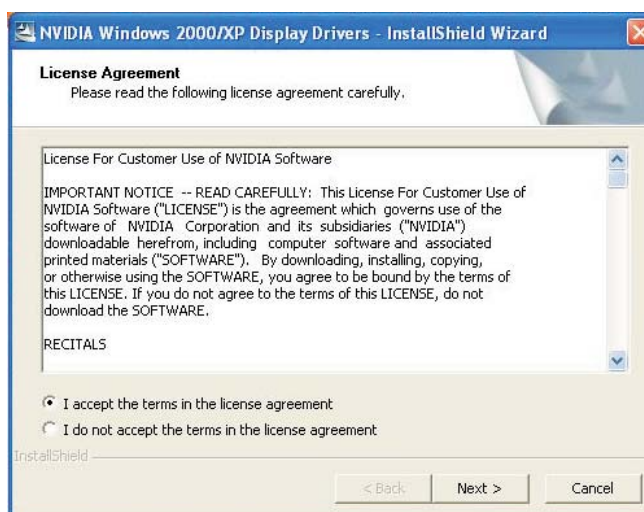
Restarting the system will allow the new driver installation to take effect.



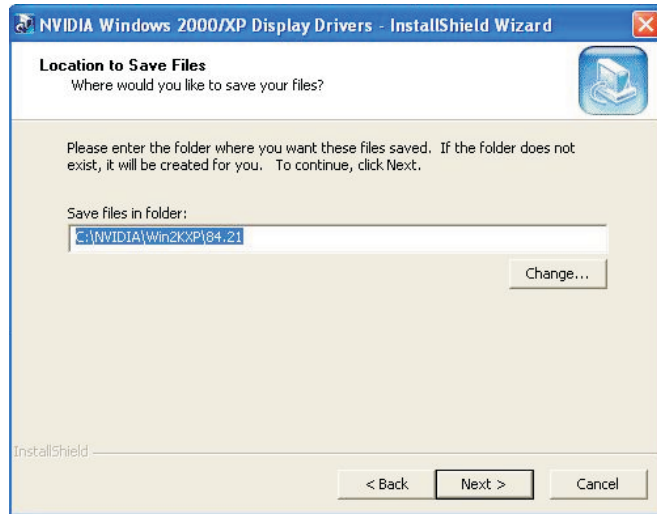
nVidia GForce Driver

- Click “nVidia GForce Driver” on the main menu.

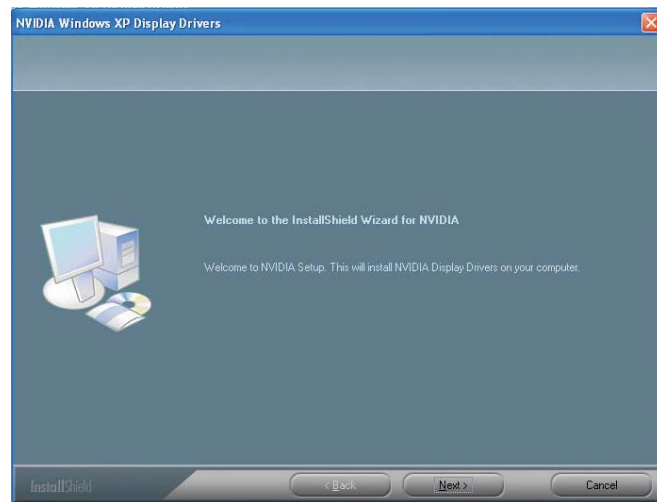
Read the license agreement then click “I accept the terms in the license agreement”. Click Next.



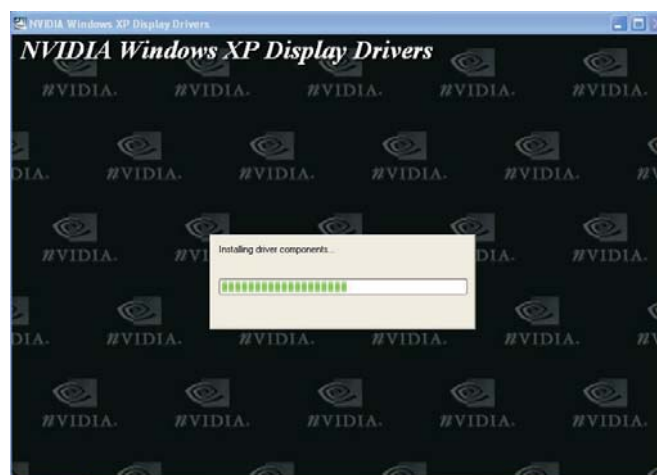
2. Click Next to install to the destination folder or click Change to select another folder.



3. Setup is now ready to install the NVIDIA Display driver. Click Next.

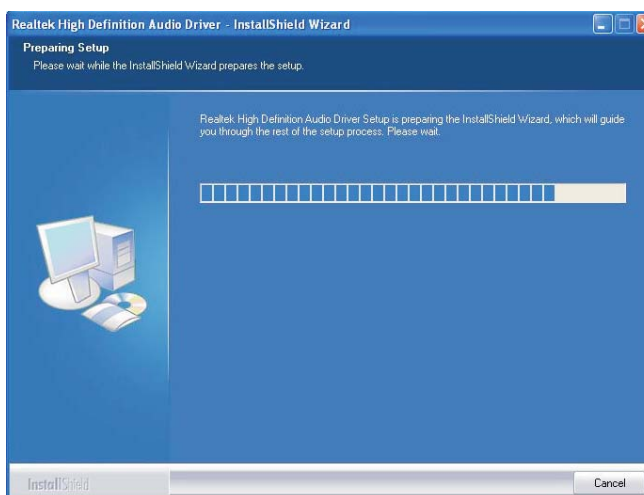


4. Setup is currently installing the driver on your computer. Follow the prompts on the screen to complete installation.
5. Reboot the system for the driver to take effect.

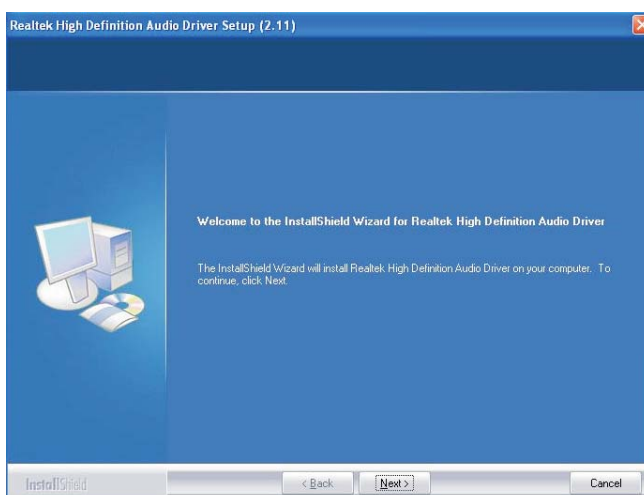


Realtek Audio Driver

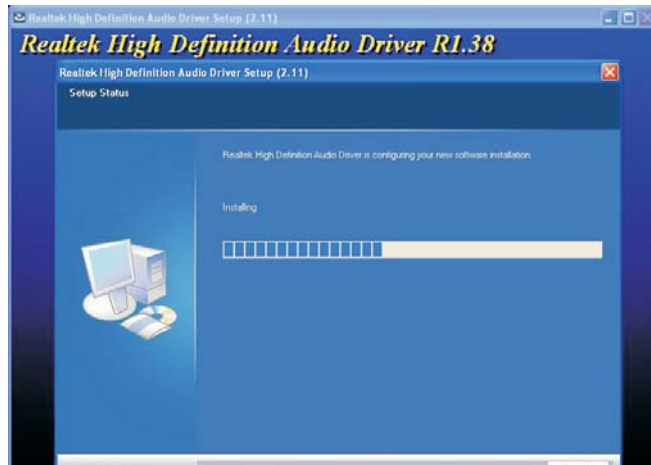
1. Click “Realtek Audio Drivers” on the main menu.
2. Setup is now preparing the installation wizard. Click Next to continue.



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

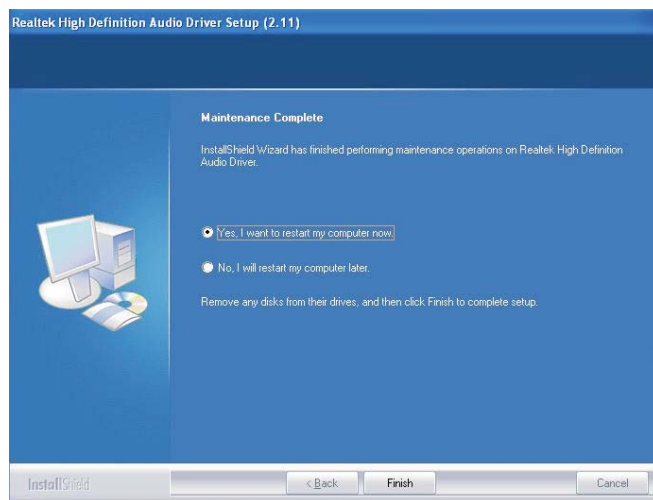


4. Setup is now configuring the new software installation.



5. Click “Yes, I want to restart my computer now” then click Finish.

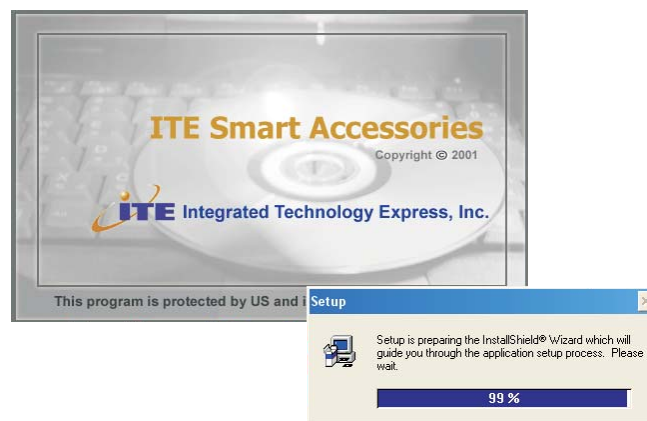
Restarting the system will allow the new driver installation to take effect.



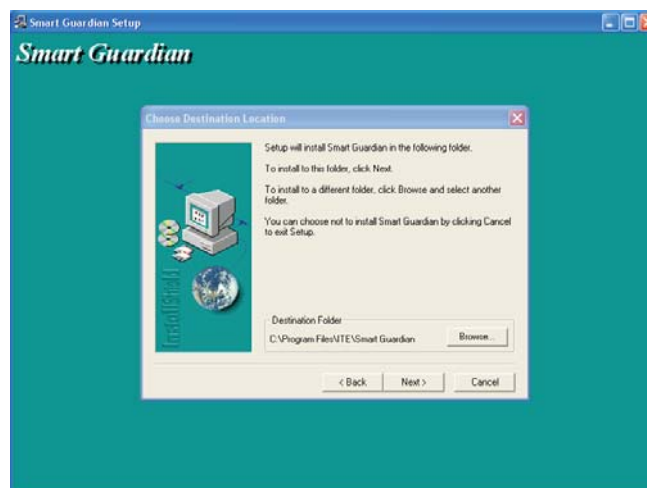
ITE Smart Guardian

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.

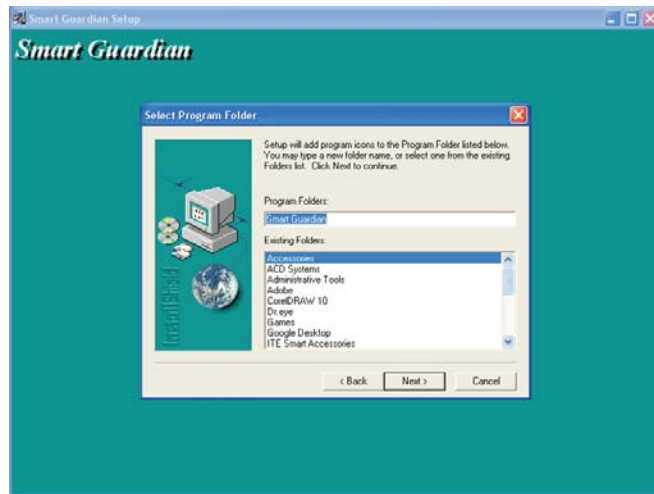
1. Click "ITE Smart Guardian" on the main menu.
2. Setup will prepare the installation wizard.



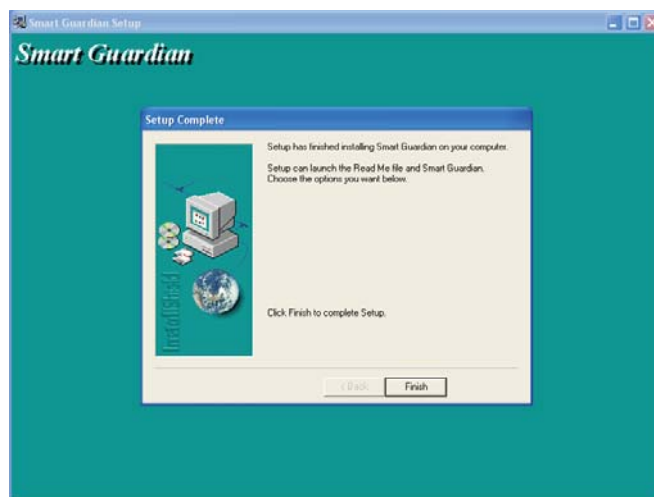
3. You are now ready to install Smart Guardian. Click Next to install or click Browse to select another folder.



- Click Next to add the program icon to the Program Folder:



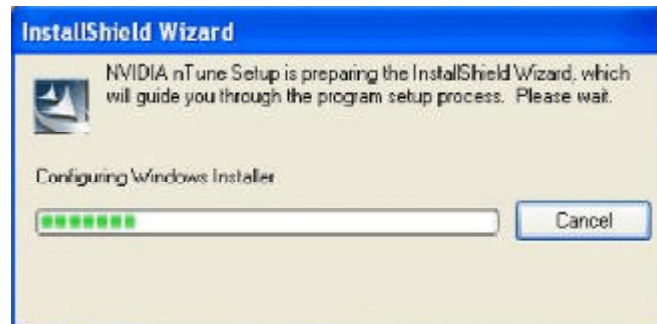
- Click Finish. Reboot the system for the driver to take effect.



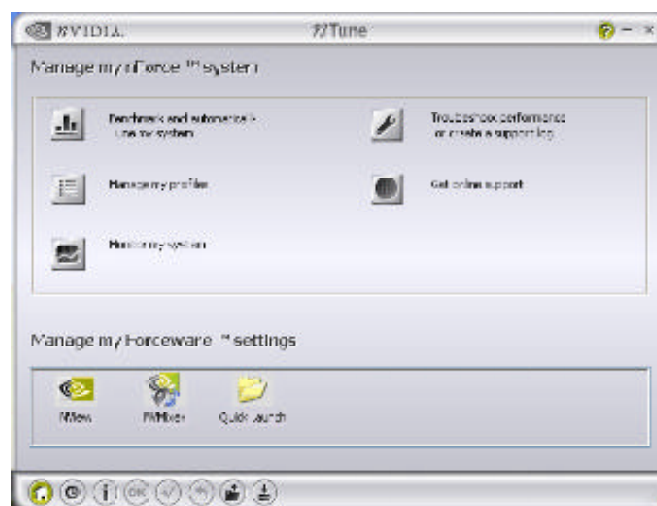
nVidia nTune

1. Click “nVidia nTune” on the main menu.
2. Setup is now preparing the installation wizard.

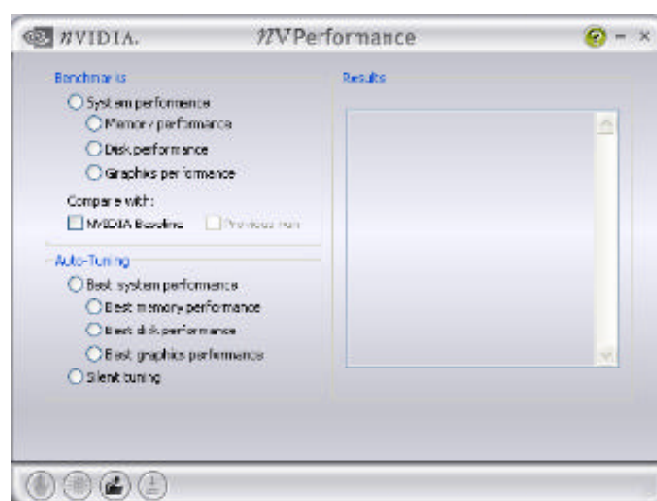
Follow the prompts on the screen to complete installation.



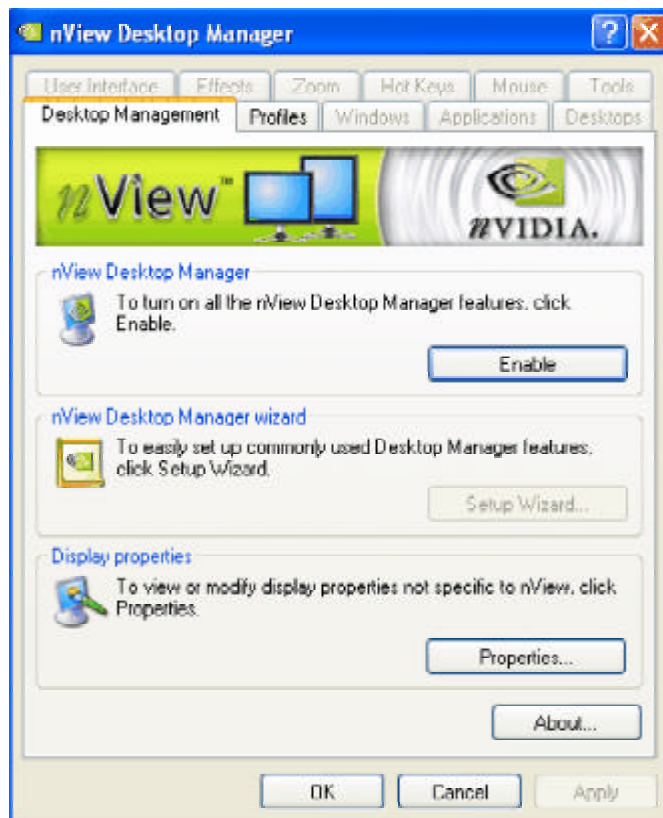
3. NVIDIA nTune is an easy monitoring application that allows tuning of gaming performance, setting the system to quiet operation when playing DVD and monitoring the system functions. nTune is the safest way to change the bus speeds, memory timings and adjust voltages.



4. Click “Benchmark and automatically tune my system” to view Benchmarks and auto-tuning results.



- Click “NView” to configure desktop management.



- Click “NVMixer” for audio tuning.



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 occasionally 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.

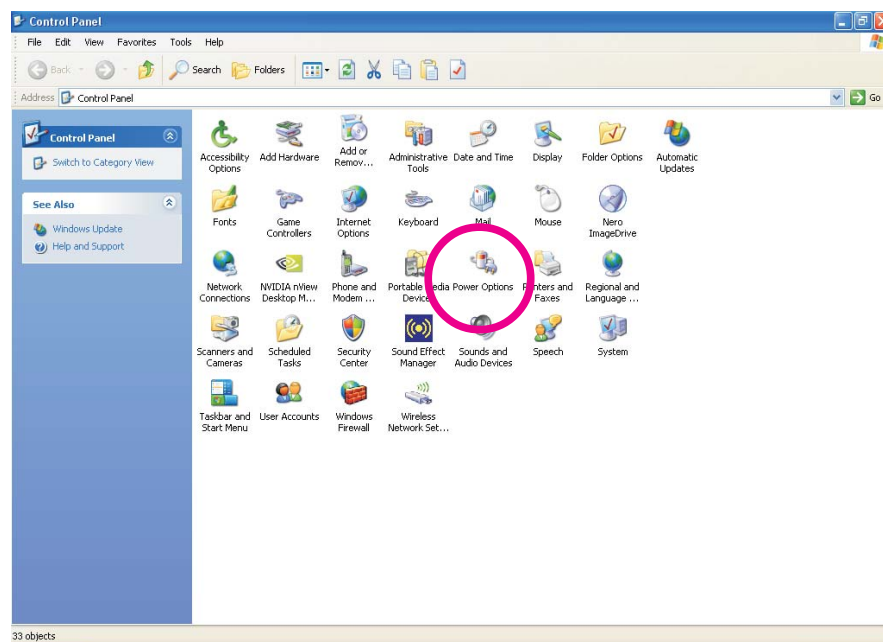
1. Install the Cool'n'Quiet™ driver.
2. Configure Power Management in Windows.

Step 1: Install the Cool'n'Quiet™ Driver

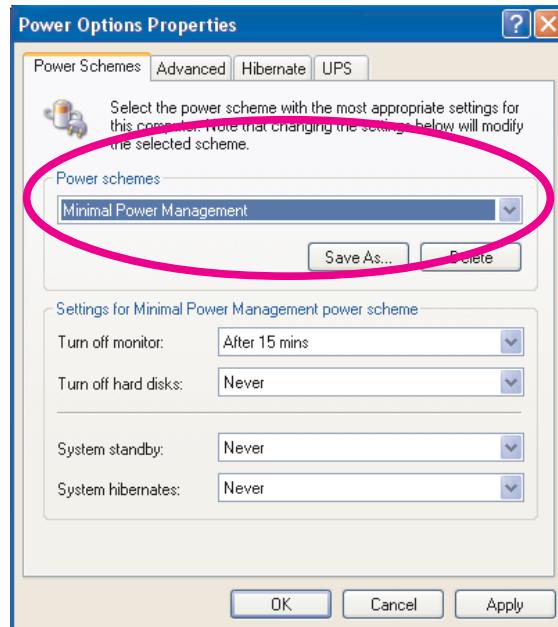
AMD's website provides free download of the Cool'n'Quiet™ driver. Make sure to install the appropriate driver for the CPU that you are using.

Step 2: 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 NVIDIA® MCP55PXE chip allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.

The Silicon Image Sil3132 chip allows configuring RAID on another 2 Serial ATA ports. It supports RAID 0 RAID 1 and RAID 0+1.

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

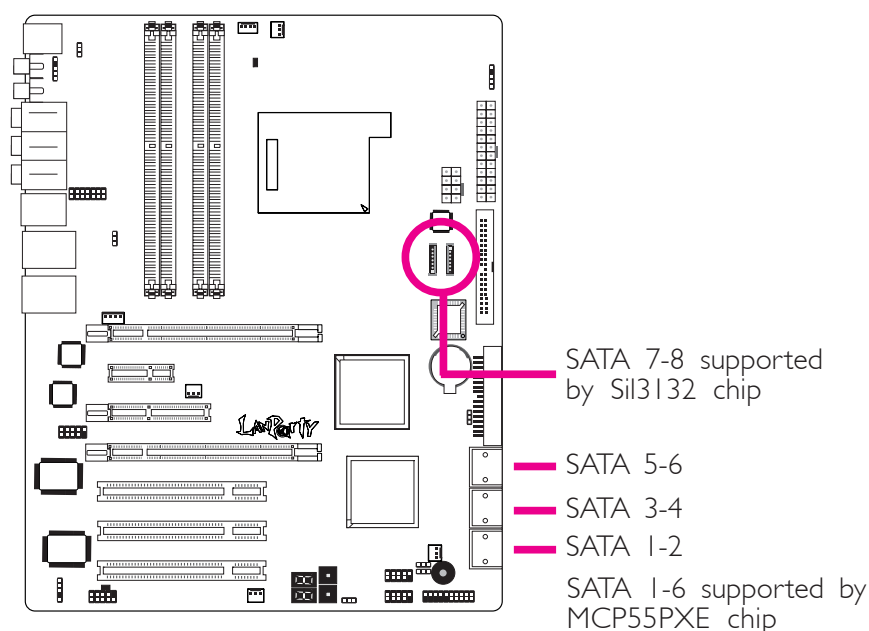
RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

Settings

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

1. Connect the Serial ATA drives.
2. Configure Serial ATA in the Award BIOS.
3. Configure RAID in the NVRAID BIOS and/or Sil3132 SataRAID BIOS.
4. Install RAID driver.

Step 1: Connect the Serial ATA Drives



Refer to chapter 2 for details on connecting the Serial ATA drives.

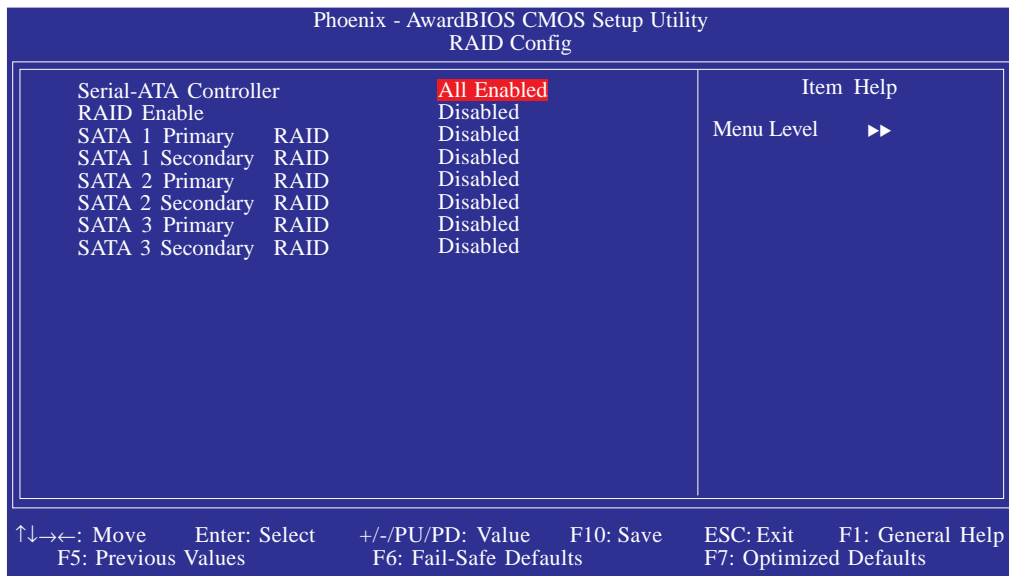


Important:

1. 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.
2. Treat the 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 lose all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

Step 2: Configure Serial ATA in the Award BIOS

1. Power-on the system then press to enter the main menu of the Award BIOS.
2. Select the Genie BIOS Setting submenu - PCI Device Control - RAID Config section of the BIOS.
3. Configure the RAID function of the Serial ATA drives.



4. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" then press <Enter>.
5. Type <Y> and press <Enter>.
6. Reboot the system.

Step 3: Configure RAID in the RAID BIOS

Configure RAID in the NVRAID BIOS

When the system powers-up and all drives have been detected, the NVRAID BIOS status message screen will appear. Press the <F10> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives. Press the <Ctrl> and <X> keys to exit the RAID BIOS.

Configure RAID in the Sil3132 SATA RAID BIOS

When the system powers-up and all drives have been detected, the Sil3132 SATA RAID 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.

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 NVRAID 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. Now the following steps are extremely crucial because there are 2 essential files that must be installed here. 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 NVIDIA nForce500 controller. Press <Enter> to install the driver.
6. Now press <S> again to specify another device.
7. This time, select the NVIDIA nForce ATA RAID class controller. Press <Enter> to install the driver. Make sure both files have been installed or the setup will fail.
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 Sil3132 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.

Chapter 7 - SLI Technology

The NVIDIA® SLI™ (Scalable Link Interface) technology connects two identical SLI-ready PCI Express x16 graphics cards in a single and scalable system. Using the SLI bridge to connect two identical graphics cards will provide extreme performance allowing you to enjoy games with the most visual effects and the most graphics demanding multimedia utilities. Dual GPUs provide increased 3D graphics and doubles graphics performance.

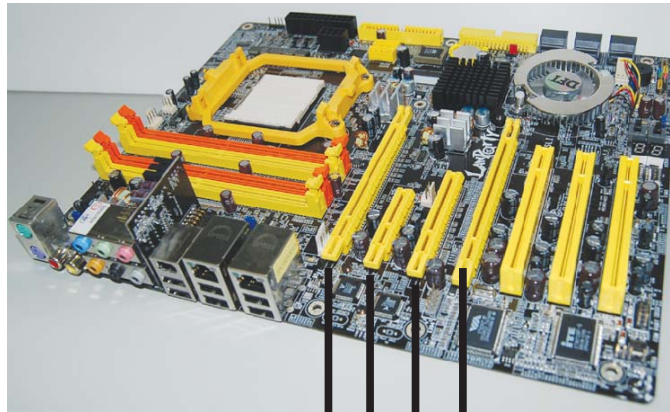
System Requirements

1. Two identical NVIDIA SLI-ready PCI Express x16 graphics cards.
2. Install graphics driver that supports the NVIDIA SLI technology.
3. Select the SLI mode in the BIOS.
4. Use a minimum of 400 Watt power supply or higher when using devices that are more power-consuming.
5. Connect a power plug from the power supply unit to the 4-pin 5V/12V power connector.
6. Use the NVIDIA SLI technology only in Windows® XP.

The PCI Express Slots

SLI Mode and/or Single VGA Mode

The illustration below shows the bandwidth of the PCI Express slots.



PCIE 1: x16 bandwidth

PCIE 2: x1 bandwidth

PCIE 3: x8 bandwidth

PCIE 4: x16 bandwidth



Note:

The system board used in the illustrations on the following pages are for reference only. The main purpose of the illustrations is to show how SLI is configured using 2 graphics cards.

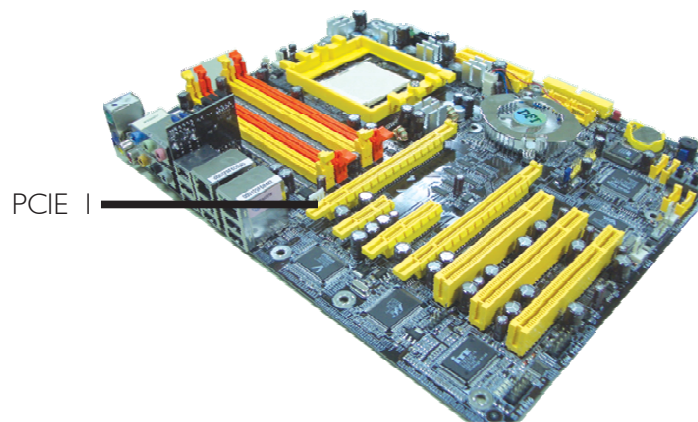
Installing the Graphics Cards



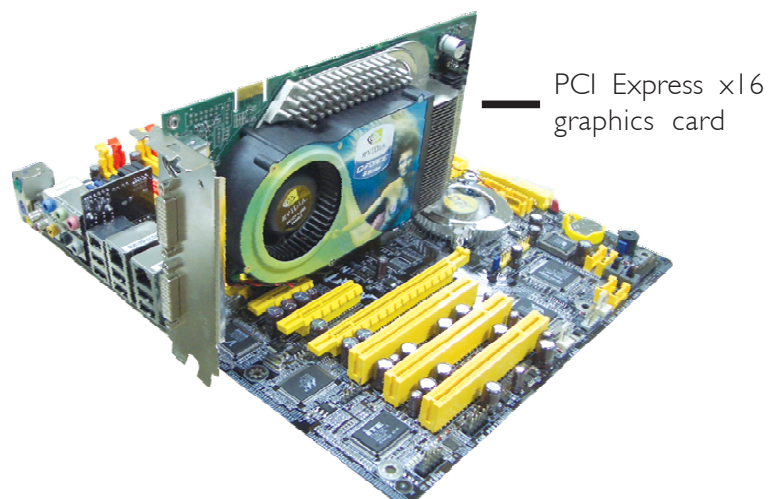
Important:

Use two identical NVIDIA SLI-ready PCI Express x16 graphics cards.

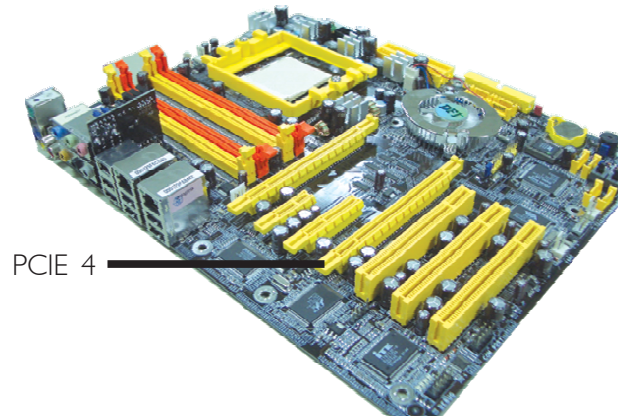
1. Power-off the system and monitor then unplug the power cord.
2. Remove the screw of the bracket that is opposite the PCIE 1 slot then remove the bracket.



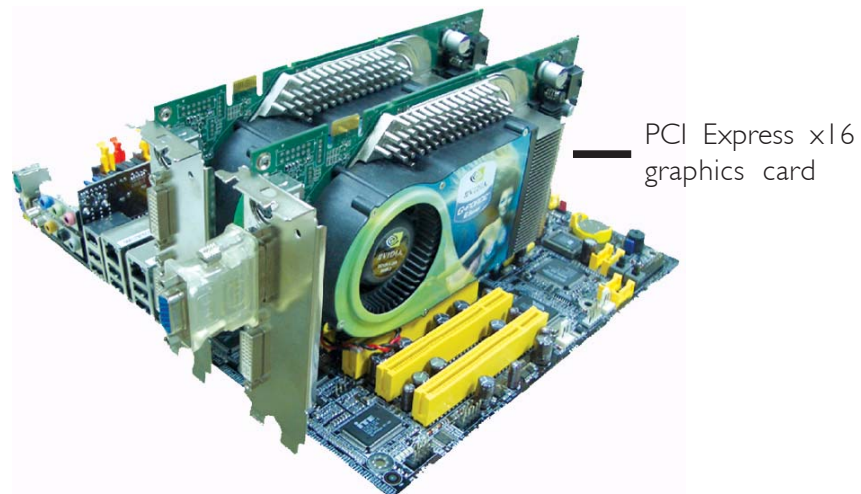
3. Align the graphics card above the PCIE 1 slot then press it down firmly until it is completely seated in the slot.



4. Secure the graphics card with the screw you removed in step 2.
5. Remove the screw of the bracket that is opposite the PCIE 4 slot then remove the bracket.

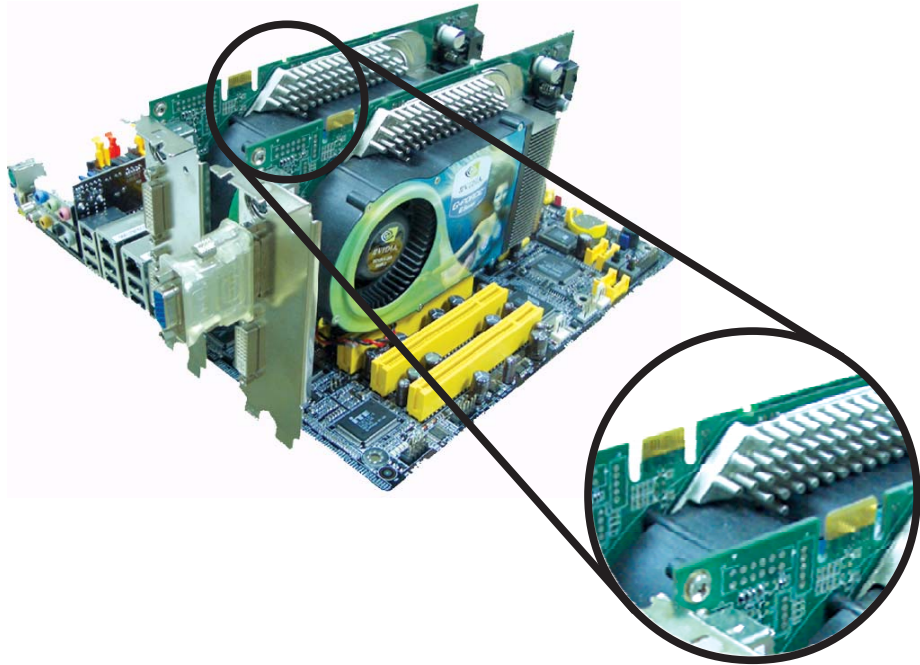


6. Align the graphics card above the PCIE 4 slot then press it down firmly until it is completely seated in the slot.

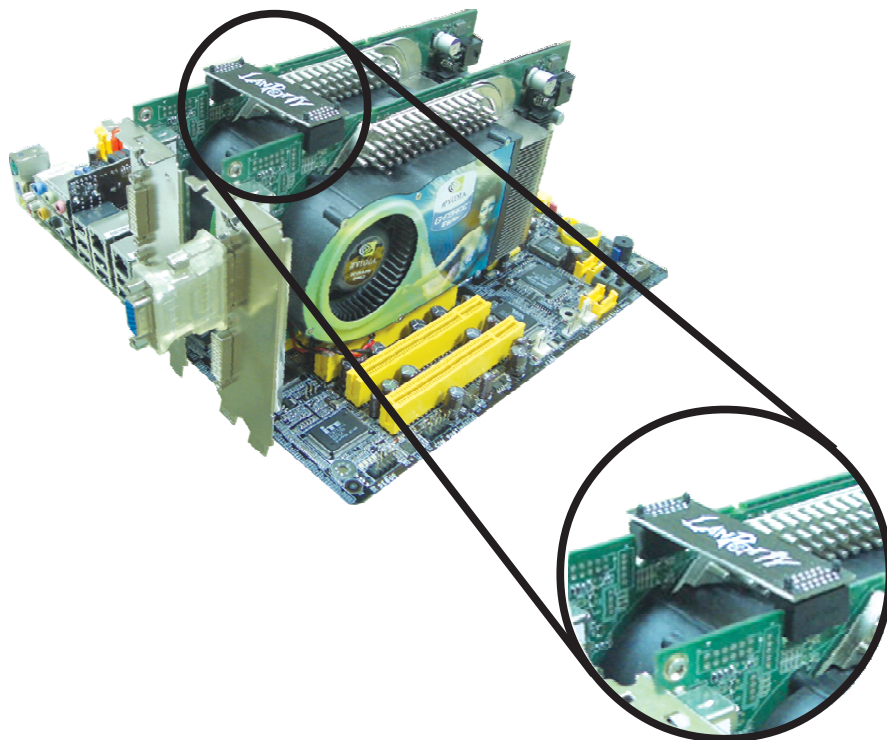


7. Secure the graphics card with the screw you removed in step 5.

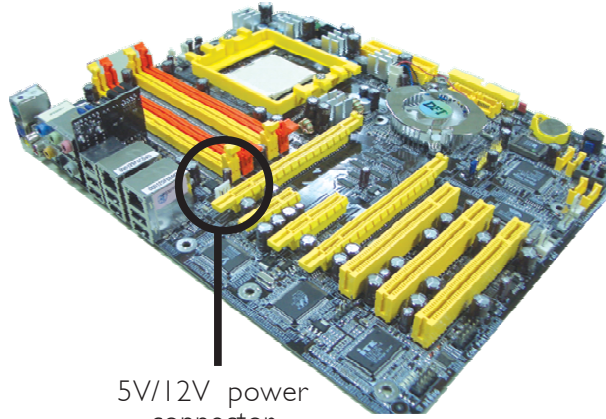
8. The distinctive feature of an SLI-ready graphics card is the presence of the SLI connector (goldfingers) on the card.



9. Align the SLI bridge (included in the system board package) above the SLI connector of the graphics cards then insert the bridge until it is properly seated in place.



10. Connect a 4-pin FDD-type power cable from the power supply unit to the 5V/12V power connector that is on the system board.



11. Power-on the monitor first then restart the system so that Windows can detect the new hardware settings.

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 occurred 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 occurred. 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-FFFFFFH 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.