

INFINITY NF650I ULTRA

System Board User's Manual

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Product names or trademarks appearing in this manual are for identification purpose only and are the properties of the respective owners.

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 will appear. Click the "TOOLS" icon then click "Manual" on the main menu.

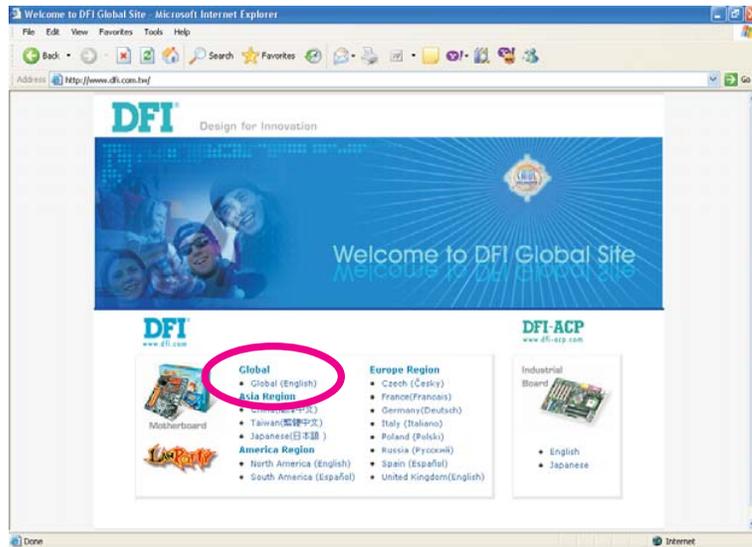
Warranty

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.

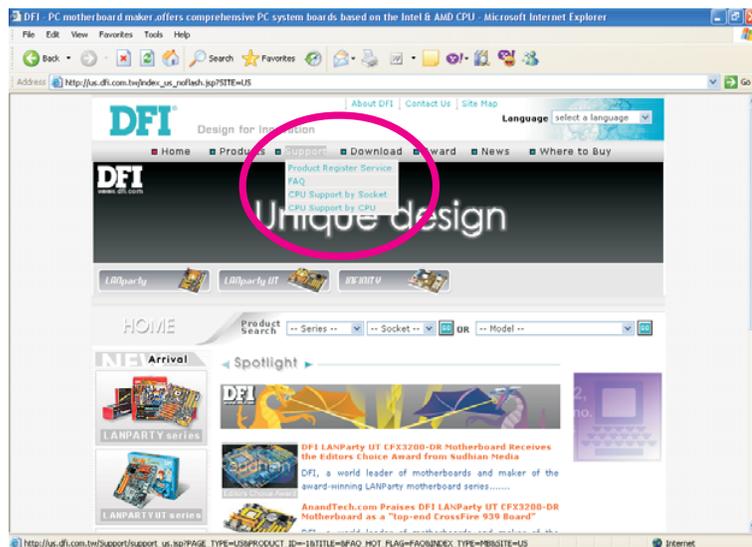
Registering the Product

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.

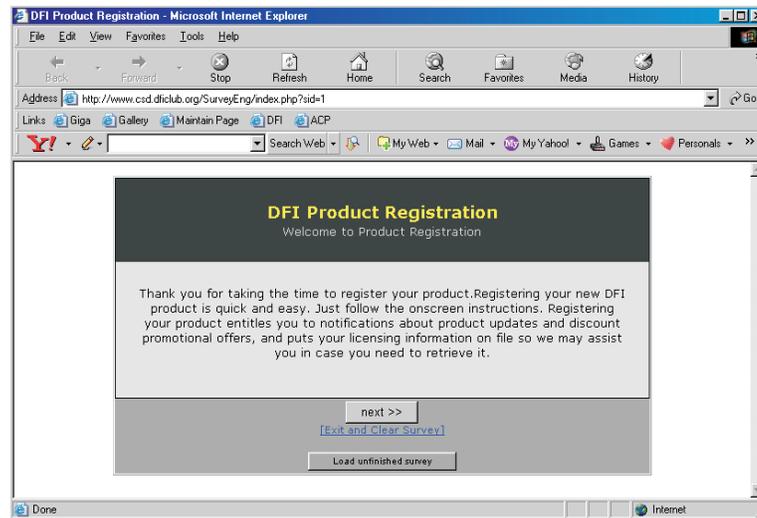
1. Run Internet Explorer then type www.dfi.com.tw in the Address bar. On DFI's homepage, click Global or the language of your choice.



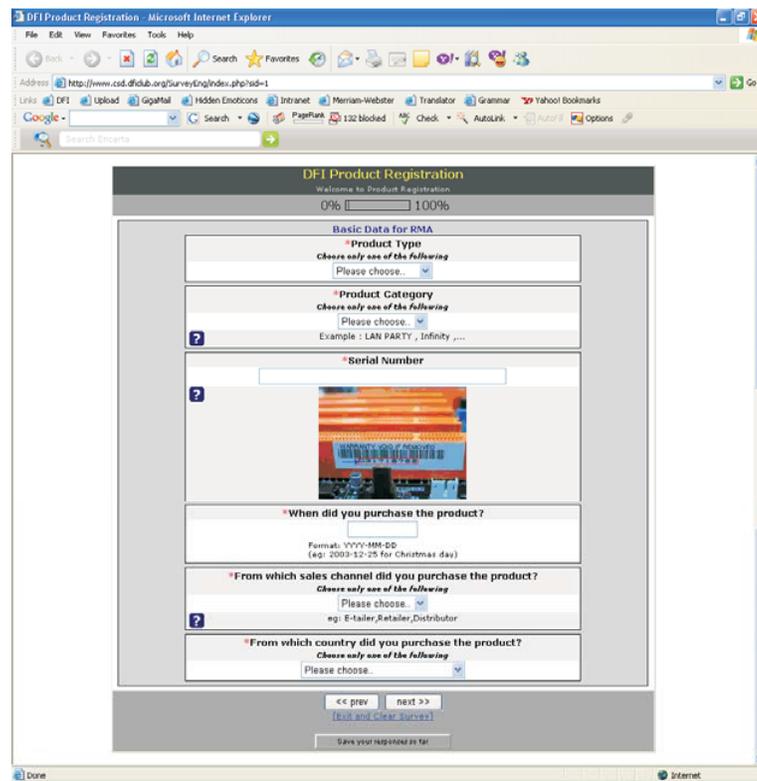
2. Click the Support menu then select Product Register Service.



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 IDE cable
- ☑ One floppy cable
- ☑ Two Serial ATA data cables
- ☑ One Serial ATA power cable
- ☑ One I/O shield
- ☑ One "Mainboard Utility" CD
- ☑ One RAID floppy diskette
- ☑ One user's manual

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">• LGA 775 socket for:<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D or Intel® Pentium® 4• Intel Enhanced Memory 64 Technology (EMT64T)• Enhanced Intel SpeedStep Technology (EIST)• Intel Hyper-Threading Technology• 1333*/1066/800MHz FSB*Available on CPUs that support 1333MHz FSB
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 650i Ultra MCP<ul style="list-style-type: none">- Northbridge: NVIDIA® 650i Ultra- Southbridge: NVIDIA® MCP51
System Memory	<ul style="list-style-type: none">• Four 240-pin DDR2 DIMM sockets• DDR2 533, DDR2 667 and DDR2 800 DIMMs• Dual channel (128-bit wide) memory interface• Up to 8GB system memory• Non-ECC x8 and x16 unbuffered DIMMs
Expansion Slots	<ul style="list-style-type: none">• 1 PCI Express x16 slot• 2 PCI Express x1 slots• 3 PCI slots
BIOS	<ul style="list-style-type: none">• Award BIOS• 8Mbit 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® MCP51 integrated with Gigabit MAC (Media Access Control) technology • One Vitesse VSC8601 Gigabit Phy chip • 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"> • Realtek ALC885 High Definition audio CODEC • 8-channel audio output • 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 2 UltraDMA 133Mbps hard drives
Serial ATA with RAID	<ul style="list-style-type: none"> • Four Serial ATA ports • SATA speed up to 3Gb/s • RAID 0, RAID 1, RAID 0+1 and RAID 5
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 • 1 parallel port • 1 RCA S/PDIF-out port • 1 RCA S/PDIF-in port • 1 COM port • 1 IEEE 1394 port • 1 RJ45 LAN port • 4 USB 2.0/1.1 ports • Line-in, line-out (front R/L) and mic-in jacks • Center/subwoofer, rear R/L and side R/L jacks
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 front audio connector • 1 CD-in internal audio connector • 1 S/PDIF connector for optical cable connection • 1 IrDA connector • 1 CIR connector • 4 Serial ATA connectors • 1 IDE connector • 1 floppy connector • 1 24-pin ATX power connector • 1 8-pin 12V power connector • 1 4-pin 5V/12V power connector (FDD type) • 1 front panel connector • 6 fan connectors • EZ touch switches (power switch and reset switch)
PCB	<ul style="list-style-type: none"> • ATX form factor • 24.4cm (9.6") × 30.5cm (12")

Features

HYPER-THREADING TECHNOLOGY

The system board supports Intel processors with Hyper-Threading Technology. Enabling the functionality of Hyper-Threading Technology for your computer system requires **ALL** of the following platforms.

Components:

- CPU - an Intel® Pentium® 4 Processor with HT Technology
- Chipset - an Intel® chipset that supports HT Technology
- BIOS - a BIOS that supports HT Technology and has it enabled
- OS - an operating system that includes optimizations for HT Technology

For more information on Hyper-Threading Technology, go to: www.intel.com/info/hyperthreading.

PCI EXPRESS™

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The system board currently supports the physical layer of x1 and x16 lane widths.

The x1 PCI Express lane supports transfer rate of 2.5 Gigabytes (250MBbps) per second. The PCI Express architecture also provides a high performance graphics infrastructure by enhancing the capability of a x16 PCI Express lane to provide 4 Gigabytes per second transfer rate.

CPU OVERHEAT PROTECTION

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.



The onboard Realtek ALC885 is a High Definition audio codec and the 6 audio jacks at the rear I/O panel provides 8-channel audio output for advanced 7.1-channel super surround sound audio system. ALC885 also supports S/PDIF output, allowing digital connections with DVD systems or other audio/video multimedia.



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[®] MCP51 supports 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[®] MCP51 chip allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.



The Gigabit MAC (Media Access Control) technology integrated in NVIDIA® MCP51 and the external Vitesse VSC8601 Gigabit Phy supports up to 1Gbps.



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

IRDA

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

2.0

USB

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

WAKE-ON-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 $\geq 1\text{A}$.

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">• LGA 775 socket pour:<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D ou Intel® Pentium® 4• Intel Ont augmenté La Technologie De la Mémoire 64 (EMT64T)• Ont augmenté La Technologie D'Intel SpeedStep (EIST)• Intel Hyper-Filetant La Technologie (Intel Hyper-Threading)• Soutient 1333*1066/800MHz FSB <p>*Disponible sur les unités centrales de traitement qui soutiennent 1333MHz FSB</p>
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 650i Ultra MCP- Pont nord: NVIDIA® 650i Ultra- Pont sud: NVIDIA® MCP51
Mémoire Système	<ul style="list-style-type: none">• 4 sockets DIMM DDR2 240-pin• Les modules DIMM DDR2 533/667/800• L'interface de mémoire deux canaux (128-bit)• Jusqu'à 8GB de mémoire système• Exclusivement les modules DIMM non-ECC x8 et x16• Les DIMM non-tamponnés
Logements d'Extension	<ul style="list-style-type: none">• 1 slot PCI Express x16• 2 slots PCI Express x1• 3 slots PCI
BIOS	<ul style="list-style-type: none">• Compatible avec Award BIOS• Mémoire Flash 8Mbit
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® MCP51_avec la technologie intégrée Gigabit MAC (Media Access Control) • 1 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"> • Realtek ALC885 8-canaux Définition Élevée audio CODEC • DAC SNR/ADC SNR de 106dB/101dB • Technologie protection de contenu 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"> • 4 ports de série ATA • Vitesse SATA jusqu'à 3Gb/s • RAID 0, RAID 1, RAID 0+1 et RAID 5
EE 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 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 1 parallel port • 1 RCA S/PDIF-out port • 1 RCA S/PDIF-in port • 1 COM port • 1 IEEE 1394 port • 1 RJ45 LAN port • 4 USB 2.0/1.1 ports • Line-in, line-out (front R/L) et mic-in jacks • Center/subwoofer, rear R/L et side R/L jacks
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 audio frontal • 1 connecteur CD-in • 1 S/PDIF l'assemblage pour l'adjonction de câble optique • 1 connecteur IR • 1 connecteur CIR • 4 connecteurs Serial ATA • 1 connecteur IDE • 1 connecteur de 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 • 6 connecteurs de ventilateurs • EZ interrupteurs (bouton de power et reset)
PCB	<ul style="list-style-type: none"> • Facteur de forme de ATX • 24.4cm (9.6") x 30.5cm (12")

Leistungsmerkmale und Technische Daten

Prozessor	<ul style="list-style-type: none">• LGA 775 CPU Einfaßung für:<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D oder Intel® Pentium® 4• Intel Erhöhten Technologie Des Gedächtnis-64 (EMT64T)• Erhöhten Intel SpeedStep Technologie (EIST)• Intel, das Technologie Hyper-Verlegt (Intel Hyper-Threading)• Stützt 1333*/1066/800MHz FSB*Verfügbar für CPU's die 1333 MHz. FSB unterstützen
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 650i Ultra MCP- Nordbrücke: NVIDIA® 650i Ultra- Südbrücke: NVIDIA® MCP51
Systemspeicher	<ul style="list-style-type: none">• 4 Sockel 240-pin DDR2 DIMM• DDR2 533, DDR2 667 und DDR2 800 DIMMs• 128-bit – Speicher mit den zwei Kanälen• Bis zum 8GB-Systemspeicher• Nur non-ECC x8 und x16 ohne Dämpfer DIMMs
Expansion Schlitz	<ul style="list-style-type: none">• 1 PCI Express x16-Einbauplätzen• 2 PCI Express x1-Einbauplätzen• 3 PCI-Einbauplätzen
BIOS	<ul style="list-style-type: none">• Kompatibilität mit Award BIOS• Flash-Speicher (8Mbit)
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® MCP51 integriert mit Gigabit MAC (Media Access Control) Technologie • 1 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"> • Realtek ALC885 8-Kanal-Hohe-Definition-audio-CODEC • 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"> • 4 serielle Serial ATA-Ports • SATA bis zu 3Gb/s schnell • RAID 0, RAID 1, RAID 0+1 und RAID 5
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 • 1 DB-25-Parallelanschluß • 1 S/PDIF-out RCA-Anschlüsse • 1 S/PDIF-in RCA-Anschlüsse • 1 COM-Anschlüsse • 1 IEEE-1394-Anschlüsse • 1 RJ45 LAN-Anschlüsse • 4 USB 2.0/1.1-Anschlüsse • Line-in, line-out und mic-in Audio-Anschlußbuchsen • Center/subwoofer, rear R/L und side R/L Audio-Anschlußbuchsen
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 Front-Audioanschluss • 1 CD-in interne Audioanschlüsse • 1 S/PDIF Anschluß für die Verbindung des optischen Kabel • 1 Anschluß für die IR-Schnittstelle • 1 CIR-Schnittstelle • 4 Serial ATA-Anschlüsse • 1 IDE-Anschlüsse • 1 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 • 6-ventilator-Anschlüsse • EZ Umschaltern (der Knopf der Speisung und des Auslasses)
PCB	<ul style="list-style-type: none"> • ATX Formfaktor • 24.4cm (9.6") × 30.5cm (12")

Características y Especificaciones

Procesador	<ul style="list-style-type: none">• LGA 775 Zócalo de la CPU para:<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D o Intel® Pentium® 4• Intel Realzaron Tecnología De la Memoria 64 (EMT64T)• Realzaron La Tecnología De Intel SpeedStep (EIST)• Intel Hiperactivo-Que rosca Tecnología (Intel Hyper-Threading)• 1333*1066/800MHz FSB <p>*Disponible en procesadores que soporten un FSB a 1333MHz</p>
Chipset	<ul style="list-style-type: none">• NVIDIA nForce® 650i Ultra MCP- Puente norte: NVIDIA® 650i Ultra- Puente sur: NVIDIA® MCP51
Memoria de Sistema	<ul style="list-style-type: none">• 4 240-pin DDR2 DIMM asientos• DDR2 533, DDR2 667 y DDR2 800 DIMMs• Memoria de dos canales (128-bit)• Hasta 8GB de memoria sistémica• Sólo non-ECC x8 y x16 unbuffered DIMM
Ranuras de Expansión	<ul style="list-style-type: none">• 1 slot PCI Express x16• 2 slot PCI Express x1• 3 slots PCI
BIOS	<ul style="list-style-type: none">• Award BIOS• Memoria Instante (8Mbitios)
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® MCP51 integrado con la tecnología Gigabit MAC (Media Access Control) • 1 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"> • Realtek ALC885 8-canal Alta Definición audio CODEC • 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"> • 4 ports de Serial ATA • SATA se acelera a 3Gb/s • RAID 0, RAID 1, RAID 0+1 y RAID 5
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 mini-DIN-6 PS/2 • 1 puerto de teclado mini-DIN-6 PS/2 • 1 puerto paralelo de DB-25 • 1 puerto de S/PDIF-out RCA • 1 puerto de S/PDIF-in RCA • 1 puerto COM • 1 puerto de IEEE 1394 • 1 puerto de RJ45 LAN • 4 puertos de USB 2.0/1.1 • Line-in, line-out (front R/L) y mic-in enchufes de audio • Center/subwoofer, rear R/L y side R/L enchufes de audio
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 de sonido delantera • 1 conector de CD-in • 1 S/PDIF mortaja para conexión de cable óptico • 1 conector de IR • 1 conector de CIR • 4 conectores de SATA • 1 conector de IDE • 1 conector de 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 conector de energía de 5V/12V (FDD-tipo) • 1 conector de panel delante • 6 conectores de abanicos • EZ conmutadores (conmutadores de alimentación y reset)
PCB	<ul style="list-style-type: none"> • ATX forme el factor, • 24.4cm (9.6") x 30.5cm (12")

Русский язык

Характеристики и свойства

Процессор	<ul style="list-style-type: none">• LGA 775 гнездо для:<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D или Intel® Pentium® 4• Intel Увеличили Технологию Памяти 64 (EMT64T)• Увеличили Технологию Intel SpeedStep (EIST)• Intel Гипер-Prodeva4 нитку Технологию (Intel Hyper-Threading)• 1333*/1066/800MHz FSB <p>*Есть на процессорах, поддерживающих частоту шины 1333МГц</p>
Чипсет	<ul style="list-style-type: none">• NVIDIA nForce® 650i Ultra MCP- Северный мост: NVIDIA® 650i Ultra- Южный мост: NVIDIA® MCP51
Оперативная Память	<ul style="list-style-type: none">• 4 240-pin DDR2 DIMM гнезда• DDR2 533, DDR2 667 и DDR2 800 DIMMs• двухканальную память (128-бит)• до 8ГБ системной памяти• только non-ECC x8 и x16 небуфф. DIMM
управление силы	<ul style="list-style-type: none">• 1 PCI Express x16 слотов• 2 PCI Express x1 слотов• 3 PCI слотов
BIOS	<ul style="list-style-type: none">• Award BIOS• 8Mbit 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® MCP51 со встроенной технологией Gigabit MAC (Media Access Control) • 1 Vitesse VSC8601 Gigabit Phy • Поддерживает IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) и 802.3ab (1000BASE-T)
Тональнозвукowo	<ul style="list-style-type: none"> • Realtek ALC885 8-канал Высокое Определение CODEC • 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"> • 4 SATA портов • Скорость SATA до 3 ГБ/с • RAID 0, RAID 1, RAID 0+1 и RAID 5
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 • 1 мини-DIN-6 PS/2 порт для клавиатуры • 1 DB-25 параллельный порт • 1 S/PDIF-out RCA порт • 1 S/PDIF-in RCA порт • 1 COM порт • 1 IEEE 1394 порта • 1 RJ45 LAN порт • 4 USB 2.0/1.1 порта • Mic-in, line-in и line-out гнезда для звука • Center/subwoofer, rear R/L и side R/L гнезда для звука
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 фронтальный аудио-разъем • 1 CD-in разъема • 1 S/PDIF разъем для присоединения оптического кабеля • 1 IR разъем • 1 CIR разъем • 4 Serial ATA разъема • 1 IDE разъема • 1 разъем 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 • 6 Разъемы для вентилятора • EZ переключатели (кнопка питания и сброса)
PCB	<ul style="list-style-type: none"> • ATX • 24.4cm (9.6") x 30.5cm (12")

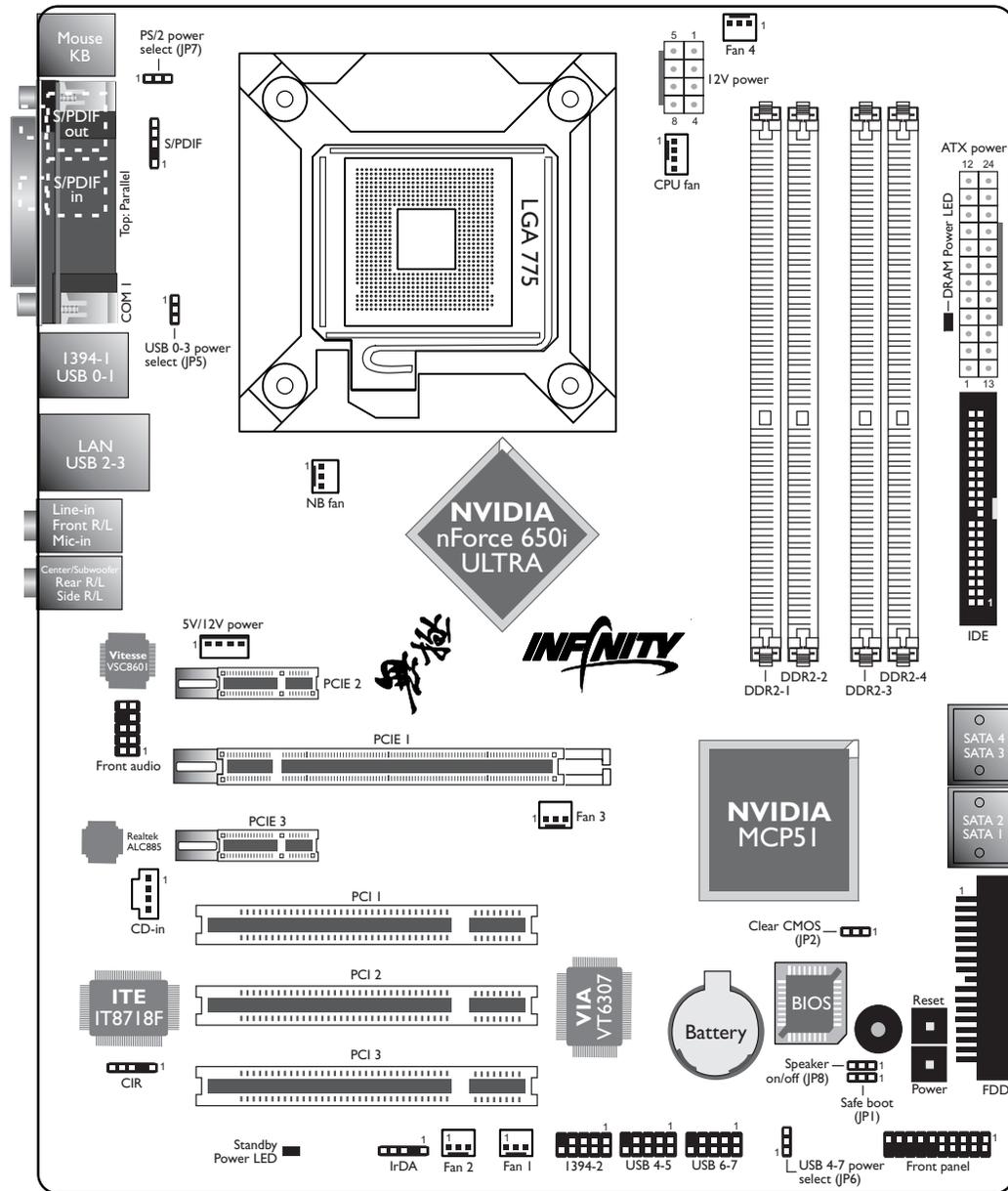
日本語

プロセッサ	<ul style="list-style-type: none">● プロセッサ・ソケット: LGA 775<ul style="list-style-type: none">- Intel® Core™2 Quad, Intel® Core™2 Extreme, Intel® Core™2 Duo, Intel® Pentium® D または Intel® Pentium® 4● Intel Enhanced Memory 64 Technology (EMT64T)● Enhanced Intel SpeedStep Technology (EIST)● Intel Hyper-Threading Technology● 1333*/1066/800MHz FSB<ul style="list-style-type: none">*FSB 1333MHz CPU サポートは可能です
チップセット	<ul style="list-style-type: none">● NVIDIA nForce® 650i Ultra MCP チップセット<ul style="list-style-type: none">- ノースブリッジ: NVIDIA® 650i Ultra- サウスブリッジ: NVIDIA® MCP51
システムメモリ	<ul style="list-style-type: none">● 240ピンDDR2 DIMMソケット x 4● DDR2 533, DDR2 667 および DDR2 800 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8GB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	<ul style="list-style-type: none">● PCI Express x16 スロット x 1● PCI Express x1 スロット x 2● PCIスロット x 3
BIOS	<ul style="list-style-type: none">● Award BIOS● 8Mビット フラッシュメモリ
電源管理機能	<ul style="list-style-type: none">● 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	<ul style="list-style-type: none">● 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	<ul style="list-style-type: none">● Realtek ALC885 8チャンネルオーディオCODEC● 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	<ul style="list-style-type: none"> ・NVIDIA® MCP51 (Gigabit MAC technology) ・1 Vitesse VSC8601 Gigabit Phy ・IEEE 802.3 (10BASE-T)、802.3u (100BASE-TX) および802.3ab (1000BASE-T) 基準に完全準拠
IDE	<ul style="list-style-type: none"> ・2つのIDEコネクタにより最大42台のUltraDMA 133Mbpsハードドライブと接続可能
シリアルATA (SATA)	<ul style="list-style-type: none"> ・4つのSATAポートをサポート ・SATA速度は最大3Gb/s ・RAID 0, RAID 1, RAID 0+1 および RAID 5
IEEE 1394	<ul style="list-style-type: none"> ・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	<ul style="list-style-type: none"> ・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 ・パラレルポート x 1 ・RCA S/PDIF-out x 1 ・RCA S/PDIF-in x 1 ・COMポート x 1 ・IEEE 1394ポート x 1 ・RJ45 LANポート x 1 ・USB 2.0/1.1ポート x 4 ・ライン入力、ライン出力 (フロントR/L) およびマイク入力端子 ・センタ/サブウーファ、リアR/LおよびサイドR/L端子
内部I/O	<ul style="list-style-type: none"> ・4ポート外部USB 2.0/1.1ポート用コネクタ x 2 ・外部IEEE 1394ポート用コネクタ 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 ・CD入力内蔵オーディオコネクタ x 1 ・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 4 ・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 6 ・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 24.4cm (9.6 inches) x 30.5cm (12 inches)

Chapter 2 - Hardware Installation

System Board Layout



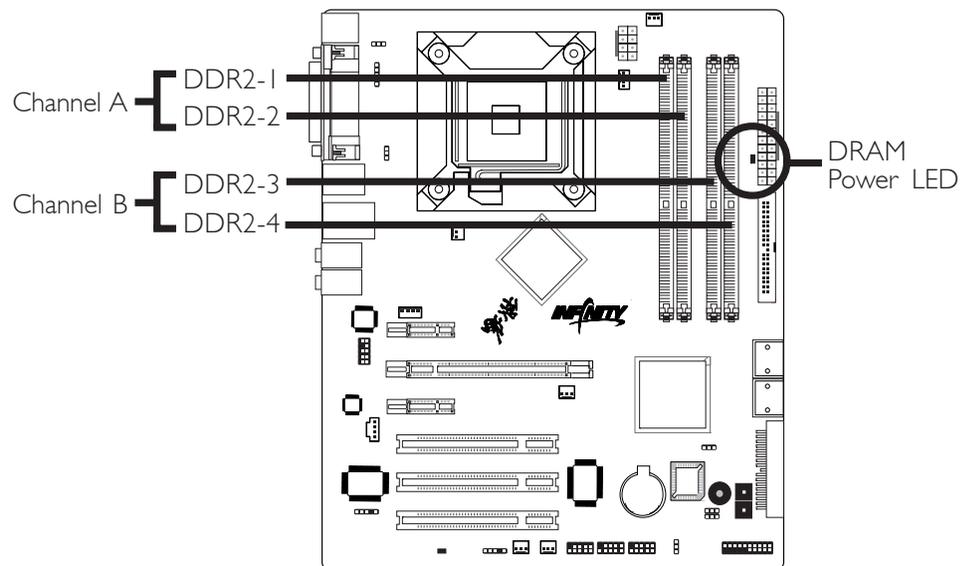
**Warning:**

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 240-pin DDR2 DIMM sockets. 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.

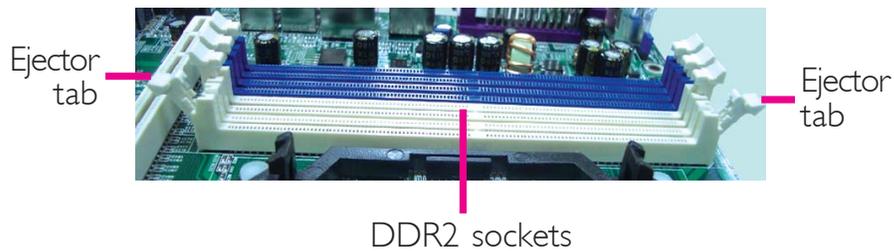
Single Channel	<ul style="list-style-type: none">• DIMMs are on the same channel.• DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs.• Not all slots need to be populated.
Dual Channel	<ul style="list-style-type: none">• DIMMs of the same memory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

BIOS Setting

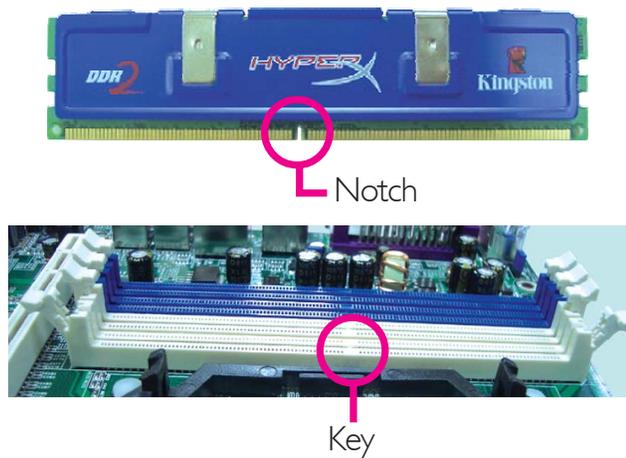
Configure the system memory in the Genie BIOS Setting submenu ("Memory Timing Setting" section) of the BIOS.

Installing the DIM Module

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the DDR2 socket on the system board.
4. Push the “ejector tabs” which are at the ends of the socket to the side.



5. Note how the module is keyed to the socket.



6. Grasping the module by its edges, position the module above the socket with the “notch” in the module aligned with the “key” on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



7. Seat the module vertically, pressing it down firmly until it is completely seated in the socket.



8. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



CPU

Overview

The system board is equipped with a surface mount LGA 775 socket. This socket is exclusively designed for installing a LGA 775 packaged Intel CPU.

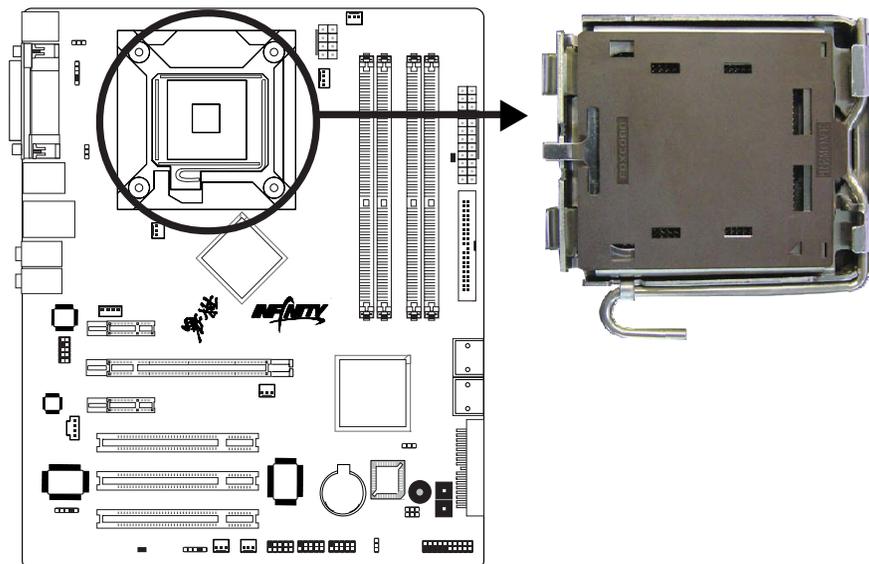


Important:

- 1. Before you proceed, make sure (1) the LGA775 socket comes with a protective cap, (2) the cap is not damaged and (3) the socket's contact pins are not bent. If the cap is missing or the cap and/or contact pins are damaged, contact your dealer immediately.*
- 2. Make sure to keep the protective cap. RMA requests will be accepted and processed only if the LGA775 socket comes with the protective cap.*

Installing the CPU

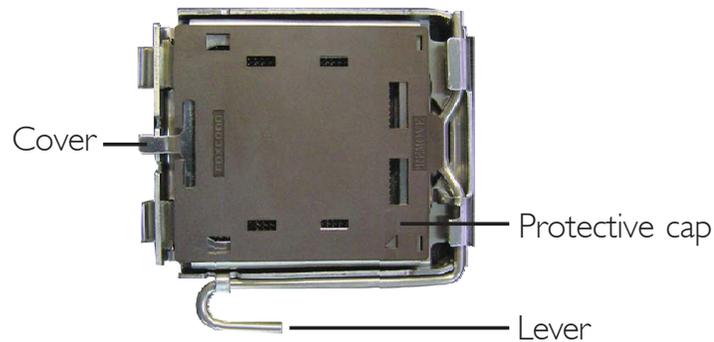
1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the LGA 775 CPU socket on the system board.



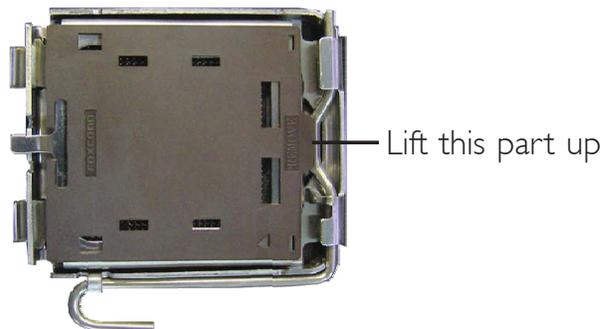
**Important:**

The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure. Remove the protective cap only when you are about to install the CPU.

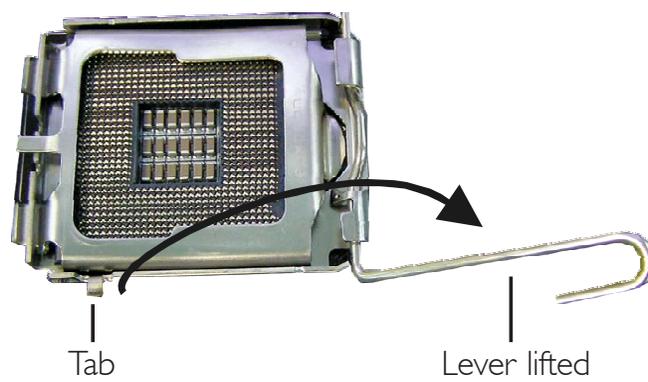
- The CPU socket comes with a cover that is attached with a removable protective cap. The cap is used to protect the CPU socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.



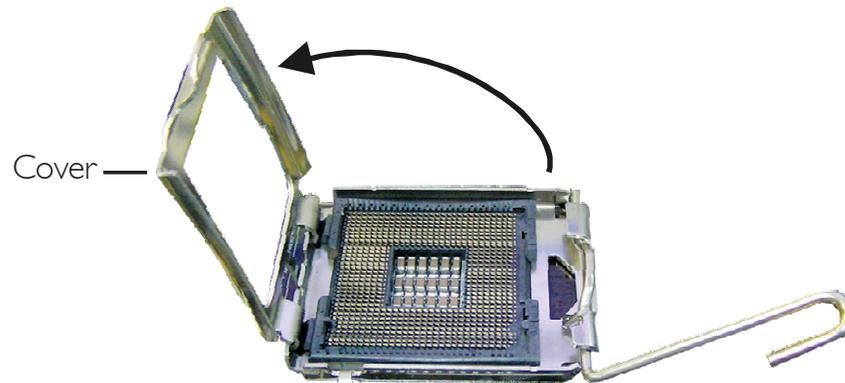
- Lift the protective cap from the location pointed below to detach the cap from the cover:



- Unlock the socket by pushing the lever down, moving it away from the side tab of the socket, then lifting it up.



7. Now lift the cover:

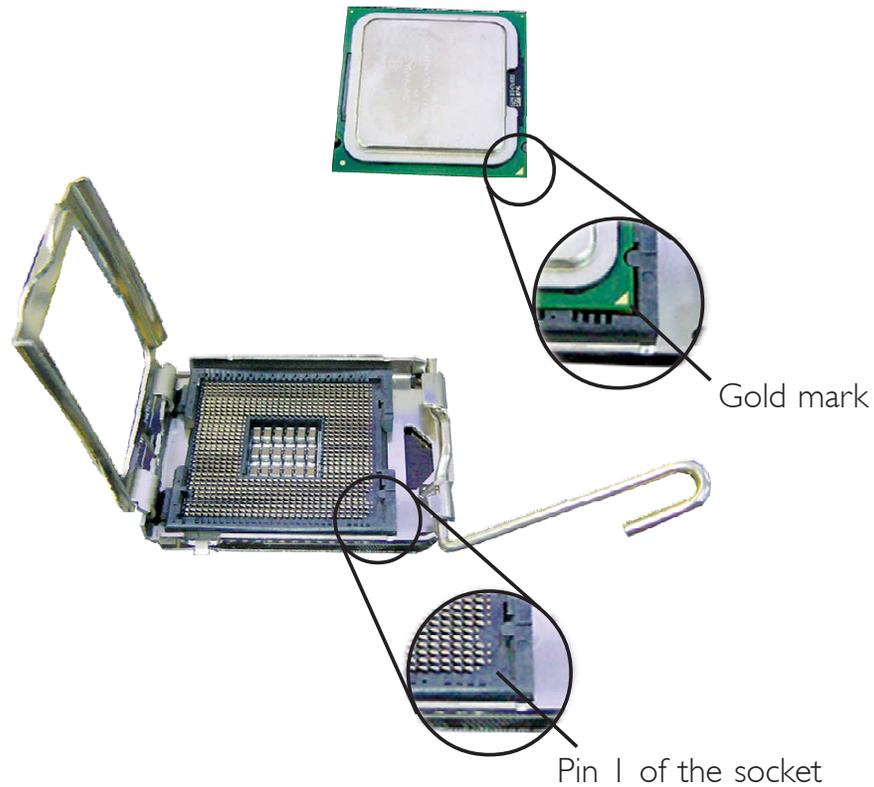


8. Position the CPU above the socket. The gold mark on the CPU must align with pin 1 of the CPU socket.



Important:

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



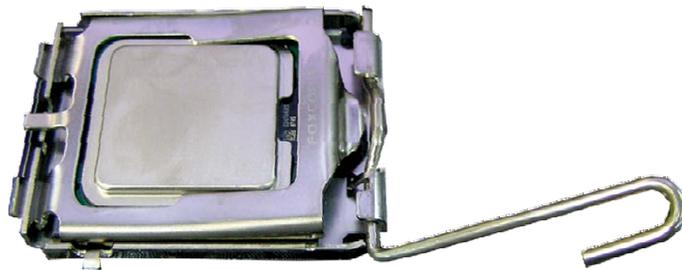
9. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

**Important:**

Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.



10. Once the CPU is in place, move the cover down.



11. Push the lever down to lock the socket. The lever should hook onto 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.



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.

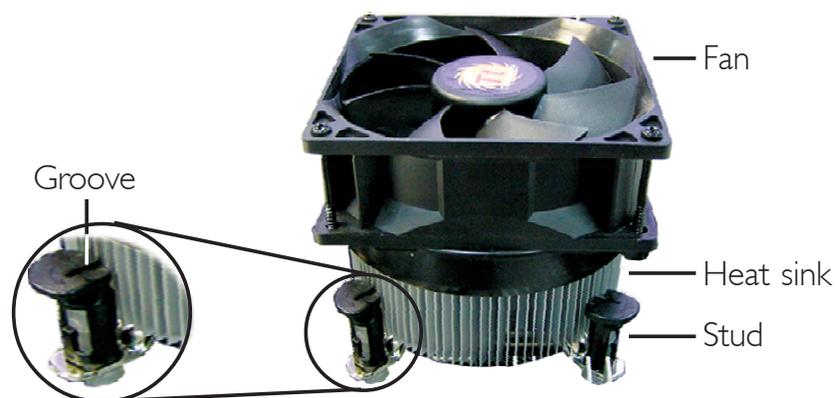
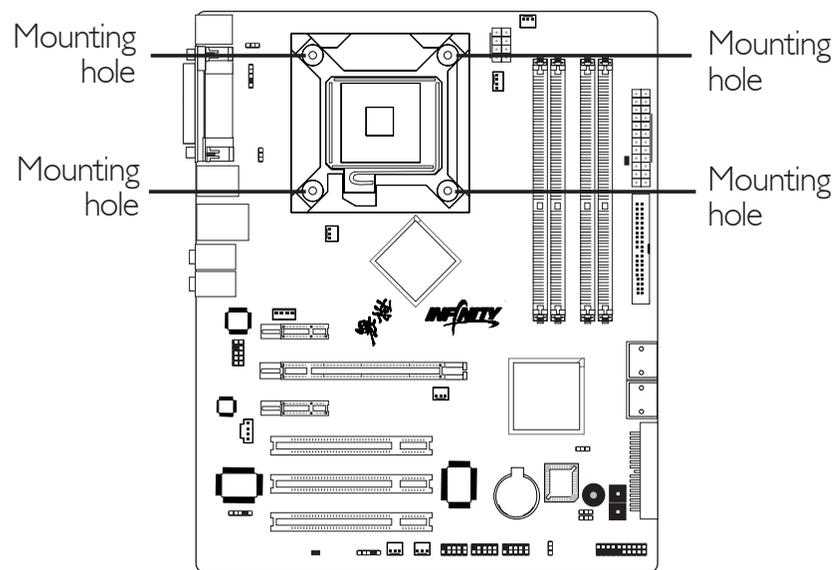
Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

2. Place the heat sink on top of the CPU. The 4 studs around the heat sink which are used to secure the heat sink onto the system board must match the 4 mounting holes around the socket.

Position each stud so that the groove faces the heat sink then push it down firmly until it clicks into place.

**Note:**

You will not be able to secure the fan and heat sink assembly in place if the groove is not facing the heat sink.

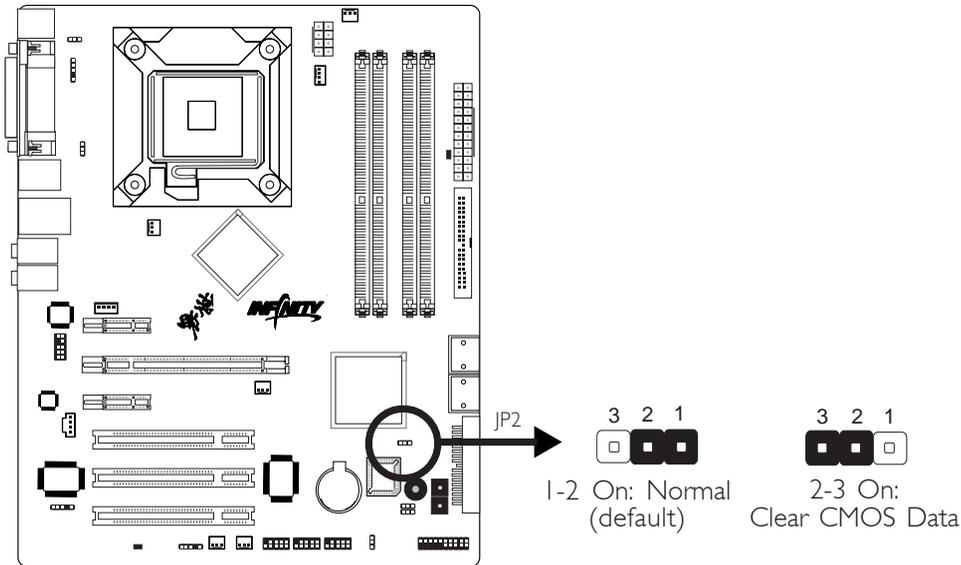


3. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

Jumper Settings

Clear CMOS Data

Clearing CMOS Data using JP2



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 clock was incorrectly set in the BIOS.*

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

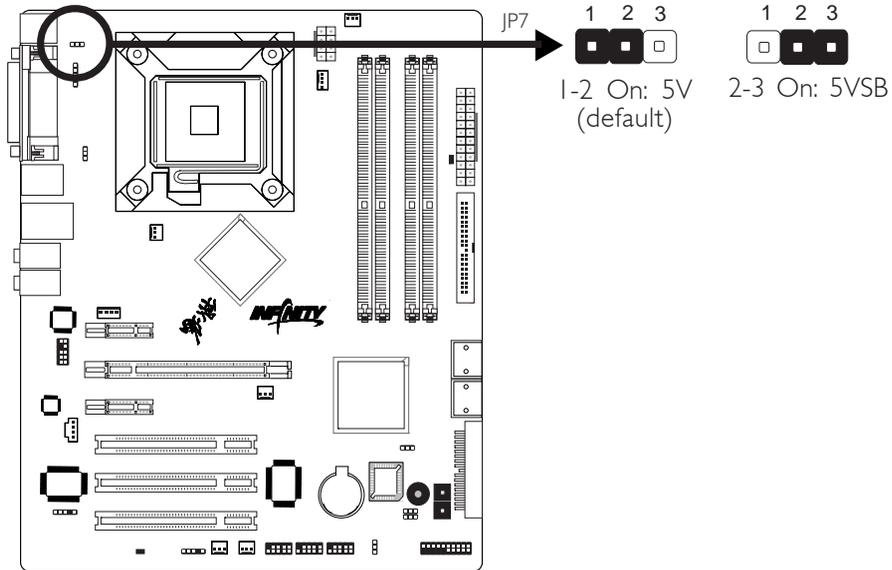
To load the default values stored in the ROM BIOS, please follow the steps below.

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 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 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.

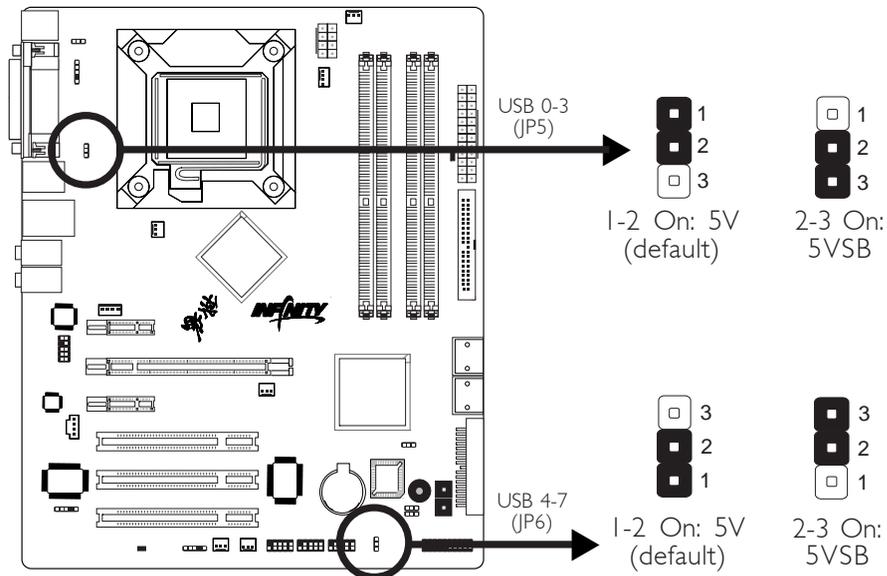
BIOS Setting

Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Onboard Super IO Device" section) 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

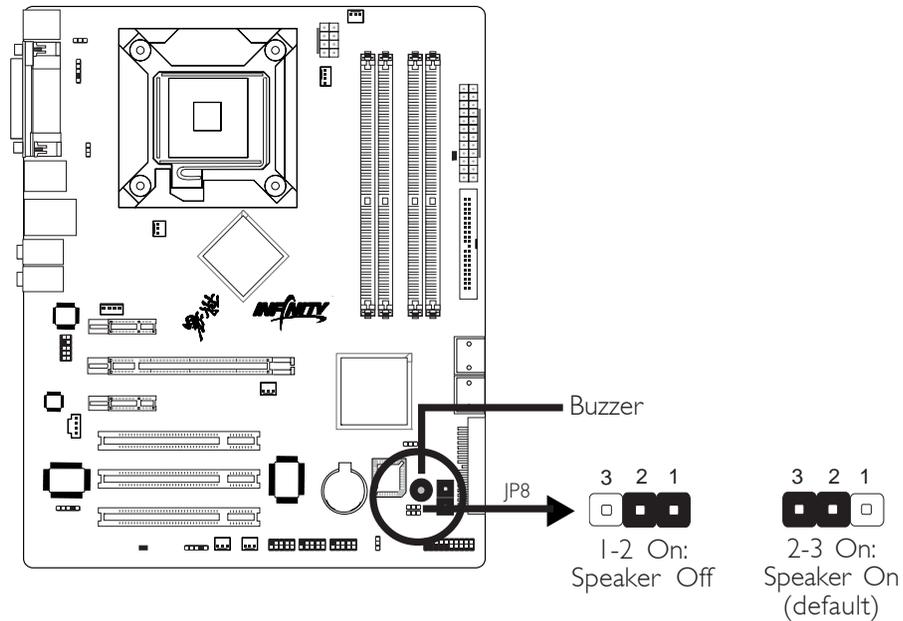


JP5 and JP6 are used to select the power of the USB ports. Selecting 5VSB will allow you to use the USB keyboard or USB mouse to wake up the system..

**Important:**

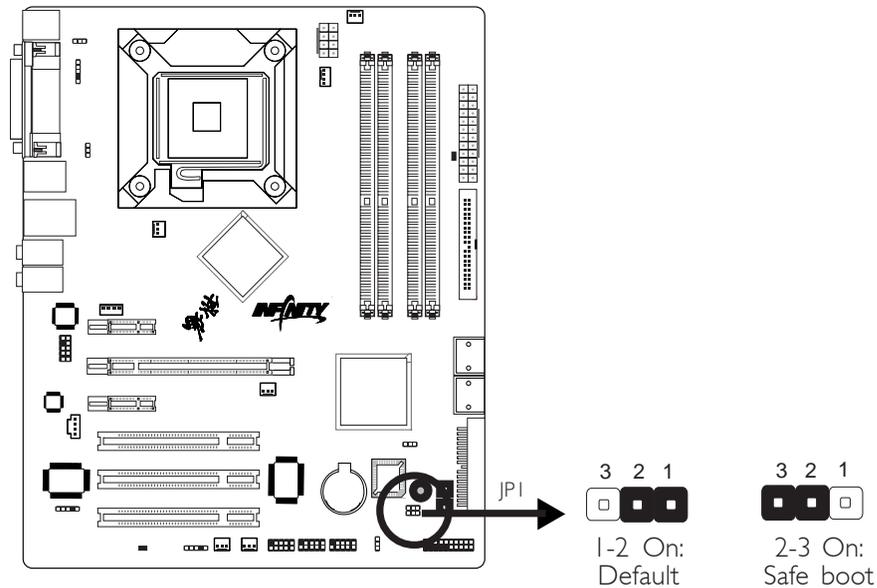
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support $\geq 1.5A$. For 3 or more USB ports, the 5VSB power source of your power supply must support $\geq 2A$.

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.

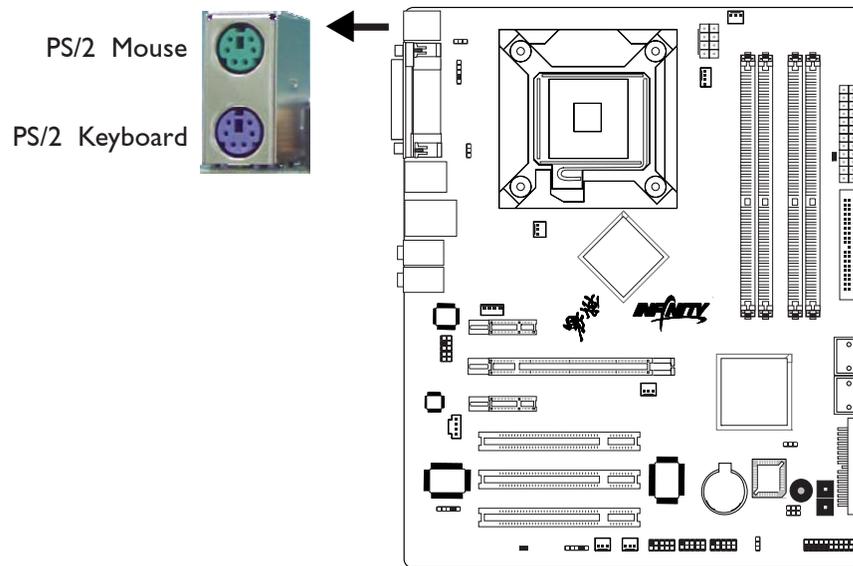
Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- Parallel Port
- RCA S/PDIF-out jack
- RCA S/PDIF-in jack
- COM port
- IEEE 1394 port
- USB ports
- LAN port
- Line-in port
- Front R/L port
- Mic-in port
- Center/Subwoofer port
- Rear R/L port
- Side R/L port

PS/2 Mouse and PS/2 Keyboard Ports



The PS/2 mouse (Green) and PS/2 keyboard (Purple) ports are 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:

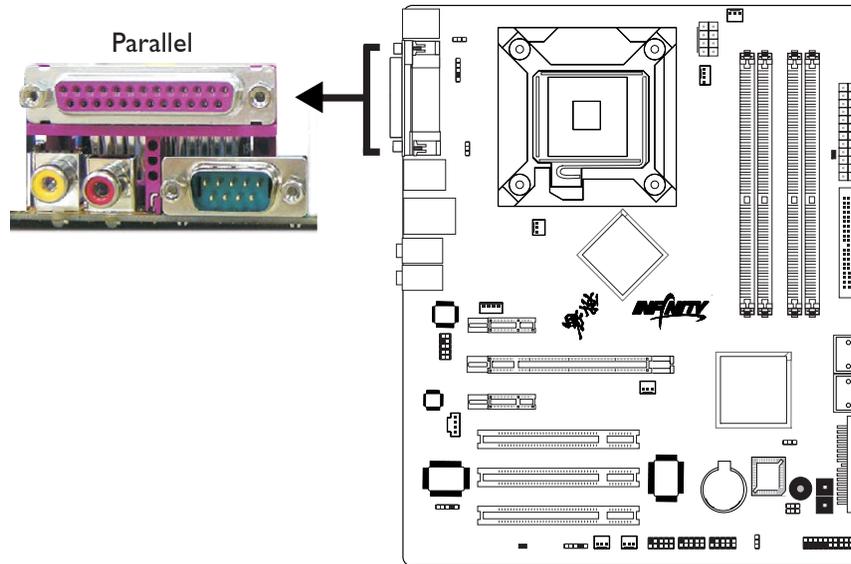
Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.

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 (“Onboard Super IO Device” section) of the BIOS. Refer to chapter 3 for more information.

Parallel Port



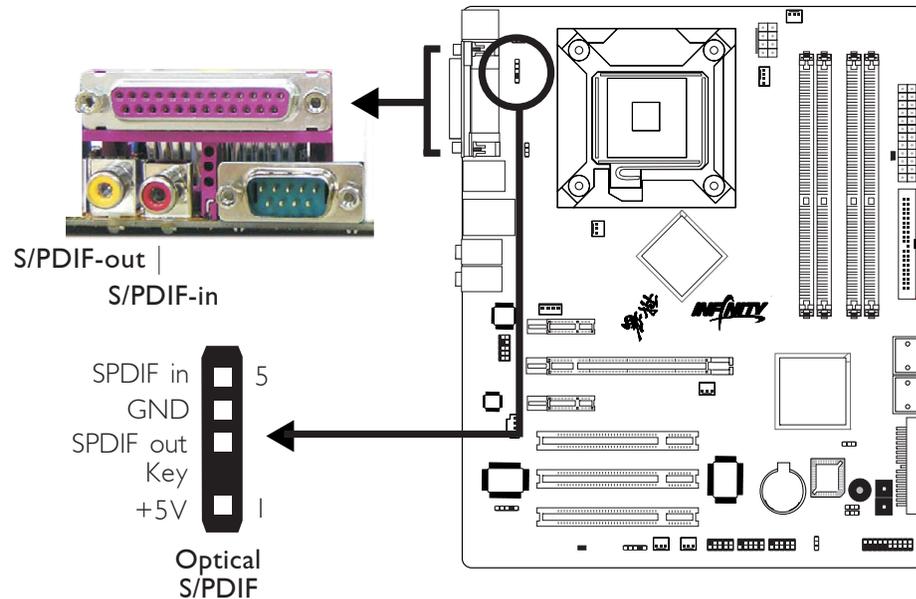
The standard parallel port (Burgundy) is at location CN12 for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP.

Setting	Function
SPP (Standard Parallel Port)	Allows normal speed operation but in one direction only.
ECP (Extended Capabilities Port)	Allows parallel port to operate in bidirectional mode and at a speed faster than the SPP's data transfer rate.
EPP (Enhanced Parallel Port)	Allows bidirectional parallel port operation at maximum speed.

BIOS Setting

Configure the parallel port in the Integrated Peripherals submenu ("Onboard Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

S/PDIF



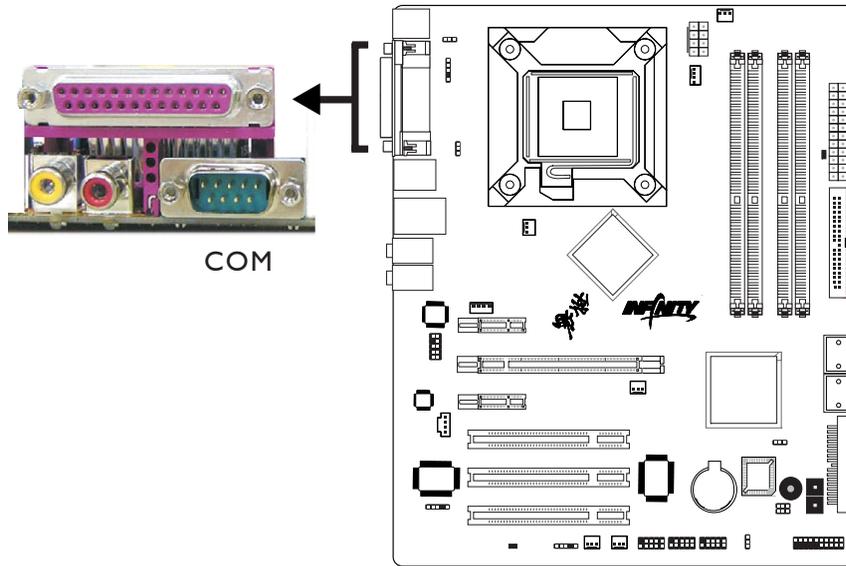
The RCA S/PDIF-out jack and RCA S/PDIF-in jack are at locations CN7 and CN5 respectively. The connector at location J3 is for optical S/PDIF connection. S/PDIF ports are used to connect audio output devices.

Your optical S/PDIF 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 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.

COM Port

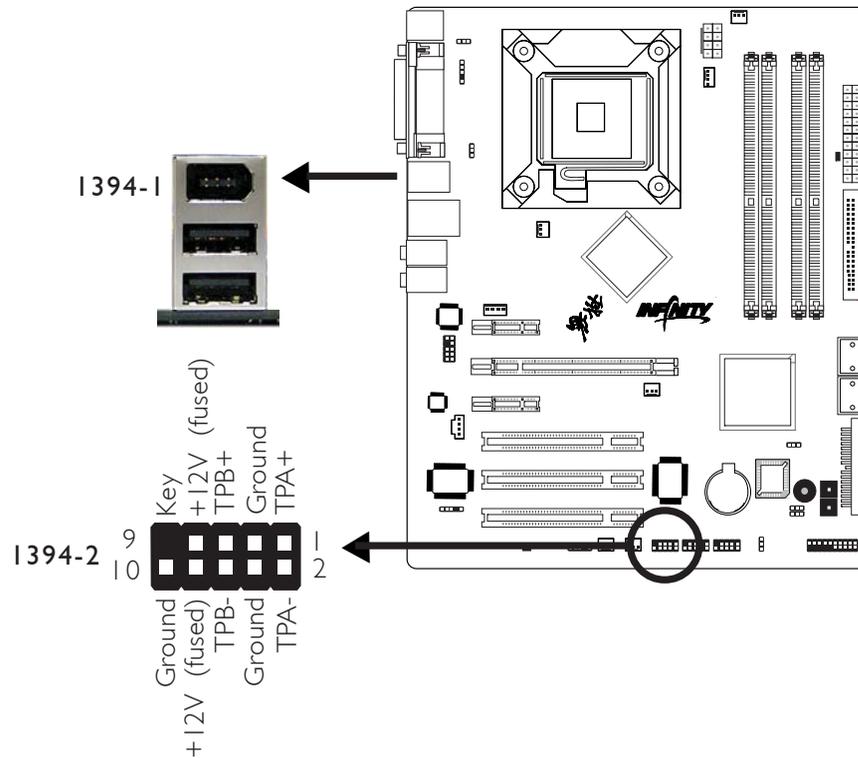


The onboard serial port is at location CNI. The serial port is RS-232 asynchronous communication port with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

Configure the serial port in the Integrated Peripherals submenu ("Onboard Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

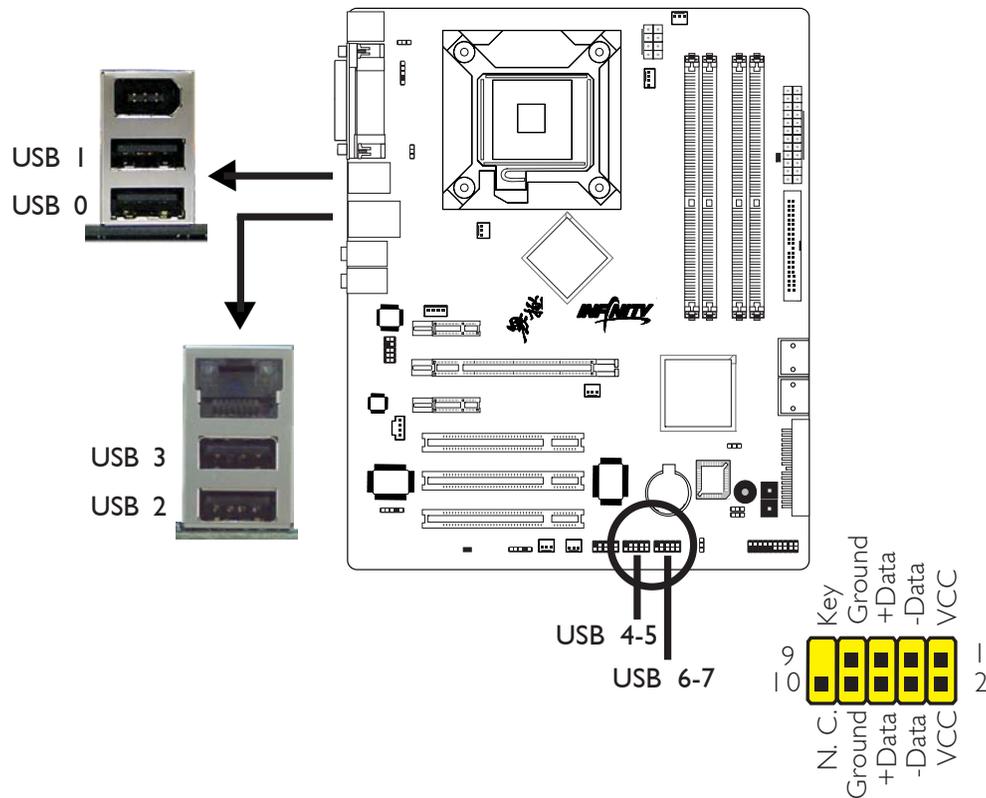
IEEE 1394



The onboard IEEE 1394 port is at location CN3 (IEEE 1394-1) of the system board.

The IEEE 1394 connector at location J8 (1394-2) is for connecting an additional 1394 device. The 1394 port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the 1394 port cable to J8. Make sure pin 1 of the cable connector is aligned with pin 1 of the J8.

Universal Serial Bus Ports



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

Four onboard USB 2.0/1.1 ports (Black) are at locations CN3 (USB 0-1) and CN4 (USB 2-3) of the system board.

J33 (USB 4-5) and J18 (USB 6-7) 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 J33 or J18.

BIOS Setting

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

Driver Installation

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

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

Wake-On-USB Keyboard/Mouse

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

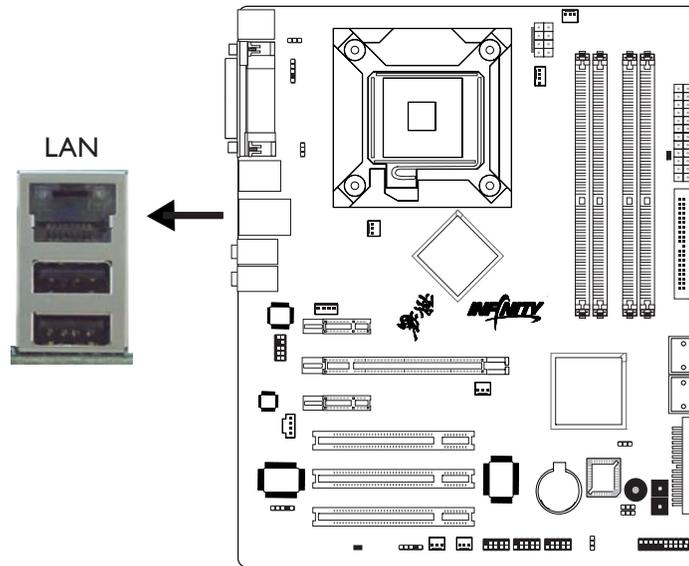
- **Jumper Setting:**
JP5 and/or JP6 must be set to "2-3 On: 5VSB". Refer to "USB Power Select" in this chapter for more information.



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 Port



The onboard LAN port is at location CN4 of the system board. LAN allows the system board to connect to a local area network by means of a network hub.

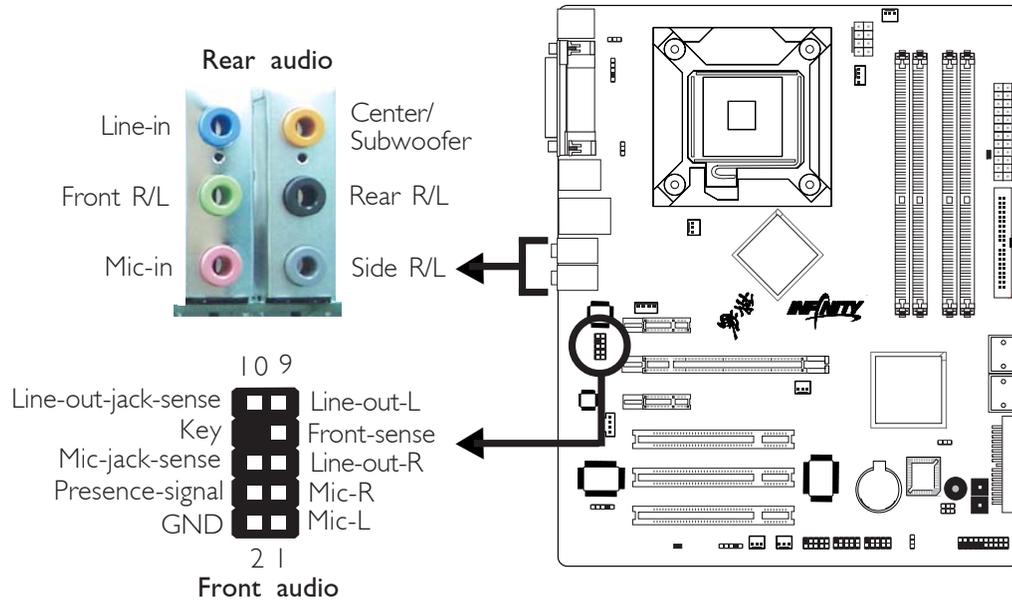
BIOS Setting

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

Driver Installation

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

Audio



Rear Panel Audio

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.

Line-out - Front Right/Left Jack (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 (J22) allows you to connect to the line-out and mic-in jacks that are at the front panel of your system.

BIOS Setting

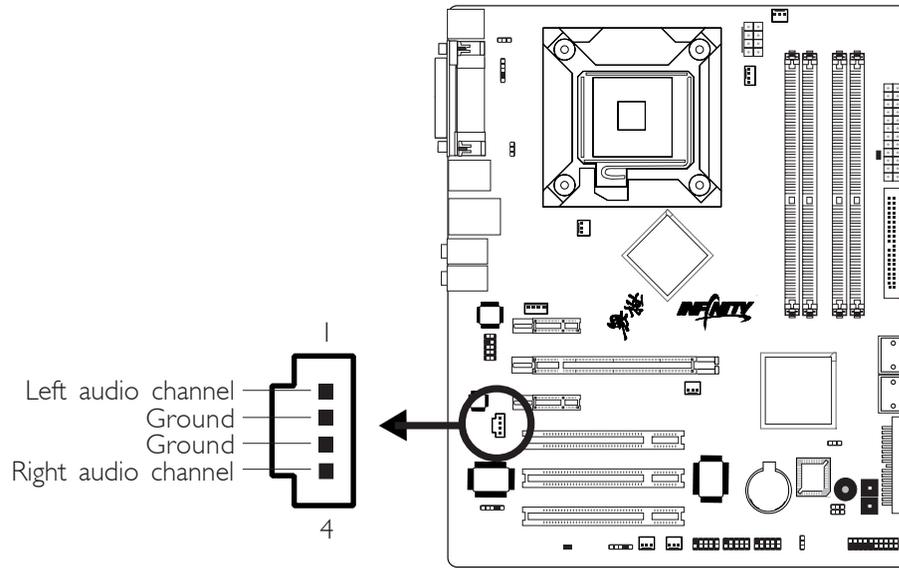
Configure the onboard audio in the Integrated Peripherals submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

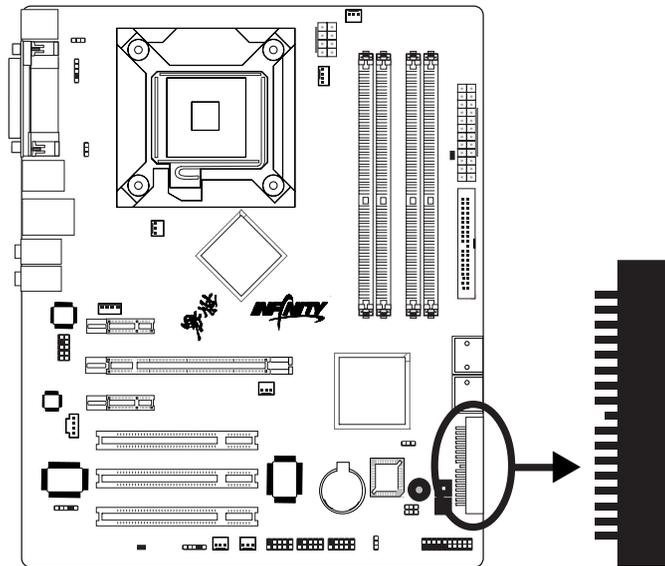
I/O Connectors

CD-in Internal Audio Connector



The CD-in (J20) connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

Floppy Disk Drive Connector



The 90° floppy disk drive connector supports a standard floppy disk drive. 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.

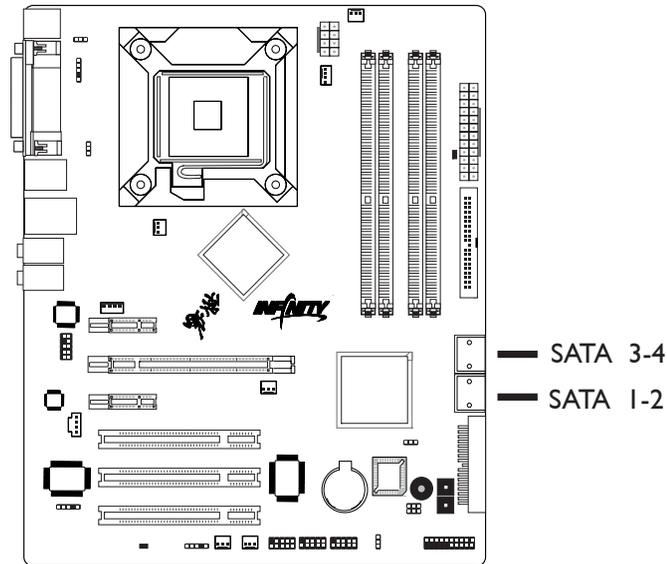
Connecting the Floppy Disk Drive Cable

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 floppy disk 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 (“Onboard Super IO Device” section) of the BIOS. Refer to chapter 3 for more information.

Serial ATA Connectors



- 4 Serial ATA ports
- 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.

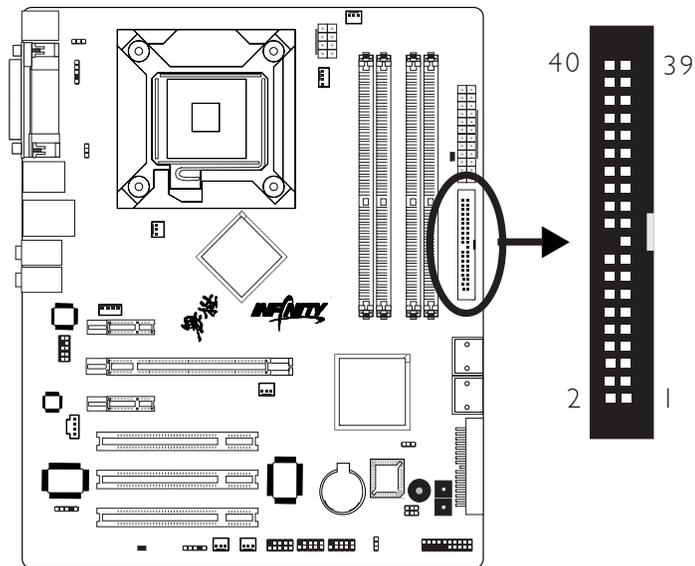
BIOS Setting

Configure Serial ATA in the Integrated Peripherals submenu (“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 5 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, the 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.

The 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.



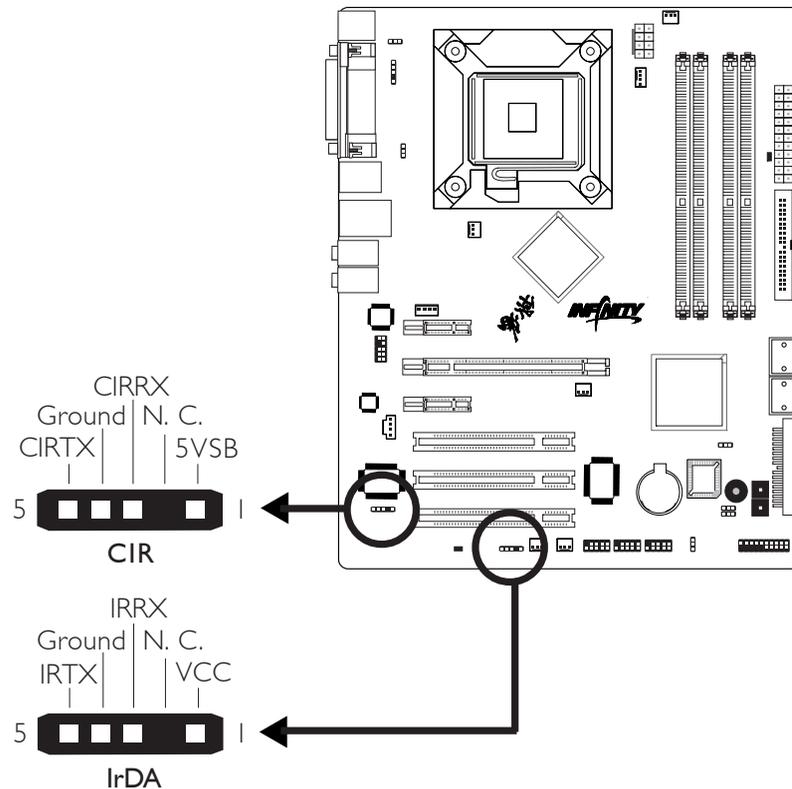
Important:

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.

IrDA and CIR Connectors



Connect the cable connector from your IrDA/CIR 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.

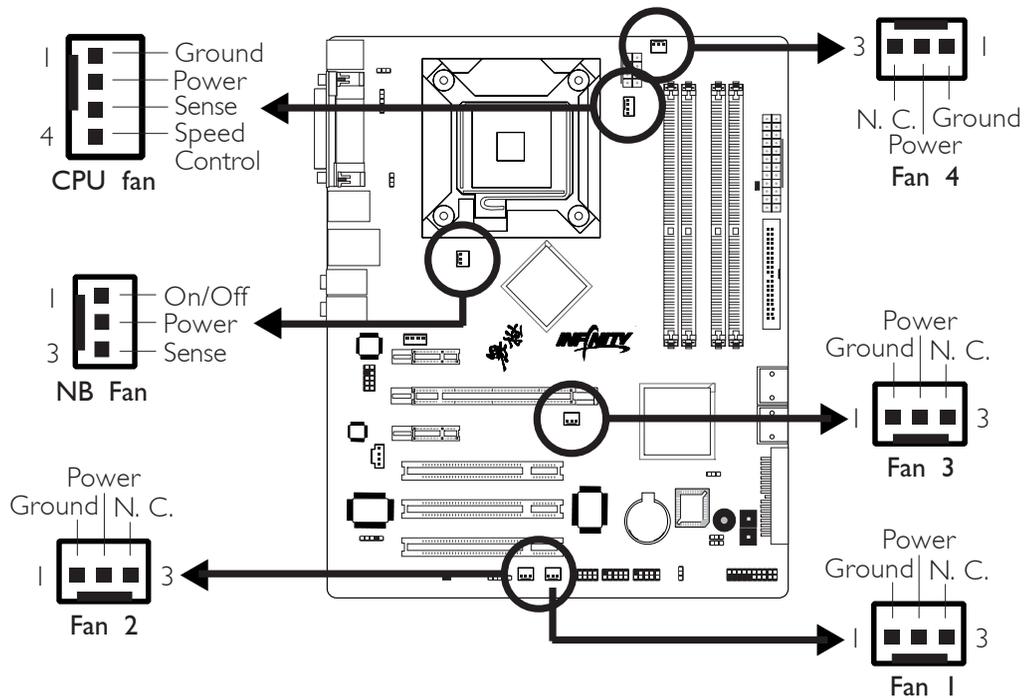
BIOS Setting

Configure IrDA/CIR in the Integrated Peripherals submenu ("Onboard Super IO Device" section) of the BIOS.

Driver Installation

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

Cooling Fan Connectors

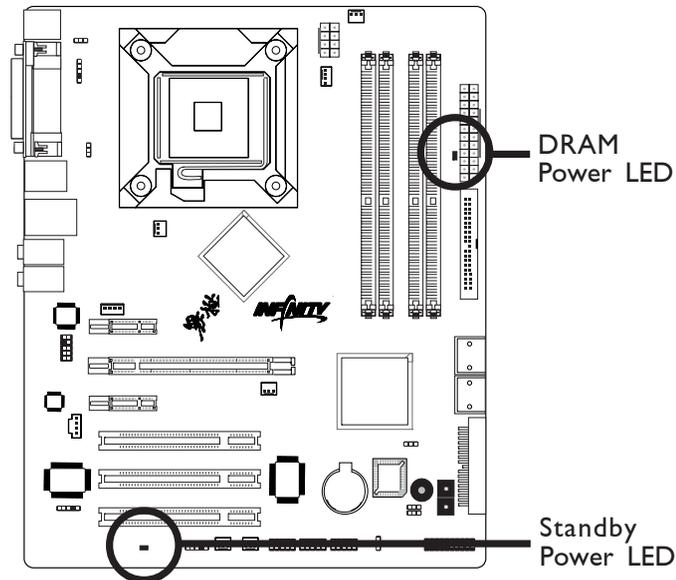


Connect the CPU fan's cable connector to the CPU fan connector (J31) on the system board. Fan 1 (J9), Fan 2 (J6), Fan 3 (J32), Fan 4 (J12) and NB Fan (J30) are used to connect additional cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU 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.

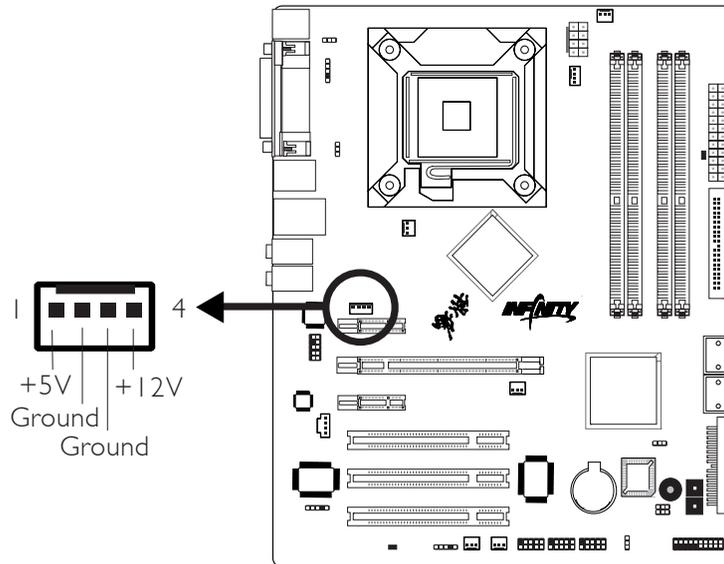
Standby Power LED

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

**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.

The FDD-type power connector provides additional power. If you are using more than one 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.**



Important:

Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

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).

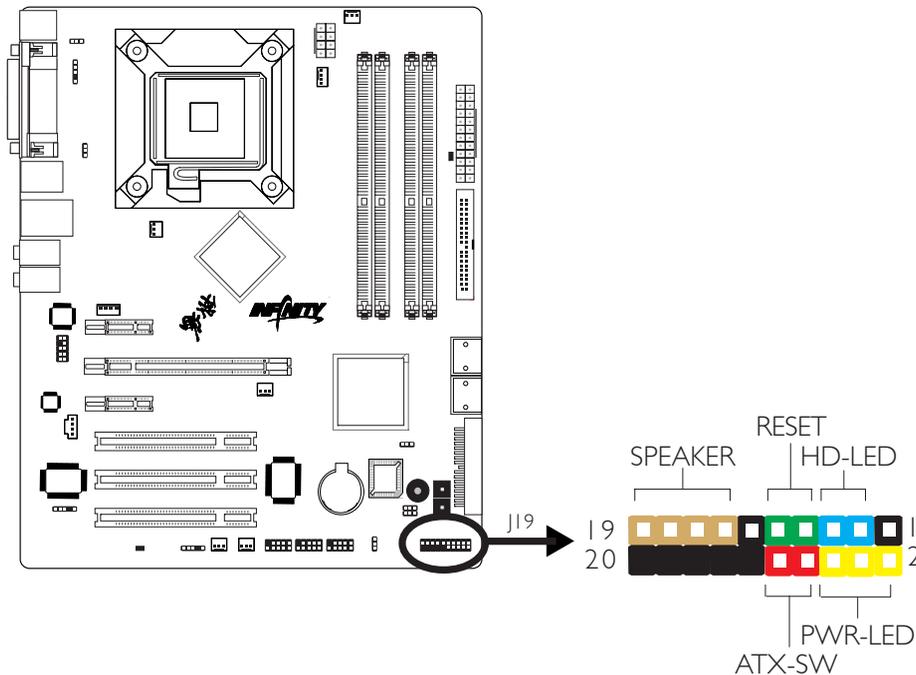
If for some reasons you need to totally cut off the power supplied to the PC, switch off the power supply or unplug the power cord. Take note though that if you intend to restart it at once, please strictly follow the steps below.

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

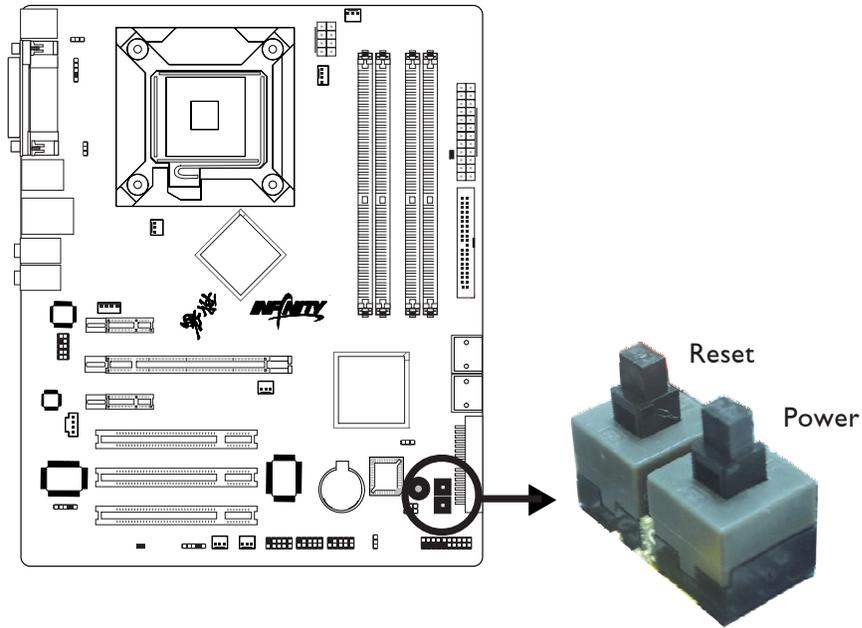
When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

**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.

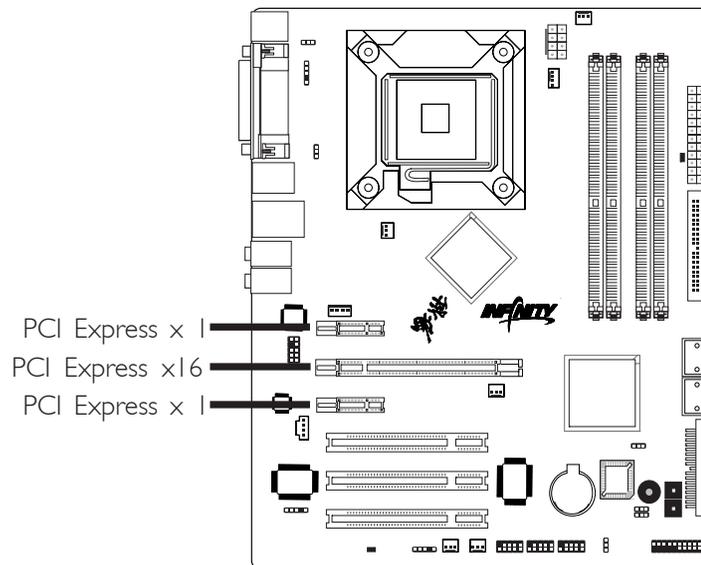
	Pin	Pin Assignment
HD-LED (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
Reserved	14 16	N. C. N. C.
ATX-SW (ATX power switch)	8 10	PWRBT+ PWRBT-
Reserved	18 20	N. C. N. C.
RESET (Reset switch)	7 9	Ground H/W Reset
SPEAKER (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
PWR-LED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



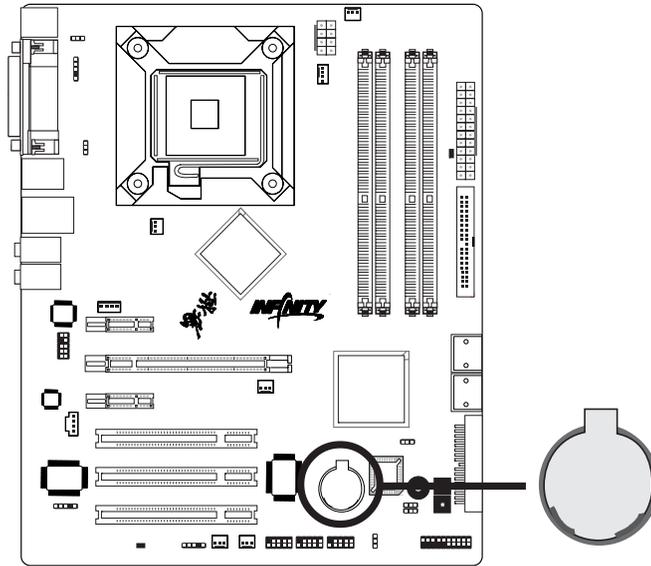
PCI Express x16

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.

PCI Express x1

Install PCI Express x1 card 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

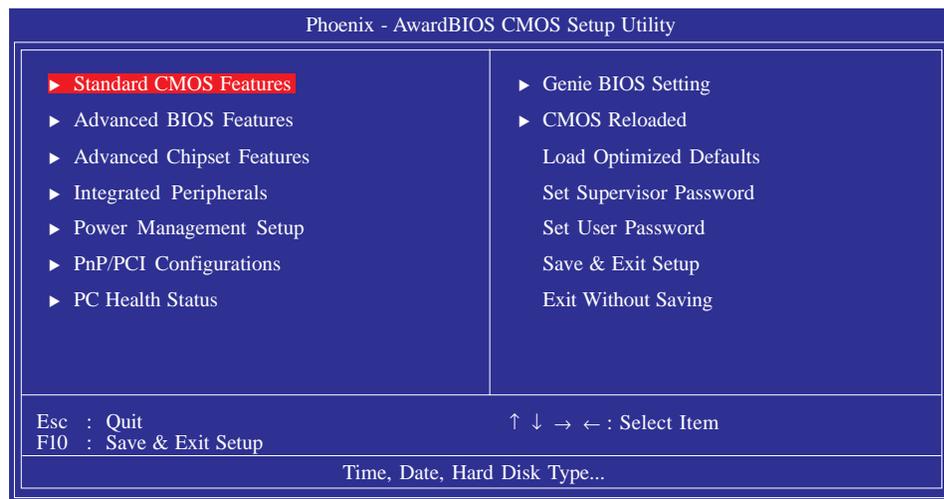
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

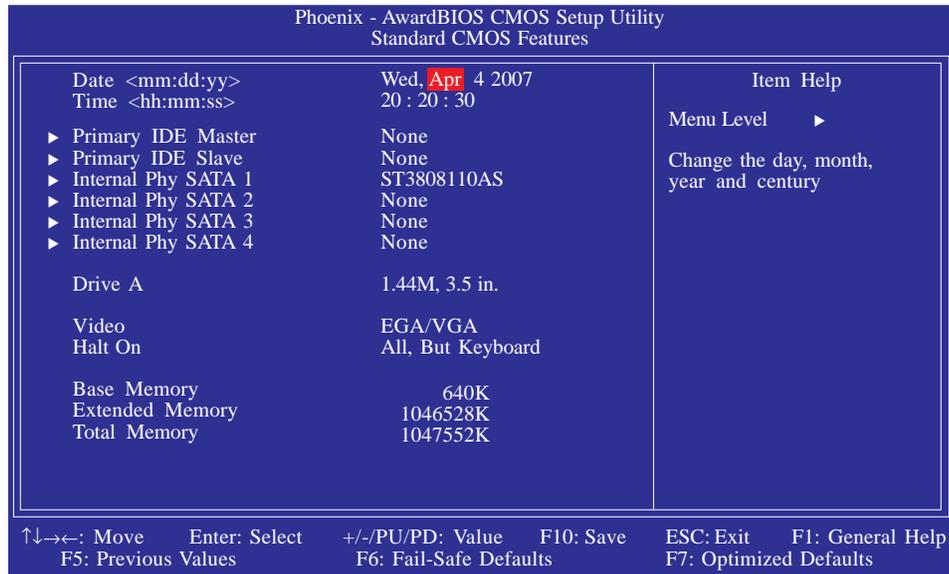
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and keys simultaneously.

When you press , the main menu screen will appear:



Standard CMOS Features

Use the arrow keys to highlight “Standard CMOS Features” then 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 and Internal Phy SATA 1/2/3/4

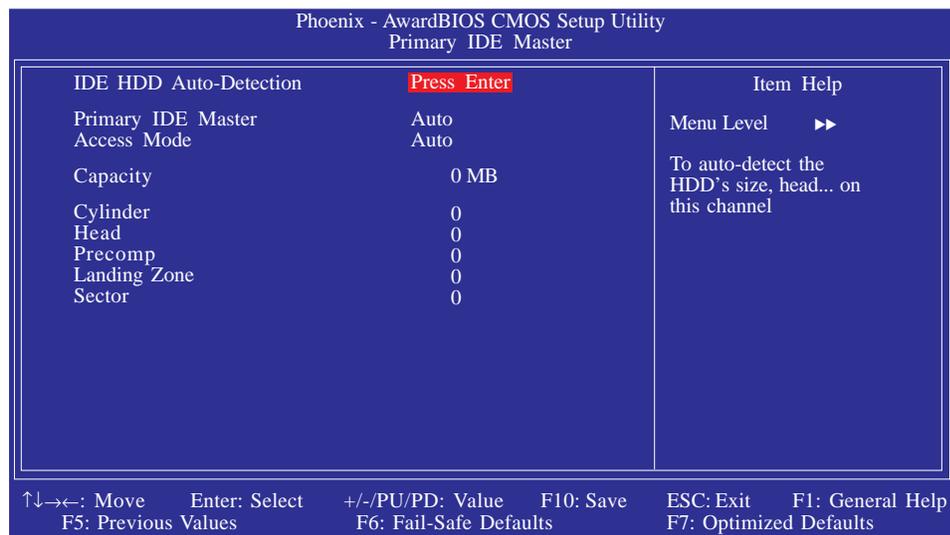
Primary IDE Master	}	Used to configure Parallel ATA drives
Primary IDE Slave		
Internal Phy SATA 1	}	Used to configure Serial ATA drives
Internal Phy SATA 2		
Internal Phy SATA 3		
Internal Phy SATA 4		



Note:

The fields for configuring Serial ATA drives will appear only if the “Serial-ATA Controller” field is set to Enabled. This field is in the Integrated Peripherals submenu, 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.

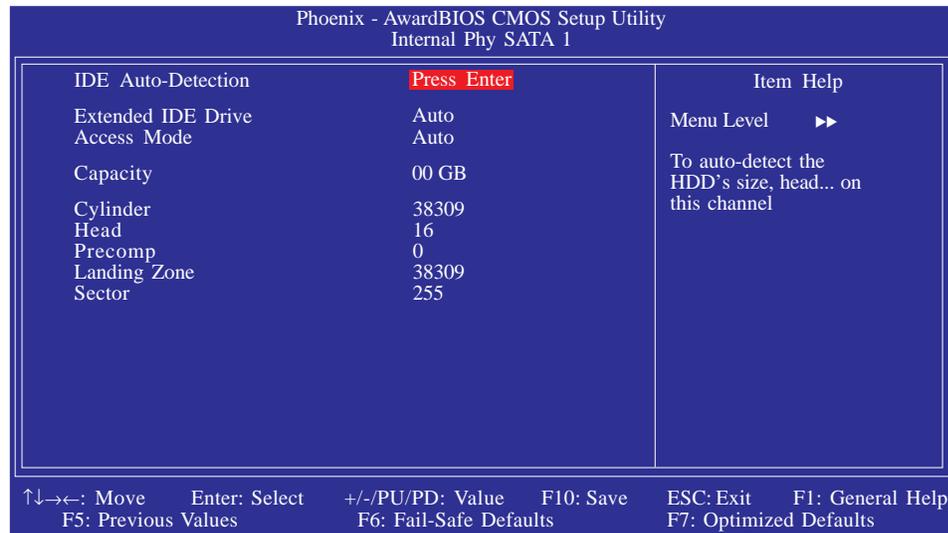
Landing Zone

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 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

This field identifies the type of floppy disk drive 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

Video

This field selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type. The default setting is EGA/VGA.

<i>EGA/VGA</i>	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.
<i>CGA 40</i>	Color Graphics Adapter. Power up in 40-column mode.
<i>CGA 80</i>	Color Graphics Adapter. Power up in 80-column mode.
<i>Mono</i>	Monochrome adapter.

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

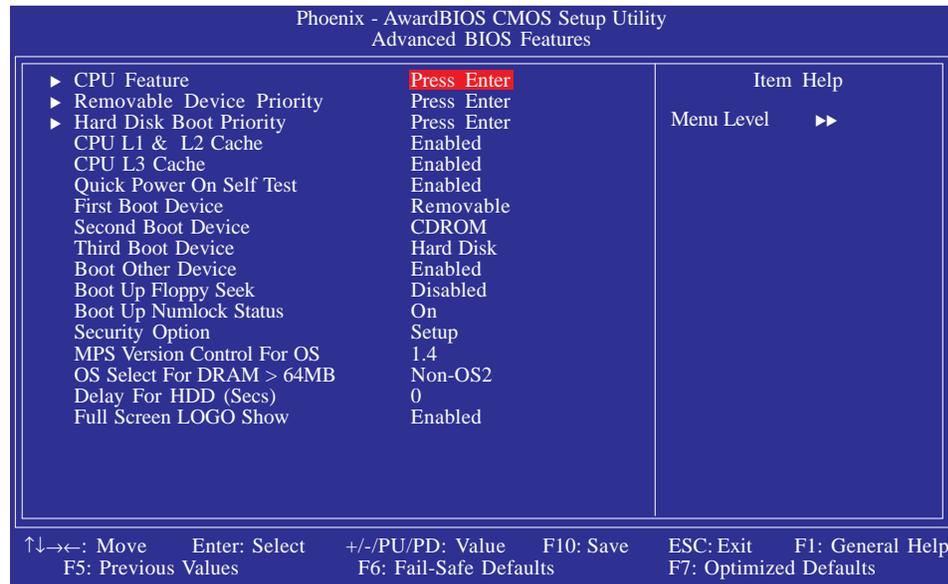
Displays the amount of extended memory detected during boot-up.

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.

CPU Feature

Removable Device Priority

Hard Disk Boot Priority

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

CPU L1 & L2 Cache

This field is used to speed up the memory access. Enable the external cache for better performance.

CPU L3 Cache

This field is used to enable or disable the CPU's L3 cache.

Quick Power On Self Test

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

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

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

Boot Up Floppy Seek

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

Boot Up NumLock Status

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

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

This field allows you to access the memory that is over 64MB in OS/2.

Delay For HDD (Secs)

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

Full Screen Logo Show

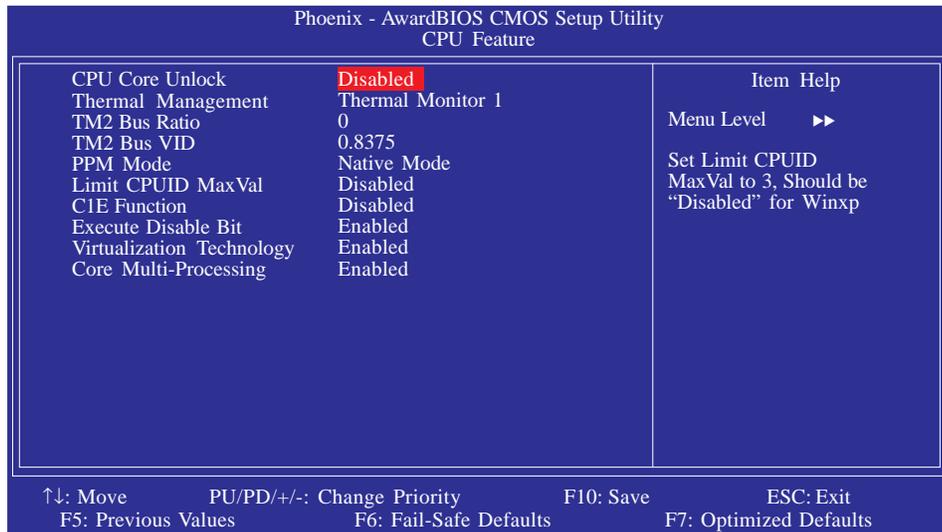
This field is applicable only if you want a particular logo to appear during system boot-up.

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

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

CPU Feature

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 Core Unlock

The options are Enabled and Disabled.

Thermal Management

Select a "thermal monitor" in this field to enable the CPU's speedstep function. Restart the system then go to the operating system's "Control Panel". Double-click "Power Options". The "Power Options Properties" dialog box will appear. In the "Power Schemes" menu, select "Portable/Laptop". Speedstep reduces the CPU's frequency and voltage in accordance to its load.

Thermal Monitor 1 On die throttling.

Thermal Monitor 2 Ratio and VID transition.

TM2 Bus Ratio

This field is used to select the bus ratio of the throttled performance state that will be initiated when the on-die sensor turns from cool to hot.

TM2 Bus VID

This field is used to select the voltage of the throttled performance state that will be initiated when the on-die sensor turns from cool to hot.

PPM Mode

The options are Native Mode and SMM mode.

Limit CPUID MaxVal

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or lesser than 3.

C1E Function

The options are Auto and Disabled.

Execute Disable Bit

When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Virtualization Technology

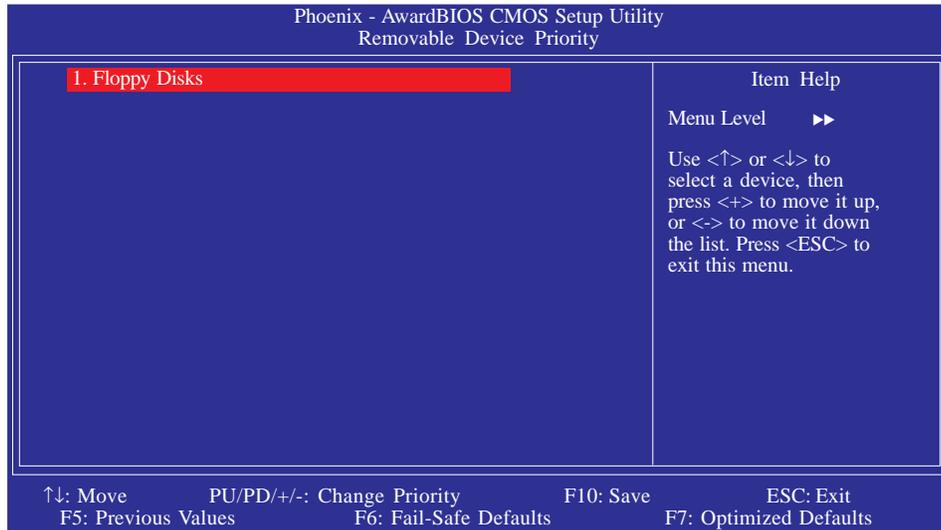
When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Core Multi-Processing

The options are Enabled and Disabled.

Removable Device Priority

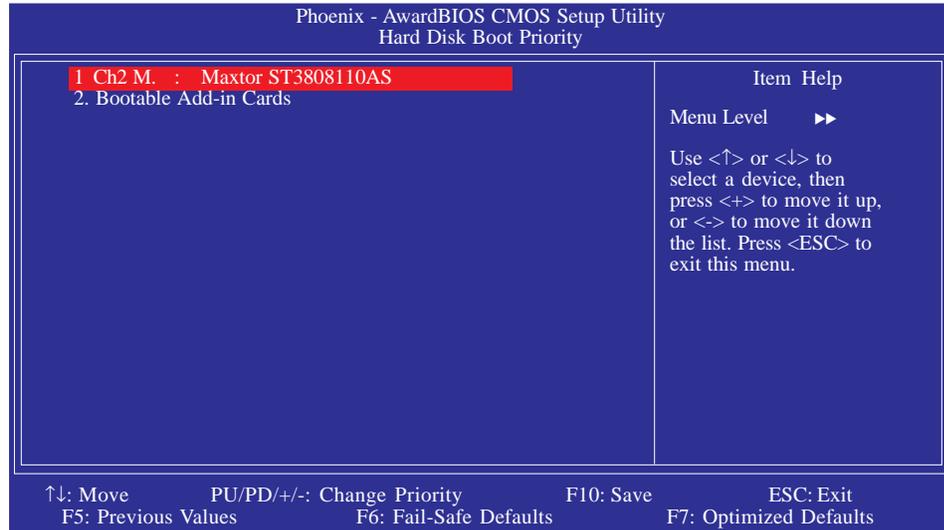
This field is used to select the boot sequence of the removable devices. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



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

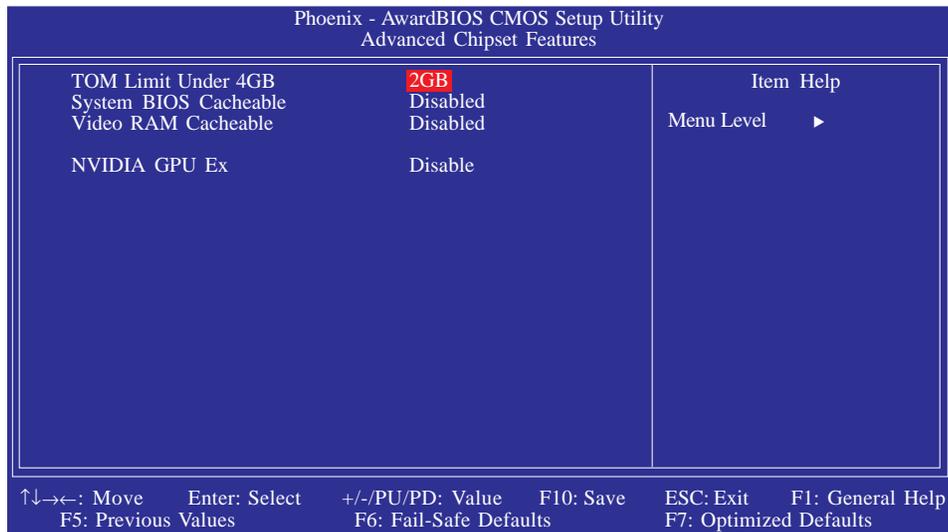
Hard Disk Boot Priority

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.

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.

TOM Limit Under 4GB

The options are 1GB, 2GB, 2.5GB and 3GB.

System BIOS Cacheable

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

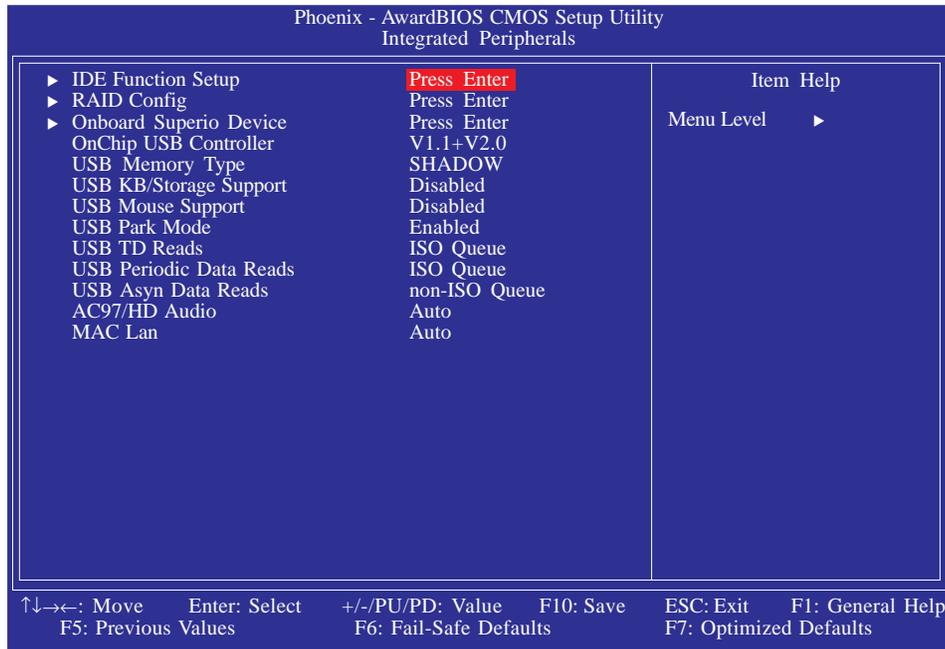
Video RAM Cacheable

When enabled, it allows the video RAM to be cacheable thus providing better video performance. If your graphics card does not support this function, set this field to Disabled.

NVIDIA GPU Ex

The options are Enabled 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

RAID Config

Onboard Superio Device

OnChip USB Controller

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

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

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard/storage (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.

USB Mouse Support

Due to the limited space of the BIOS ROM, the support for legacy USB mouse (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 mouse is not available and you need to use a USB mouse to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

USB Park Mode

The options are Enabled and Disabled.

USB TD Reads

The options are non-ISO Queue and ISO Queue.

USB Periodic Data Reads

The options are non-ISO Queue and ISO Queue.

USB Asyn Data Reads

The options are non-ISO Queue and ISO Queue.

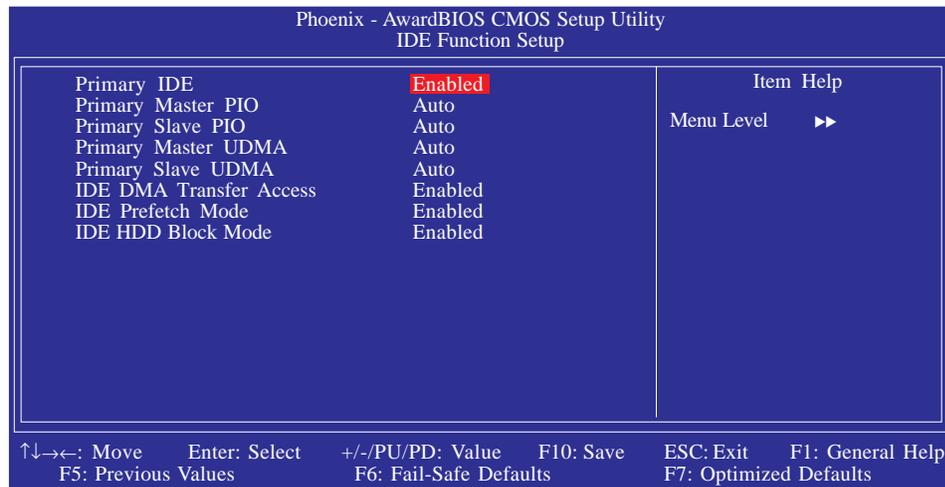
AC97/HD Audio

<i>Auto</i>	The system automatically detects the onboard audio.
<i>AC97</i>	Sets audio to AC97.
<i>HD Audio</i>	Sets audio to High Definition audio.
<i>Disabled</i>	Disables the onboard audio. Disable the onboard audio when using an audio PCI card.

MAC Lan

<i>Auto</i>	The system automatically detects the onboard LAN.
<i>Disabled</i>	Disables the onboard LAN.

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.

- | | |
|-----------------|--|
| <i>Auto</i> | The BIOS will automatically detect the settings for you. |
| <i>Disabled</i> | 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

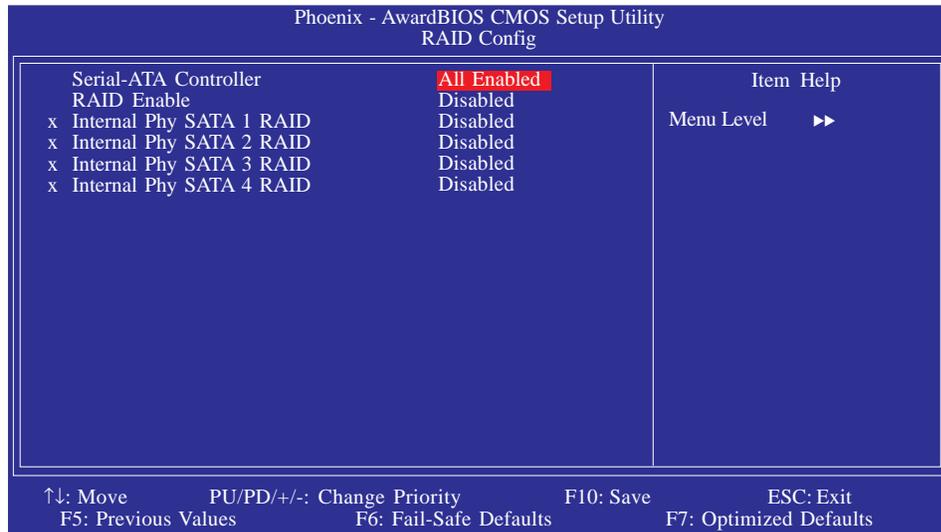
This allows data and addresses to be stored in the internal buffer of the chip, thus reducing access time. Enable this field to achieve better performance.

IDE HDD Block Mode

- | | |
|-----------------|--|
| <i>Enabled</i> | The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive. |
| <i>Disabled</i> | The IDE HDD uses the standard mode. |

RAID Config

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.

Serial-ATA Controller

This field is used to select the Serial ATA channels you want enabled.

RAID Enable

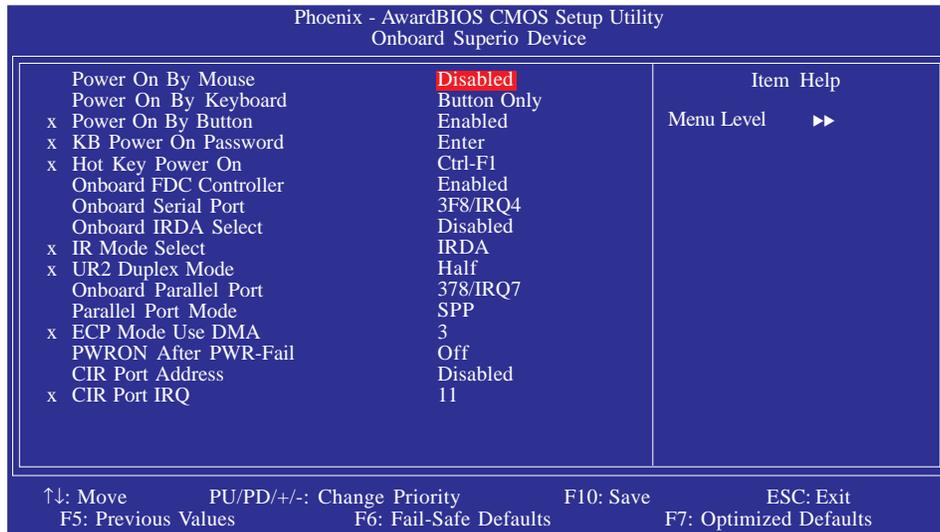
This field is used to enable or disable the Serial ATA's RAID function.

Internal Phy SATA 1 RAID to Internal Phy SATA 4 RAID

These fields are used to enable or disable the RAID function of the Serial ATA channels.

Onboard Superio Device

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.

Power On By Mouse

- Disabled* Disables the mouse power-on function.
- Mouse Move/Click* Move or click the mouse to power on the system.
- Mouse Click* Click the mouse to power on the system.

Power On By Keyboard

This field allows you to use the keyboard to power-on the system.

- Button only* Default setting. Uses the power button to power on the system.
- Password* When this option is selected, set the password you would like to use to power-on the system in the “KB Power On Password” field.
- Hot Key* When this option is selected, select the function key you would like to use to power-on the system in the “Hot Key Power On” field.
- Any Key* Press any key to power-on the system.
- Keyboard 98* When this option is selected, press the “wake up” key of the Windows® 98 compatible keyboard to power-on the system.

Power On By Button

To use the power button to power on the system, set this field to Enabled.

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

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

Onboard IRDA Select

<i>Auto</i>	The system will automatically select an I/O address for the onboard IrDA.
<i>3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3</i>	Allows you to manually select an I/O address for the onboard IrDA.
<i>Disabled</i>	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.

Onboard Parallel Port

- 378/IRQ7, 3BC/IRQ7, 278/IRQ5* Selects the I/O address and IRQ for the onboard parallel port.
- Disabled* Disables the onboard parallel port.

Parallel Port Mode

The options are Normal, EPP, ECP and ECP/EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

Normal

Allows normal speed operation but in one direction only.

“ECP (Extended Capabilities Port)”

Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

“EPP (Enhanced Parallel Port)”

Allows bidirectional parallel port operation at maximum speed.

ECP Mode Use DMA

This field is used to select a DMA channel for the parallel port.

PWRON After PWR-Fail

- | | |
|-------------------|--|
| <i>Off</i> | 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. |
| <i>On</i> | When power returns after an AC power failure, the system will automatically power-on. |
| <i>Former-Sts</i> | 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. |

CIR Port Address

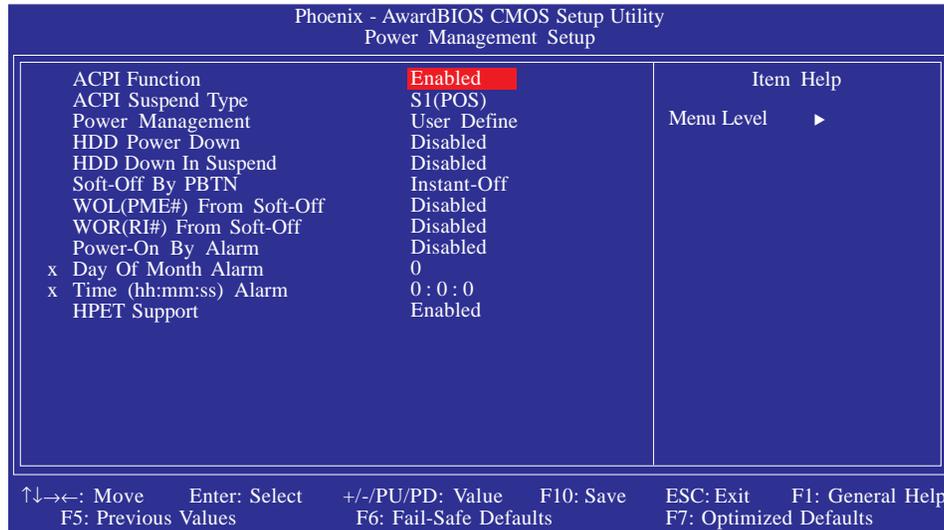
This field is used to select an I/O address for the CIR device.

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® 2000/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.

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.

<i>Delay 4 Sec.</i>	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.
<i>Instant-Off</i>	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) Alarm

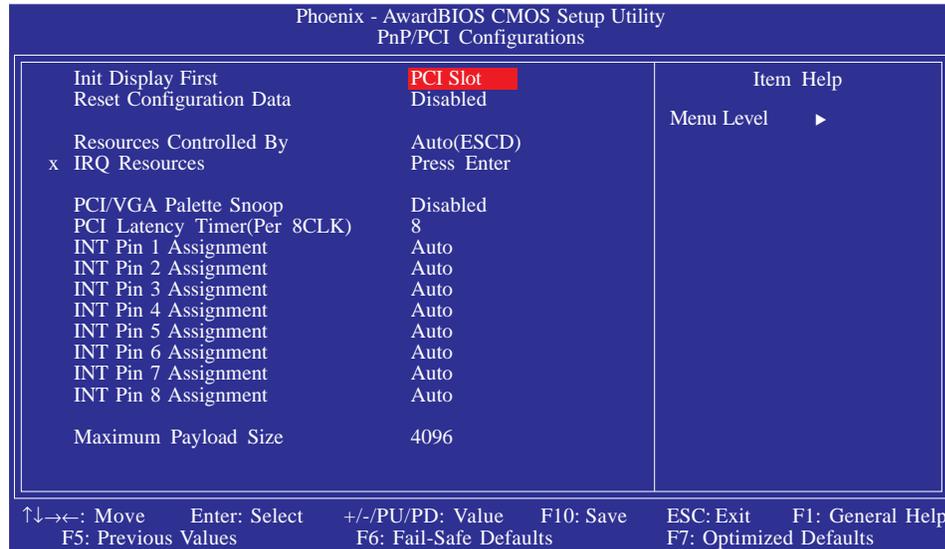
This is used to set the time you would like the system to power-on. If you want the system to power-on everyday as set in the "Date (of Month) Alarm" field, the time set in this field must be later than the time of the RTC set in the Standard CMOS Features submenu.

HPET Support

The options are Enabled and Disabled.

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.

Init Display First

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

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

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.

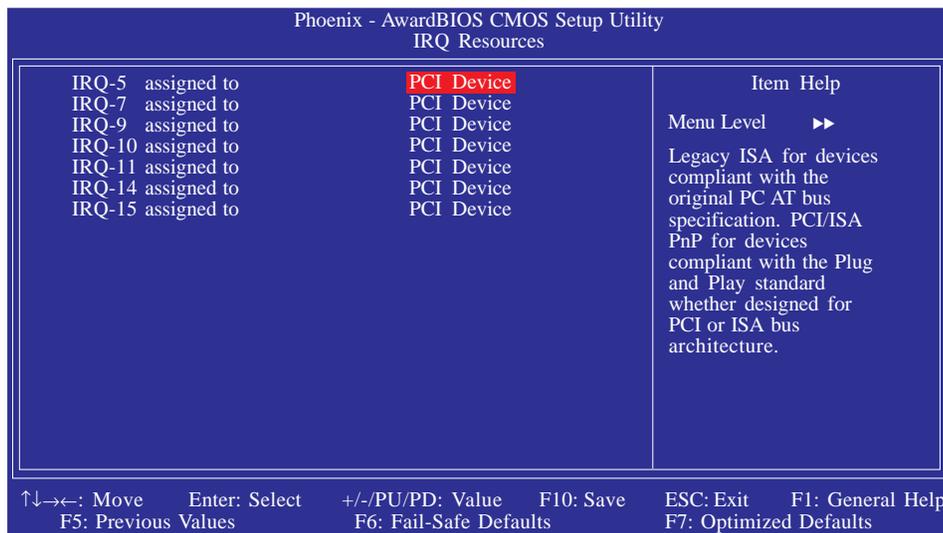
Resources Controlled By

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. The default value is Disabled.

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

PCI Latency Timer (Per 8CLK)

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

INT Pin 1 Assignment to INT Pin 8 Assignment

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

Maximum Payload Size

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

PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility		
PC Health Status		
Shutdown Temperature	85°C/185°F	Item Help
CPUFan Fully ON If CPUTemp	> 50°C	Menu Level ▶
CPUFan Turn OFF If CPUTemp	< 25°C	
NB Fan Fully ON If NB Temp	> 35°C	
NB Fan Turn OFF If NB Temp	< 25°C	
CHSFan Fully ON If CHSTemp	> 55°C	
CHSFan Turn OFF If CHSTemp	< 25°C	
ATX +5.0V Voltage	4.75V	
ATX +12V Voltage	11.77V	
+5V Dual Voltage	4.35V	
Battery Voltage	3.05V	
CPU Core Temperature	47°C	
PWM Area Temperature	40°C	
CHIPSET Temperature	34°C	
CPU Fan Fan Speed	3770 RPM	
CHIPSET Fan Speed	7584 RPM	
CHS Fan Speed	0 RPM	

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

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

Shutdown Temperature

You can prevent the system from overheating by selecting a temperature at which the system will shutdown. 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 at which the CPU fan will rotate at full speed.

CPUFan Turn Off If CPUTemp

This field is used to select the CPU's temperature at which the CPU fan will 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 CPU Temp” field to allow the CPU fan to rotate full speed at the selected lower temperature.

NB Fan Fully On If NB Temp

This field is used to select the Northbridge chip’s temperature at which the chip’s fan will rotate at full speed.

NB Fan Turn Off If NB Temp

This field is used to select the Northbridge chip’s temperature at which the chip’s fan will rotate at a start speed which is the slowest speed.



Note:

If the Northbridge 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 fan speed of the Northbridge chip according to the temperature.

CHSFan Fully On If CHSTemp

This field is used to select the system’s temperature at which the chassis fan will rotate at full speed.

CHSFan Turn Off If CHSTemp

This field is used to select the system’s temperature at which the chassis fan will rotate at a start speed which is the slowest speed.



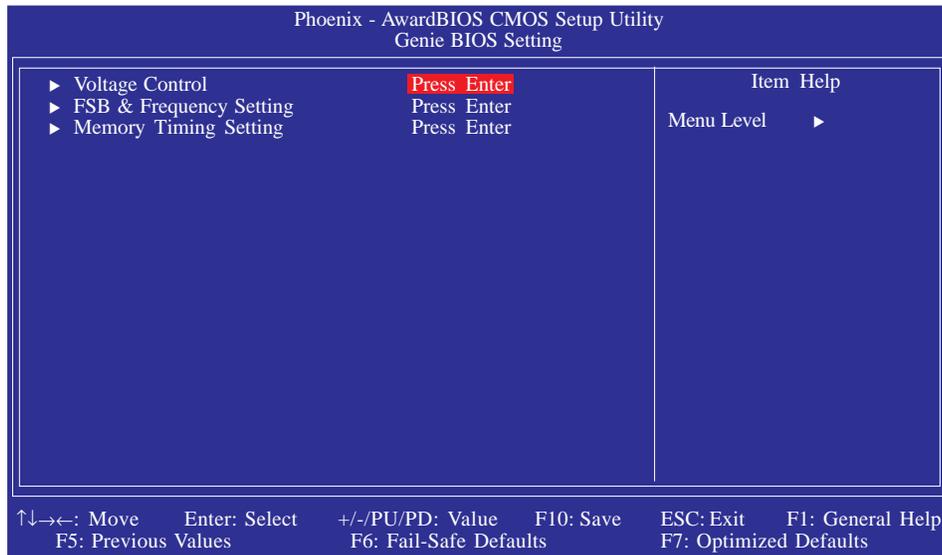
Note:

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.

ATX +5.0V Voltage to CHS Fan Speed

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

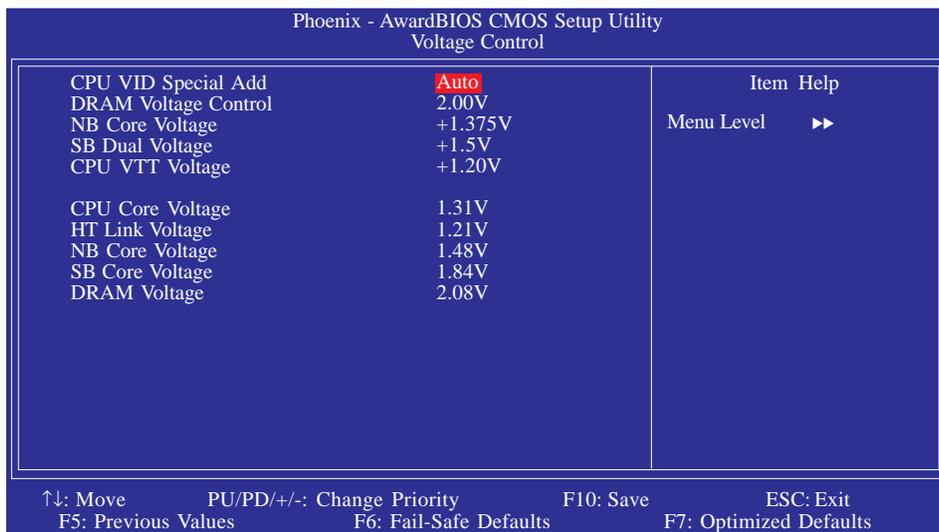
Genie BIOS Setting



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

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 Special Add

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

DRAM Voltage Control

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

NB Core Voltage

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

SB Dual Voltage

This field allows you to manually select the SB's dual voltage.

CPU VTT Voltage

This field is used to select the voltage supplied to the CPU.



Important:

Although voltage adjustment 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 Core Voltage

This field will show the CPU's current voltage.

HT Link Voltage

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

NB Core Voltage

This field will show the NB's current core voltage.

SB Core Voltage

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

DRAM Voltage

This field will show the DRAM's current voltage.

FSB & Frequency Setting

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

Phoenix - AwardBIOS CMOS Setup Utility FSB & Frequency Setting			
Parameters	Setting	Current Value	Item Help
Current CPU Freq, MHz	2666.7	2666.7	Menu Level ▶▶
CPU Multiplier	10X	10X	
FSB - Memory Clock Mode	Auto		System Clock Mode
x FSB - Memory Ratio	Auto		[Auto]
x FSB (QDR), MHz	Auto	1066.7	Set FSB and Memory Speed
Actual FSB (QDR), MHz	1066.7		Automatically.
x MEM (DDR), MHz	Auto	800.0	
Actual MEM (DDR), MHz	800.0		
PCIe Bus, Slot 1, MHz	100		[Linked]
SPP<->MCP Ref Clock, MHz	Auto		Enter FSB Speed, Manually.
LDT Frequency	5X		Memory Speed Changes
CPU BSelect	Auto		proportionally
CPU Clock Ratio	10X		[Unlinked]
			Enter FSB and Memory
			Speed Manually.

↑↓: Move PU/PD/+/-: Change Priority F10: Save ESC: Exit
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

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

Current CPU Freq, MHz

This field will show the detected CPU frequency.

CPU Multiplier

This field will show the detected CPU multiplier.

FSB - Memory Clock Mode

This field is used to select the memory clock mode. The options are Auto, Linked and Unlinked.

FSB - Memory Ratio

This field is used to select the memory ratio.

FSB (QDR), MHz

This field is used to select the FSB (QDR).

Actual FSB (QDR), MHz

This field will show the actual FSB (QDR).

MEM (DDR), MHz

This field is used to select the memory clock.

Actual MEM (DDR), MHz

This field will show the actual memory clock.

PCIe Bus, Slot 1, Mhz

This field is used to select the bus clock of the PCIE slot.

SPP<->MCP Ref Clock, MHz

The options are Auto, 200 to 208.5.

LDT Frequency

This field is used to select the LDT's bus (HyperTransport bus) frequency.

CPU BSelect

The options are Auto, BSel_0 to BSel_7.

CPU Clock Ratio

This field is used to select the CPU's frequency ratio.

Memory Timing Setting

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

Phoenix - AwardBIOS CMOS Setup Utility			
Memory Timing Setting			
Parameters	Setting	Current Value	Item Help
Memory Timing Setting	Optimal		Menu Level ►►
x CAS Latency Control (Tcl)	Auto(5)	5	Select [Expert] to enter things manually.
x RAS# to CAS# Delay (Trcd)	Auto(5)	5	
x Row Precharge Time (Trp)	Auto(5)	5	
x Min RAS# Active Time (Tras)	Auto(18)	18	
s Command Per Clock (CMD)	Auto(2T)	2T	
** Advanced Memory Settings **			
x Bank to Bank Cmd (TRRD)	Auto(3)	3	
x Row Cycle Time (Trc)	Auto(22)	22	
x Write Recovery (TWR)	Auto(5)	4	
x Write-Read Command (TWTR)	Auto(9)	9	
x Refresh to Active (TRFC)	Auto	7.8uS	

↑↓: Move PU/PD/+/-: Change Priority F10: Save ESC: Exit
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

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

Memory Timing Setting

The options are Optimal and Expert.

CAS Latency Control (Tcl)

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

RAS# to CAS# Delay (Trcd)

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

Row Precharge Time (Trp)

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

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.

Command Per Clock (CMD)

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.

Bank to Bank Cmd (TRRD)

The options are Auto, 1 to 15.

Row Cycle Time (Trc)

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

Write Recovery Time (Twr)

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

Write-Read Command (TWTR)

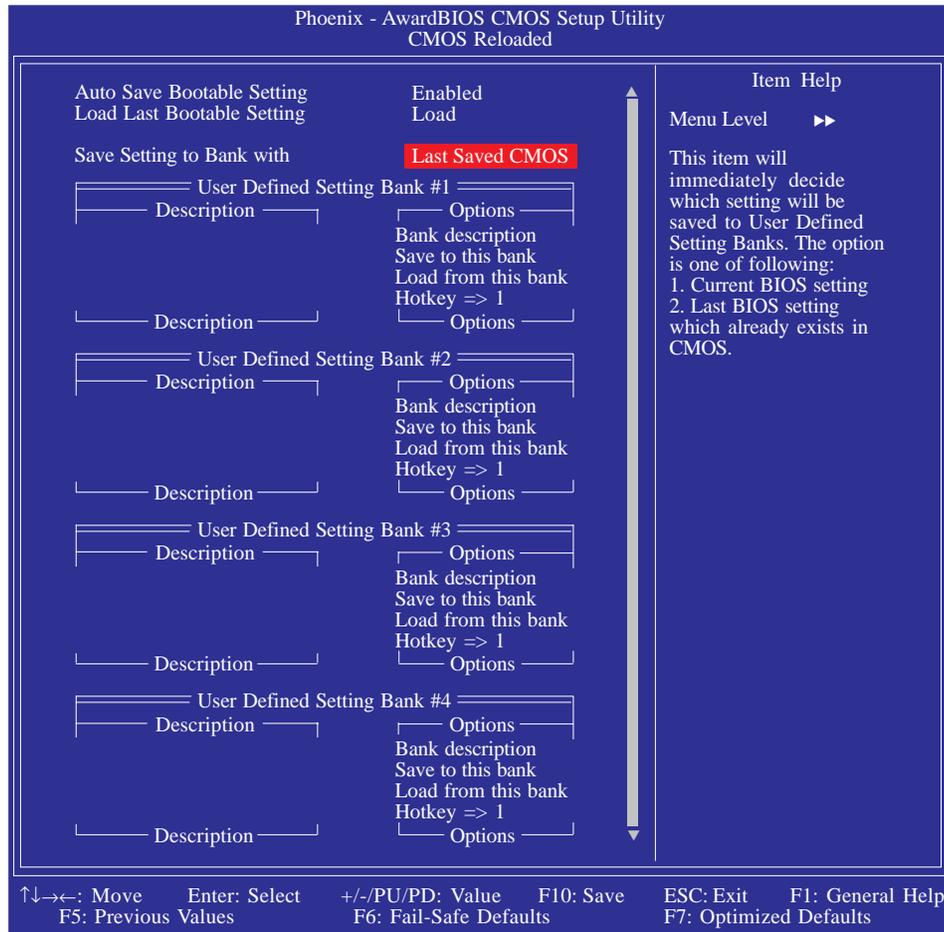
The options are Auto, 1 to 15.

Refresh to Active (TRFC)

The options are Auto, 1 and 2.

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 EEPROM 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 EEPROM. 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

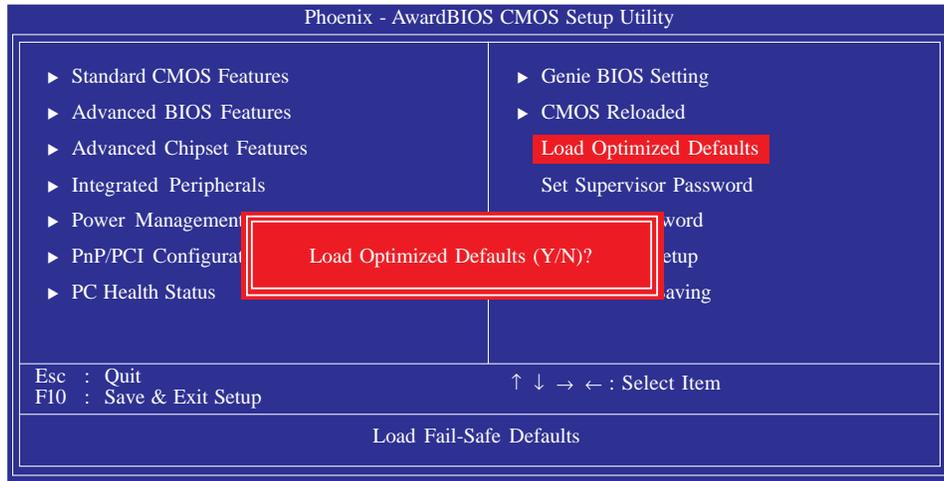
To load the setting saved in the bank, move the cursor to “Load from this Bank” then press <Enter>. The setting in this bank will replace the current setting. Make sure to save before you exit the BIOS setup utility by selecting “Y” in the “Save & Exit Setup” submenu.

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>.

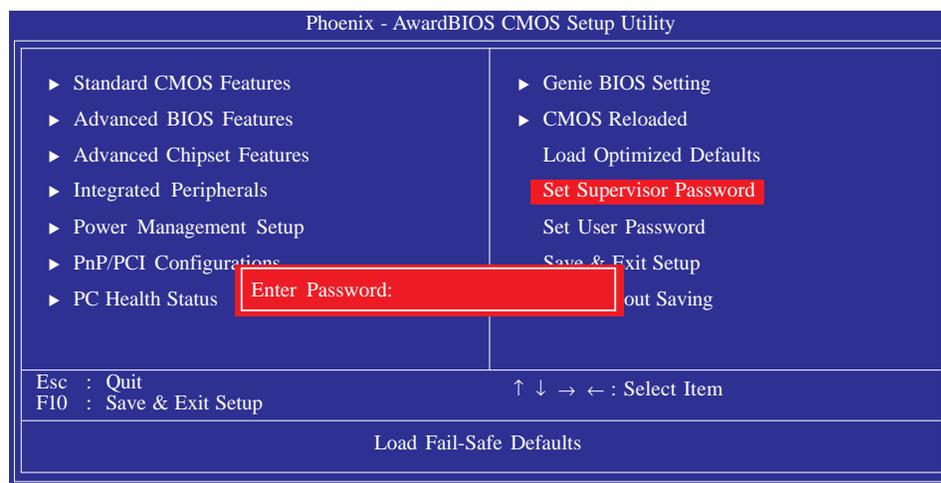


Type <Y> and press <Enter> to load the Setup default values.

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:

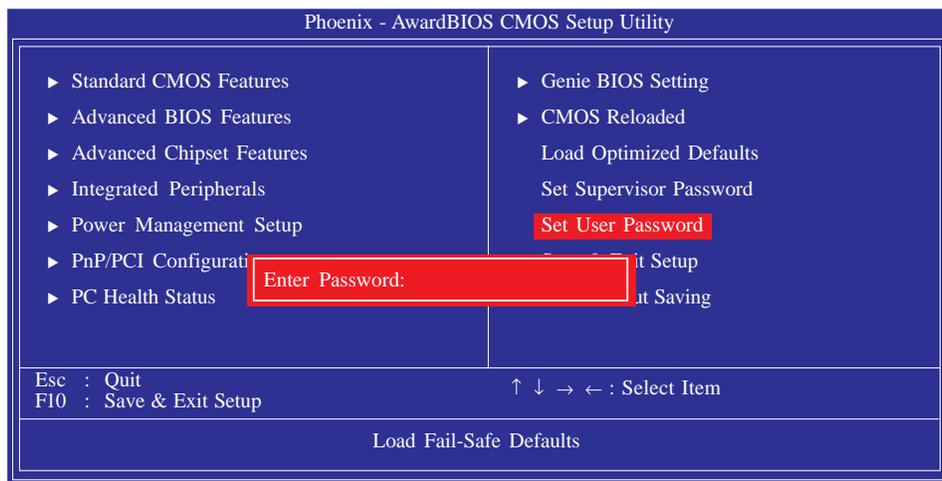
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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



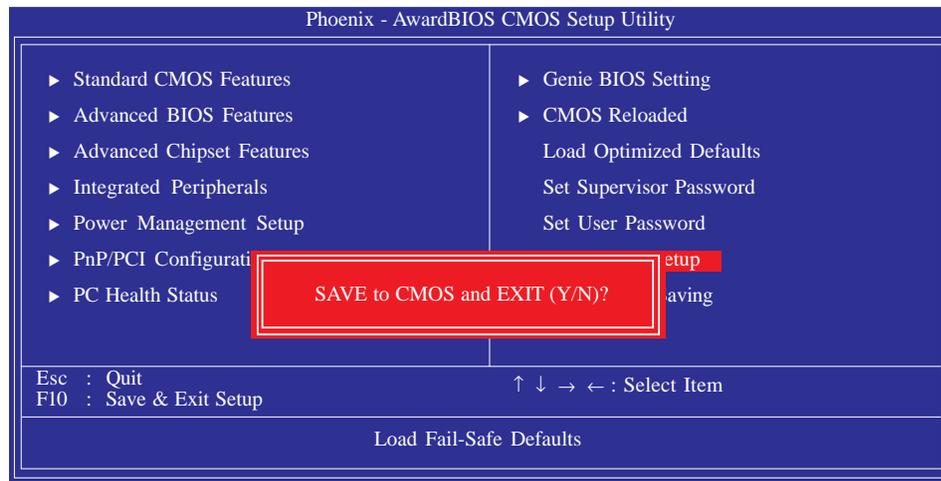
Type in the password. You are limited to eight characters. When done, the message below will appear:

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

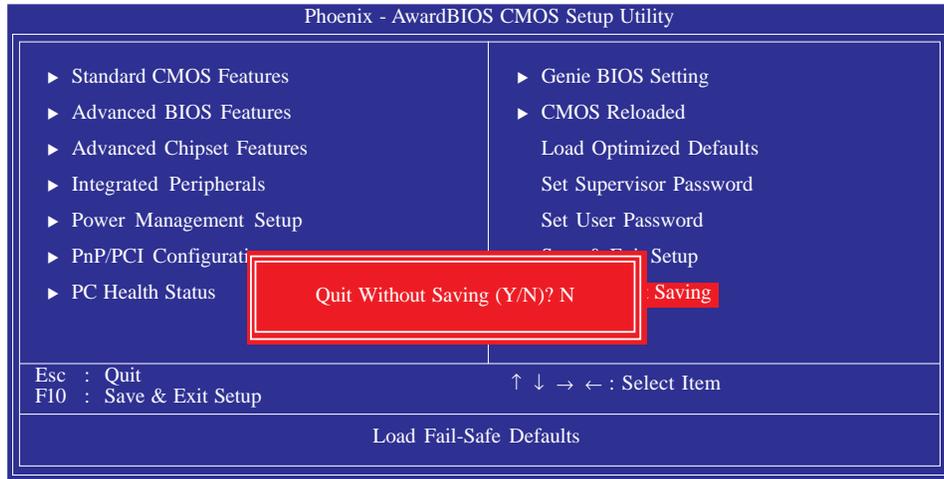
When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>.



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

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

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.



Important:

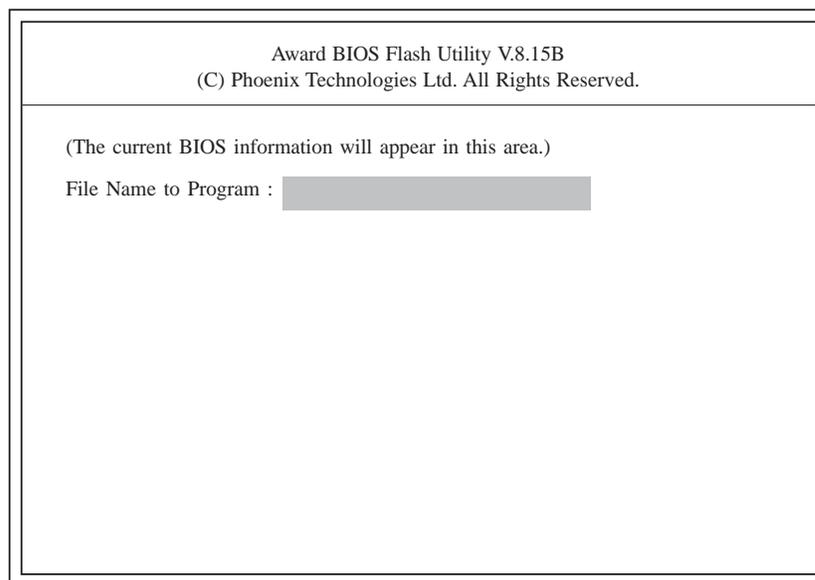
Before creating RAID, make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.

Refer to chapter 5 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>.

- 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>.

- The following will then appear:

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

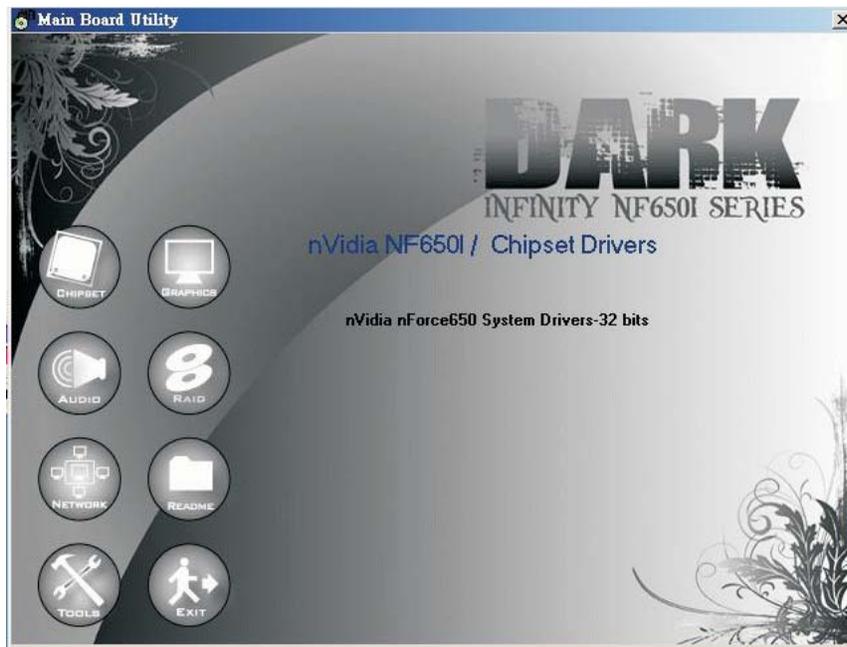
- Press <Y> to flash the new BIOS.

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 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".



nVidia nForce650 System Drivers-32 bits

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

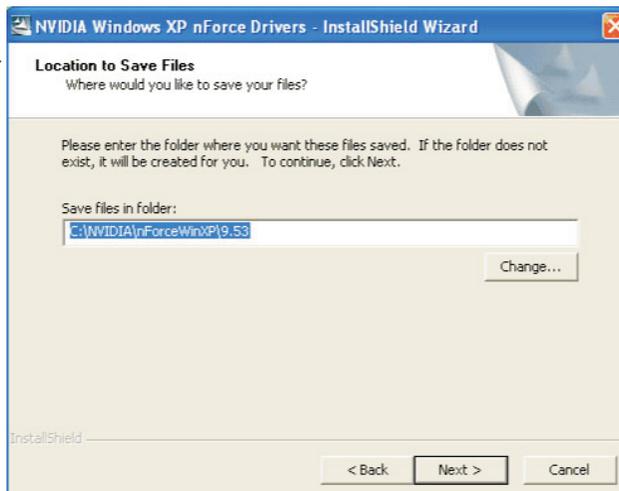
1. Click “nVidia nForce650 System Drivers-32 bits” on the main menu.



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

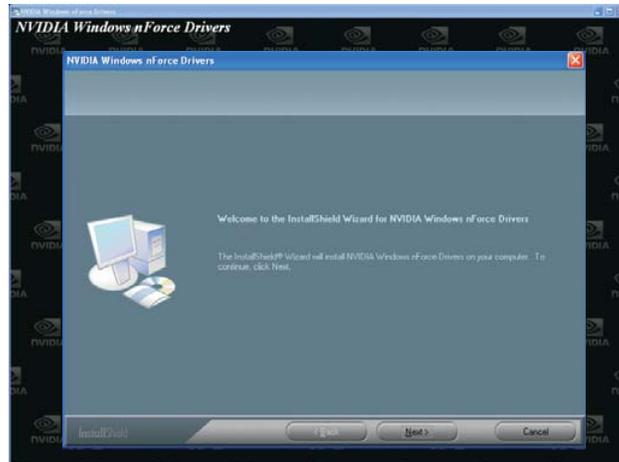


3. Click Next to install to the destination folder or click Change to select another folder:

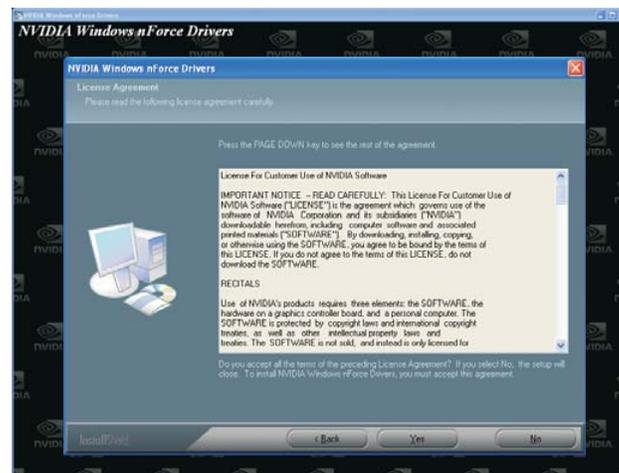


Supported Software

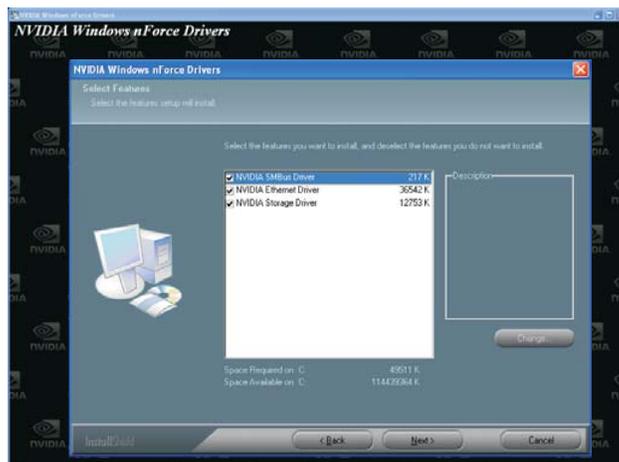
- Setup is now ready to install the driver. Click Next.



- Click Yes to install the driver.



- Select the drivers you want to install. The drivers will be installed automatically. Click "Next" to continue.



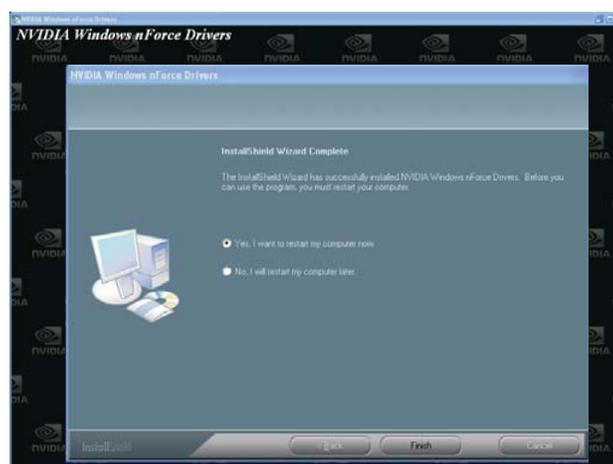
7. Read the information about the NVIDIA Storage software driver. This driver will replace the Windows ATA drivers to enable the processor and other system level hardware to be more productive and efficient. Click Next.



8. 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.



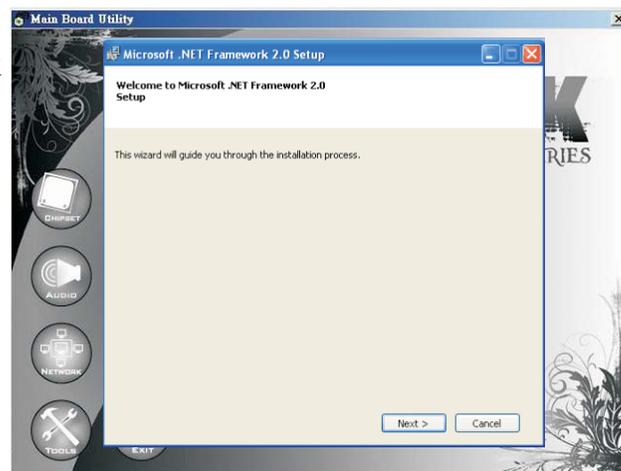
Microsoft .NET Framework

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

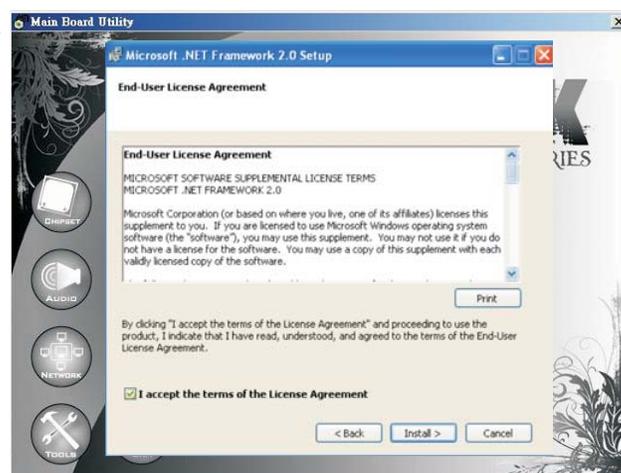
1. Click “Microsoft .NET Framework” on the main menu.



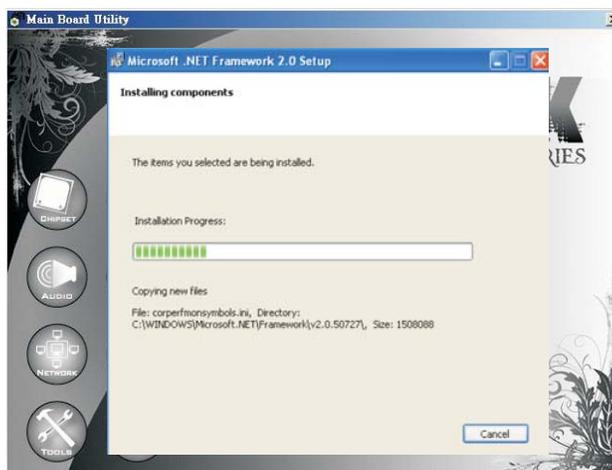
2. Setup is now ready to install the driver; Click Next.



3. Read the license agreement then click “I accept the terms of the License Agreement”. Click Install.



- Setup is currently installing the driver:



- Click Finish to exit setup.

Restart the system to allow the new driver installation to take effect.



Graphics Drivers

The CD provides both ATI Radeon and nVidia GForce drivers. Install the driver according to the graphics card that you are using.

ATI Radeon Driver

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

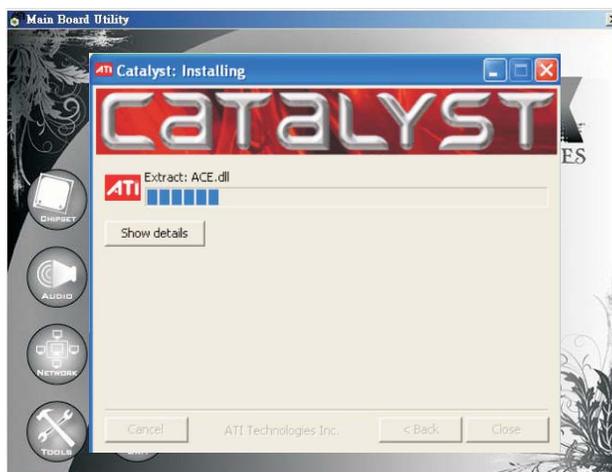
1. Click “ATI Radeon Driver” on the main menu.



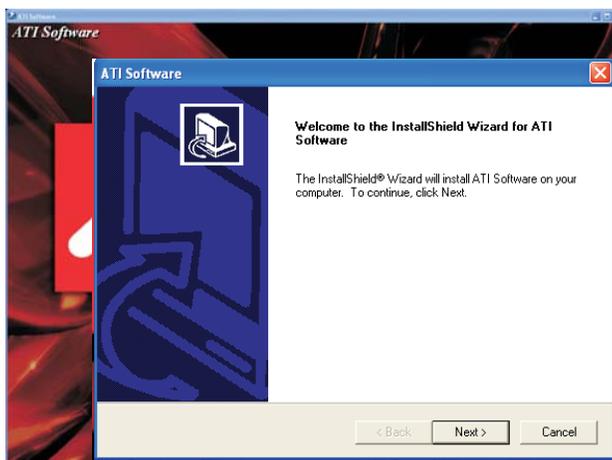
2. Click Install to install to the destination folder or click Browse to select another folder.



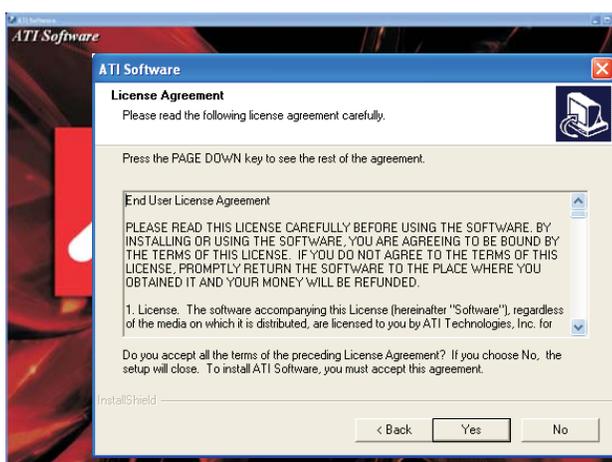
- The installation wizard will extract the files needed to install the driver. After all files have been extracted, click Next.



- Setup is now ready to install the driver. Click Next.



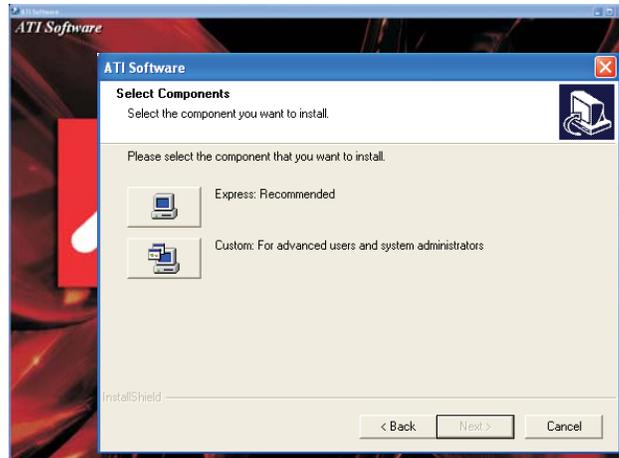
- Read the license agreement then click Yes.



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Supported Software

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



7. Setup is currently installing the driver.



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

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



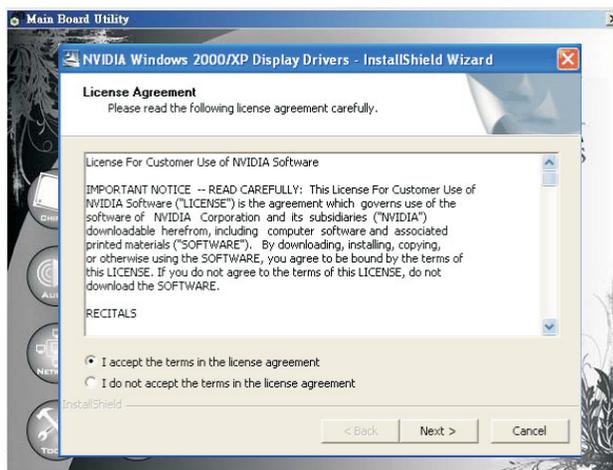
nVidia GeForce Drivers-32 bits

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

1. Click “nVidia GeForce Drivers-32 bits” on the main menu.



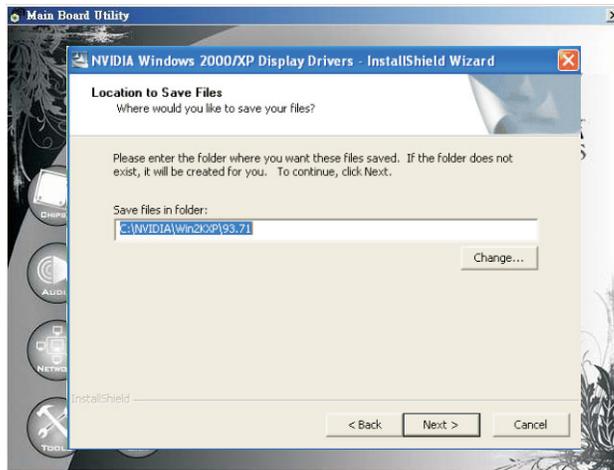
2. Read the license agreement then click “I accept the terms in the license agreement”. Click Next.



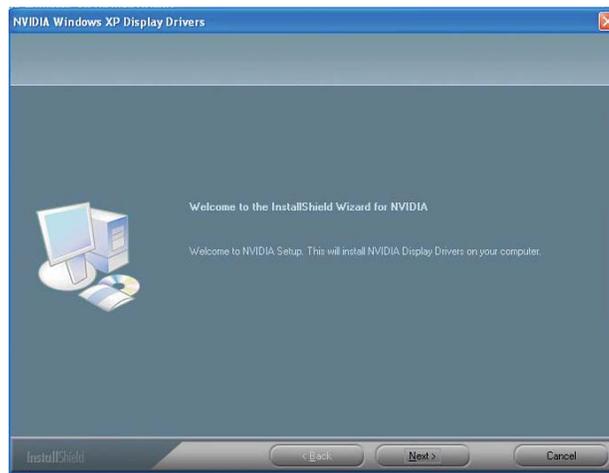
4

Supported Software

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



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



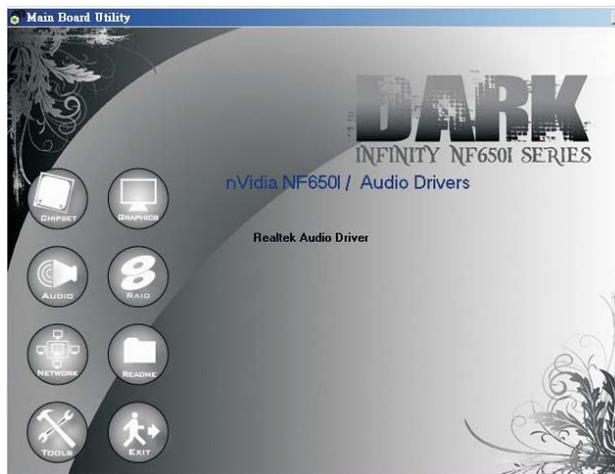
5. Setup is currently installing the driver on your computer. Follow the prompts on the screen to complete installation.
6. Reboot the system for the driver to take effect.



Realtek Audio Driver

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

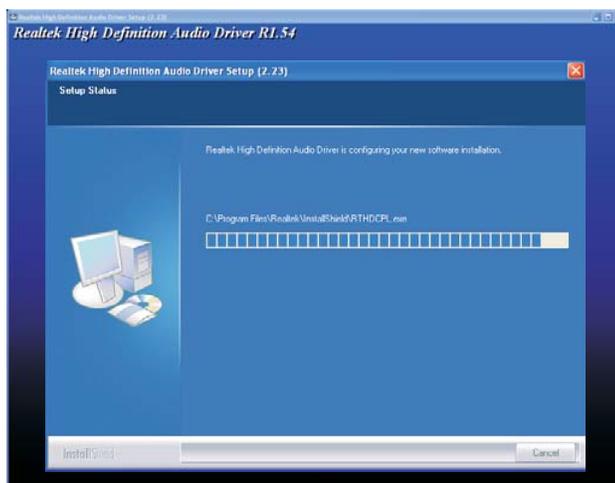
1. Click “Realtek Audio Driver” on the main menu.



2. Setup is now preparing to install the driver. Click Next to continue.



3. Setup is now configuring the new software installation.



4

Supported Software

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

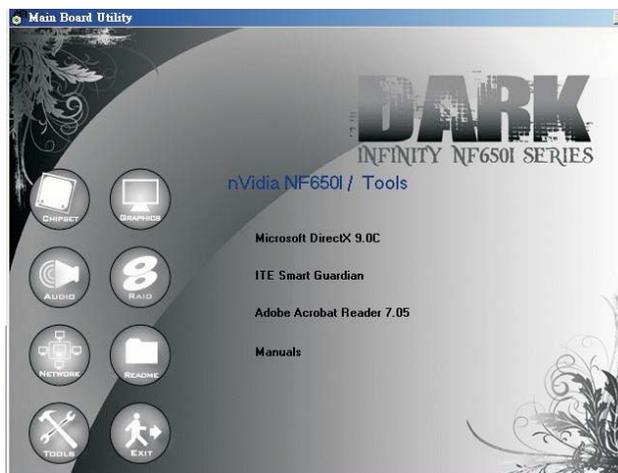
Restarting the system will allow the new driver installation to take effect.



Microsoft DirectX 9.0C

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

1. Click "Microsoft DirectX 9.0C" on the main menu.



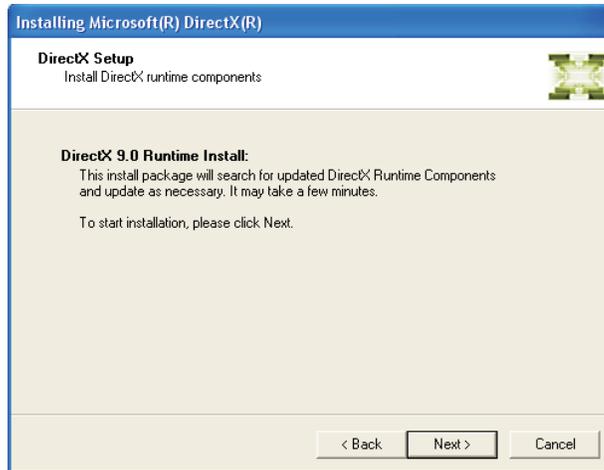
2. Click "I accept the agreement" then click Next.



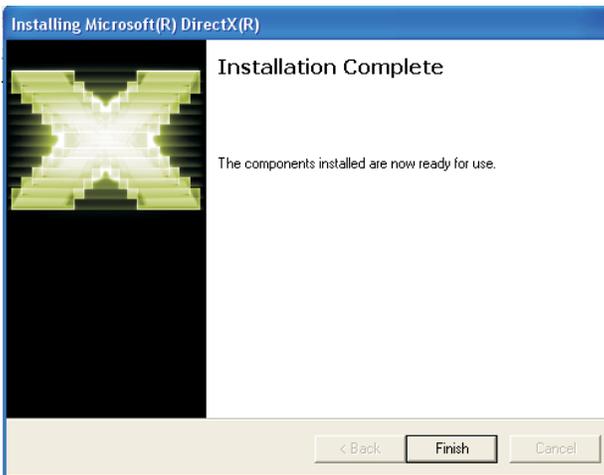
4

Supported Software

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



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

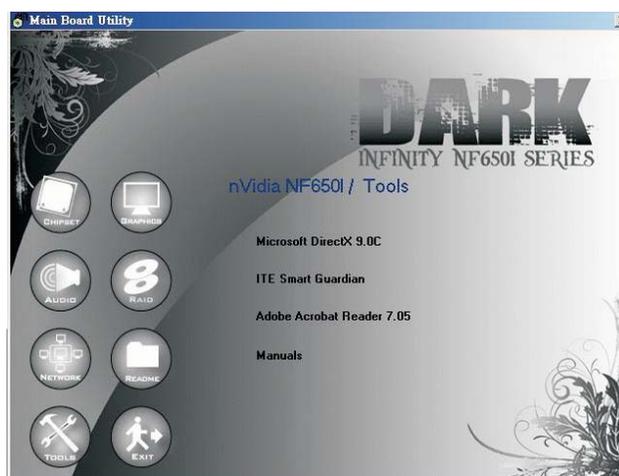


ITE Smart Guardian

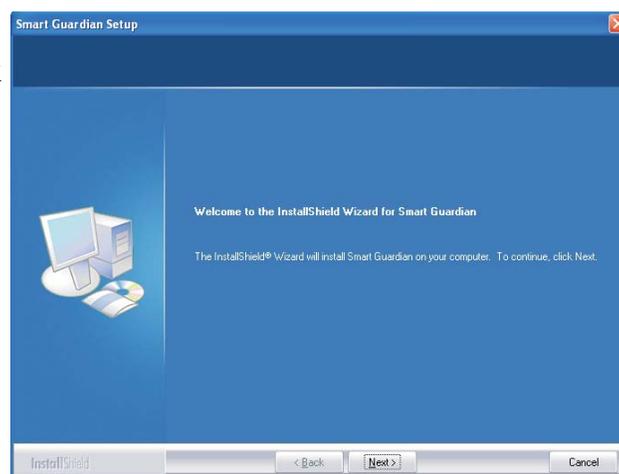
The ITE Smart Guardian utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility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

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

1. Click "ITE Smart Guardian" on the main menu.



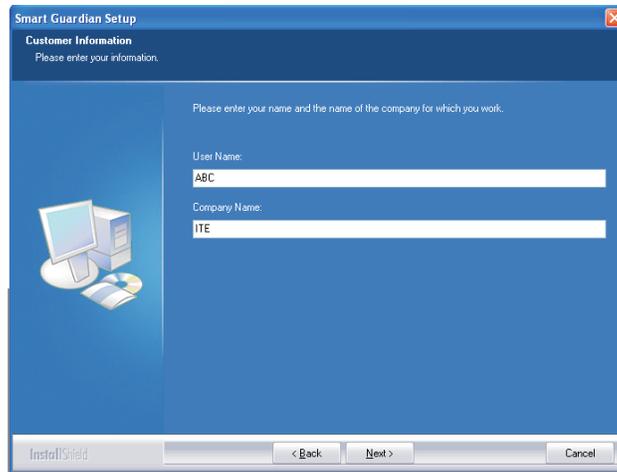
2. Setup is now ready to install the utility. Click Next.



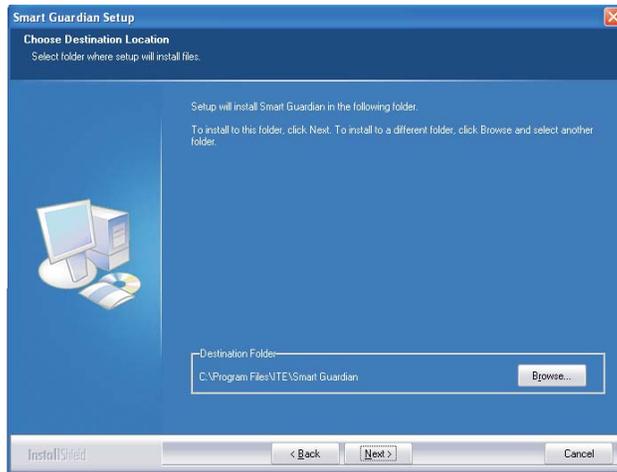
4

Supported Software

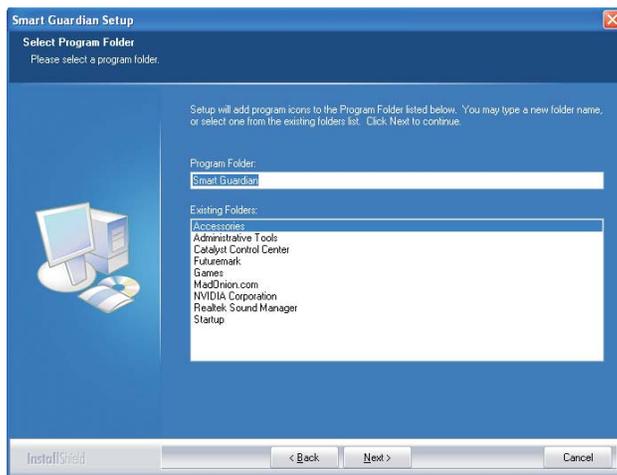
3. Type in the necessary information then click Next.



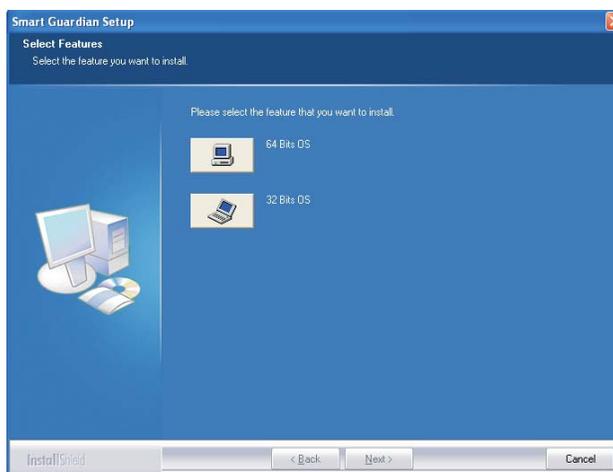
4. Click Next to install or click Browse to select another folder.



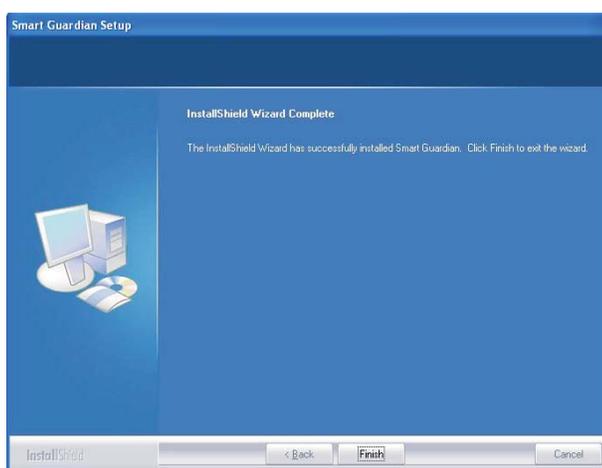
5. Click Next to add the program icon to the Program Folder.



6. Select an option in accordance to your operating system then click Next.



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



USB 2.0 Drivers

Windows® XP

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

Windows® 2000

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

Installation Notes

1. "Autorun" ONLY supports the Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".
2. All steps or procedures to install software drivers are subject to change without notice as the softwares are 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 - RAID

The NVIDIA[®] MCP51 chip allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and RAID 5.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

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

RAID 1 (Mirroring Disk Array with Fault Tolerance)

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

RAID 0+1 (Striping and Mirroring)

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

RAID 5

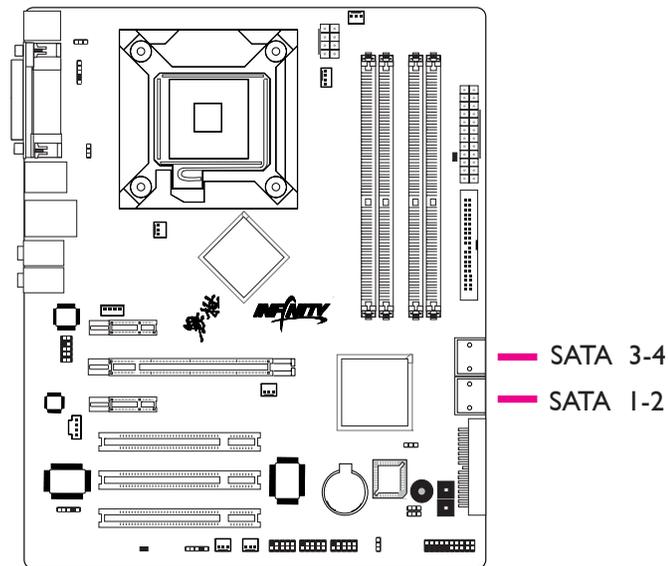
RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

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.
4. Install RAID driver:

Step 1: Connect the Serial ATA Drives



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

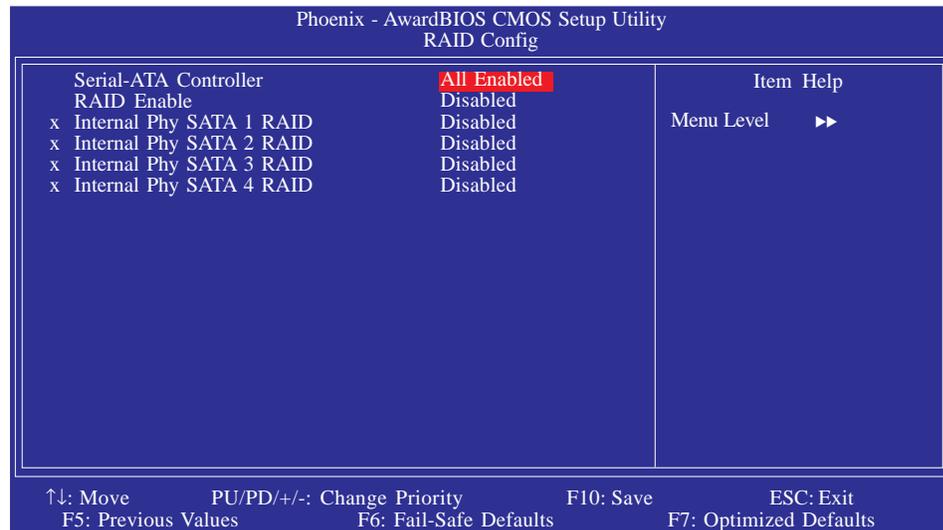


Important:

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 Integrated Peripherals submenu - RAID Config section of the BIOS to configure SATA.



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

Step 3: Configure RAID in the RAID 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.

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 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.

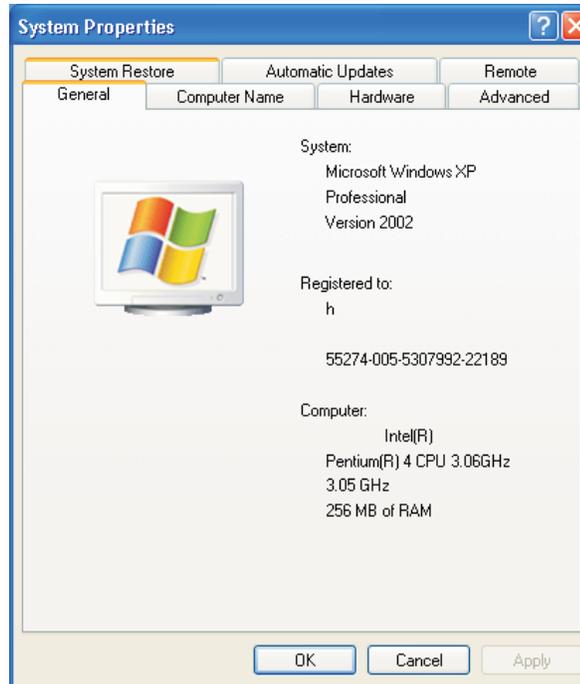
Appendix A - Enabling Hyper-Threading Technology

Enabling Hyper-Threading Technology

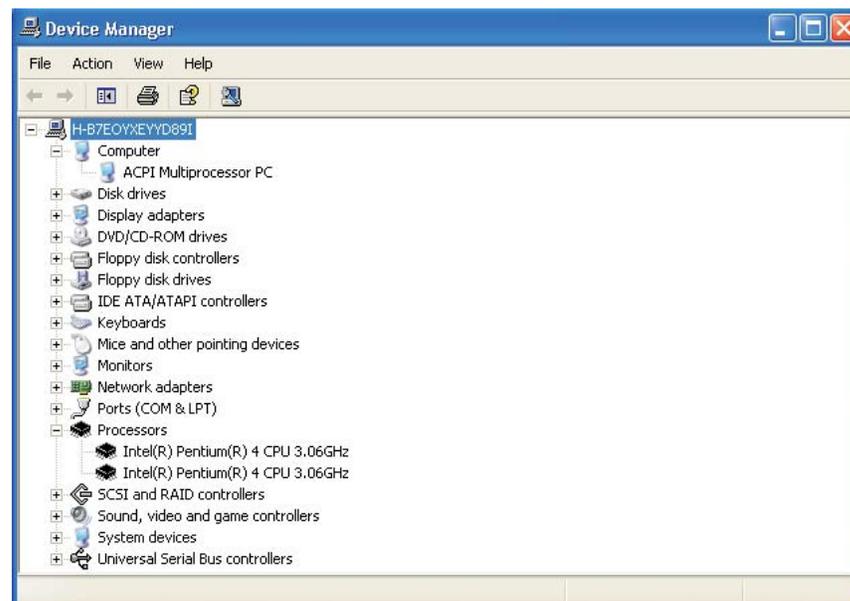
To enable the functionality of the Hyper-Threading Technology, please follow the requirements and steps below. Basically, the following presumes that you have already installed an Intel® Pentium® 4 Processor with Hyper-Threading Technology.

1. The system requires a minimum of 300 Watt ATX 12V power supply.
2. Aside from installing a CPU fan on the Intel® Pentium® 4 Processor with Hyper-Threading Technology, make sure to install cooling fans. The system requires adequate airflow throughout the chassis to prevent overheating the processor.
3. The “CPU Hyper-Threading” field in the Advanced BIOS Features submenu of the Award BIOS setup will appear. Make sure this field is set to Enabled.
4. Currently, only Windows® XP supports the Hyper-Threading Technology. If this OS has been previously installed, you must **REINSTALL** it.
5. After installing Windows® XP, please check the following to ensure that the operating system has been properly installed.
 - a. Click Start, point to Settings then click Control Panel.
 - b. Double-click the System icon. The System Properties dialog box will appear.

- c. Click the General tab. The processor shown under Computer should resemble the one shown below.

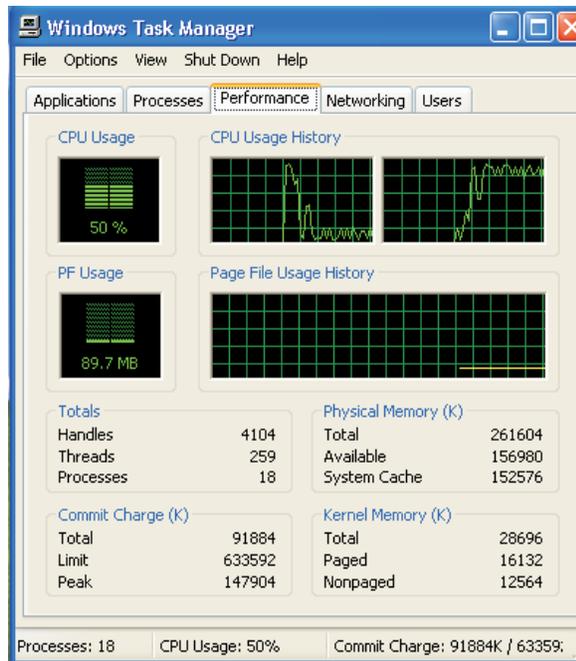


- d. Now click the Hardware tab then click Device Manager. The items shown under Computer and Processors should resemble the ones shown below.



Enabling Hyper-Threading Technology

- e. Lastly, press the <Ctrl> <Alt> and keys simultaneously. The Windows Task Manager dialog box will appear. Click the Performance tab. The diagram under CPU Usage History should resemble the one shown below.



Appendix B - 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.

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 C - 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.