

System Board User's Manual

> 935-GF6151-000G 92110627

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FCC and DOC Statement on Class B

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

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

Notice:

- I. 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 in the CD, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click "User's Manual" on the main menu.

Warranty

- Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
- 2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
- 3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
- 4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

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

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



Important:

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

Safety Measures

To avoid damage to the system:

• Use the correct AC input voltage range.

To reduce the risk of electric shock:

• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:

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

About the Package

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

- ☑ The system board
- \blacksquare A user's manual
- ☑ One IDE cable
- \blacksquare One floppy cable
- ☑ Two Serial ATA data cables
- ☑ One Serial ATA power cable
- ☑ S-Video to Composite TV output cable
- \blacksquare One RAID driver diskette
- ☑ One I/O shield
- ☑ One "Mainboard Utility" CD

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 I - Introduction

Specifications

| Processor | AMD[®] Athlon[™] 64 X2 / Athlon 64 FX / Athlon[™] 64 / Sempron[™] Socket AM2 |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HyperTransport | • 2000MT/s HyperTransport interface |
| Chipset | NVIDIA[®] chipset North bridge: NVIDIA[®] GeForce[™] 6150 GPU South bridge: NVIDIA[®] nForce[™] 430 MCP |
| System Memory | Four 240-pin DDR2 DIMM sockets Supports DDR2 533 and DDR2 667 DIMMs Supports dual channel (128-bit wide) memory interface Supports up to 4GB system memory Supports non-ECC x8 and x16 DIMMs Supports unbuffered DIMMs |
| Expansion Slots | I PCI Express x16 slot I PCI Express x1 slot 2 PCI slots |
| BIOS | Award BIOS4Mbit flash memory |
| Power Management | ACPI and OS Directed Power Management ACPI STR (Suspend to RAM) function Wake-On-PS/2 Keyboard/Mouse Wake-On-USB Keyboard/Mouse Wake-On-LAN Wake-On-Ring RTC timer to power-on the system |
| Hardware Monitor | Monitors CPU/system temperature Monitors 5V/12V/3.3V/5VSB/Vbat/Vcore/Vdimm/Vchip voltages Monitors the speed of the cooling fans CPU Overheat Protection function monitors CPU temperature during system boot-up |
| Graphics | Graphics integrated in the GeForce[™] 6150 GPU Includes NVIDIA[®] PureVideo[™] technology that delivers smooth High-Definition (HD) video in all formats and outstanding picture clarity Interfaces: VGA to connect VGA monitor DVI-D to connect devices that support DVI-D S-Video to connect a TV with S-Video output Dual display using DVI-D + S-Video or DVI-D + VGA interfaces devices connected to these interfaces can be displayed simultaneously |

Introduction

| Audio | Realtek ALC850 8-channel AC'97 audio CODEC True stereo line level outputs S/PDIF-in/out interface |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | nForce[™] 430 MCP integrated with Gigabit MAC (Media Access Control) technology and external Vitesse VSC8601 Gigabit Phy Fully compliant to IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T) standards |
| IDE | • Supports two IDE connectors that allows connecting up to four UltraDMA 133Mbps hard drives |
| Serial ATA with RAID | Supports four Serial ATA ports SATA speed up to 3Gb/s RAID 0, RAID 1, RAID 0+1 and RAID 5 |
| IEEE 1394 | VIA VT6307Supports two 100/200/400 Mb/sec ports |
| Rear Panel I/O | I mini-DIN-6 PS/2 mouse port I mini-DIN-6 PS/2 keyboard port I optical S/PDIF I S-Video TV-out port I VGA port I DVI-D port I IEEE 1394 port I RJ45 LAN port 4 USB 2.0/1.1 ports Center/subwoofer, rear R/L and side R/L jacks Line-in, line-out (front R/L) and mic-in jacks |
| Internal I/O | 2 connectors for 4 additional external USB 2.0/1.1 ports 1 connector for 1 external COM port 1 connector for 1 external IEEE 1394 port 1 front audio connector for external line-out and mic-in jacks 1 CD-in internal audio connector 1 coaxial S/PDIF connector 1 IrDA connector 4 Serial ATA connectors 2 IDE connectors 1 floppy connector 1 24-pin ATX main power connector 1 4-pin ATX 12V power connector 1 front panel connector 3 fan connectors |
| PCB | • 24.4cm (9.6") × 26.4cm (10.4") |

Features



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

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

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

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

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.

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The graphics integrated in the GeForce[™] 6150 GPU (Graphics Processing Unit) supports dual display by using either DVI-D + S-Video or DVI-D + VGA interfaces. The integrated HDTV Encoder provides TV-out up to 1080i resolution. It also supports Microsoft[®]

DirectX[®] 9.0 Shader Model 3.0 and NVIDIA[®] PureVideo[™] technology.



NVIDIA[®] PureVideo[™] technology is a combination of high-definition video processors and video decoding software that delivers HD (High-Definition) video to

your PC.

The DVI-D (Digital Visual Interface) port is used to connect a digital LCD monitor. DVI is an interface that converts analog signals into digital signals. Data is transmitted using the TMDS (Transition Minimized Differential Signaling) protocol, providing a digital signal from the PC's graphics subsystem to the display.

S-VIDEO The S-Video port is used to connect a TV that comes with S-Video output. S-Video is a technology for transmitting video signals over a cable by dividing the video information into two separate signals: color (chrominance) and brightness (luminance). These signals produce sharper images than composite video where the video information is transmitted as a single signal over one wire.

ActiveArmor[™] is built into the chipset to enhance network security. It protects the system's networking connection especially during large file downloads. ActiveArmor is activated the minute you turn on the PC. It performs a thorough inspection of the data packets that flow in and out of your network connection and only allows good packets to pass through the firewall. ActiveArmor performs network and security processing in the chipset, leaving the CPU free for other important application processing.

Introduction

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 tempera-

ture 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

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 ALC850 which is an AC'97 compatible 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. ALC850

also supports S/PDIF input and 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.



Serial ATA is a storage interface that is compliant with SATA 1.0 specification. nForce[™] 430 MCP (Media and Communications Processor) supports 4 Serial ATA ports with 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 system board supports RAID 0, RAID I, RAID 0+1 and RAID 5.

Introduction



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The Gigabit MAC (Media Access Control) technology integrated in nForce[™] 430 MCP and the external Vitesse **GIGABIT** 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. IEEE 1394 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.

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



The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer

speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

WAKE-ON-RING

This feature allows the system that is in the Suspend mode or Soft Power Off mode to

wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.



Important:

If you are using a modem add-in card, the 5VSB power source of your power supply must support a minimum of \geq 720mA.

Introduction

WAKE-ON-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC.

It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.



Important:

The 5VSB power source of your power supply must support ≥720mA.



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

tem.



Important:

The 5VSB power source of your power supply must support ≥720mA.

WAKE-ON-USB

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



Important:

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

Introduction

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

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



Important: The 5VSB power source of your power supply must support $\geq 1A$.

Français

Caractéristiques et Spécifications

| Processeur | AMD® Athlon[™] 64 X2 / Athlon 64 FX / Athlon[™] 64 / Sempron[™] Socket AM2 Interface HyperTransport 2000MT/s |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chipset | • NVIDIA[®] chipset - Pont nord: NVIDIA[®] GeForce[™] 6150 GPU - Pont sud: NVIDIA[®] nForce[™] 430 MCP |
| Mémoire Système | 4 socles DIMM DDR2 240-pin Supporte DDR2 533 et DDR2 667 DIMMs Supporte l'interface de mémoire deux canaux (128-bit) Supporte jusqu'à 4 GB de mémoire système Supporte exclusivement les modules DIMM non-ECC x8 et x16 Supporte les DIMM non-tamponnés |
| Logements d'Extension | I slot PCI Express x16 I slot PCI Express x1 2 slots PCI |
| BIOS | Award BIOSMémoire Flash 4Mbit |
| Gestion de Puis- sance | ACPI et OS Directed Power Management ACPI STR (Suspend to RAM) fonction Réveil-Sur-PS/2 Clavier/Souris Réveil-Sur-USB Clavier/Souris Eveil Sonnerie Réveil Par Le Réseau Minuterie RTC pour allumer le système |
| Fonctions de Moniteur de Matériel | Gère l'alarme de température et de surchauffe de CPU/ système Gère l'alarme de voltage et d'échec de 5V/12V/3.3V/5VSB/ Vbat/Vcore/Vdimm/Vchip Gère la vitesse de ventilateur du ventilateur Protection du CPU - supporte la mise hors circuit automatique en cas de surchauffage du système |
| Graphiques | La carte vidéo integrée sur la base de GeForce[™] 6150 GPU `Òechnologie NVIDIA[®] PureVideo[™] assure la reproduction de la vidéo de Haute Définition (HD) dans tous les formats Interfaces: VGA pour la connection du moniteur VGA DVI-D pour la connection des installations qui supportent DVI-D S-Video pour la connection du TV avec la sortie S-Video Ecran de visualisation binaire avec utilisation de DVI-D + la S-Video ou DVI-D + VGA interfaces des installations connectées aux interfaces données peuvent travailler simultanément |

Introduction

| Audio | Realtek ALC850 8-canaux AC'97 audio CODEC Sorties de niveau de lignes stéréo vraies Interface entrée/sortie S/PDIF |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | nForce[™] 430 MCP_avec la technologie integrée Gigabit MAC (Media Access Control) et extérieur Vitesse VSC8601 Gigabit Phy Entièrement conforme IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) et 802.3ab (1000BASE-T) standard |
| IDE | • Supporte des disques durs jusqu'à UltraDMA 133Mbps |
| Serial ATA avec RAID | Supporte 4 interface Serial ATA SATA vitesse jusqu'à 3Gb/s RAID 0, RAID 1, RAID 0+1 et RAID 5 |
| IEEE 1394 | VIA VT6307Supporte 2 100/200/400 Mb/sec ports |
| Panneau Arrière I/O | I port souris PS/2 I port clavier PS/2 I port optique S/PDIF I port de S-Video I port de DB-15 VGA I port de DVI-D I port IEEE 1394 I port RJ45 LAN 4 ports USB 2.0/1.1 Center/subwoofer, rear R/L et side R/L prises audio Line-in, line-out (front R/L) et mic-in prises audio |
| Interne I/O | 2 connecteurs pour 4 ports USB 2.0 supplémentaires 1 connecteur pour 1 série 1 connecteur pour 1 IEEE 1394 1 connecteur audio de l'avant pour la sortie ligne/l'entrée micro 1 connecteur CD-in audio internes 1 S/PDIF coaxial 1 connecteur IrDA 4 connecteurs Serial ATA 2 connecteurs IDE 1 connecteur de FDD 1 connecteur d'alimentation ATX 24-pin 1 connecteur devant panneau 3 connecteurs de ventilateurs |
| PCB | • 24.4cm (9.6") × 26.4cm (10.4") |

Deutsch

Leistungsmerkmale und Technische Daten

| Prozessor | AMD[®] Athlon[™] 64 X2 / Athlon 64 FX / Athlon[™] 64 / Sempron[™] Socket AM2 Interface HyperTransport 2000MT/s |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chipset | • NVIDIA[®] chipset - Nordbrücke: NVIDIA[®] GeForce[™] 6150 GPU - Südbrücke: NVIDIA[®] nForce[™] 430 MCP |
| Systemspeicher | 4 Sockel 240-pin DDR2 DIMM Unterhält DDR2 533 und DDR2 667 DIMMs Unterhält 128-bit – Speiher mit den zwei Kanälen Unterhält bis zum 4GB-Systemspeicher Unterhält nur non-ECC x8 und x16 DIMMs Unterhält DIMMs ohne Dämpfer |
| Expansion Schlitz | I PCI Express x16-Einbauplätzen I PCI Express x1-Einbauplätzen 2 PCI-Einbauplätzen |
| BIOS | • Award BIOS • Flash-Speicher 4Mbit |
| Energie Management | ACPI und OS Directed Power Management ACPI STR (Suspend to RAM) funktion Wecken bei Betätigung der PS/2 Tastatur/Maus Wecken bei USB-Tastatur/Maus Wecken bei Klingeln Wecken des Systems durch das Netzwerk RTC-Taktgeber zum Einschalten des Systems |
| Kleinteilmonitor | Überwachung der Temperatur des CPU/Systems sowie Warnsignal bei Überhitzung Überwachung der Spannungen des 5V/12V/3.3V/5VSB/Vbat/ Vcore/Vdimm/Vchip Überwachung der Geschwindigkeit des Ventilators Prozessor-Shutz - Die Ausschaltung bei der Überhitzung – die automatische Ausschaltung des Computers bei der Überhitzung |
| Audio | Realtek ALC850 8-Kanal-AC'97-audio-CODEC Naturgetreue Stereo-Leitungspegel-Ausgabe S/PDIF-In/Aus-Schnittstelle |

Introduction

| Grafik | Integrierte Grafik in der GeForce[™] 6150 GPU. Beinhaltet NVIDIA[®] PureVideo[™] Technologie, die High-Definition (HD) Video in allen Formaten sowie herausragende Bildqualität liefert. Schnittstellen: VGA zum Anschluss eines VGA Bildschirms DVI-D zum Anschluss von DVI-D-fähigen Geräten S-Video zum Anschluss an ein Fernsehgerät mit S-Video Output Dual Displays, die DVI-D + S-Video oder DVI-D + VGA Schnittstellen verwenden Geräte, die an diese Schnittstellen angeschlossen werden, können simultan angezeigt werden |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | nForce[™] 430 MCP integriert mit Gigabit MAC (Media Access Control) Technologie und externem Vitesse VSC8601 Gigabit Phy Völlig gefällig zu IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) und 802.3ab (1000BASE-T) standards |
| IDE | • Unterstützung der Festplatten bis zum UltraDMA 133Mbps |
| Serial ATA mit RAID | Unterstützt 4 Serial ATA-porte 3Gb/s SATA-Geschwindigkeit RAID 0, RAID 1, RAID 0+1 und RAID 5 |
| IEEE 1394 | VIA VT6307Unterstützt 2 100/200/400 Mb/sec porte |
| Porte an der Rückwand | I Mini-DIN-6-Anschluß für eine PS/2-Maus I Mini-DIN-6-Anschluß für eine PS/2-Tastatur I S/PDIF optischen-Anschlüsse I S-Video-Anschlüsse I VGA DB-15-Anschlüsse I DVI-D-Anschlüsse I IEEE 1394-Anschlüsse I RJ45 LAN-Anschlüsse 4 USB 2.0/1.1-Anschlüsse Center/subwoofer, rear R/L und side R/LAudio-Anschlußbuchsen Line-in, line-out (front R/L) und mic-in Audio-Anschlußbuchsen |
| Internes I/O | 2 Anschlußfassung für 4 zusätzliche externe USB 2.0-Anschlüsse I Anschluß für eine externe serieller Schnittstelle I Anschluß für eine externe IEEE 1394 Schnittstelle I Frontaudioanschluß für die externe Ausgangsleitung und den Mikrofoneingang I interne Audioanschlüsse (CD-in) I coaxial S/PDIF-Anschluß und I IrDA-Anschluß 4 Serial-ATA-Anschlüsse 2 IDE-Anschlüsse und I Floppy-Anschlüsse I Anschlußstecker für das ATX-Netzgerät 24-pin I Anschlußstecker für das 12V ATX-Netzgerät 4-pin Frontabdeckung Stecker und 3-ventilator-Anschlüsse |
| PCB | • 24.4cm (9.6") × 26.4cm (10.4") |

Características y Especificaciones

| Procesador | AMD® Athlon[™] 64 X2 / Athlon 64 FX / Athlon[™] 64 / Sempron[™] Socket AM2 Interface de HyperTransport 2000MT/s |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chipset | NVIDIA[®] chipset Puente norte: NVIDIA[®] GeForce[™] 6150 GPU Puente sur: NVIDIA[®] nForce[™] 430 MCP |
| Memoria de Sistema | 4 240-pin DDR2 DIMM asientos Suporta DDR2 533 y DDR2 667 DIMMs Soporta memoria de dos canales (128-bit) Soporta hasta 4GB de memoria sistémica Soporta sólo non-ECC x8 y x16 DIMM Soporta unbuffered DIMM |
| Ranuras de Expansión | I slot PCI Express x16 I slot PCI Express x1 2 slots PCI |
| BIOS | Award BIOSMemoria instante 4Mbit |
| Gerencia de la Energía | ACPI y OS Directed Power Management ACPI STR (Suspend to RAM) función PS/2 Teclado/Ratón de Wake-On USB Teclado/Ratón de Wake-On Wake-On-Ring Wake-On-LAN Temporizador de RTC para encender el sistema |
| Monitor del Hardware | Monitores de los CPU/sistema temperaturas y alarma acalorada. Monitores de voltajes de 5V/12V/3.3V/5VSB/Vbat/Vcore/ Vdimm/Vchip Vigila la velocidad del abanico del abanido Protección del procesador - Desconección en caso de recalentamiento –el ordenador se desconecta automáticamente en caso de recalentamiento |
| Audio | Realtek ALC850 8-canal AC'97 audio CODEC Auténtico salidas de nivel de línea estéreo Interfáz de S/PDIF-in/out |

Introduction

| Gráficos | Gráficos integrados en la GPU GeForce[™] 6150 Incluye la tecnología PureVideo[™] de NVIDIA®, que permite la reproducción optimizada de vídeo en Alta Definición (HD) en cualquier formato y una excepcional nitidez de imagen Interfaces: VGA para la conexión de un monitor VGA DVI-D para la conexión de monitores compatibles DVI-D S-Video para la conexión a una TV con conector S-Video Pantalla dual: conexión DVI-D + S-Video o DVI-D + VGA los dispositivos conectados a estos interfaces pueden ser visualizados de forma simultánea |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | nForce[™] 430 MCP integrado con la tecnología Gigabit MAC (Media Access Control) y Vitesse VSC8601 Gigabit Phy externo Completamente a IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) y 802.3ab (1000BASE-T) estándar |
| IDE | • Soporta las unidades duras hasta de UltraDMA 133Mbps |
| Serial ATA con RAID | Soporta 4 interfaz Serial ATA Velocidad de SATA a 3Gb/s RAID 0, RAID 1, RAID 0+1 y RAID 5 |
| IEEE 1394 | VIA VT6307Soporta 2 ports 100/200/400 Mb/sec |
| Panel Trasero I/O | I puerto de ratón mini-DIN-6 PS/2 I puerto de teclado mini-DIN-6 PS/2 I puerto de S/PDIF óptico I puerto de S-Video I puerto de VGA DB-15 I puerto de DVI-D I puerto de IEEE 1394 I puerto de RJ45 LAN 4 puertos de USB 2.0/1.1 Center/subwoofer, rear R/L y side R/L enchufes de audio Line-in, line-out (front R/L) y mic-in enchufes de audio |
| Conectador Interno | 2 conectors para 4 puertos de USB 2.0/1.1 externo adicional 1 conector para un puerto de serie 1 conector para un puerto de IEEE 1394 1 conectador audio delantero para la salida extrema de linea y el micro 1 conector de CD-in audio interno 1 S/PDIF coaxial 1 conector de IrDA 4 conectores de Serial ATA 2 conector de IDE y 1 conector de FDD 1 conectore de 24-pin fuente de alimentación de ATX 1 conectore de 12V 4-pin fuente de alimentación de ATX 1 conector de conectador del panel delantero 3 conectores de abanicos |
| PCB | • 24.4cm (9.6") × 26.4cm (10.4") |

Русский язык

Характеристики и свойства

| Процессор | AMD[®] Athlon[™] 64 X2 / Athlon 64 FX / Athlon[™] 64 / Sempron[™] гнездо AM2 Интерфейс системной шины 2000MT/s |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Чипсет | • NVIDIA[®] Чипсет - Северный мост: NVIDIA[®] GeForce[™] 6150 GPU - Южный мост: NVIDIA[®] nForce[™] 430 MCP |
| Оперативная Память | 4 240-pin DDR2 DIMM гнезда Поддерживает DDR2 533 и DDR2 667 DIMMs Поддерживает двухканальную память (128-бит) Поддерживает до 4ГБ системной памяти Поддерживает только non-ECC х8 и х16 DIMM Поддерживает небуфф. DIMM |
| управление силы | 1 PCI Express x16 слотов 1 PCI Express x1 слотов 2 PCI слотов |
| BIOS | • Award BIOS • 4Mbit внезапная память |
| управление силы | ACPI и OS Directed Power Management ACPI STR (Suspend to RAM) Активизация На Движение Мыши Активизация На Нажатие Кнопки USB Клавиатуры Активизация На Входящий Звонок Активизация На Сетевое Событие RTC Таймер для Включения Системы |
| монитор оборудования | Мониторинг температуры процессора/системы Мониторинг напряжений 5V/12V/3.3V/5VSB/Vbat/ Vcore/Vdimm/Vchip Мониторинг скорости вращения вентилятора Защита процессора - Выключение при перегреве – автоматическое выключение компьютера при перегреве |
| тональнозвуково | Realtek ALC850 8-канал AC'97 CODEC Настоящий линейный стерео выход интерфейса S/PDIF-in и S/PDIF-out |

Introduction

| Графика | Встроенная видеокарта на базе GeForce[™] 6150 Технология NVIDIA[®] PureVideo[™], обеспечивающая воспроизведение Высококачественного Видео (HD) во всех форматах Интерфейсы: VGA для подключения VGA монитора DVI-D для подключения устройств DVI-D S-Video для подключения телевизоров с S-Video выходом Двойной экран с использованием DVI-D + S-Video или DVI-D + VGA интерфейсов устройства, подключенные к данным интерфейсам могут работать одновременно |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | • nForce[™] 430 MCP со встроенной технологией Gigabit MAC (Media Access Control) и внешним Vitesse VSC8601 Gigabit Phy • Поддерживает IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) и 802.3ab (1000BASE-T) |
| IDE | • Поддерживает жесткие диски до UltraDMA 133Mbps |
| Serial ATA c RAID | Поддерживает 4 Serial ATA порта SATA скорость up к 3Gb/s RAID 0, RAID 1, RAID 0+1 и RAID 5 |
| IEEE 1394 | • VIA VT6307 • Поддерживает 2 100/200/400 Mb/sec порта |
| задняя панель I/O | 1 мини-DIN-6 PS/2 порт для мыши 1 мини-DIN-6 PS/2 порт для клавиатуры 1 S/PDIF оптического порт 1 S-Video порта и 1 VGA порта 1 DVI-D порта 1 IEEE 1394 порт 1 RJ45 LAN порт и 4 USB 2.0/1.1 порта Center/subwoofer, rear R/L и side R/L гнезда для звука Mic-in, line-in и line-out гнезда для звука |
| внутренне І/О | 2 разъем для 4-х дополнительных внешних USB 2.0 портов 1 разъем для внешнего внешнего порта 1 разъем для внешнего IEEE 1394 порта 1 передний аудио разъем для внешнего линейного выхода и микрофона 1 внутренних звуковых разъема (CD-in) 1 соахіаl S/PDIF разъем 1 разъем для интерфейса IrDA 4 Serial ATA, 2 IDE разъема и 1 разъем FDD 1 разъема питания ATX 24-pin 1 фронт панель разъем 3 Разъемы для вентилятора |
| PCB | • 24.4cm (9.6") x 26.4cm (10.4") |

日本語

| プロセッサ | AMD Athlon 64 X2 / Athlon 64 FX / Athlon 64 / Sempron ソケットAM2 |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| フロントサイドバ ス | 2000MT/s HyperTransport インターフェース |
| チップセット | NVIDIAチップセット -ノースブリッジ: NVIDIA GeForce 6150 GPU -サウスブリッジ: NVIDIA nForce 430 MCP |
| システムメモリ | 240ピンDDR2 DIMMソケット x 4 DDR2 533 および DDR2 667 DIMMs デュアルチャネル(1 2 8 ビット幅)メモリインター フェース対応 最大4 G B までのシステムメモリに対応 x8/x16 非ECC アンバッファードDIMM |
| 拡張スロット | PCI Express x16 スロット x 1 PCI Express x1 スロット x 1 PCIスロット x 2 |
| BIOS | Award BIOS 4Mビット フラッシュメモリ |
| 電源管理機能 | ACP1およびOS主導電源管理 ACP1 STR (サスペンド・トゥ・ラム)機能 ウェイクオンPS/2キーボード/マウス ウェイクオンUSB キーボード/マウス ウェイクオンLAN (WOL) ウェイクオンリング (Wake-On-Ring) システム電源オン用RTCタイマー |
| ハードウェアモニタ | CPU/システム温度のモニタリング 5V/12V/3.3V/5VSB/Vbat/Vcore/Vdimm/Vヱップ電圧の 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 |
| グラフィックス | グラフィックスは、GPUのGeForce™ 6150に統合されて おります NVIDIA のPureVideoテクノロジによって、あらゆる形 式の画像をスムーズなHigh-Definition(HD)で提供で きます インタフェース: - VGA (VGAモニタに接続) - DVI-D (DVI-D対応デバイスに接続) - S-Video (S-Video対応デバイスに接続) DVI-D + S-Video 出力またはDVI-D + VGAインタ フェースによるデュアルディスプレイ - 3 つのインタフェースに接続されたデバイスの同時 表示が可能 |

| | Introduction |
|------|------------------|

| オーディオ | Realtek ALC850 8チャネル AC'97 オーディオCODEC トゥルー・ステレオ・ラインレベル出力 S/PDIF-入力/出力インターフェース |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN | nForce™ 430 MCP(Gigabit MAC technology)および 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 | 2つのIDEコネクタにより最大4台のUltraDMA 133Mbpsハー ドドライブと接続可能 |
| シリアルATA (SATA) | 4つのSATAポートをサポート SATA速度は最大 3Gb/s RAID 0, RAID 1, RAID 0+1 および RAID 5 |
| IEEE 1394 | VIA VT6307 2つの100/200/400 Mb/秒ポートをサポート |
| リアパネルI/0 | mini-DIN-6 PS/2マウスポート x 1 mini-DIN-6 PS/2キーボードポート x 1 光学S/PDIF x 1 S-Video TV出力ポート x 1 VGAモニタ用ポート x 1 DVI-D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 センタ/サブウーファ、リアR/LおよびサイドR/L端子 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 |
| 内部I/0 | 4ポート外部USB 2.0/1.1ポート用コネクタ x 2 1つの外部COMポート用コネクタ x 1 外部IEEE 1394ポート用コネクタ x 1 外部ライン出力およびマイク入力端子用前フロントオーディ オコネクタ x 1 CD入力内部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 SATAコネクタ x 2 フロッピーコネクタ x 1 24ピンATX主電源コネクタ x 1 4ピンATX12V電源コネクタ x 1 フロントパネルコネクタ x 1 ファンコネクタ x 3 |
| РСВ | 24.4cm x 26.4cm |

System Board Layout





<u>Warning:</u>

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

<u>Warning:</u>

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_3 Channel B - DDR2_2 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 | DIMMs are on the same channel. DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs. Not all slots need to be populated. | |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Dual Channel | DIMMs of the same memory configura- tion are on different channels. | |

The table below shows the DIMM sockets that must be populated with DIMMs for single or dual channel interface. We strongly recommend that you strictly follow the memory configurations below. Installing DDR2 DIMMs other than the recommended configurations may cause system boot failure.

| Dual Channel | DDR2-1 | DDR2-2 | - | - |
|----------------|--------|--------|--------|--------|
| Dual Channel | - | - | DDR2-3 | DDR2-4 |
| Dual Channel | DDR2-1 | DDR2-2 | DDR2-3 | DDR2-4 |
| Single Channel | DDR2-1 | - | - | - |
| Single Channel | - | - | DDR2-3 | - |
| Single Channel | DDR2-1 | - | DDR2-3 | - |
| Single Channel | - | DDR2-2 | - | DDR2-4 |

BIOS Setting

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

Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin I of the DIM module must correspond with Pin I of the socket.



- I. Pull the "tabs" which are at the ends of the socket to the side.
- 2. Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.
- 3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

CPU

Overview

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

Installing the CPU

- I. Make sure the PC and all other peripheral devices connected to it has been powered down.
- 2. Disconnect all power cords and cables.
- 3. Locate Socket AM2 on the system board.



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



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



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



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Hardware Installation

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



Important:

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



7. Once the CPU is in place, push down the lever to lock the socket. The lever should click on the side tab to indicate that the CPU is completely secured in the socket.



Installing the Fan and Heat Sink

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

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



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

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

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



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



Top View

2

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



Note:

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



Retention lever -

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





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

Jumper Settings

Clear CMOS Data



If you encounter the following,

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

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

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

- I. Power-off the system then unplug the power cord.
- 2. Set JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.
- 3. Now plug the power cord then power-on the system.

If your reason for clearing the CMOS data is due to incorrect setting of the processor's ratio/clock in the BIOS, please proceed to step 4.
- 4. After powering-on the system, press to enter the main menu of the BIOS.
- 5. Select the Genie BIOS Setting submenu and press <Enter>.
- 6. Set the processor's clock/ratio to its default setting or an appropriate bus clock or ratio. Refer to the Genie BIOS Setting section in chapter 3 for more information.
- 7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.
- 8. Type <Y> and press <Enter>.

2

Hardware Installation

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 Power Management Setup submenu of the BIOS. Refer to chapter 3 for more information.

 $\overbrace{}^{\text{Important:}}_{\text{The 5VSB power source of your power supply must support}}_{\geq 720 \text{mA.}}$

USB Power Select



JP3 and JP4 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 $\geq 2A$.

PCI Express Card Setting



The system can detect most PCI Express cards. However if you are using cards such as Gigabyte GC-LC05 (BroadCom BCM5721) or other cards not detected by the system, set JP5 and/or JP6 to 2-3 On. Configuring the jumper to 2-3 On will allow the system to detect the PCI Express card.

JP5 is used to detect the PCI Express card installed in the PCIE 2 slot.

JP6 is used to detect the PCI Express card installed in the PCIE I slot.

CPU Fan Select



The system board allows connecting a CPU fan that comes with a 3-pin or 4-pin cable connector. Set JP11 according to the type of cable connector that you are using.



Important:

If JP11 is set incorrectly, the system will not be able to appropriately detect the CPU fan.

Center/ Subwoofer Rear R/L PS/2 IEEE LAN VGA Mouse |394_| Line-in . Front R/L Mic-in S-Video PS/2 K/B DVI-D USB I-2 USB 3-4 Side R/L Optical S/PDIF

Rear Panel I/O Ports

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

- PS/2 mouse port
- PS/2 keyboard port
- Optical S/PDIF port
- S-Video port
- VGA monitor port
- DVI-D port
- IEEE 1394_1 port
- USB ports
- LAN port
- Center/Subwoofer port
- Rear R/L port
- Side R/L port
- Line-in port
- Front R/L port
- Mic-in port

PS/2 Mouse and PS/2 Keyboard



The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN14 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.

<u>Warning:</u>

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 Power Management Setup submenu of the BIOS. Refer to chapter 3 for more information.

2

Hardware Installation

S/PDIF



...........

The system board is equipped with an onboard optical S/PDIF-out port at location CN17. It is also equipped with a connector at location J13 for coaxial RCA S/PDIF-in/out port connection. S/PDIF ports are used to connect audio output devices.

Your coaxial RCA S/PDIF 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 connect the audio cable connector to J13. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J13.



Important:

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

S-Video



The S-Video port at location CN4 is used to connect a TV that comes with an S-Video output or Composite video output. The table below lists the supported video output and their corresponding cables.

| TV-Out Port of TV | Cables |
|------------------------|---------------------------------|
| S-Video Output | Standard 4-pin S-Video cable |
| Composite Video Output | "S-Video to Composite TV" cable |

Hardware Installation Video Output Cables Standard 4-pin S-Video Cable for TV with S-Video In Port



S-Video port of TV

"S-Video to Composite TV" Cable (included in the package)





Connect to S-Video port of system board



Warning:

The "S-Video to Composite TV" cable is a customized cable exclusively designed for use with this system board. Damage may occur if you use a cable other than the one specified above.

Dual Display

Aside from connecting a TV to the S-Video port, the system board supports dual display by connecting another display device to the DVI-D port.

| Port | Display Device |
|---------|-------------------------|
| S-Video | → TV |
| and | and |
| DVI-D | → LCD monitor or LCD TV |

BIOS Setting

Configure the display devices in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

VGA



The VGA port is used for connecting a CRT VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port (Blue) at location CN1. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

Dual Display

Aside from connecting a VGA monitor to the VGA port, the system board supports dual display by connecting another display device to the DVI-D port.

| Port | Display Device |
|---------|-------------------------|
| VGA — | → VGA monitor |
| and | and |
| DVI-D — | → LCD monitor or LCD TV |

BIOS Setting

Configure the display devices in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

DVI-D



The DVI-D (Digital Visual Interface) port is used to connect a digital LCD monitor or LCD TV.

Connect the display device's cable connector to the DVI-D port at location CN5. After you plug the cable connector into the DVI-D port, gently tighten the cable screws to hold the connector in place.

Dual Display

Aside from connecting a LCD display device to the DVI-D port, the system board supports dual display by connecting another display device to either the S-Video or VGA port.

| Port | Display Device |
|-------------------------|---------------------------------------------|
| DVI-D and S-Video | LCD monitor or LCD TV and TV |
| or | |
| Port | Display Device |
| DVI-D and VGA | LCD monitor or LCD TV and VGA monitor |

BIOS Setting

Configure the display devices in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

IEEE 1394



The onboard IEEE 1394 port is at location CN2 (IEEE 1394_1) of the system board.

The IEEE 1394 connector at location J20 (1394_2) is for connecting an additional 1394 device. Your 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 J20. Make sure pin 1 of the cable connector is aligned with pin 1 of J20.



USB (Universal Serial Bus)



The system board supports 8 USB 2.0/1.1 ports. Four onboard USB 2.0/1.1 ports (Black) are at locations CN2 (USB 1-2) and CN3 (USB 3-4) of the system board.

The J8 (USB 5-6) and J7 (USB 7-8) connectors allow you to connect 4 additional USB 2.0/1.1 ports. Your 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 J7 or J8. Make sure pin I of the cable connector is aligned with pin I of J7 or J8.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu ("Onboard Device" section) 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:

JP3 and/or JP4 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



The onboard LAN port is at location CN3 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 ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install "NVIDIA Windows nForce Drivers". Refer to chapter 4 for more information.

Audio



Rear Panel Audio (CN6)

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.

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.

Front Audio

The front audio connector at location J10 allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Using this connector will disable the rear audio's line-out and mic-in functions.

Remove the jumper caps from pins 5-6 and pins 9-10 of J10 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J10. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

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

BIOS Setting

Configure the onboard audio in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

Internal I/O Connectors

CD-in Connector



The CD-in connector at location J32 is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

Floppy Disk Drive Connector

The system board is equipped with a shrouded floppy disk drive connector for connecting a standard floppy disk drive. To prevent improper floppy cable installation, the shrouded 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 endmost connector to the floppy 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 ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

Serial ATA Connectors



- 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 SATA 1 (J16), SATA 2 (J17), SATA 3 (J18) or SATA 4 (J19) and the other end to your Serial ATA device.

BIOS Setting

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

Configuring RAID

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

IDE Disk Drive Connectors



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

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

Connecting the IDE Disk Drive Cable

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

If you are adding a third or fourth IDE device, use another IDE cable and install one end of the cable into the IDE 2 header (J2) on the system board and the other connectors to the IDE devices.



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.

Serial (COM) Connector



The 9-pin connector at location J12 is for connecting a serial port. The serial port cable is an optional item and must be purchased separately. Your serial 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 serial port cable to J12. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the connector.

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

BIOS Setting

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

IrDA Connector



The IrDA connector at location J9 is for connecting an IrDA module. Connect the cable connector from your IrDA module to J9.



Note:

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

BIOS Setting

Configure IrDA in the Integrated Peripherals submenu ("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 function. Refer to your operating system's manual or documentation for more information.



Cooling Fan Connectors

Hardware Installation

Connect the CPU fan's cable connector to the CPU fan connector (J30) on the system board. Chipset fan (J33) and system fan (J31) 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.

DRAM Power LED



Hardware Installation

DRAM Power LED

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



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.

2

Hardware Installation

Power Connectors

Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted onto CN8.



Your power supply unit also comes with a 4-pin +12V power connector. The +12V power enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM). Connect the 4-pin power connector to CN9.



The system board requires a minimum of 300 Watt power supply to operate. The total system power consumption which is dependent upon the 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.

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 SI (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.



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 | 4 6 | 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) | 3 5 7 9 | Speaker Data N. C. Ground Speaker Power |
| PWR-LED (Power/Standby LED) | 2 4 6 | LED Power (+) LED Power (+) LED Power (-) or Standby Signal |

PCI Express Slots



.

PCI Express x16

Install PCI Express $\times 16$ graphics card, that comply to the PCI Express specifications, into the PCI Express $\times 16$ slot. To install a graphics card into the $\times 16$ 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 $\times I$ cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express $\times I$ 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.

| Phoenix - AwardBIOS CMOS Setup Utility | | |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--|
| Standard CMOS Features Advanced BIOS Features Advanced Chipset Features | Genie BIOS Setting Load Fail-Safe Defaults Load Optimized Defaults | |
| Integrated Peripherals Power Management Setup PnP/PCI Configurations PC Health Status | Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving | |
| Esc : Quit F10 : Save & Exit Setup Time, Date, Hard Disk Type | | |
Standard CMOS Features

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

BIOS Setud

| Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|
| Date <mm:dd:yy> Time <hh:mm:ss> IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave IDE Channel 2 Master IDE Channel 3 Master IDE Channel 4 Master IDE Channel 5 Master Drive A Halt On Base Memory Extended Memory Total Memory</hh:mm:ss></mm:dd:yy> | Tue, May 9 2006 20 : 20 : 30 None ASUS-CD3500/A None ST3120023AS None None None 1.44M, 3.5 in. All, But Keyboard 640K 980992K 982016K | Item Help Menu Level ► Change the day, month, year and century | |
| ↑↓→←: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults | |

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

Date

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

Time

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

3

IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave and IDE Channel 2/3/4/5 Master

BIOS Setup

| IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave | Used to configure Parallel ATA drives |
|----------------------------------------------------------------------------------------------|---------------------------------------|
| IDE Channel 2 Master IDE Channel 3 Master IDE Channel 4 Master IDE Channel 5 Master | Used to configure Serial ATA drives |



<u>Note:</u>

The fields for configuring Serial ATA drives will not appear on the following 2 conditions.

- I. If "Serial-ATA Controller" is set to Disabled.
- 2. If the fields for configuring RAID are set to Enabled.

The fields mentioned in items 1 and 2 are in the Integrated Peripherals submenu, IDE Function Setup section of the BIOS.

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

BIOS Setud

| Phoenix - AwardBIOS CMOS Setup Utility IDE Channel 0 Master | | |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------|
| IDE HDD Auto-Detection IDE Channel 0 Master Access Mode Capacity Cylinder Head Precomp Landing Zone | Press Enter Auto Auto 0 MB 0 0 0 0 | Item Help Menu Level To auto-detect the HDD's size, head on this channel |
| Sector | | ESC. Evit El. Caparal Hala |
| $\uparrow \downarrow \rightarrow \leftarrow$: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

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

IDE HDD Auto-Detection

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

IDE Channel 0 Master/Slave and IDE Channel I Master/Slave

The drive type information should be included in the documentation from your hard disk vendor. If you select "Auto", the BIOS will autodetect 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.

Drive A

These fields identify the types of floppy disk drives installed.

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

Halt On

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

BIOS Setud

No Errors The system boot will not stop for any errors detected.

- All Errors The system boot will stop whenever the BIOS detects a non-fatal error.
- All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors.
- All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.
- All, But Disk/Key The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

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

Extended Memory

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

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

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

| Phoe | nix - AwardBIOS CMO Advanced BIOS Fe | S Setup Utilit atures | у | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------|------------------------------|-----|
| Removable Device Priority Hard Disk Boot Priority CD-ROM Boot Priority Network Boot Priority Remain Cache External Cache Quick Power On Self Test First Boot Device Boot Device Boot Ober Device Boot Other Device Boot Other Device Boot Up Floppy Seek Boot Up NumLock Status Typematic Rate Setting x Typematic Rate (Chars/Sec) x Typematic Rate (Chars/Sec) x Typematic Rate (Chars/Sec) x Typematic Delay (Msec) Security Option APIC Mode MPS Version Control For OS OS Select For DRAM > 64MB HDD S.M.A.R.T. Capability Full Screen LOGO Show Small Logo(EPA) Show | Press Enter Press Enter Press Enter Disabled Enabled Enabled Enabled Removable Hard Disk CDROM Enabled Disabled On Disabled 6 250 Setup Enabled 1.4 Non-OS2 Disabled Disabled Enabled | | Iter Menu Level Select Remo Device Prio | n Help vable Boot rity | |
| | +/-/PU/PD: Value F6: Fail-Safe Defaul | F10: Save | ESC: Exit F7: Optimize | F1: General He | elp |

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

Removable Device Priority

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

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility Removable Device Priority | | |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Floppy Disks | Item Help Menu Level → Use <^> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <esc> to exit this menu.</esc> | |
| 1↓: Move PU/PD/+/-: Change Priority F10: S F5: Previous Values F6: Fail-Safe Defaults | ave ESC: Exit F7: Optimized Defaults | |

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

Hard Disk Boot Priority

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

| Phoenix - AwardBIOS CMOS Setup Utility Hard Disk Boot Priority | | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Ch2 M. : ST3120023AS 2. Bootable Add-in Cards | Item Help Menu Level →→ Use <1> or <4> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <esc> to exit this menu.</esc> | |
| ↑↓: Move PU/PD/+/-: Change Priority F F5: Previous Values F6: Fail-Safe Defaults | 10: Save ESC: Exit F7: Optimized Defaults | |

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

CD ROM Boot Priority

This field is used to select the boot sequence of the CD-ROM 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.

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility CD-ROM Boot Priority | | |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Ch0 S. : ASUS CD-S500/A | Item Help Menu Level ►► Use <^> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <esc> to exit this menu.</esc> | |
| | | |
| TJ: Move PU/PD/+/-: Change Priority F10: Save F5: Previous Values F6: Fail-Safe Defaults | ESC: Exit F7: Optimized Defaults | |

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

Network Boot Priority

BIOS Setup

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

| Menu Level →→ Use <1> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <esc> to exit this menu.</esc> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field. Also, disable this field if you are installing or running certain operating systems like Windows[®] 95/98/2000 or the operating system may not install nor work.

CPU Internal Cache and External Cache

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

BIOS Setud

Quick Power On Self Test

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

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

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

Boot Up Floppy Seek

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

Boot Up NumLock Status

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

Typematic Rate Setting

BIOS Setup

Disabled Continually holding down a key on your keyboard will cause the BIOS to report that the key is down.

Enabled The BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the "Typematic Rate (Chars/Sec)" and "Typematic Delay (Msec)" fields below.

Typematic Rate (Chars/Sec)

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

Typematic Delay (Msec)

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

Security Option

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

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

APIC Mode

Leave this field in its default setting.

MPS Version Control for OS

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

BIOS Setud

OS Select for DRAM > 64MB

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

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

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

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.

Small Logo(EPA) Show

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

Advanced Chipset Features

| Phoenix - AwardBIOS CMOS Setup Utility Advanced Chipset Features | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| PMU Err94 Enh SSE/SSE2/SSE3 Instructions Init Display First SATA Spread Spectrum HT Spread Spectrum System BIOS Cacheable On-Chip VGA Dual VGA Support Frame Buffer Size RGB/TV Display TV Mode Support | Auto Auto Enabled PCIEx Disabled Disabled Setting Disabled 64M Auto Disabled | Item Help Menu Level ► |
| ↑↓→←: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

......

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

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

PMU

The options are Auto and Disabled.

Err94 Enh

This field is used to enable the Errata 94 Enhancement function. The options are Auto and Disabled.

SSE/SSE2/SSE3 Instructions

The options are Enabled and Disabled.

Init Display First

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

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

BIOS Setup

- Onboard When the system boots, it will first initialize the onboard VGA.
- PCIEx When the system boots, it will first initialize the PCI Express x16 graphics card.

SATA Spread Spectrum

This field is used to enable or disable the SATA spread spectrum.

HT Spread Spectrum

This field is used to enable or disable the HT spread spectrum.

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.

Dual VGA Support

This field is used to enable or disable the dual VGA function.

Frame Buffer Size

This field is used to select the total amount of system memory locked by the BIOS for video. A larger frame buffer size should result in higher video performance.

RGB/TV Display

This field is used to select the type of video display device.

TV Mode Support

This field is used to select the mode of the TV.

Integrated Peripherals

| Phoenix - AwardBIOS CMOS Setup Utility Integrated Peripherals | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| IDE Function Setup Onboard Device Super IO Device | Press Enter Press Enter Press Enter | Item Help Menu Level ► |
| $ \begin{array}{c c} \uparrow \downarrow \rightarrow \leftarrow : \text{ Move } & \text{Enter: Select} \\ \hline F5: \text{ Previous Values} \end{array} $ | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

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

IDE Function Setup



The screen above list all the fields available in the IDE Function Setup 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.

OnChip IDE Channel0 and OnChip IDE Channel1

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

Primary Master/Slave PIO and Secondary Master/Slave PIO

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

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

Primary Master/Slave UDMA and Secondary Master/Slave UDMA

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

AutoThe BIOS will automatically detect the settings for
you.DisabledThe 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

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

BIOS Setup

Disabled The IDE HDD uses the standard mode.

Serial-ATA Controller

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

RAID Enable

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

SATA I Primary RAID and SATA I Secondary RAID

These fields are used to enable or disable the RAID function of SATA I's primary and/or secondary channel.

SATA 2 Primary RAID and SATA 2 Secondary RAID

These fields are used to enable or disable the RAID function of SATA 2's primary and/or secondary channel.

Onboard Device

| Phoenix - AwardBIOS CMOS Setup Utility Onboard Device | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------|
| OnChip USB USB Keyboard Support AC97 Audio MAC Lan Machine MAC(NV) Address x MAC(NV) Address Input | V1.1+V2.0 Disabled Auto Auto Disabled Press Enter | Item Help Menu Level ►► |
| $ \begin{array}{c c} \uparrow \downarrow \rightarrow \leftarrow : \text{ Move } & \text{Enter: Select} \\ \hline \text{F5: Previous Values} \\ \end{array} $ | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

BIOS Setup

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

OnChip USB

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

USB Keyboard Support

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

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

AC97 Audio

Auto Select this option when using the onboard audio. Disabled Select this option when using a PCI sound card.

MAC LAN

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

Machine MAC(NV) Address

Enable this field to enter the MAC(NV) Address in the field below.

MAC(NV) Address Input

Move the cursor to this field and press $\langle Enter \rangle$ to fill in the MAC(NV) address.

Super IO Device

| Phoenix - AwardBIOS CMOS Setup Utility Super IO Device | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Onboard FDC Controller Onboard Serial Port 1 (COM) Onboard Serial Port 2 (IR) IR Mode Select IR Duplex Mode | Enabled 3F8/IRQ4 2F8/IRQ3 IrDA Half | Item Help Menu Level ►► |
| $ \begin{array}{c c} \uparrow \downarrow \rightarrow \leftarrow : \text{ Move } & \text{Enter: Select} \\ \hline \text{F5: Previous Values} \\ \end{array} $ | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

BIOS Setup

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

Onboard FDC Controller

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

Onboard Serial Port I (COM)

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

Onboard Serial Port 2 (IR)

Auto The system will automatically select an I/O address for the IR device.
 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the IR device.
 Disabled Disables the IR device.

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 I meter:

IR Duplex Mode

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

Power Management Setup

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

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility Power Management Setup | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| ACPI Function Power Management HDD Power Down HDD Down In Suspend Soft-Off By PBTN Wake Up On LAN Resume By Ring Power-On By Alarm x Day of Month Alarm x Time (hh:mm:ss) Alarm Power On Function x Hot Key Power On | Enabled User Define Disabled Instant-Off Disabled Disabled Disabled 0 0:0:0 BUTTON ONLY Ctrl-F1 | Item Help Menu Level ► |
| | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

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

ACPI Function

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

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.

| Min Saving | Minimum power saving time for the "HDD Power |
|-------------|---------------------------------------------------------------------------|
| | Down'' = 15 min. |
| Max Saving | Maximum power saving time for the "HDD Power |
| | Down'' = 1 min. |
| User Define | Allows you to set the power saving time in the "HDD Power Down" field. |

HDD Power Down

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

HDD Down In Suspend

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

Soft-Off by PBTN

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

- Delay 4 Sec. Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.
- *Instant-Off* Pressing and then releasing the power button at once will immediately power off your system.

Wake Up On LAN

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.

BIOS Setud

Resume By Ring

When this field is set to Enabled, the system will power-on to respond to calls coming from an external modem.

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

Time (hh:mm:ss) of Alarm

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

Power On Function

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

| Button only | Default setting. Uses the power button to | | |
|---------------|---------------------------------------------------|--|--|
| | power on the system. | | |
| Hot Key | When this option is selected, select the function | | |
| · | key you would like to use to power-on the sys- | | |
| | tem in the ''Hot Key Power On'' field. | | |
| MS Move&Click | When this option is selected, move and double- | | |
| | click the left button of the mouse to power-on | | |
| | the system. | | |
| 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 key- | | |
| | board to power-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.

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.

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations | | |
|------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resources Controlled By | Auto Press Enter | Item Help |
| PCI/VGA Palette Snoop PCI Express Relative Items | Disabled | Menu Level Default is Disabled. Select Enabled to reset Extended System |
| Maximum Fayioad Size | 4090 | Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS |
| ↑↓→←: Move Enter: Select +/- F5: Previous Values F | /PU/PD: Value 6: Fail-Safe Defa | F10: Save ESC: Exit F1: General Hel |

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

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.ManualChoose 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.

| Pho | Denix - AwardBIOS CMOS Setup Util IRQ Resources | ity |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IRQ-3 assigned to IRQ-4 assigned to IRQ-5 assigned to IRQ-7 assigned to IRQ-9 assigned to IRQ-10 assigned to IRQ-12 assigned to IRQ-14 assigned to IRQ-15 assigned to | PCI Device PCI Device | Item Help Menu Level Legacy ISA for devices compliant with the original PC AT bus specification. PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture. |
| ^{↑↓→←} : Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

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

PCI/VGA Palette Snoop

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

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

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 CPU Fan Power Vcc3 +12V Vcc5 V5SB VBAT Current CPU Temperature Current System Temp Current Chipset Temp Current System Fan Speed Current Chipset Fan Speed Current CPU Fan Speed | 85%185°F Auto 3.23V 11.77V 4.75V 4.99V 3.05V 39°C 34°C 64°C 0 RPM 0 RPM 3013 RPM | Item Help Menu Level ► |
| | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

BIOS Setud

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

Shutdown Temperature

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

CPU Fan Power

| Enabled | The CPU fan will rotate at full speed. |
|----------|--------------------------------------------------|
| SmartFan | The CPU fan's speed will rotate according to the |
| | CPU's temperature. |

Vcc3, +12V, Vcc5, V5SB and VBAT

These fields will show the monitored output voltages.

Current CPU/System/Chipset Temperature

These fields will show the current temperature of the CPU, internal system and chipset.

Current System/Chipset/CPU Fan Speed

These fields will show the current fan speed of the monitored cooling fans in RPM (Rotation Per Minute).

Genie BIOS Setting

| Phoenix - AwardBIOS CMOS Setup Utility Genie BIOS Setting | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------|
| DRAM Configuration System Bus Configuration AMD K8 Cool 'n' Quiet ======= Ratio & Clock So CPU FSB Ratio Setting Current CPU FSB Speed CPU Clock Setting O.C Failed Control Current DRAM Speed DRAM Clock (CPU/DRAM) CPU 'n' NB Bus Ratio Setting PCIE Clock ========= Voltage Setting CPU Voltage Setting DRAM Votage Setting Chip Voltage Setting Chip Voltage Setting Current CPU Voltage Current CPU Voltage ========= Miscellaneous K8 NPT C1E Support ACPI SRAT ACPI SRAT ACPI Spread Spectrum PCIE Spead Spectrum | Press Enter Press Enter Press Enter Auto 2400MHz 200MHz Load Default DDR2 533 Auto Auto 100MHz 9g ======= Default 1.8V 1.20V 1.32V 1.77V 1.16V s ======== Disabled Enabled Disabled Disabled Disabled | | Item Help Menu Level DRAM timing and control |
| ↑↓→←: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10 F6: Fail-Safe Defaults |): Save | ESC: Exit F1: General Help F7: Optimized Defaults |

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

DRAM Configuration

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

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility DRAM Configuration | | |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--|
| DRAM Bank Interleaving Turn On All DIMM Clocks SPD Checksum Restart DQS Training ControlDisabled | Item Help Menu Level ►► S nnel | |
| ^{↑↓→←} : Move Enter: Select +/-/PU/PD: Valu F5: Previous Values F6: Fail-Safe I | e F10: Save ESC: Exit F1: General Help befaults F7: Optimized Defaults | |

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

DRAM Bank Interleaving

The options are Enabled and Disabled.

Turn On All DIMM Clocks

The options are Enabled and Disabled.

SPD Checksum Restart

The options are Ignore and Exit.

DQS Training Control

The options are Skip DQS and Perform DQS.

CKE Base Power Down Mode

The options are Enabled and Disabled.

CKE Based Power Down

The options are Per Channel and Per CS.

Memclock Tri-stating

The options are Enabled and Disabled.

Memory Hole Remapping

The options are Enabled and Disabled.

Bottom of [31:24] IO Space

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

BIOS Setup

Bottom of UMA DRAM [31:24]

Leave this in its default setting.

DRAM ECC Enable

This field is used to enable or disable the DRAM's ECC feature. When enabled, it allows the system to automatically correct and recover from memory failure.

DRAM MCE Enable

The options are Enabled and Disabled.

Chip-Kill Mode Enable

The options are Enabled and Disabled.

DRAM ECC Redirection

The options are Enabled and Disabled.

DRAM Background Scrubber

This field allows the DRAM scrubbing feature to correct memory errors.

L2 Cache Background Scrubber

This field corrects the memory errors of the L2 data cache RAM.

DCache Background Scrubber

This field corrects the memory errors of the L1 data cache RAM.

System Bus Configuration

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

BIOS Setup

| Phoenix - AwardBIOS CMOS Setup Utility System Bus Configuration | | |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| NB>SB Bus Ratio Setting NB <sb bus="" ratio="" setting<br="">CPU'n'NB LDT Bus Width NB'n'SB LDT Bus Width</sb> | 4X 4X 16 bits 8 bits | Item Help Menu Level ►► |
| ↑↓→←: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults | ESC: Exit F1: General Help F7: Optimized Defaults |

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

NB—>SB Bus Ratio Setting

This field is used to select the bus ratio from the north bridge to the south bridge.

NB<—SB Bus Ratio Setting

This field is used to select the bus ratio from the south bridge to the north bridge.

CPU'n'NB LDT Bus Width

This field is used to select the LDT bus transfer width between the CPU and north bridge.

NB'n'SB LDT Bus Width

This field is used to select the LDT bus transfer width between the north bridge and south bridge.

AMD K8 Cool'n'Quiet

| Auto | Enables AMD's Cool'n'Quiet technology. This function |
|----------|--------------------------------------------------------|
| | allows the system to detect the CPU's tasks and utili- |
| | zation status. When the CPU's task slows down, the |
| | system effectively lowers power consumption by |
| | changing its CPU speed and voltage, subsequently de- |
| | creasing its noise level. |
| Disabled | Disables AMD's Cool'n'Quiet technology. |

CPU FSB Ratio Setting

This field is used to select the CPU FSB ratio.

Current CPU FSB Speed

This field will show the detected FSB of the CPU.

CPU Clock Setting

This field provides several options for selecting the external system bus clock of the processor. The available options allow you to adjust the processor's bus clock by IMHz increment.



Important:

Selecting an external bus clock other than the default setting may result to the processor's or system's instability and are not guaranteed to provide better system performance.

O. C. Failed Control

If after overclocking, the system failed to function properly, the system will automatically adjust the CPU clock according to the value selected in this field. The adjusted clock speed is the actual CPU clock minus the value selected in this field.

Current DRAM Speed

This field will show the detected speed of the DRAM.

DRAM Clock (CPU/DRAM)

This field is used to select the ratio of the CPU and DRAM clocks.

BIOS Setud

CPU'n'NB Bus Ratio Setting

This field is used to select the bus ratio between the CPU and north bridge.

PCIE Clock

This field is used to select the PCI Express clock. The options are available in IMHz increment.

CPU Voltage Setting

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



Important:

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

DRAM Voltage Setting

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



Important:

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

Chip Voltage Setting

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



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

Current CPU Voltage

This field will show the CPU's current voltage.

Current DRAM Voltage

This field will show the DRAM's current voltage.

Current Chipset Voltage

This field will show the chip's current voltage.

K8 NPT CIE Support

The options are Disabled, Software SMI and Hardware CIE.

ACPI SRAT

The options are Enabled and Disabled.

ACPI XSDT Table

The options are Enabled and Disabled.

CPU Spread Spectrum

The options are Disabled, Center and Down.

PCIE Spread Spectrum

The options are Enabled and Disabled.
Hot Keys

If the overclocked settings resulted to the system's instability or worse yet, not being able to boot up the system, you can clear the CMOS data during system boot up by using the Insert key. This bypasses the process of opening the chassis to reset the Clear CMOS jumper.

BIOS Setup

- I. Power-off the system.
- 2. Press the Insert key and the power button simultaneously. Release only when the system's power is on.

BIOS Setup

Load Fail-Safe Defaults

The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>.



If you want to proceed, type $\langle Y \rangle$ and press $\langle Enter \rangle$. The default settings will be loaded.

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>.

BIOS Setup



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

Set Supervisor Password

BIOS Setup

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.

BIOS Setud

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.

BIOS Setup

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>.

BIOS Setup



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.

BIOS Setup

NVRAID 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 <FI0> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

Refer to chapter 6 for steps in configuring RAID.



<u>Important:</u>

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 NVRAID BIOS utility.

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.

BIOS Setud

- I. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.
- 2 Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".
- 3. Save the setting and reboot the system.
- 4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear.

| Award BIOS Flash Utility V.8.15B (C) Phoenix Technologies Ltd. All Rights Reserved. | | | | | |
|----------------------------------------------------------------------------------------|----------------------------------------------------------|--|--|--|--|
| (The current BIOS information will ap | (The current BIOS information will appear in this area.) | | | | |
| File Name to Program : | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>. 3 BIOS Setup

6. The following will appear.

Do You Want to Save BIOS (Y/N)

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

7. The following will then appear.

Press ''Y'' to Program or ''N'' to Exit

8. Press $\langle Y \rangle$ to flash the new BIOS.

Chapter 4 - Supported Software

Drivers, Utilities and Software Applications

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

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".





Important:

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

Microsoft DirectX 9.0C

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

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



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



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



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



nVidia Chipset System Drivers

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

I. Click "nVidia Chipset Main Board Utility System Drivers" on the main menu.



2. The installation wizard is now preparing to install the driver. Click Next.



3. Select the drivers you windows nForce Drive Select Features Select the features celus will index.



- 4. The installation wizard will now install the NVIDIA IDE 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.
- 5. Click Yes to install the NVIDIA IDE driver.



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







nVidia Chipset Graphics Drivers

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

 Click "nVidia Chipset Graphics Drivers" on the main menu.



2. Click Next to install the MVIDIA Windows XP Display Drivers driver.



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

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



Realtek Audio Drivers

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

 Click "Realtek Audio Drivers" on the main menu.



3. AC97 audio is intalling and configuring the new software installation.



Realtek AC'97 Audio Setup is preparing the InstallShield®

Wizard, which will guide you through the rest of the setup

process. Please wait.



4

Supported Software

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

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



nVidia Firewall and Forceware Network Access Manager

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

1. Click "nVidia Firewall and Forceware Network Access Manager" on the main menu.



2. Setup is ready to install NVIDIA ForceWare Network Access Manager. Click Next.



3. Select the type of setup then click Next to install to the designated location or click Browse to select another folder.



4. Select the language for the installation then click Next.



5. Select a firewall option then click Next.



4

Supported Software

6. Setup is configuring your new software installation.



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

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



AMD CPU Cool'n'Quiet Drivers

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

I. Click "AMD CPU Cool'n'Quiet Drivers" on the main menu.



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



3. Read the license agreement then click Yes.



4. Go through the readme document for system requirements and installation tips then click Next.



Athlon 64 Processor Driver - InstallShield Wizard

5. Click Next to install to the designated folder or click Browse to select another folder.



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

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



Note: Refer to chapter 5 for more information about the Cool'n'Quiet Technology.

ITE Smart Guardian

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

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

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



2. Setup will prepare the installation wizard.



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

🗸 Smart Guardian Setup



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



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



USB 2.0 Drivers

Windows[®] XP

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

Windows® 2000

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

Installation Notes

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

Chapter 5 - Cool'n'Quiet Technology

Cool'n'Quiet Technology

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

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

- I. Enable Cool'n'Quiet[™] in the BIOS.
- 2. Install the Cool'n'Quiet[™] driver.
- 3. Configure Power Management in Windows.

Step I: Enable Cool'n'Quiet[™] in the BIOS

- 1. Power-on the system then press to enter the main menu of the BIOS.
- 2. Select the Genie BIOS Setting submenu then press <Enter>.
- 3. Set the "AMD K8 Cool'n'Quiet" field to Auto.

| Phoenix - AwardBIOS CMOS Setup Utility Genie BIOS Setting | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------|--|--|
| DRAM Configuration System Bus Configuration AMD K8 Cool 'n' Quiet | Press Enter Press Enter Auto | Î | Item Help Menu Level > | | |
| CPU FSB Ratio & Clock St CPU FSB Ratio Setting Current CPU FSB Speed CPU Clock Setting O.C Failed Control Current DRAM Speed DRAM Clock (CPU/DRAM) CPU 'n' NB Bus Ratio Setting PCIE Clock ==================================== | Auto 2400MHz 200MHz Load Default DDR2 533 Auto Auto 100MHz g ====== Default 1.8V 1.20V 1.32V 1.77V 1.16V s ====== Disabled Enabled Disabled Disabled | Ţ | DRAM timing and control | | |
| ↑↓→←: Move Enter: Select F5: Previous Values | +/-/PU/PD: Value F10: F6: Fail-Safe Defaults | Save | ESC: Exit F1: General Help F7: Optimized Defaults | | |

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Cool'n'Quiet Technology

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

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

- I. Insert the provided CD into a CD-ROM drive.
- 2. On the left side of the autorun screen, click the "TOOLS" icon.
- 3. Click "AMD CPU Cool'n'Quiet Drivers" on the main menu.



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



Cool'n'Quiet Technology

Step 3: Configure Power Management in Windows

- I. On the Windows desktop, click Start then select Control Panel.
- 2. In Control Panel, double-click the Power Options icon.



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Cool'n'Quiet Technology

3. In the Power Schemes tab, select Minimal Power Management under the Power schemes section then click OK.

| wer Options Prope | rties | ? 🗙 |
|---------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------|
| ower Schemes Advan | ced Hibernate UPS | |
| Select the pow this computed the selected s | ver scheme with the most appropriate se Hore that changing the second helmwic cheme. | ttings for vill modify |
| Minimal Power Manag | gement | |
| | | |
| | Save As | aete |
| Settings for Minimal Po | wer Management power scheme | |
| Turn off monitor: | After 15 mins | ~ |
| Turn off hard disks: | Never | * |
| | | |
| System standby: | Never | * |
| System hibernates: | Never | ~ |
| | | |
| | | |
| | | |
| | OK Cancel | Apply |

Chapter 6 - RAID

The NVIDIA nForce 430 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 I (Mirroring Disk Array with Fault Tolerance)

RAID I 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.

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

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- I. Connect Serial ATA drives.
- 2. Configure Serial ATA in the Award BIOS.
- 3. Configure Serial ATA in the NVIDIA RAID BIOS.
- 4. Install the RAID driver.

Step I: Connect Serial ATA Drives

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





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

RAID

Step 2: Configure Serial ATA in the Award BIOS

- I. Power-on the system then press to enter the main menu of the Award BIOS.
- 2. Select the Integrated Peripherals submenu -> IDE Function Setup section of the BIOS.
- 3. Select the Serial ATA channels you want enabled in the "Serial-ATA Controller" field.
- 4. Enable the RAID function by setting the "RAID Enable" field to "Enabled".
- 5. Enable the Serial ATA channel you want to configure as RAID in the "SATA I Primary RAID" to "SATA 2 Secondary RAID" fields.

| Phoenix - AwardBIOS CMOS Setup Utility IDE Function Setup | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|------------------|--|--|
| OnChip IDE Channel0 | Enabled | | Item Help | | | |
| Primary Master PIO Primary Master PIO Primary Slave PIO Primary Slave UDMA OnChip IDE Channel1 Secondary Master PIO Secondary Slave PIO Secondary Slave UDMA IDE DMA Transfer Access IDE Prefetch Mode IDE HDD Block Mode On-Chip Serial A Serial-ATA Controller RAID Enable x SATA 1 Primary RAID x SATA 1 Secondary RAID x SATA 2 Primary RAID x SATA 2 Secondary RAID | Enabled Auto Auto Auto Auto Enabled Auto Auto Auto Auto Enabled Enabled Enabled Enabled Disabled Disabled Disabled Disabled Disabled Disabled | | Ienu Level | ▶ | | |
| ↑↓→←: Move Enter: Select - | -/-/PU/PD: Value F1 F6: Fail-Safe Defaults | 0: Save E | SC: Exit | F1: General Help | | |

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

RAID

Step 3: Configure Serial ATA in the NVIDIA RAID BIOS

When the system powers-up and all drives have been detected, the NVIDIA RAID BIOS status message screen will appear. Press the <FI0> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

Step 4: Install the RAID Driver

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

Installing NVRAID Driver While in the Process of Installing Windows $^{\rm \tiny B}$ XP or Windows $^{\rm \tiny B}$ 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.

- I. 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.
- Locate for the drive where you inserted the diskette then select "NVIDIA nForce ATA Controller". Press <Enter> to install the driver.
- 6. Now press <S> again to specify another device.

RAID

7. This time, select "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 - 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 FI TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

POST Beep

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

Error Messages

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

CMOS BATTERY HAS FAILED

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

Caution:

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different
setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

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

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

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

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

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

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

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

Keyboard is locked out - Unlock the key

The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present

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

Manufacturing POST loop

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

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

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

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:

- I. 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.

Troubleshooting

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.

- I. 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.

- I. 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.