

AM636-B

System Board User's Manual

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FCC and DOC Statement on Class B

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

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

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

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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

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

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 local ordinance.

About the Package

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

- ☑ One system board
- ☑ One IDE cable
- ☑ One USB cable
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One bracket mounted with a COM port
- ☑ One I/O shield
- ☑ One CD
- ☑ One QR (Quick Reference)

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	<ul style="list-style-type: none">• AMD® AM2 processors: Athlon series / Sempron™• AMD® AM3 Phenom processors• HyperTransport 3.0 (5200MT/s)• Socket 940 AM2+ 65nm
Chipset	<ul style="list-style-type: none">• AMD® chipset<ul style="list-style-type: none">- Northbridge: AMD® RS780E- Southbridge: AMD® SB710
System Memory	<ul style="list-style-type: none">• Four 240-pin DDR2 DIMM sockets• Supports maximum of 16GB system memory• Supports DDR2 667/800/1066 MHz• Supports dual channel (128-bit wide) memory interface• Supports unbuffered x8 and x16 DIMMs
Expansion Slots	<ul style="list-style-type: none">• 1 PCI Express (Gen 2) x16 slot• 1 PCI Express x1 slot• 3 PCI slots
BIOS	<ul style="list-style-type: none">• Award BIOS• 8Mbit SPI flash memory
Graphics	<ul style="list-style-type: none">• Integrated ATI Radeon™ HD3200 graphics core• Microsoft® DirectX 10• Dual independent displays<ul style="list-style-type: none">- Complete independent resolution, refresh rates, and display data for the two display paths• Graphics interface:<ul style="list-style-type: none">- DVI interface
Audio	<ul style="list-style-type: none">• Realtek ALC885 HD audio codec• 7.1-channel audio output• DAC SNR/ADC SNR of 106dB/101dB• Full-rate lossless content protection technology
LAN	<ul style="list-style-type: none">• One Realtek RTL8111C PCIE Gigabit LAN controller• Supports 10Mbps, 100Mbps and 1Gbps data transmission• IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	<ul style="list-style-type: none">• Supports 6 SATA (Serial ATA) interfaces which are compliant with SATA 1.0a specification• SATA speed up to 3Gb/s• RAID 0 and RAID 1

Rear Panel I/O	<ul style="list-style-type: none"> • 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 1 DVI-I port (DVI-D digital signal only) • 1 DVI-I port (Digital and Analog signals) • 1 RJ45 LAN port • 6 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	<ul style="list-style-type: none"> • 3 connectors for 6 additional external USB 2.0/1.1 ports • 1 front audio connector for line-out and mic-in jacks • 2 connectors for 2 external serial ports • 1 CD-in connector • 1 IDE connector • 1 FDD connector • 6 Serial ATA connectors • 1 IrDA connector • 1 CIR connector • 1 24-pin ATX power connector • 1 8-pin 12V power connector • 1 front panel connector • 4 fan connectors
Power Management	<ul style="list-style-type: none"> • ACPI specification 2.0 compliant power management schemes • Supports S1 and S3 • Wake-On-Events include: <ul style="list-style-type: none"> - Wake-On-PS/2 KB/Mouse - Wake-On-USB KB/Mouse - Wake-On-LAN - Wake-On-Ring - RTC timer to power-on the system • AC power failure recovery
Hardware Monitor	<ul style="list-style-type: none"> • Monitors CPU/system temperature • Monitors CPU/DIMM/3.3V/5V/12V/5VSB/1.2V/Vbat volt-ages • Monitors CPU/system fan speed • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	<ul style="list-style-type: none"> • 0°C to 60°C
Humidity	<ul style="list-style-type: none"> • 10% to 90%
PCB	<ul style="list-style-type: none"> • ATX form factor • 30.5cm (12") x 24.4cm (9.6")

Features

Watchdog Timer

The Watchdog Timer function allows your application to regularly “clear” the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

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.

PCI Express Gen 2

PCI Express Gen 2 is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The x16 PCI Express lane supports transfer rate up to 5Gb/s.

Integrated Graphics

The northbridge chip comes integrated with the ATI Radeon™ HD3200 graphics core delivering exceptional 3D graphics performance. It supports DVI interface.

DVI

DVI (Digital Visual Interface) is a form of video interface technology made to maximize the quality of flat panel LCD monitors and modern video graphics cards. Data is transmitted using the TMDS (Transition Minimized Differential Signaling) protocol, providing a digital signal from the PC's graphics subsystem to the display.

8CH High Definition Audio

The onboard Realtek ALC885 is a High Definition audio codec and the 6 audio jacks at the rear I/O panel provides 8-channel audio output for advanced 7.1-channel super surround sound audio system.

Serial ATA with RAID

Serial ATA is a storage interface that is compliant with SATA 1.0 specification. It supports speed of up to 3Gb/s. Serial ATA improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s. The system board allows configuring RAID on Serial ATA devices. It supports RAID 0 and RAID 1.

Gigabit LAN

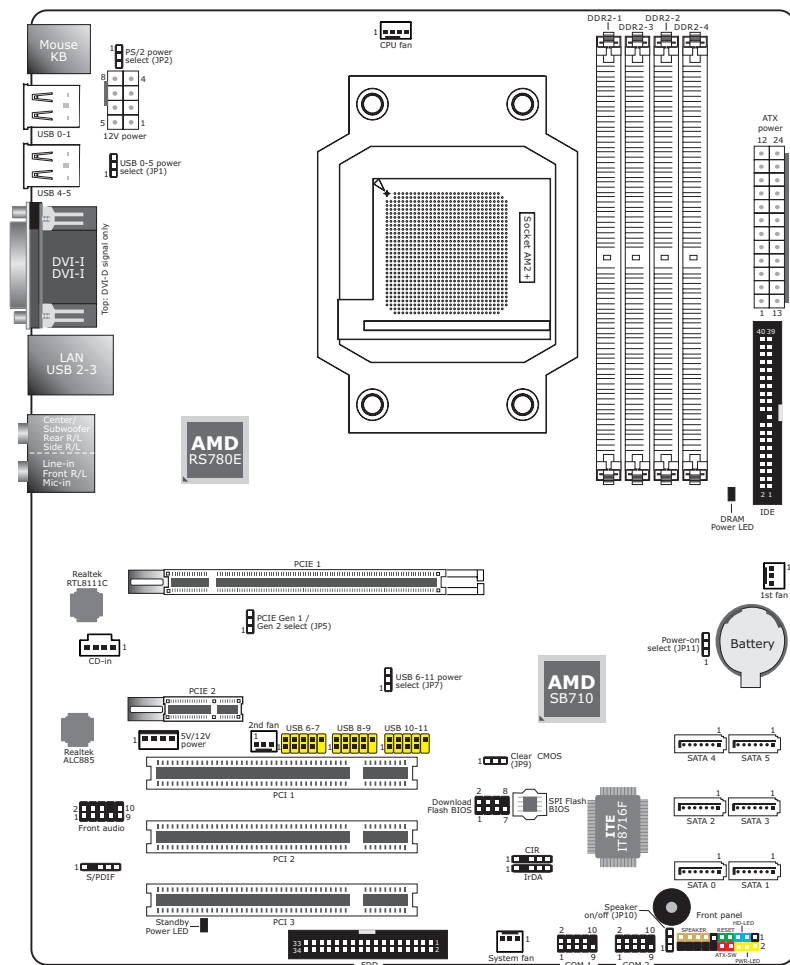
The Realtek RTL8111C PCI Express Gigabit LAN controller supports up to 1Gbps data rate.

USB

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

Chapter 2 - Hardware Installation

System Board Layout



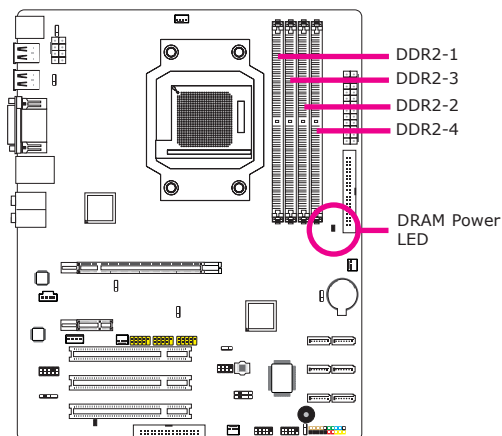
**Important:**

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

**Important:**

When the DRAM Power LED lit red, it indicates that power is present on the DIMM 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 four DIMM sockets are divided into 2 channels:

Channel A - DIMM 1 and DIMM 2

Channel B - DIMM 3 and DIMM 4

For dual channel configuration, insert DIMMs in DDR2-1 and DDR2-3 or 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.

Virtual Single Channel (VSC)

If both channels are populated with different memory configurations, the MCH defaults to Virtual Single Channel.

Dual Channel (DC)

Dual channel provides better system performance because it doubles the data transfer rate.

Dynamic Mode Addressing

This mode minimizes the overhead of opening/closing pages in memory banks allowing for row switching to be done less often.

Single Channel	DIMMs are on the same channel. DIMMs in a channel can be identical or completely different. Not all slots need to be populated.
Virtual Single Channel	DIMMs of different memory configurations are on different channels. Odd number of slots can be populated.
Dual Channel	DIMMs of the same memory configuration are on different channels.
Dynamic Mode Addressing	In single channel, requires even number of rows (side of the DIMM) populated. This mode can be enabled with 1 SS, 2 SS or 2 DS. In VSC mode, both channels must have identical row structure.

BIOS Setting

Configure the system memory in the Genie BIOS Setting submenu of the BIOS. Refer to chapter 3 for more information.

The table below lists the various optimal operating modes that should be configured for the memory channel operation.

Config	DIMM 1	DIMM 2	DIMM 3	DIMM 4
No memory	E	E	E	E
Single channel A	P	E	E	E
Single channel A	P	P	E	E
Single channel A	E	P	E	E
Single channel B	E	E	P	E
Single channel B	E	E	P	P
Single channel B	E	E	E	P
Virtual single channel	E	P(**)	E	P(**)
Virtual single channel	E	P	P	E
Virtual single channel	E	P(**)	P	P(**)
Virtual single channel	P	E	E	P
Virtual single channel	P(**)	E	P(**)	E
Virtual single channel	P(**)	E	P(**)	P
Virtual single channel	P	P(**)	E	P(**)
Virtual single channel	P(**)	P	P(**)	E
Virtual single channel	P(**)	P(**)	P(**)	P(**)
Dual channel	E	P(*) (2,4)	E	P(*) (2,4)
Dual channel	P(*) (1,3)	E	P(*) (1,3)	E
Dual channel	P(*) (1,3)	P(*) (2,4)	P(*) (1,3)	P(*) (2,4)
Dynamic Mode Addressing	E	P(*) (2,4) DS	E	P(*) (2,4) DS
Dynamic Mode Addressing	P(*) (1,3) DS	E	P(*) (1,3) DS	E
Dynamic Mode Addressing	P(*) (1,3) DS	P(*) (2,4) DS	P(*) (1,3) DS	P(*) (2,4) DS
Dynamic Mode Addressing	E	P(*) (2,4) SS	E	P(*) (2,4) SS
Dynamic Mode Addressing	P(*) (1,3) SS	E	P(*) (1,3) SS	E
Dynamic Mode Addressing	P(*) (1,3) SS	P(*) (2,4) SS	P(*) (1,3) SS	P(*) (2,4) SS

P - denotes populated

E - denotes empty

* - denotes DIMMs are identical

** - denotes DIMMs are not identical

SS - denotes Single Sided DIMM

DS - denotes Double Sided DIMM

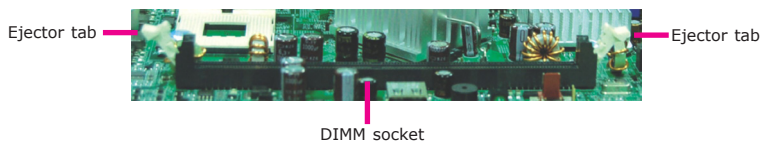
1, 2, 3 or 4 - denotes the DDR DIMM slot

Installing the DIM Module

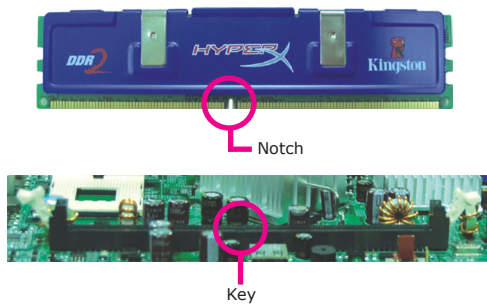
**Note:**

The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

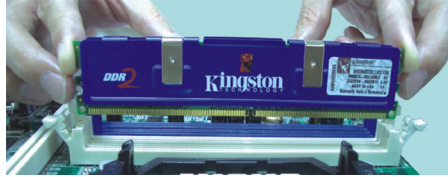
1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the DDR2 socket on the board.
4. Push the "ejector tabs" which are at the ends of the socket to the side.



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



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



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



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



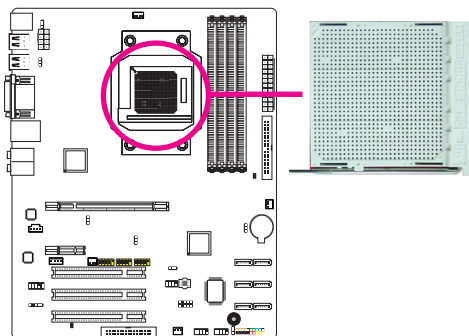
CPU

Overview

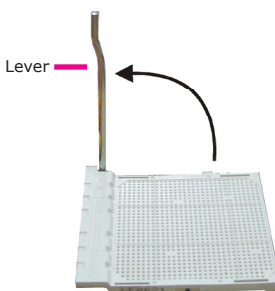
The system board is equipped with Socket AM2+ for installing an AMD CPU designed for this socket.

Installing the CPU

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



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

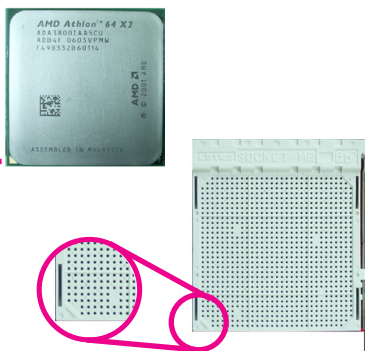


5. Position the CPU above the socket. The gold mark on the CPU must align with pin 1 of the CPU socket.

Important:

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

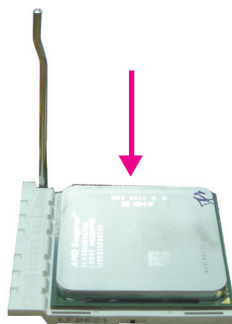
Gold mark



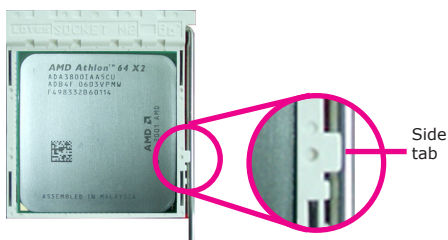
6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

Important:

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



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



Side tab

Installing the Fan and Heat Sink

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

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



Note:

- Use only certified fan and heat sink.
 - The fan and heat sink package usually contains the fan and heat sink assembly, and an installation guide. If the installation procedure in the installation guide differs from the one in this section, please follow the installation guide in the package.
1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the CPU or fan heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

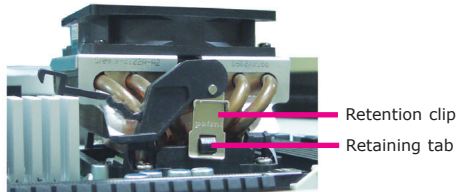
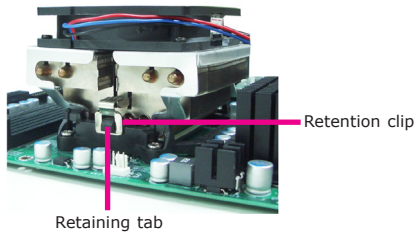
Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.
 2. The system board comes with the retention module base already installed.



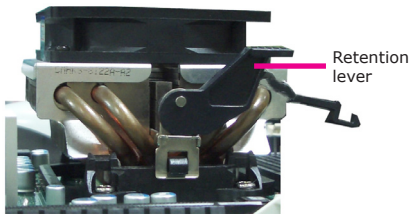
Retaining tab

Retention module base

3. Place the heat sink on top of the CPU. Now hook the retention clips on both sides of the heat sink onto the retention module base by fitting the hole(s) on the retention clip into the retaining tab(s) of the retention module base.



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

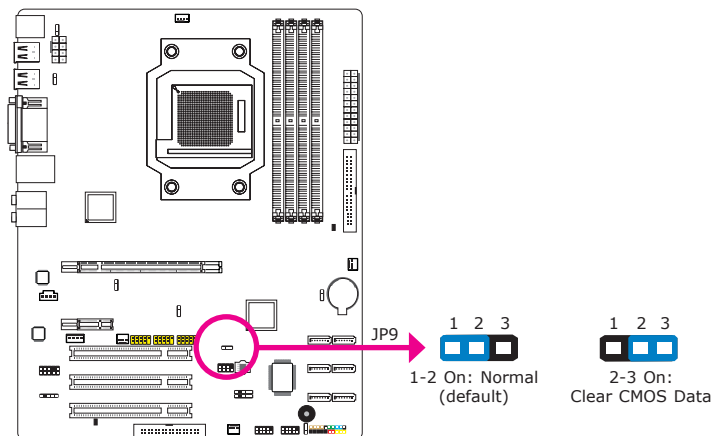


Note:

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

Jumper Settings

Clear CMOS Data



If you encounter the following,

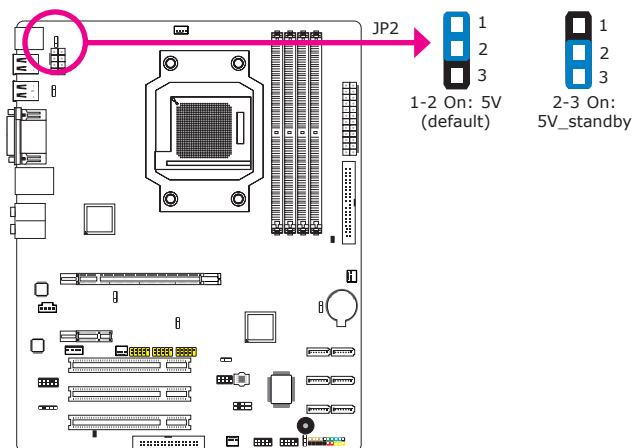
- a) CMOS data becomes corrupted.
- b) You forgot the supervisor or user password.

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

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

1. Power-off the system and unplug the power cord.
2. Set JP9 pins 2 and 3 to On. Wait for a few seconds and set JP9 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

PS/2 Power Select



JP2 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5V_standby will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

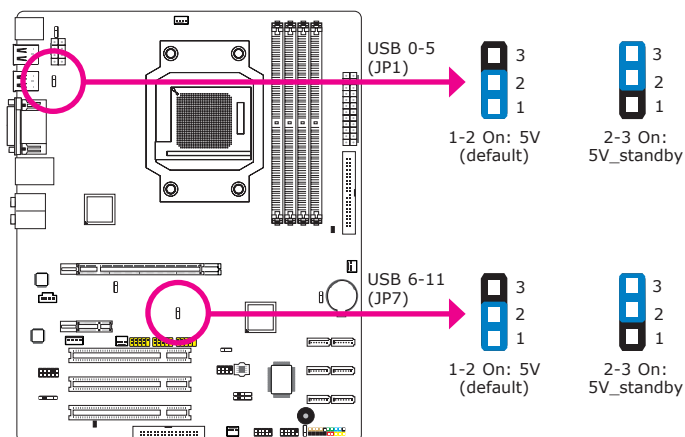
BIOS Setting

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.

**Important:**

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

USB Power Select



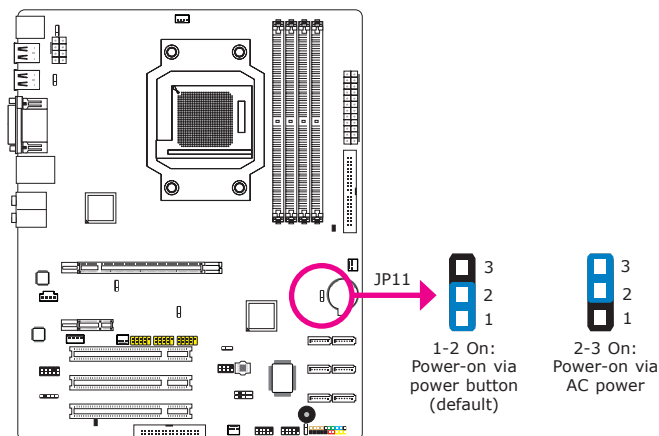
JP1 (for USB 0-5) and JP7 (for USB 6-11) are used to select the power of the USB ports. Selecting 5V_standby will allow you to use a USB device to wake up the system.



Important:

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

Power-on Select



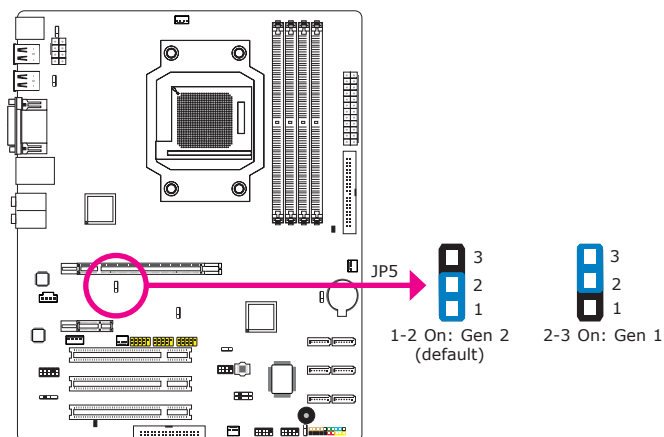
JP11 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP11 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using the JP11 "Power On" feature to power the system back on after a power failure occurs, the system may not power on if the power lost is resumed within 5 seconds (power flicker).

**Note:**

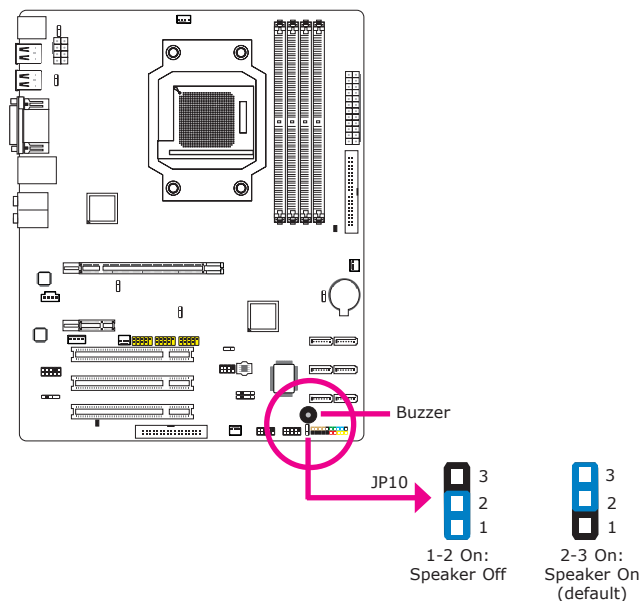
In order to ensure that power is resumed after a power failure that recovers within a 5 second period, JP11 must be set to pins 2-3 and the "PWRON After PWR-Fail" in CMOS is set to "Power On".

PCIe Gen 1 / Gen 2 Select



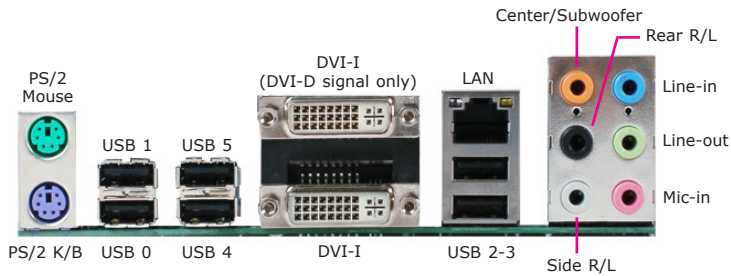
Set this jumper according to the type of PCI Express card that you are using.

Speaker On/Off Select



The system board is equipped with a buzzer which serves as the PC's speaker. By default the buzzer is "on" allowing you to hear the system's beep messages and warnings. If you intend to use an external speaker, turn this function off by setting JP10 pins 1 and 2 to On.

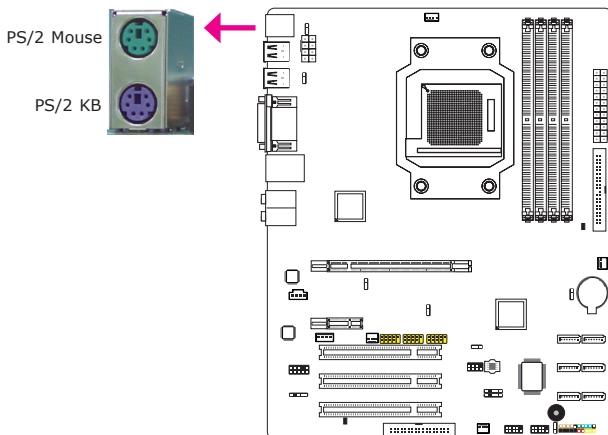
Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- 6 USB ports
- 2 DVI-I ports
- 1 LAN port
- Center/Subwoofer jack
- Rear left/right jack
- Side right/left jack
- Line-in jack
- Line-out jack
- Mic-in jack

PS/2 Mouse and PS/2 Keyboard Ports



These ports are used to connect a PS/2 mouse and a PS/2 keyboard. 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.



Important:

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**

JP2 must be set to "2-3 On: 5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.

- **BIOS Setting**

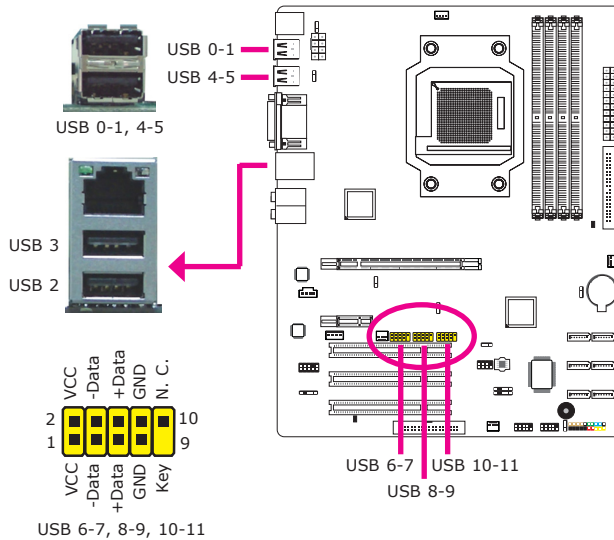
Configure the PS/2 keyboard/mouse wake up function in the Power Management Setup submenu of the BIOS. Refer to chapter 3 for more information.



Important:

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

USB Ports



USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with 6 onboard USB 2.0/1.1 ports. The three 10-pin connectors allow you to connect 6 additional USB 2.0/1.1 ports. The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the USB port cables to a connector.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu ("USB Device Setting" 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.

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**

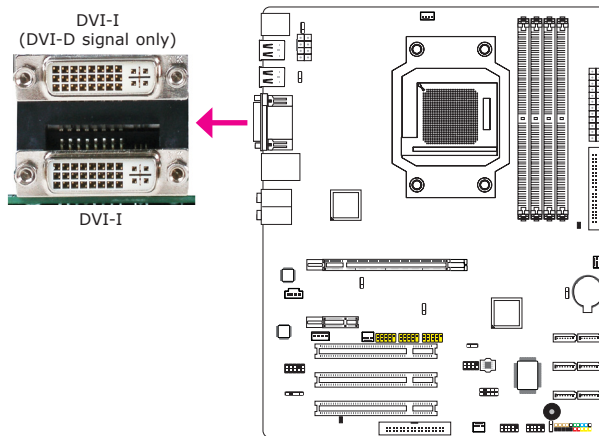
JP1 and/or JP7 must be set to "2-3 On: 5V_standby". Refer to "USB Power Select" in this chapter for more information.



Important:

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

DVI-I Ports



The DVI-I ports are used to connect LCD monitors. Connect the display device's cable connector to the DVI-I port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

Top - DVI-D

- Supports DVI-D digital signal only.
- For dual display, use this port with the bottom DVI-I port. This port does not support dual display with PCIE x16 graphics card.

Bottom - DVI-I

- Supports digital and analog signals.
- For dual display, use this port with DVI-D or with a PCIE x16 graphics card.

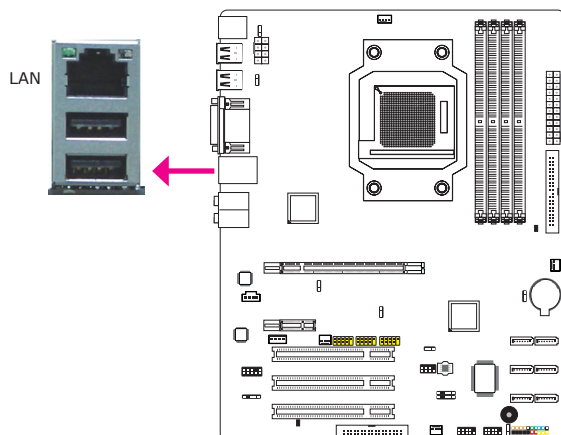
Summary of Dual Display

- DVI-I + DVI-D or DVI-I + PCIE x16

BIOS Setting

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

RJ45 LAN Port



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

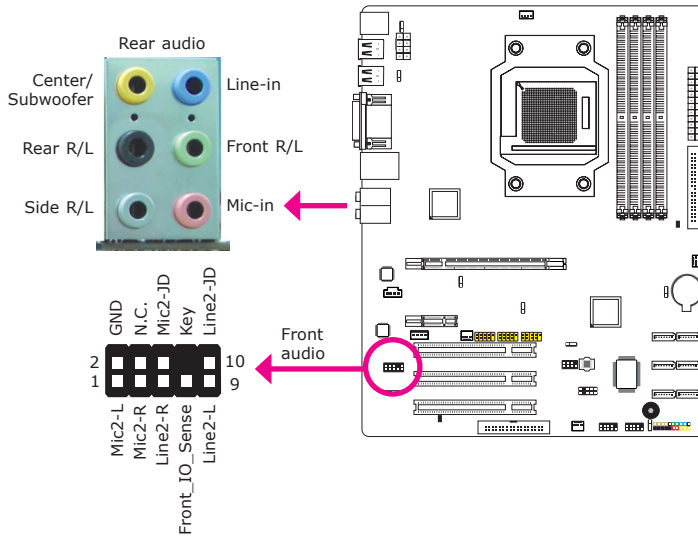
BIOS Setting

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

Driver Installation

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

Audio



Rear Panel Audio

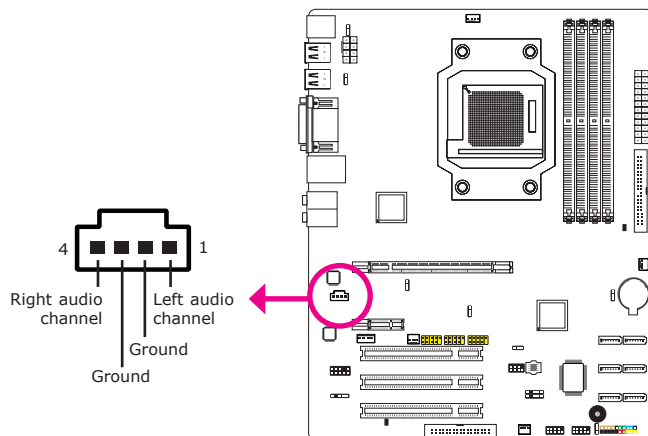
- **Center/Subwoofer Jack (Orange)**
This jack is used to connect to the center and subwoofer speakers of the audio system.
- **Rear Right/Left Jack (Black)**
This jack is used to connect to the rear right and rear left speakers of the audio system.
- **Side Right/Left Jack (Gray)**
This jack is used 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 is used to connect to the line-out and mic-in jacks that are at the front panel of your system.

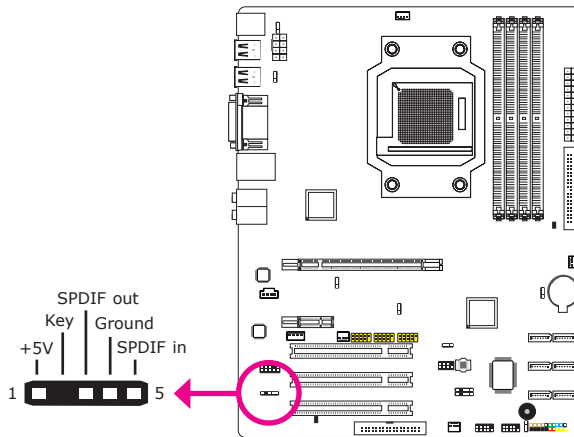
I/O Connectors

CD-in Internal Audio Connector



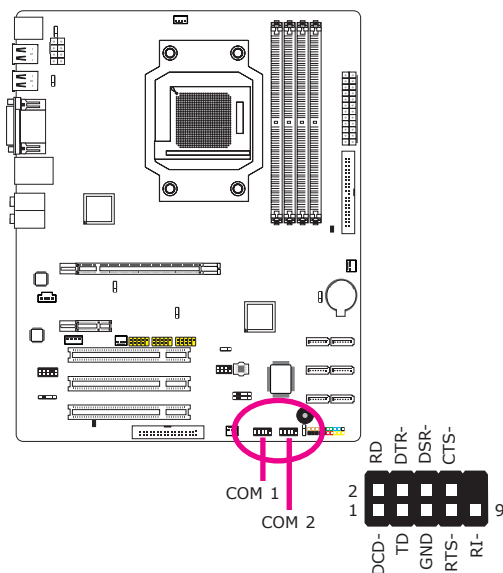
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

S/PDIF Connector



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

COM (Serial) Ports



The serial ports are RS232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

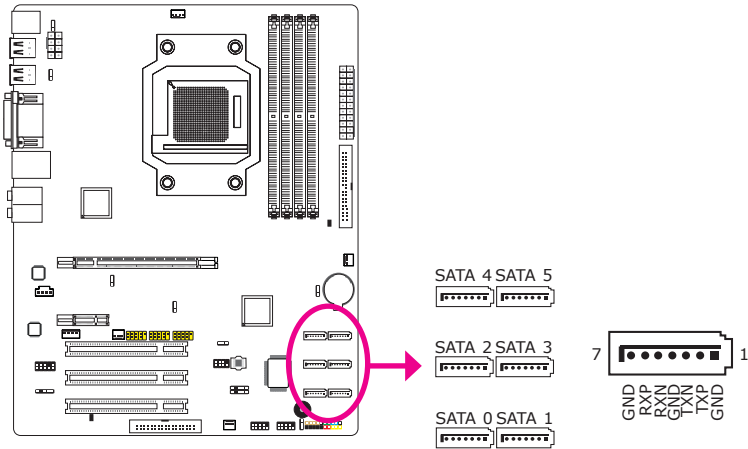
Connecting External Serial Ports

Your COM 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 serial port cable to a COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.

BIOS Setting

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

SATA (Serial ATA) Connectors

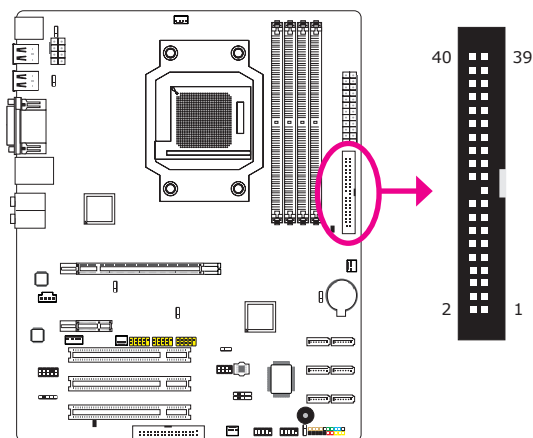


The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Configure Serial ATA in the Integrated Peripherals submenu ("OnChip SATA Device" section) of the BIOS. Refer to chapter 3 for more information.

IDE Connector



The IDE connector is used to connect hard drives. The connector on the IDE cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

The IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable has 3 connectors on them, one that plugs into the 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.

**Note:**

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

Adding a Second IDE Disk Drive

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

The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 and 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.

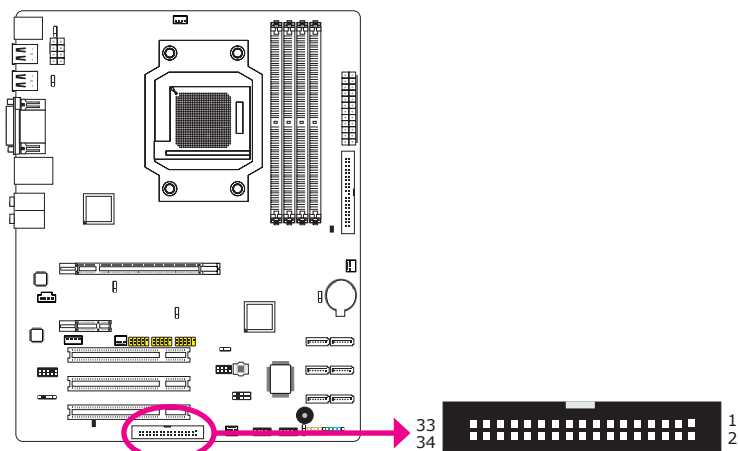
**Important:**

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 ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

FDD Connector

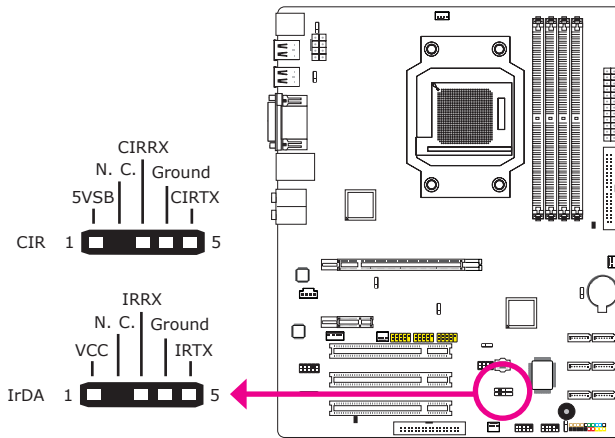


The FDD connector supports a standard floppy disk drive. The floppy cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

Connecting the FDD Cable

Insert one end of the FDD cable into the FDD connector and the other end of the cable to the floppy drive. Pin 1 of the cable must align with pin 1 of the FDD connector.

IrDA and CIR Connectors



Connect the cable connector from your IrDA/CIR module to the IrDA connector or CIR connector.

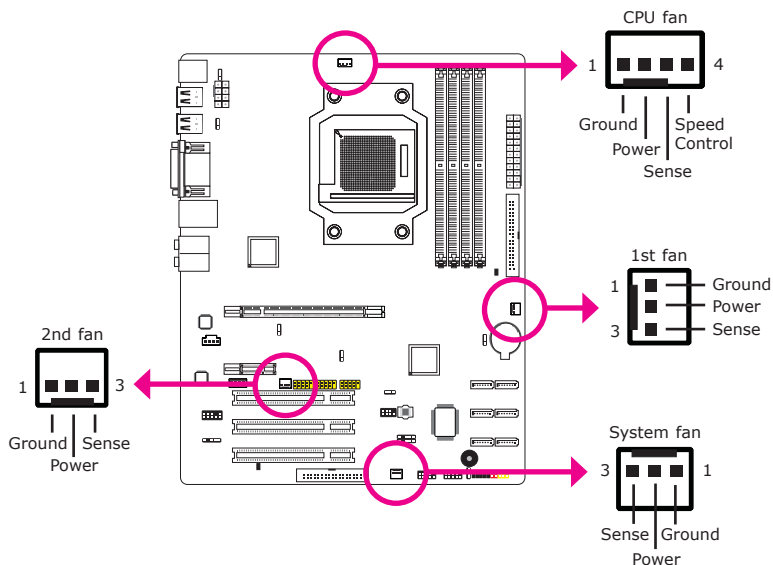


Note:

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

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

Cooling Fan Connectors



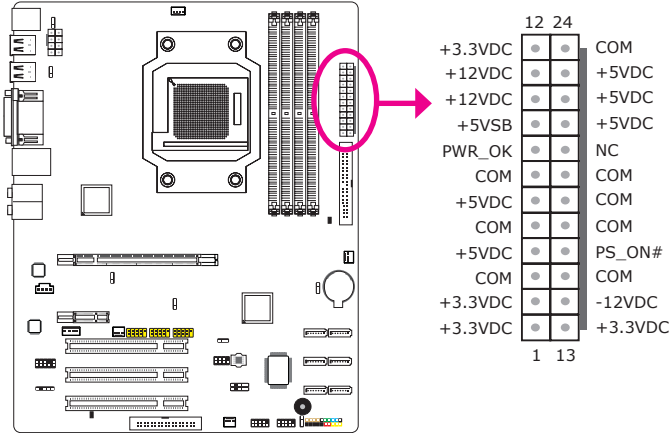
The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

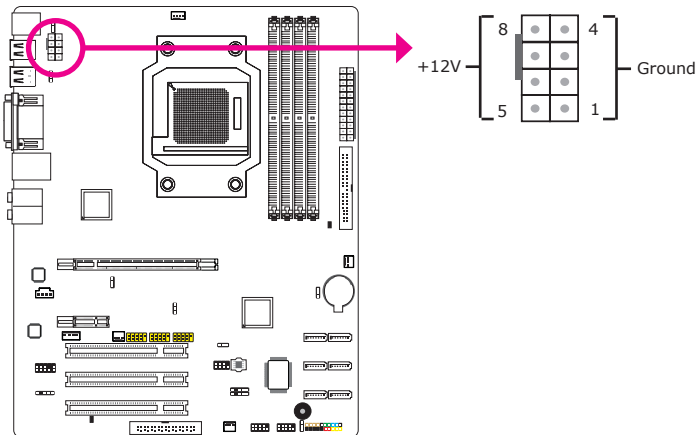
The PC Health Status submenu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

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 into this connector.

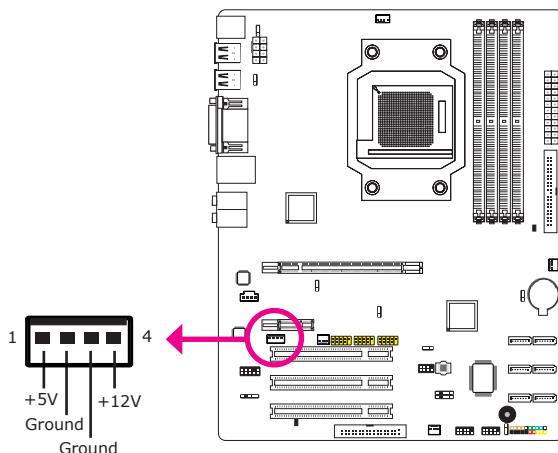


Your power supply unit may come with an 8-pin or 4-pin +12V power connector. The +12V power enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM). If available, it is preferable to use the 8-pin power; otherwise connect a 4-pin power to this connector.



The power connectors from the power supply unit are designed to fit the 24-pin and 8-pin connectors in only one orientation. Make sure to find the proper orientation before plugging the connectors.

The FDD-type power connector is an additional power connector. If you are using more than one graphics cards, we recommend that you plug a power cable from your power supply unit to the 5V/12V power connector. This will provide more stability to the entire system. The system board will still work even if the additional power connector is not connected.



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



Important:

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

Restarting the PC

Normally, you can power-off the PC by:

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

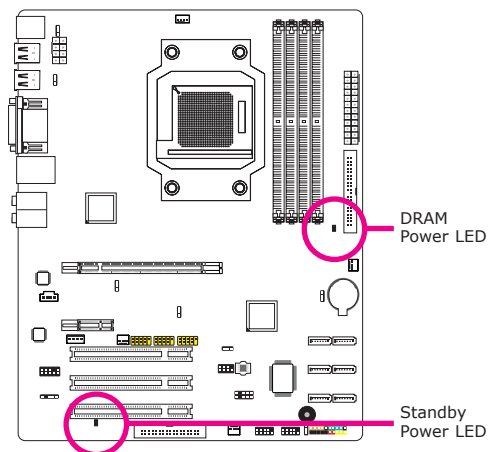
If for some reasons you need to totally cut off the power supplied to the PC, switch off the power supply or unplug the power cord. Take note though that if you intend to restart it at once, please strictly follow the steps below.

1. The time where power is totally discharged varies among power supplies. It's discharge time is highly dependent on the system's configuration such as the wattage of the power supply, the sequence of the supplied power as well as the number of peripheral devices connected to the system. Due to this reason, we strongly recommend that you wait for the Standby Power LED (refer to the "LEDs" section in this chapter for the location of the Standby Power LED) to lit off.
2. After the Standby Power LED has lit off, wait for 6 seconds before powering on the PC.

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

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

LEDs



DRAM Power LED

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

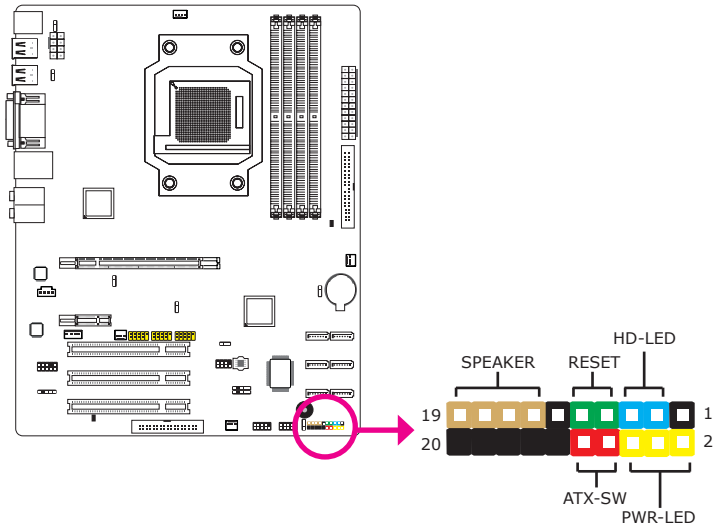
Standby Power LED

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

**Important:**

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

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.

PWR-LED: Power/Standby LED

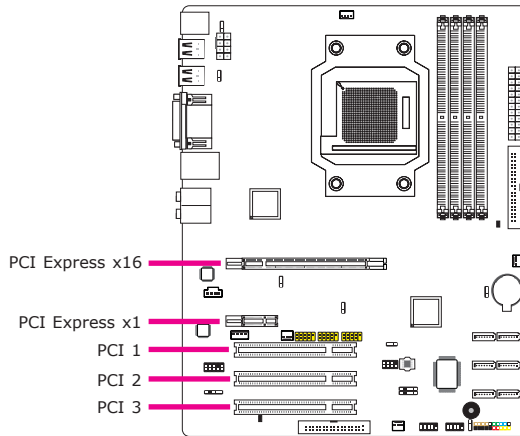
When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

**Note:**

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

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

Expansion Slots



PCI Express x16 Slot

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

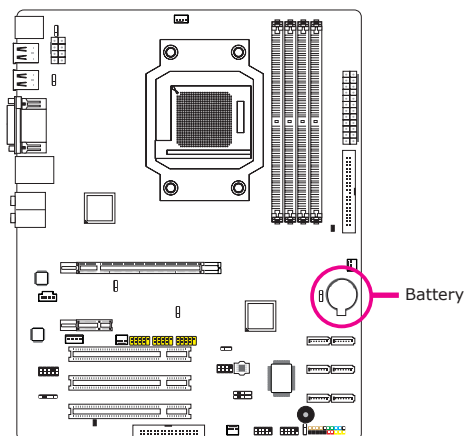
PCI Express x1 Slot

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

PCI Slots

The PCI slots support expansion cards that comply with PCI specifications.

Battery

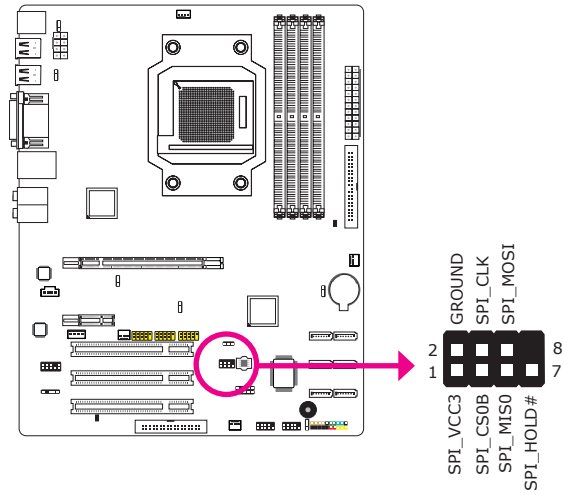


The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

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 local ordinance.

Download Flash BIOS Connector



Chapter 3 - BIOS Setup

Award BIOS Setup Utility

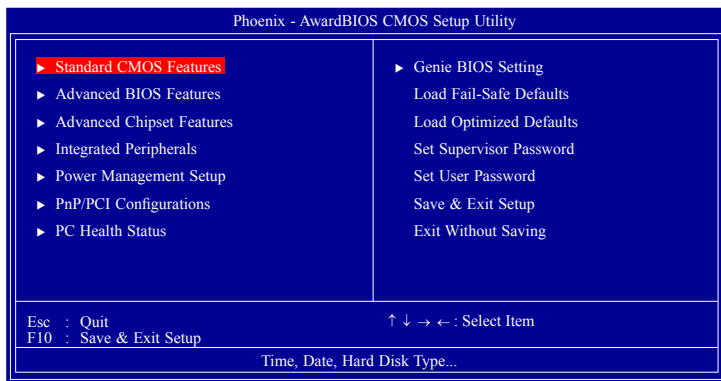
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

Press DEL to enter setup

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

When you press , the main menu screen will appear.



Standard CMOS Features

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

Phoenix - AwardBIOS CMOS Setup Utility		
Standard CMOS Features		
Date <mm:dd:yy>	Tue, Jan 12 2010	Item Help Menu Level ▶ Change the day, month, year and century
Time <hh:mm:ss>	20 : 20 : 30	
▶ Primary IDE Master	None	
▶ Primary IDE Slave	None	
▶ Secondary IDE Master	None	
▶ Secondary IDE Slave	None	
▶ Internal Phy SATA 1	None	
▶ Internal Phy SATA 3	None	
▶ Internal Phy SATA 2	None	
▶ Internal Phy SATA 4	None	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	392192K	
Total Memory	393216K	

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

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

Date

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

Time

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

Primary IDE Master to Secondary IDE Slave

These fields are used to configure Parallel ATA drives. Move the cursor to a field then press <Enter>. The following screen will appear.

Phoenix - AwardBIOS CMOS Setup Utility		
Primary IDE Master		
IDE HDD Auto-Detection	Press Enter	Item Help
Primary IDE Master	Auto	Menu Level ▶▶
Access Mode	Auto	To auto-detect the HDD's size, head... on this channel
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

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

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

IDE HDD Auto-Detection

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

Primary IDE Master to Secondary IDE Slave

If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

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

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

Internal Phy SATA 1 to Internal Phy SATA 4

These fields are used to configure Serial ATA drives. Move the cursor to a field then press <Enter>. The following screen will appear.



Note:

The fields for configuring Serial ATA drives will appear only if the Serial ATA function is Enabled. Enable this function in the Integrated Peripherals submenu of the BIOS.

Phoenix - AwardBIOS CMOS Setup Utility		
Internal Phy SATA 1		
IDE Auto-Detection	Press Enter	Item Help
Extended IDE Drive Access Mode	Auto Auto	Menu Level ►►
Capacity	0 MB	To auto-detect the HDD's size, head... on this channel
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

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

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

Halt On

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

No Errors

The system boot will not stop for any errors detected.

All Errors

The system boot will stop whenever the BIOS detects a non-fatal error.

All, But Keyboard

The system boot will not stop for a keyboard error; it will stop for all other errors.

All, But Diskette

The system boot will not stop for a disk error; it will stop for all other errors.

All, But Disk/Key

The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

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

Extended Memory

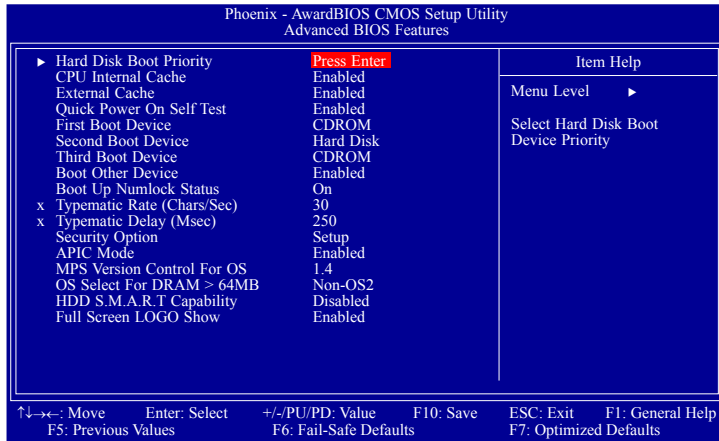
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

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



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

Hard Disk Boot Priority

Refer to the next section for more information on this submenu.

CPU Internal Cache and External Cache

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

Quick Power On Self Test

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

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

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

Boot Up NumLock Status

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

Typematic Rate (Chars/Sec)

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

Typematic Delay (Msec)

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

Security Option

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

System

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

Setup

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

APIC Mode

This field is used to enable or disable the APIC mode.

MPS Version Control for OS

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

OS Select for DRAM > 64MB

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

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

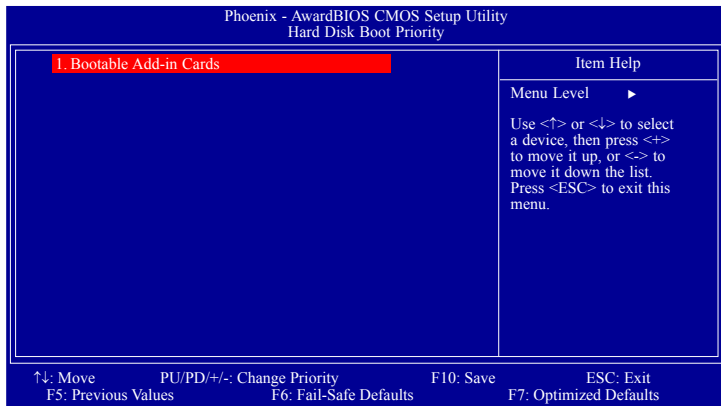
The logo will appear in full screen during system boot-up.

Disabled

The logo will not appear during system boot-up.

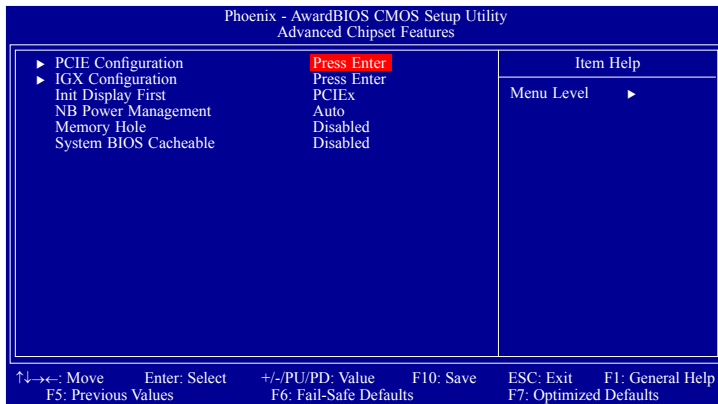
Hard Disk Boot Priority

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



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

Advanced Chipset Features



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

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

PCIE Configuration**IGX Configuration**

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

Init Display First**IGX**

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.

NB Power Management

Dynamic clock gating for IOC/NT/MCU/CFG. The options are Auto, Enabled and Disabled.

Memory Hole

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

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.

PCIE Configuration

Phoenix - AwardBIOS CMOS Setup Utility PCIE Configuration		
GPP Slots Power Limit, W	25	Item Help
▶ GFX Port 1	Press Enter	Menu Level ▶▶
▶ NB-SB Port Features	Press Enter	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

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

GPP Slots Power Limit, W

This field is used to enter the GPP's power limit. The minimum is 0 and the maximum is 255.

GFX Port 1

Phoenix - AwardBIOS CMOS Setup Utility GFX Port 1		
Gen2 High Speed Mode	Auto	Item Help
Link ASPM	Disabled	Menu Level ▶
Link Width	Auto	
Slot Power Limit, W	75	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

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

Gen2 High Speed Mode

The options are Auto, Disabled, Software Initiated and Advertised RC.

Link ASPM

The options are Disabled, L0s, L1, and L0s & L1.

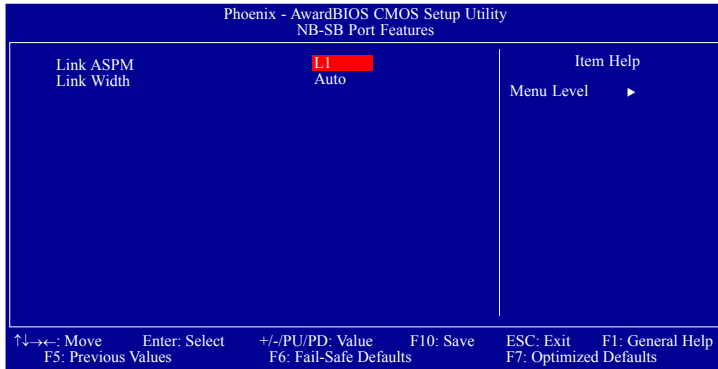
Link Width

The options are Auto, x1, x2, x4 and x8.

Slot Power Limit,W

This field is used to enter the slot's power limit. The minimum is 0 and the maximum is 255.

NB-SB Port Features



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

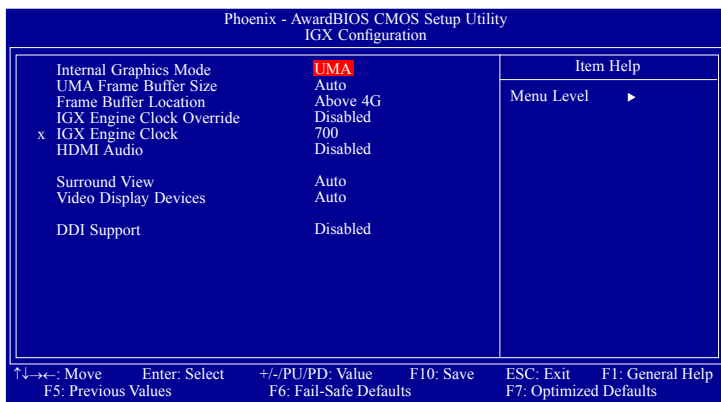
Link ASPM

The options are Disabled and L1.

Link Width

The options are Auto, x1, x2 and x4.

IGX Configuration



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

Internal Graphics Mode

This is used to configure the internal graphics mode. The options are Disabled, UMA and UMA+SidePort.

UMA Frame Buffer Size

This 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. The options are Auto, 32MB, 64MB, 128MB, 256MB and 512MB.

Frame Buffer Location

This is used to select the frame buffer's location. The options are Below 4G and Above 4G.

IGX Engine Clock Override

The options are Enabled and Disabled.

IGX Engine Clock

This is used to enter the IGX engine clock. The minimum is 150 and the maximum is 1000.

HDMI Audio

This is used to enable or disable the HDMI audio.

Surround View

The options are Auto, Enabled and Disabled.

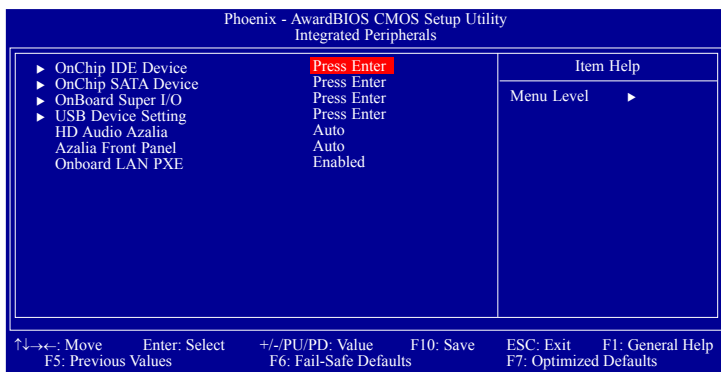
Video Display Devices

This field is used to select the type of display devices in use.

DDI Support

The options are SLDVI and Disable.

Integrated Peripherals



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

OnChip IDE Device**OnChip SATA Device****OnBoard Super I/O****USB Device Setting****HD Audio Azalia**

This field is used to enable or disable the onboard HD audio.

Azalia Front Panel

This field is used to enable or disable the Azalia front panel audio.

Onboard LAN PXE

The options are Enabled and Disabled.

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

OnChip IDE Device

Phoenix - AwardBIOS CMOS Setup Utility		
OnChip IDE Device		
IDE HDD Block Mode	Enabled	Item Help
IDE DMA Transfer	Enabled	Menu Level ►► If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
OnChip IDE Channel0	Enabled	
OnChip IDE Channel1	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	

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

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

IDE HDD Block Mode

Enabled

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

Disabled

The IDE HDD uses the standard mode.

IDE DMA Transfer

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

OnChip IDE Channel 0 and OnChip IDE Channel 1

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 to 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 to Secondary Master/Slave UDMA

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

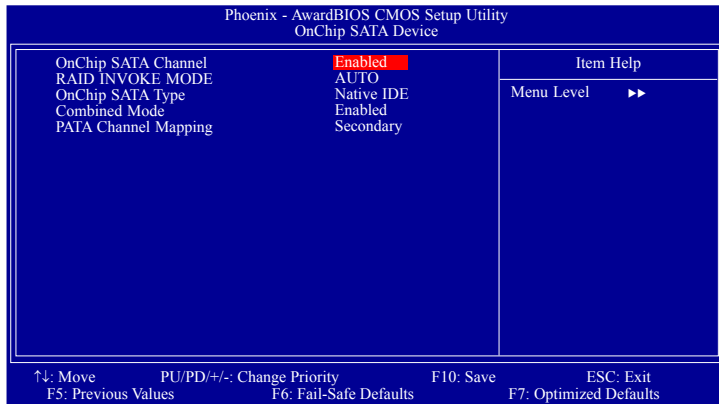
Auto

The BIOS will automatically detect the settings for you.

Disabled

The BIOS will not detect these categories.

OnChip SATA Device



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

OnChip SATA Channel

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

RAID Invoke Mode

The options are Auto, Biggest First and Smallest First.

OnChip SATA Type

This field is used to configure the SATA devices supported by the south-bridge.

Native IDE

This option configures the Serial ATA drives as Parallel ATA storage devices.

RAID

This option allows you to create RAID on Serial ATA devices.

AHCI

This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

Legacy IDE

This option configures the Serial ATA drives as Legacy IDE storage devices.

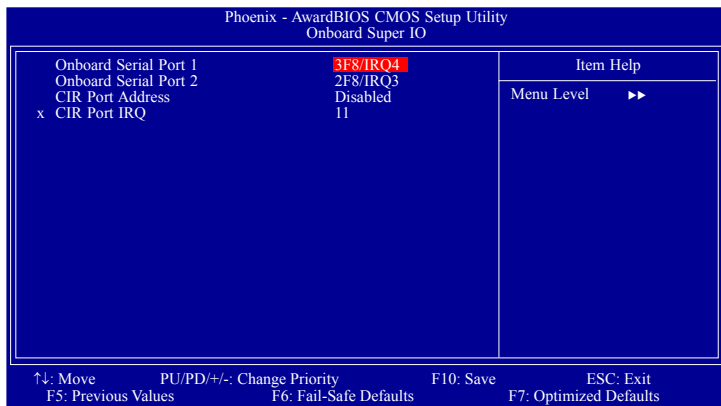
Combined Mode

This field is used to enable or disable the combined mode.

PATA Channel Mapping

The options are Primary and Secondary.

Onboard Super IO



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

Onboard Serial Port 1 and Onboard Serial Port 2

Auto

The system will automatically select an I/O address for the onboard serial port 1 and serial port 2.

3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3

Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.

Disabled

Disables the onboard serial port 1 and/or serial port 2.

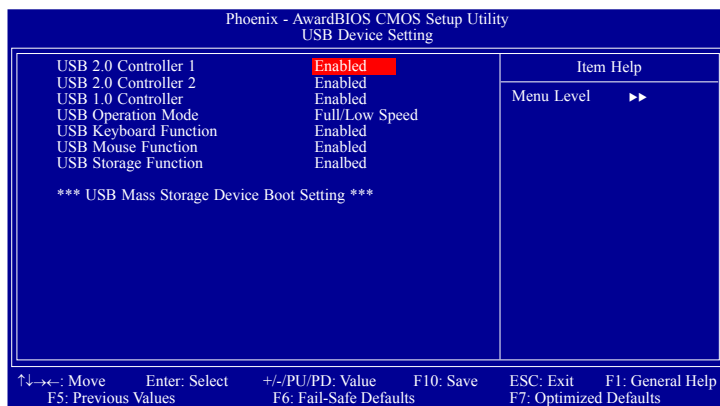
CIR Port Address

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

CIR Port IRQ

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

USB Device Setting



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

USB 2.0 Controller 1 / USB 2.0 Controller 2

This field is used to enable or disable the Enhanced Host Controller Interface (USB 2.0).

USB 1.0 Controller

This field is used to enable or disable the Universal Host Controller Interface (USB 1.0).

USB Operation Mode

This field is used to select the USB's operation mode.

High Speed

If the USB device is a high speed device, it will operate in high speed mode. If it is a full/low speed device, it will operate in full/low speed mode.

Full/Low Speed

Regardless of the speed of the USB device, it will always operate in full/low speed mode.

USB Keyboard Function

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.

USB Mouse Function

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

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

USB Storage Function

This field is used to enable or disable the support for legacy USB mass storage.

Power Management Setup

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

Phoenix - AwardBIOS CMOS Setup Utility Power Management Setup		
ACPI Function	Enabled	Item Help
ACPI Suspend Type	S1(POS)	Menu Level ▶
C2 Disable/Enable	Disabled	
Modem Use IRQ	NA	
Soft-Off by PWRBTN	Instant-Off	
PowerOn By PCI Card	Disabled	
ACPI XSDT Table	Disabled	
HPET Support	Enabled	
Power On Function	Button Only	
x KB Power On Password	Enter	
x Hot Key Power On	Ctrl-F1	
PWRON After PWR-Fail	Off	
RTC Alarm Resume	Disabled	
x Date (Of Month)	0	
x Resume Time (hh:mm:ss)	0:0:0	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

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

ACPI Function

This function should be enabled only in operating systems that support ACPI. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the field below.

ACPI Suspend Type

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

S1(POS)

Enables the Power On Suspend function.

S3(STR)

Enables the Suspend to RAM function.

C2 Disable/Enable

The options are Enabled and Disabled.

MODEM Use IRQ

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

Soft-Off by PWRBTN

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.

PowerOn By PCI Card*Enabled*

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

Disabled

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

ACPI XSDT Table

Enable the ACPI XSDT table only when using a 64-bit mode OS. The table does not support 32-bit mode OS such as Windows 2000 and Windows XP.

HPET Support

The options are Enabled and Disabled.

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.

Password

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

Hot Key

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

MS Move&Click

When this option is selected, move/click 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 keyboard to power-on the system.

KB Power On Password

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

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

Hot Key Power On

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

PWRON After PWR-Fail*Off*

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

On

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

RTC Alarm Resume*Enabled*

When Enabled, you can set the date and time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Date (of Month)" and "Resume Time" fields. However, if the system is being accessed by incoming calls or the network (Resume On Ring/LAN) prior to the date and time set in these fields, the system will give priority to the incoming calls or network.

Disabled

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

Date (of Month)*0*

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

1-31

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

Resume Time (hh:mm:ss)

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

PnP/PCI Configurations

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

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
PnP/PCI Configurations		Menu Level ▶
PnP OS Installed	No	
x Resources Controlled By	Auto	
IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ for VGA	Enabled	
Assign IRQ for USB	Enabled	
PCI Latency Timer(Per 8CLK)	8	
INT Pin 1 Assignment	Auto	
INT Pin 2 Assignment	Auto	
INT Pin 3 Assignment	Auto	
INT Pin 4 Assignment	Auto	
INT Pin 5 Assignment	Auto	
INT Pin 6 Assignment	Auto	
INT Pin 7 Assignment	Auto	
INT Pin 8 Assignment	Auto	
** PCI Express Relative items**		
Maximum Payload Size	128	

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

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

PnP OS Installed

If you selected "Yes", the BIOS will detect the Plug and Play devices for some compatible resources.

Resources Controlled By

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

Auto(ESCD)

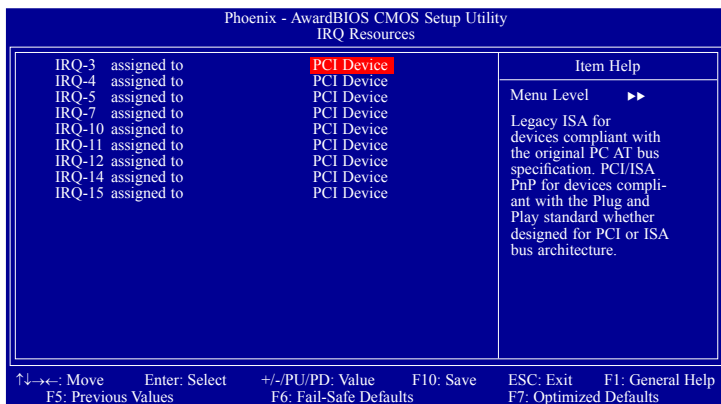
The system will automatically detect the settings for you.

Manual

Choose the specific IRQ in the "IRQ Resources" field.

IRQ Resources

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



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

PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not. The default value is Disabled.

Enabled

MPEG ISA/VESA VGA cards work with PCI/VGA.

Disabled

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

Assign IRQ for VGA

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

Assign IRQ for USB

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

PCI Latency Timer (Per 8CLK)

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

INT Pin 1 Assignment to INT Pin 8 Assignment

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

Maximum Payload Size

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

PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Shutdown Temperature	85°C/185°F	↑ ↓	Item Help
CPUFan Fully ON If CPUTemp	> 50°C		Menu Level ▶
CPUFan Turn OFF If CPUTemp	< 25°C		
SYSFan Fully ON If SYSTemp	> 35°C		
SYSFan Turn OFF If SYSTemp	< 25°C		
CPU Core Voltage	1.28V		
DRAM Voltage	1.88V		
VCC SB Voltage	1.28V		
HTT +1.2V Voltage	1.23V		
ATX +3.3V Voltage	3.39V		
ATX +12V Voltage	12.16V		
+5V Dual Voltage	5.10V		
Voltage Battery	3.39V		
CPU Core Temperature	33°C		
System Temperature	36°C		
CHIPSET Temperature	56°C		
CPU Fan Fan Speed	2860 RPM		
SYSTEM Fan Speed	0 RPM		

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

The screen above list all the fields available in the PC Health Status 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.

Shutdown Temperature

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

CPUFan Fully On If CPUTemp

This field is used to select the CPU's temperature at which the CPU fan will rotate at full speed.

CPUFan Turn Off If CPUTemp

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

**Note:**

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

SYSFan Fully On If SYSTemp

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

SYSFan Turn Off If SYSTemp

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



Note:

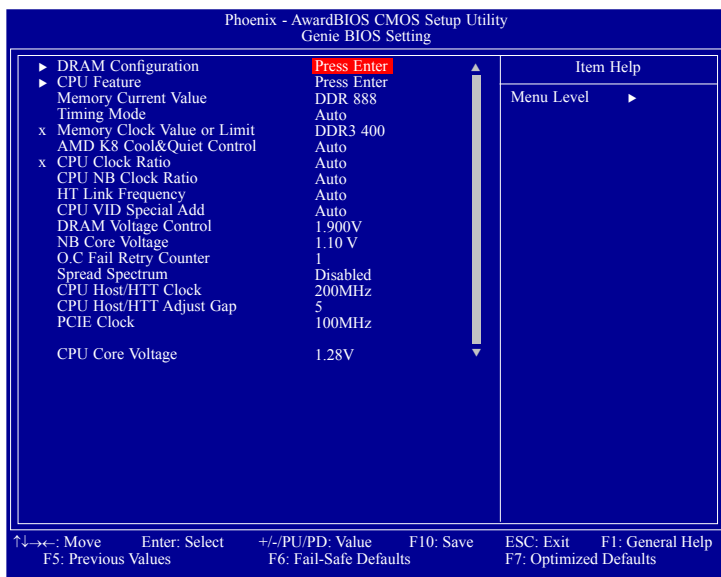
If the system's temperature runs between the highest (set in the "SYS-Fan Fully On If SYSTemp" field) and lowest (set in the "SYSFan Turn Off If SYSTemp" field) temperature, the system will automatically adjust the chassis fan's speed according to the temperature.

CPU Core Voltage to SYSTEM Fan Speed

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

Genie BIOS Setting

Aimed to provide convenience and superb overclockability, this submenu comes available in Easy mode (default mode) and Advance mode.



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

CPU Feature

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

Memory Current Value

This field will show the current value of the system memory.

Timing Mode

Auto

The BIOS will automatically detect all DRAM timing.

MaxMemClk

This option uses the maximum DRAM clock.

Manual

This option allows you to manually select the DRAM's clock speed.

Memory Clock Value or Limit

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

AMD K8 Cool&Quiet Control

Auto

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

Disabled

Disables AMD's Cool'n'Quiet technology.

CPU Clock Ratio

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

CPU NB Clock Ratio

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

HT Link Frequency

The options are Auto, 200MHz, 400MHz, 600MHz, 800MHz and 1 GHz.

CPU VID Special Add

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

DRAM Voltage Control

This is used to select the voltage supplied to the DRAM.

NB Core Voltage

This is used to select the Northbridge's core voltage.

O.C. Fail Retry Counter

The options are 0, 1, 2 and 3.

Spread Spectrum

Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

CPU Host/HTT Clock

This field is used to enter a CPU Host/HTT Clock value. The minimum is 200 and the maximum is 700.

CPU Host/HTT Adjust Gap

This field is used to enter a CPU Host/HTT adjust gap value.

PCIE Clock

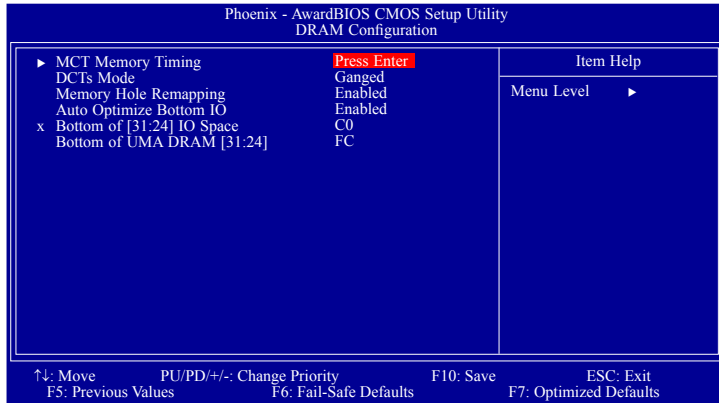
This field is used to enter the PCIE clock. The minimum is 100 and the maximum is 250.

CPU Core Voltage

This field will show the CPU's current voltage.

DRAM Configuration

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



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

MCT Memory Timing

Refer to the following pages for more information on this submenu.

DCTs Mode

The options are Ganged and Unganged.

Memory Hole Remapping

The options are Enabled and Disabled.

Auto Optimize Bottom IO

The options are Enabled and Disabled.

Bottom of [31:24] IO Space

This field is used to enter the memory that will be remapped to another address. The minimum is 0000 and the maximum is 00FF.

Bottom of UMA DRAM [31:24]

This field is used to enter the UMA DRAM value. The minimum is 0000 and the maximum is 00FC.

MCT Memory Timing

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

Phoenix - AwardBIOS CMOS Setup Utility		
MCT Memory Timing		
MCT Memory Timing	Auto	Enabled
x 2T Mode	Auto	5 CLK
x CAS Latency Time	Auto	18 CLK
x Precharge Delay (tRAS)	Auto	5 CLK
x DRAM RAS# Precharge	Auto	5 CLK
x DRAM RAS# to CAS# Delay	Auto	3 CLK
x Bank to Bank Cmd (TRRD)	Auto	24 CLK
x TRC	Auto	75 nS
x TRFC0	Auto	105 nS
x TRFC1	Auto	75 nS
x TRFC2	Auto	75 nS
x TRFC3	Auto	75 nS
CS/ODT Pin Fine Delay	Enabled	

Item Help
Menu Level ▶▶

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

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

MCT Memory Timing

Auto

The BIOS will automatically detect all the MCT memory timing.

Manual

This option allows you to manually configure the MCT memory timing on the following fields.

2T Mode

This field is used to configure the 2T mode.

CAS Latency Time

This field is used to select the clock cycles for the CAS latency.

Precharge Delay (tRAS)

The options are Auto, 5 CLK to 18 CLK.

DRAM RAS# Precharge

This field is used to select the idle clocks after issuing a precharge command to the DRAM.

DRAM RAS# to CAS# Delay

This field is used to select the latency between the DRAM active command and the read/write command. The options are 2 and 3.

Bank to Bank Cmd (TRRD)

The options are Auto, 2 CLK to 5 CLK.

TRC

Row-Cycle delay. Set the "System Performance" field to Optimal if you want to use the delay time recommended by the DIMM manufacturer.

TRFC 0 to TRFC 3

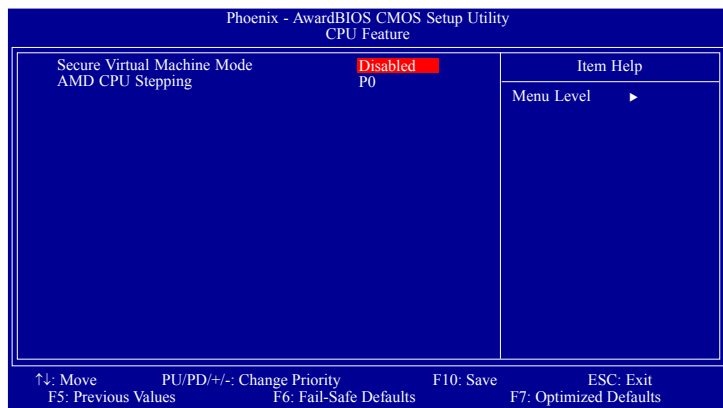
These fields are used to select the auto refresh cycle time.

CS/ODT Pin Fine Delay

The options are Enabled and Disabled.

CPU Feature

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



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

Secure Virtual Machine Mode

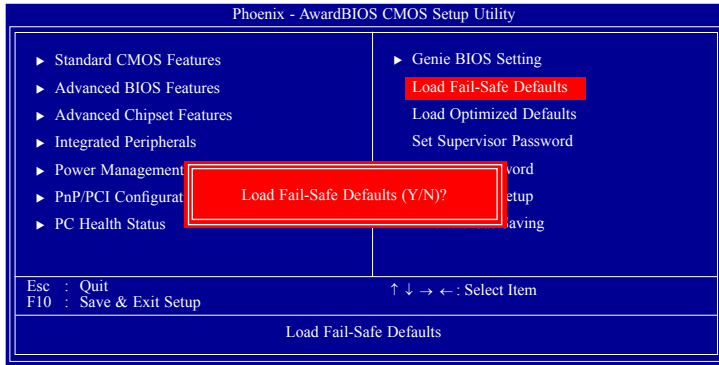
The options are Enabled and Disabled.

AMD CPU Stepping

The options are P0, P1, P2 and P3.

Load Fail-Safe Defaults

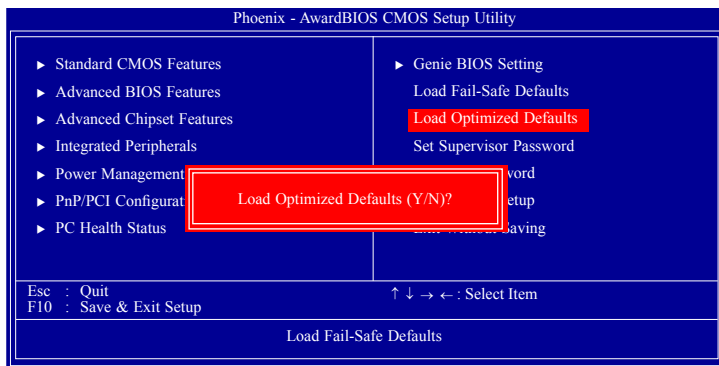
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



If you want to proceed, type <Y> and press <Enter>. 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>.

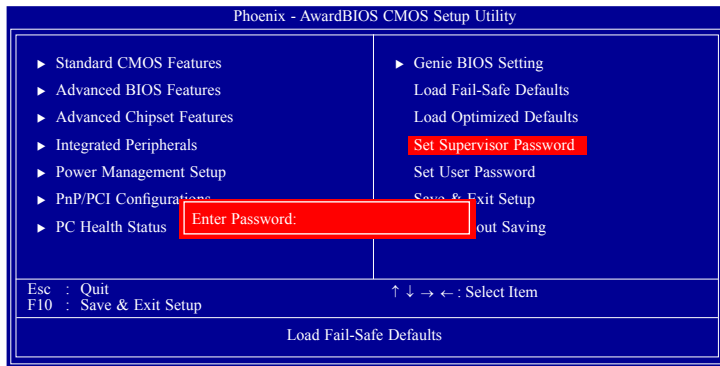


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

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

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.



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

Confirm Password:

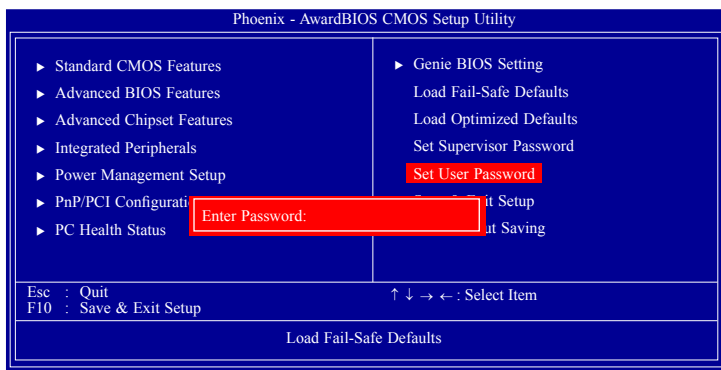
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

Set User Password

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

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

Use the arrow keys to highlight "Set User Password" and press <Enter>.



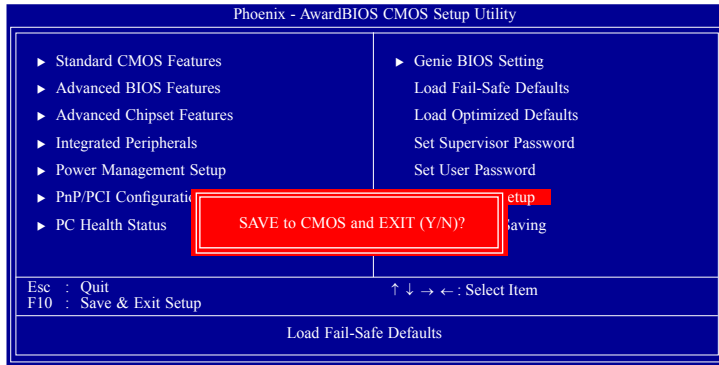
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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

Save & Exit Setup

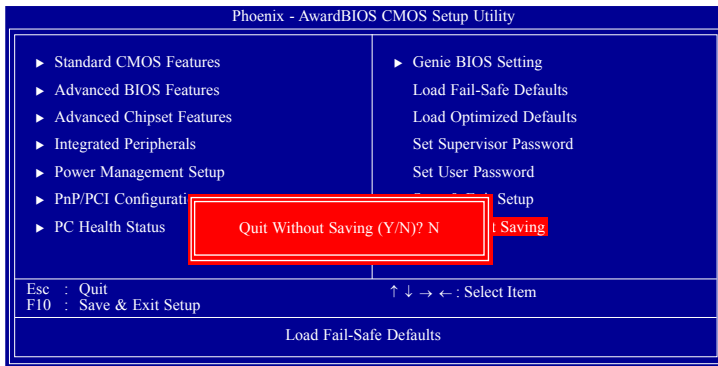
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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

Exit Without Saving

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



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

RAID BIOS

The AMD 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 AMD BIOS status message screen will appear. Press the <F4> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.



Important:

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

Refer to chapter 5 for steps in configuring RAID.

Updating the BIOS

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

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

Award BIOS Flash Utility V8.15B
(C) Phoenix Technologies Ltd. All Rights Reserved.

(The current BIOS information will appear in this area.)

File Name to Program :

5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.
6. The following will appear.

Do You Want to Save BIOS (Y/N)

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

7. The following will then appear.

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

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

Chapter 4 - Supported Software

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".



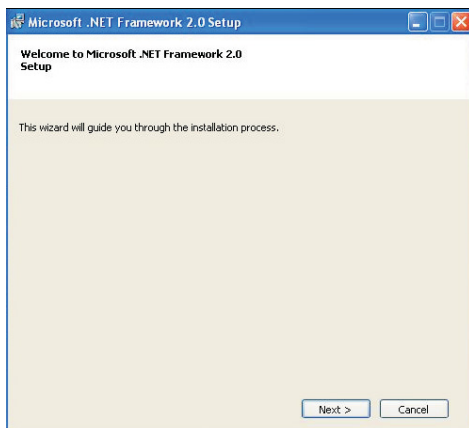
Microsoft .NET Framework V2.0 (Installation First)

**Note:**

Install Microsoft .NET Framework V2.0 prior to installing the other drivers.

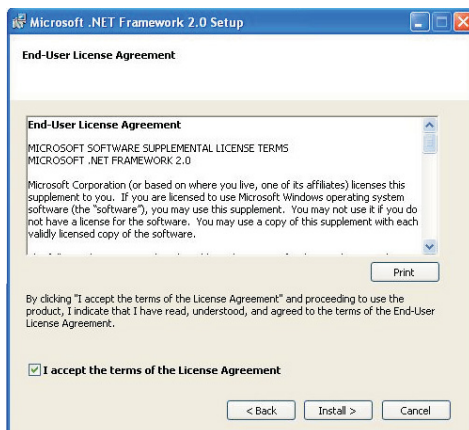
To install the driver, click "Microsoft .NET Framework V2.0" on the main menu.

1. To start the installation, click Next.

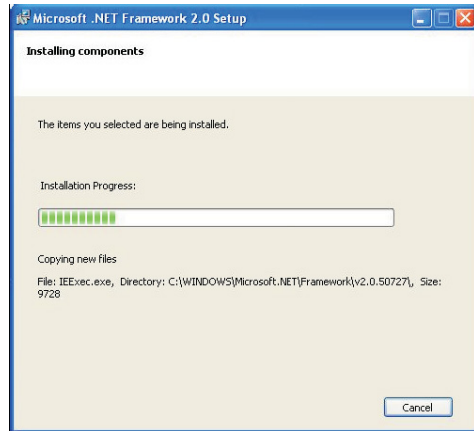


2. Read the license agreement carefully.

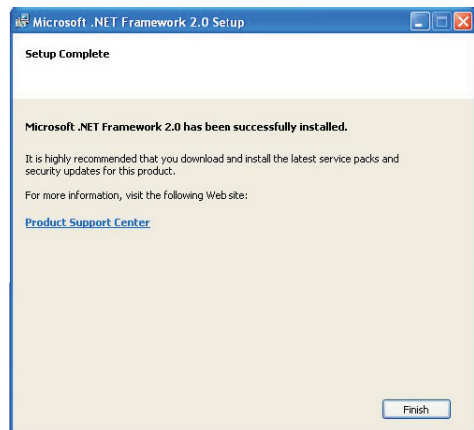
Click "I accept the terms of the License Agreement" and then click Install.



3. Setup is currently installing the driver.



4. Click Finish.



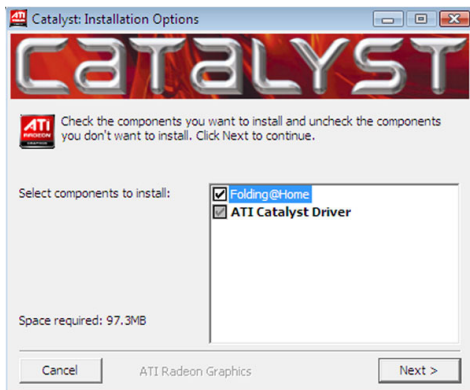
ATI Graphics Drivers

**Note:**

If the graphics card you intend to use is an ATI graphics card, you must first install the ATI Graphics Drivers (that is in the provided CD) prior to installing the graphics card's driver.

To install, click "ATI Graphics Drivers" on the main menu.

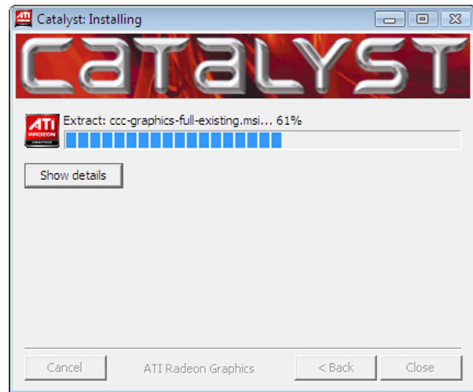
1. Select the components you want to install then click Next.



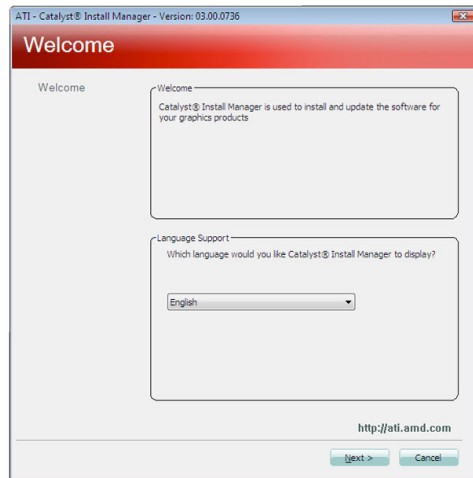
2. Click Install to install to the destination folder or click Browse to select another folder.



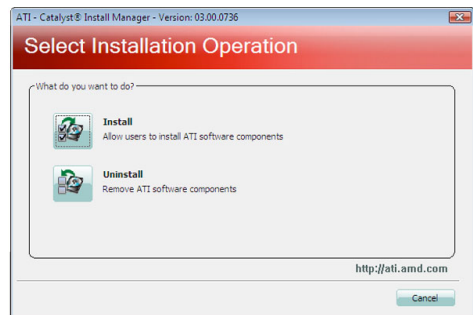
3. The installation program is extracting the files needed to install the driver.



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



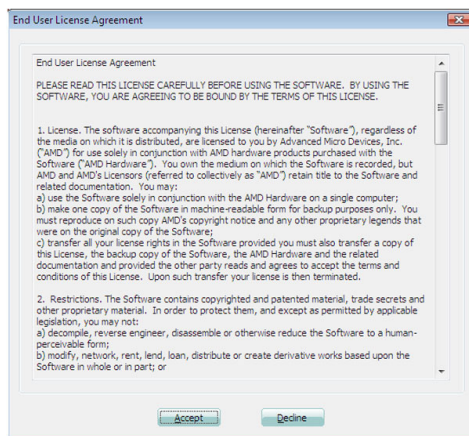
5. The installation program is now ready to install the driver. Click Install.



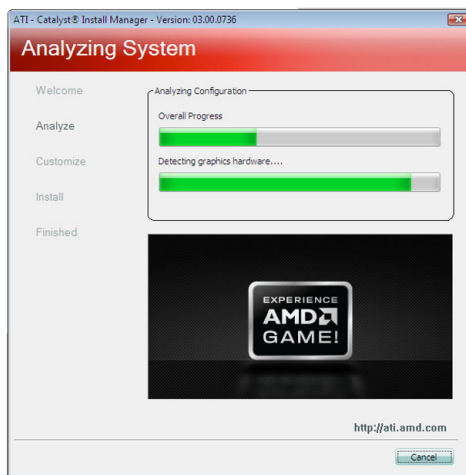
6. Select the component (Express or Custom) you want to install then click Next.



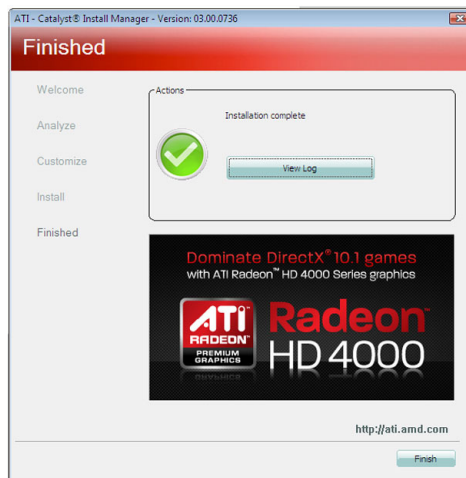
7. Read the license agreement then click Accept.



8. The Catalyst Install Manager is now installing the driver.

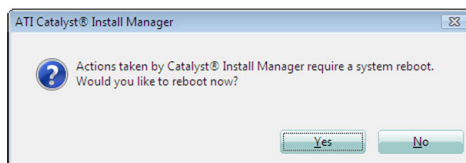


9. The driver has been completely installed. Click Finish.



10. Click Yes to reboot the system.

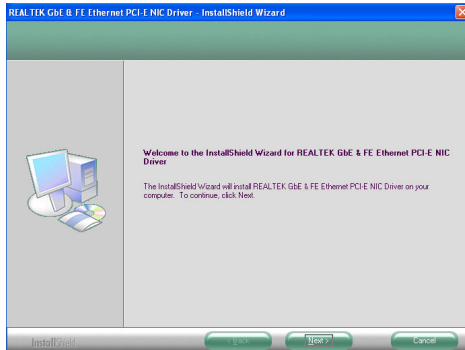
Restarting the system will allow the new driver installation to take effect.



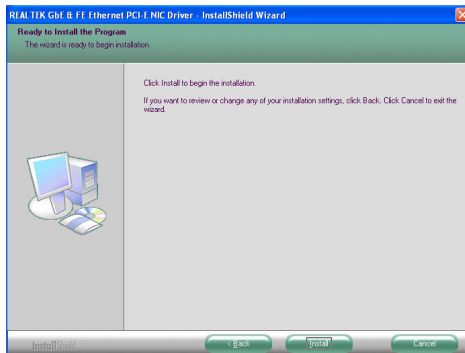
LAN Drivers

To install the driver, click "LAN Drivers" on the main menu.

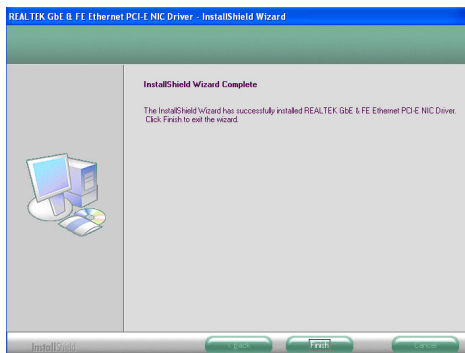
1. Setup is ready to install the driver. Click Next.



2. Click Install to begin the installation.



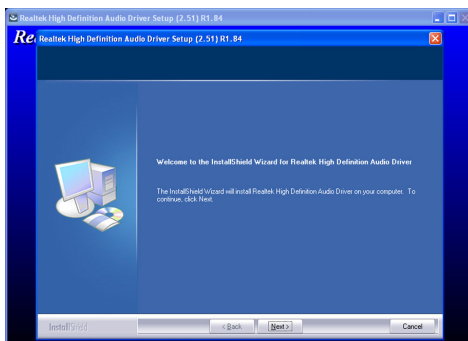
3. After completing installation, click Finish.



Audio Drivers

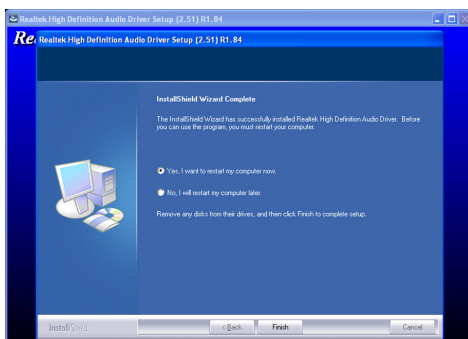
To install the driver, click "Audio Drivers" on the main menu.

1. Setup is now ready to install the audio driver. Click Next.
2. Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.



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

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



RAID Utility

To install the driver, click "RAID Drivers" on the main menu.

1. Windows Explorer will appear showing the folder where the driver files are located in the CD.
2. You must create a RAID driver floppy diskette which is needed when you install the RAID driver during Windows installation.

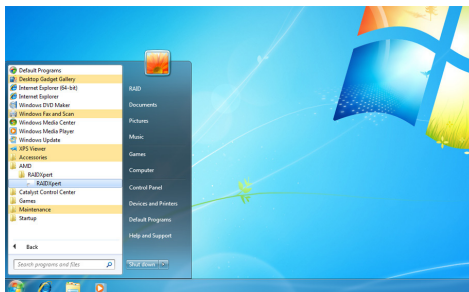
Run the appropriate execution file.

3. Insert a blank floppy diskette then click OK.
4. The system will format and write the necessary driver files into the diskette.

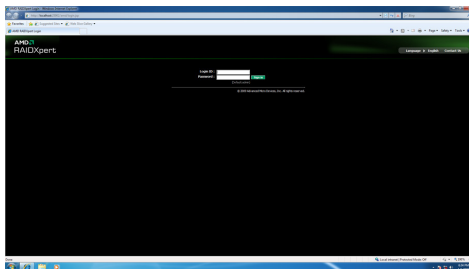
RAIDXpert Utility

After you have installed the RAID driver, you can use the RAIDXpert utility to manage RAID volume. The easy-to-use utility is designed to simplify RAID storage management. RAIDXpert can configure, manage and monitor RAID products remotely from a web browser.

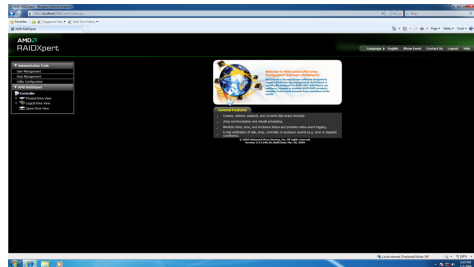
1. On your desktop, click Start -> AMD -> RAIDXpert -> RAIDXpert.



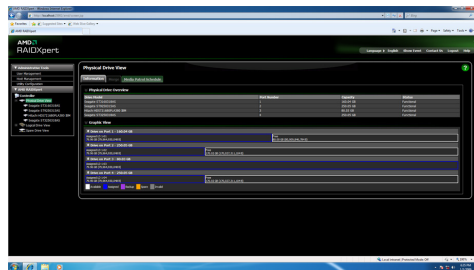
2. Enter the Login ID and Password. The default ID and password is "admin". Click Sign In.



3. The functions and features are located on the left column of the utility.



4. Click Physical Drive Overview to view the current status of the drives.

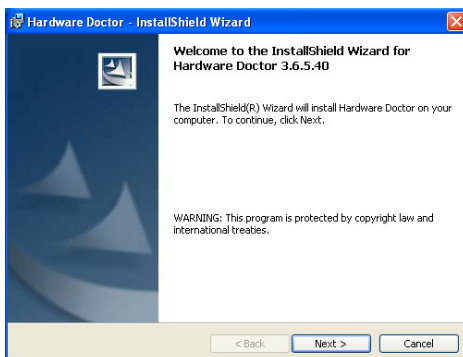


Hardware Monitor for Windows

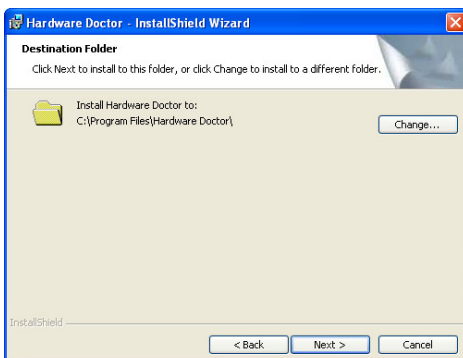
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The 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.

To install, click "Hardware Monitor for Windows" on the main menu.

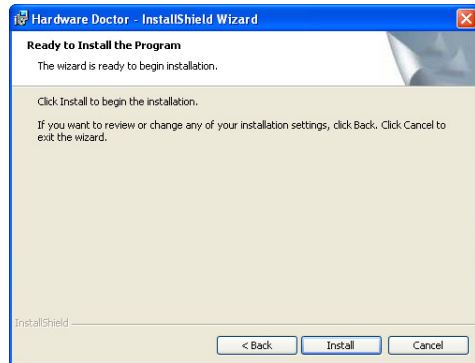
1. Setup is now ready to install the utility. Click Next.



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



3. Click Install to begin the installation.



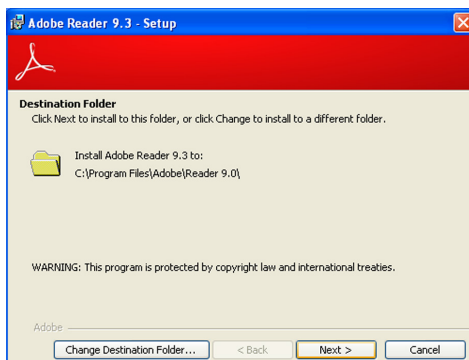
4. After completing installation, click Finish.



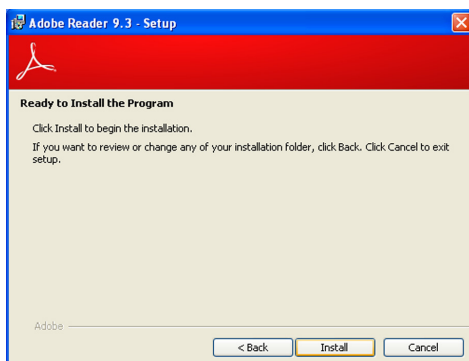
Adobe Acrobat Reader 9.3

To install the reader, click "Adobe Acrobat Reader 9.3" on the main menu.

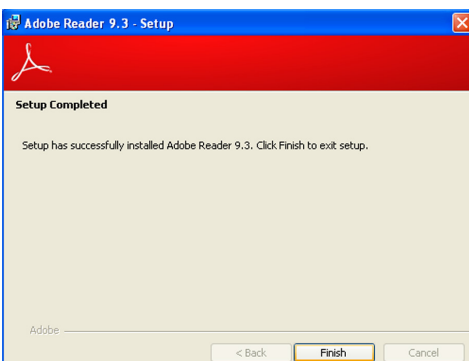
1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.



Chapter 5 - RAID

The AMD SB710 chip allows configuring RAID on Serial ATA drives. It supports RAID 0 and RAID 1.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

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

RAID 1 (Mirroring Disk Array with Fault Tolerance)

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

Settings

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

1. Connect the Serial ATA drives.
2. Configure Serial ATA in the Award BIOS.
3. Configure RAID in the RAID BIOS.
4. Install the RAID driver during OS installation.
5. Install the RAID Utility (that is in the provided CD).

Step 1: Connect the Serial ATA Drives

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



Important:

1. Make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.
2. Treat the cables with extreme caution especially while creating RAID. A damaged cable will ruin the entire installation process and operating system. The system will not boot and you will lost all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

Step 2: Configure Serial ATA in the Award BIOS

1. Power-on the system then press to enter the main menu of the Award BIOS.
2. Configure Serial ATA in the appropriate fields.
3. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" then press <Enter>.
4. Type <Y> and press <Enter>.
5. Reboot the system.

Step 3: Configure RAID in the RAID BIOS

When the system powers-up and all drives have been detected, the AMD RAID BIOS status message screen will appear. Press the <F4> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

Step 4: Install the RAID Driver During OS Installation

The RAID driver must be installed during the Windows® XP or Windows® 2000 installation using the F6 installation method. This is required in order to install the operating system onto a hard drive or RAID volume when in RAID mode or onto a hard drive when in AHCI mode.

1. Start Windows Setup by booting from the installation CD.
2. Press <F6> when prompted in the status line with the 'Press F6 if you need to install a third party SCSI or RAID driver' message.
3. Press <S> to "Specify Additional Device".
4. At this point you will be prompted to insert a floppy disk containing the RAID driver. Insert the RAID driver diskette.
5. Locate for the drive where you inserted the diskette then select RAID or AHCI controller that corresponds to your BIOS setup. Press <Enter> to confirm.

You have successfully installed the driver. However you must continue installing the OS. Leave the floppy disk in the floppy drive until the system reboots itself because Windows setup will need to copy the files again from the floppy disk to the Windows installation folders. After Windows setup has copied these files again, remove the floppy diskette so that Windows setup can reboot as needed.

Step 5: Install the RAID Utility

Refer to chapter 4 for instructions on installing the RAID utility.

Appendix A - NLITE and AHCI Installation Guide

nLite

nLite is an application program that allows you to customize your XP installation disc by integrating the RAID/AHCI drivers into the disc. By using nLite, the F6 function key usually required during installation is no longer needed.



Note:

The installation steps below are based on nLite version 1.4.9. Installation procedures may slightly vary if you're using another version of the program.

1. Download the program from nLite's official website.

<http://www.nliteos.com/download.html>

2. Install nLite.

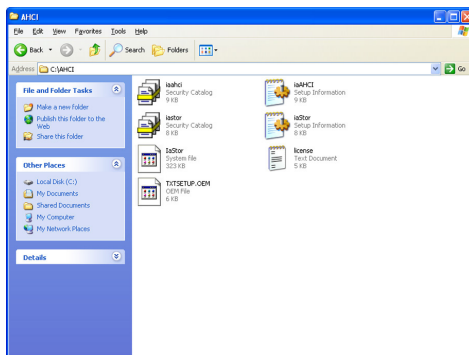


Important:

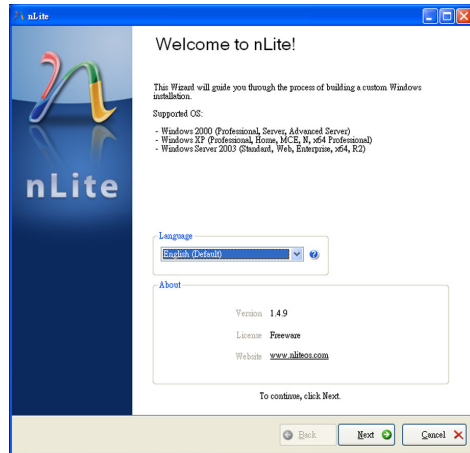
Due to it's coding with Visual.Net, you may need to first install .NET Framework prior to installing nLite.

3. Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

The downloaded driver files should include iaahci.cat, iaAHCI.inf, iastor.cat, iaStor.inf, IaStor.sys, license.txt and TXTSETUP.OEM.

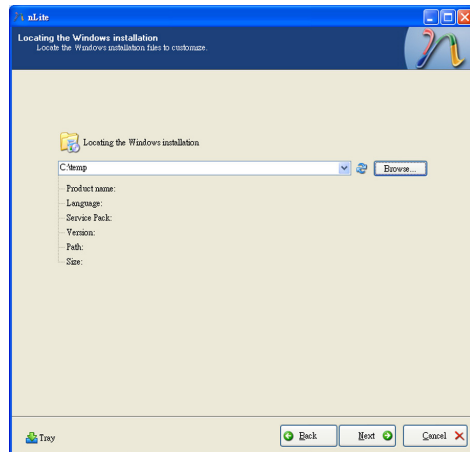


4. Insert the XP installation disc into an optical drive.
5. Launch nLite. The Welcome screen will appear. Click **Next**.

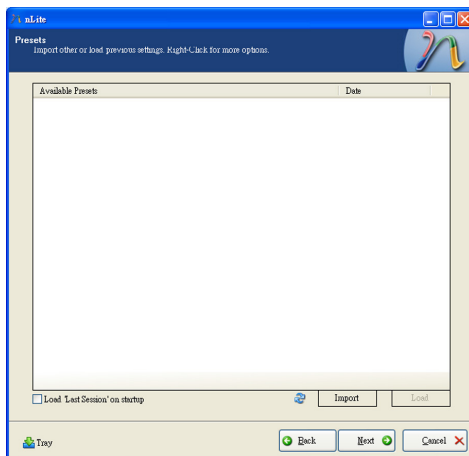


6. Click **Next** to temporarily save the Windows installation files to the designated default folder.

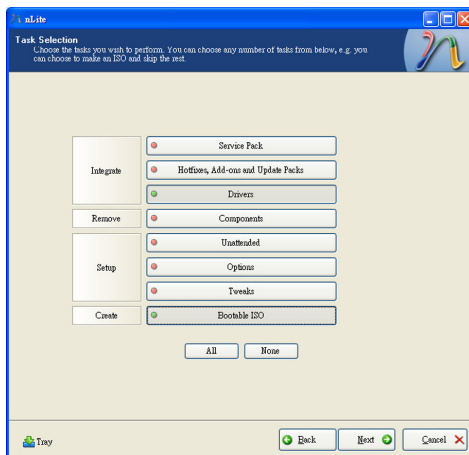
If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.



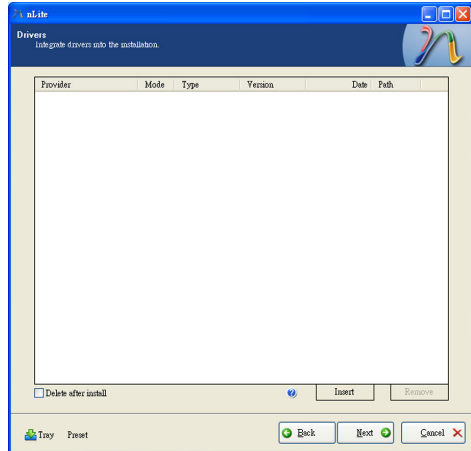
7. Click **Next**.



8. In the Task Selection dialog box, click **Drivers** and **Bootable ISO**. Click **Next**.

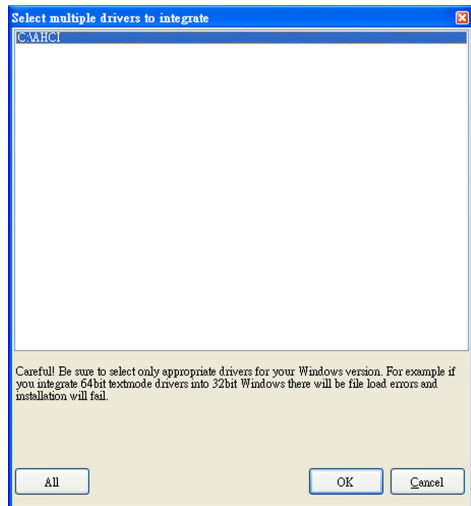


9. Click **Insert** and then select **Multiple driver folder** to select the drivers you will integrate. Click **Next**.

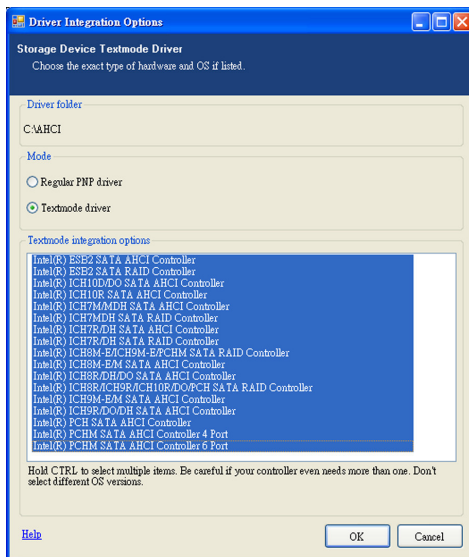


10. Select only the drivers appropriate for the Windows version that you are using and then click **OK**.

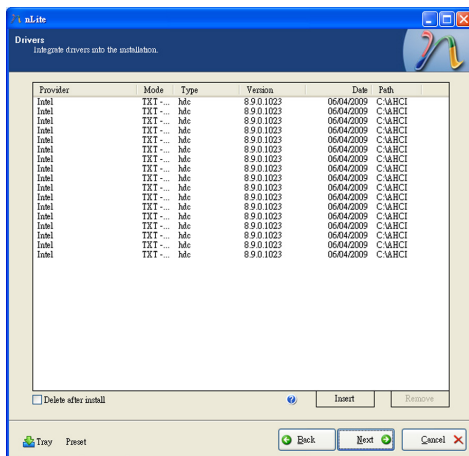
Integrating 64-bit drivers into 32-bit Windows or vice versa will cause file load errors and failed installation.



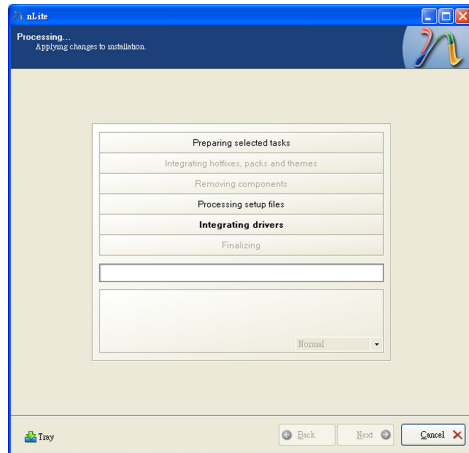
11. If you are uncertain of the southbridge chip used on your motherboard, select all RAID/AHCI controllers and then click **OK**.



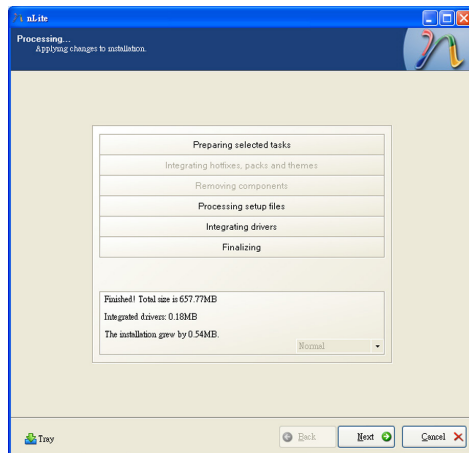
12. Click **Next**.



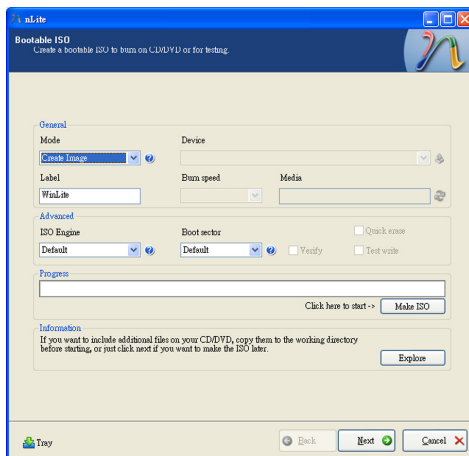
13. The program is currently integrating the drivers and applying changes to the installation.



14. When the program is finished applying the changes, click **Next**.

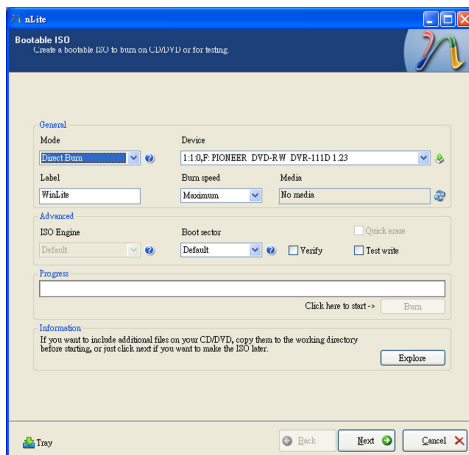


15. To create an image, select the **Create Image** mode under the General section and then click **Next**.



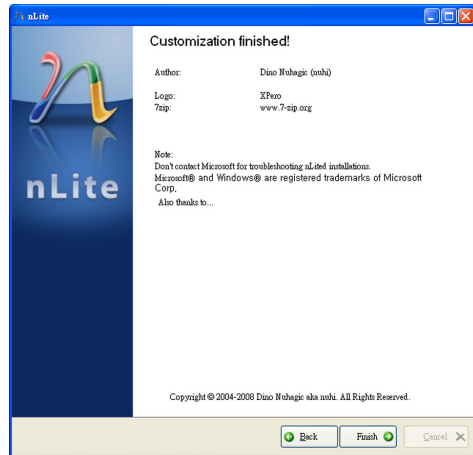
16. Or you can choose to burn it directly to a disc by selecting the **Direct Burn** mode under the General section.

Select the optical device and all other necessary settings and then click



17. You have finished customizing the Windows XP installation disc. Click **Finish**.

Enter the BIOS utility to configure the SATA controller to RAID/AHCI. You can now install Windows XP.

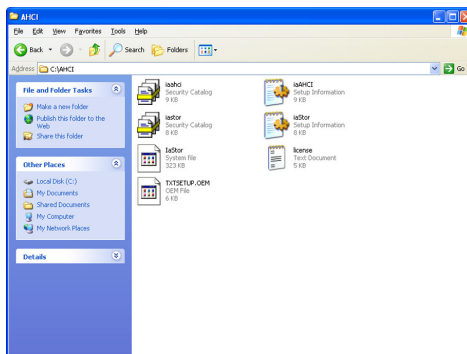


AHCI

The installation steps below will guide you in configuring your SATA drive to AHCI mode.

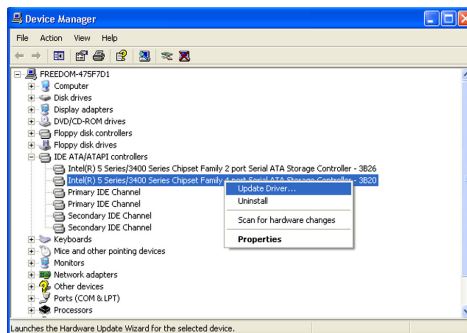
1. Enter the BIOS utility and configure the SATA controller to IDE mode.
2. Install Windows XP but do not press F6.
3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

Transfer the downloaded driver files to C:\AHCI.

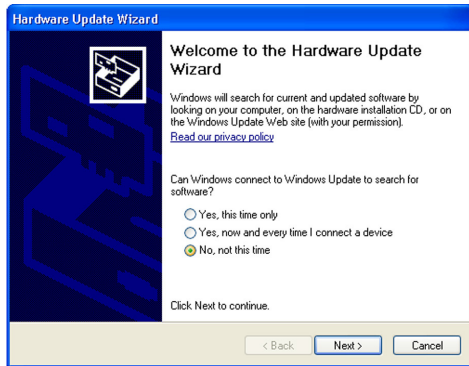


4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

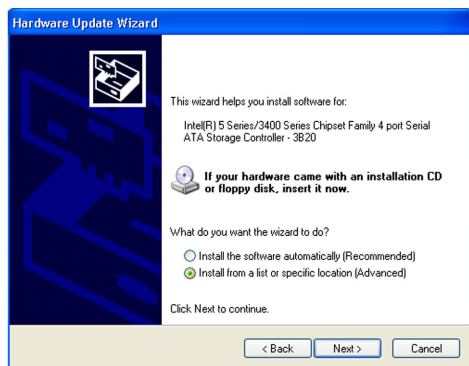
If the controller you selected did not work, try selecting another one.



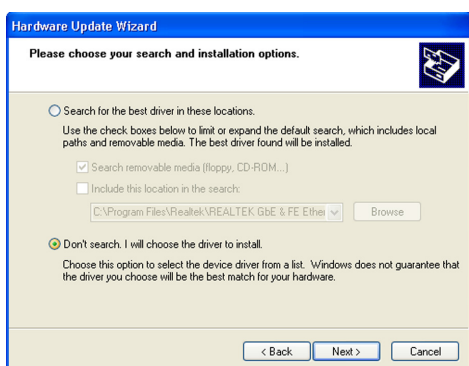
- In the Hardware Update Wizard dialog box, select **"No, not this time"** then click **Next**.



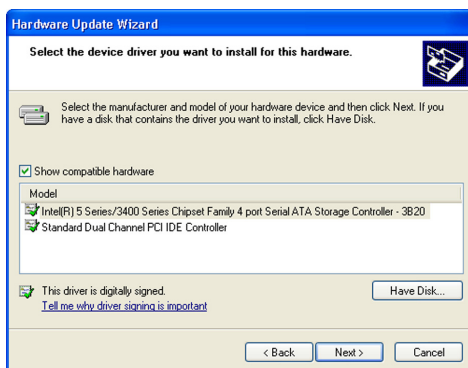
- Select **"Install from a list or specific location (Advanced)"** and then click **Next**.



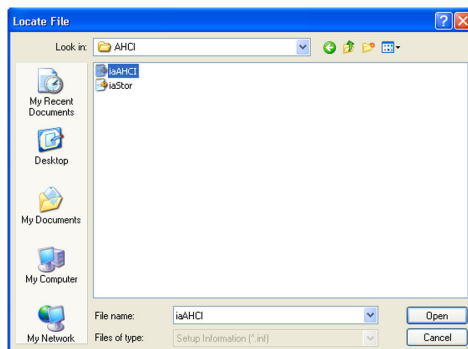
- Select **"Don't search. I will choose the driver to install"** and then click **Next**.



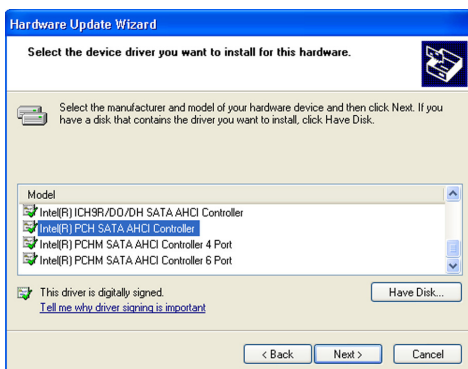
8. Click **"Have Disk"**.



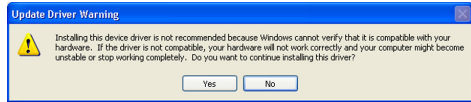
9. Select C:\AHCI\iaAHCI.inf and then click **Open**.



10. Select the appropriate AHCI Controller of your hardware device and then click **Next**.

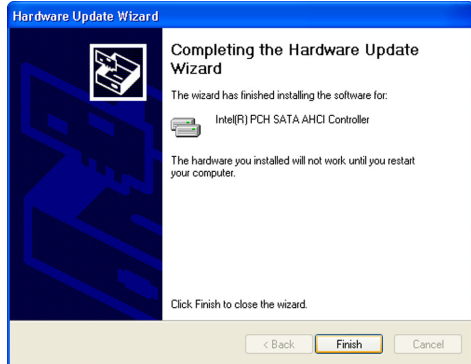


11. A warning message appeared because the selected SATA controller did not match your hardware device.

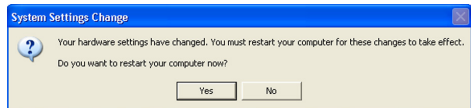


Ignore the warning and click **Yes** to proceed.

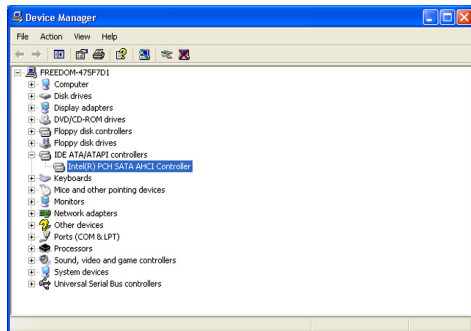
12. Click **Finish**.



13. The system's settings have been changed. Windows XP requires that you restart the computer. Click **Yes**.



14. Enter the BIOS utility and modify the SATA controller from IDE to AHCI. By doing so, Windows will work normally with the SATA controller that is in AHCI mode.



Appendix B - System Error Message

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

Error Messages

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

CMOS BATTERY HAS FAILED

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



Important

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 pulled low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

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

Appendix C - Troubleshooting

Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

The picture seems to be constantly moving.

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

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

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

Floppy Drive

The computer cannot access the floppy drive.

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

Hard Drive

Hard disk failure.

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

Excessively long formatting period.

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

Serial Port

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

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer.
3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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