AR100-DR

System Board
User's Manual

935-AR1001-000G
A13600006

Copyright

Trademarks

FCC and DOC Statement on Class B

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

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

Notice:

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

Table of Contents

About this Manual

An electronic file of this manual is included in the CD. To view the user's manual 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 consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

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

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

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

Safety Measures

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

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

Battery:
- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to 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 USB cable
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One bracket mounted with a COM port cable
- ☑ 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 1 - Introduction

Specifications

Processor	• Socket 940 AM2+ 65nm for: - AMD® AM2 processors: Athlon series / Sempron™ - AMD® AM3 processors • Supports maximum of 65W power CPUs • HyperTransport 3.0
Chipset	• AMD® chipset - Northbridge: AMD® RS780E - Southbridge: AMD® SB710
System Memory	• Two 240-pin DDR2 DIMM sockets • Supports maximum of 4GB system memory - Populate the 2 sockets for a maximum of 4GB memory. The board does not support installing a 4GB module in 1 socket only. • Supports DDR2 667/800MHz DIMMs • Supports dual channel (128-bit wide) memory interface • Supports unbuffered x8 and x16 DIMMs
Expansion Slots	• 1 PCI Express (Gen 2) x16 slot
BIOS	• Award BIOS • 8Mbit SPI flash memory
Graphics	• Integrated ATI Radeon HD3200 graphics engine • Supports maximum resolution of 2560 x 1600, 32bpp • Microsoft DirectX 10 • 128 byte DDR3 frame buffer onboard • Dual independent displays - Completely independent resolution, refresh rates, and display data for the two display paths - Supports HDMI 1080p - Supports DVI-D • Graphics interfaces: - Analog CRT - HDMI 1080P - DVI-D Note: Dual display is not supported when using HDMI and DVI-D at the same time. For dual display, use an analog CRT monitor with either HDMI or DVI-D.
Audio	• Realtek ALC662 HD audio codec • 5.1-channel High Definition audio • S/PDIF-out interface
LAN	• Two Realtek RTL8111DL PCIE Gigabit LAN controllers • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	• Supports 4 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	• 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 1 DB-9 serial port • 1 HDMI port • 1 DB-15 VGA port • 1 DVI-I port (DVI-D signal only) • 2 RJ45 LAN ports • 4 USB 2.0/1.1 ports • Mic-in, line-in and line-out
Internal I/O	• 2 connectors for 4 additional external USB 2.0/1.1 ports • 1 connector for an external serial port • 1 front audio connector for line-out and mic-in jacks • 1 S/PDIF-out connector • 4 Serial ATA connectors • 1 20-pin ATX power connector • 1 4-pin 12V power connector • 1 front panel connector • 1 chassis intrusion connector • 2 fan connectors
Energy Efficient Design	• ACPI specification 2.0 compliant power management schemes • Supports S1 and S3 • Wake-On-Events include: - 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 - Depending on the type of power supply used, when using the "AC power failure recovery" feature to power the system back on after an AC power failure occurs, the system may not power back on if the power lost is resumed within 2 seconds.
Damage Free Intelligence	• Monitors CPU/system temperature • Monitors CPU/DIMM/3.3V/5V/12V/V3sb/1.2V/Vbat voltages • Monitors CPU/system fan speed • Read back capability that displays temperature, voltage and fan speed
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• Mini-ITX form factor • 17cm (6.7") x 17cm (6.7")

Features

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.

HDMI

HDMI (High-Definition Multimedia Interface) is a compact audio/video connector interface for transmitting uncompressed digital streams. It delivers multi-channel audio and uncompressed digital video signals for full HD 1080p visuals through a single cable. Connect a LCD monitor or digital TV that has the HDMI port.

6CH High Definition Audio

The onboard Realtek ALC662 is a High Definition audio codec and the 3 audio jacks at the rear I/O panel provides 5.1-channel audio output for advanced 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

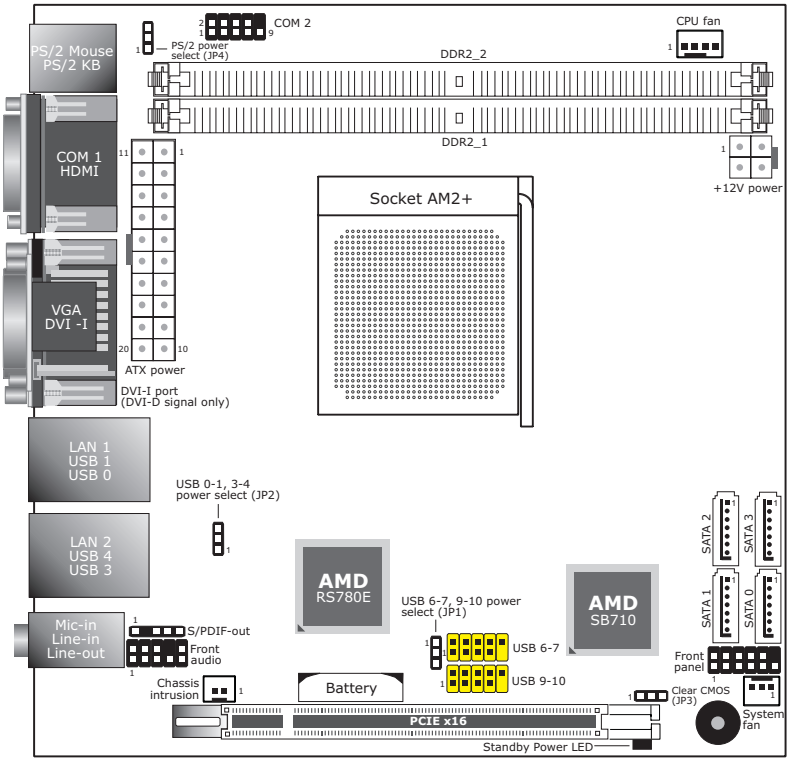
The two Realtek RTL8111DL PCI Express Gigabit LAN controllers support up to 1Gbps data rate.

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.

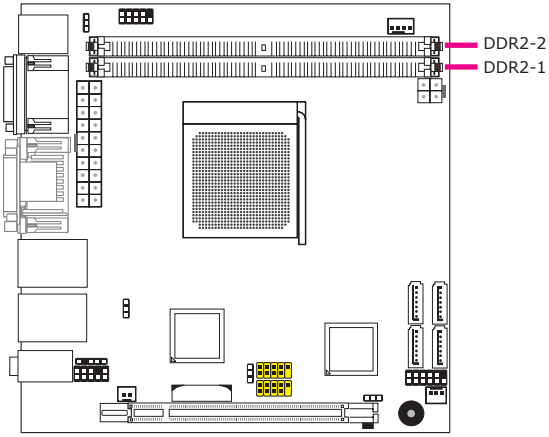
Chapter 2 - Hardware Installation

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

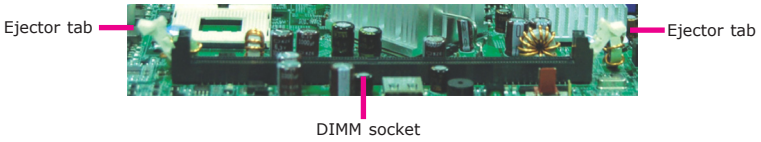


The system board is equipped with 2 DIMM sockets for installing DDR2 DIMMs.

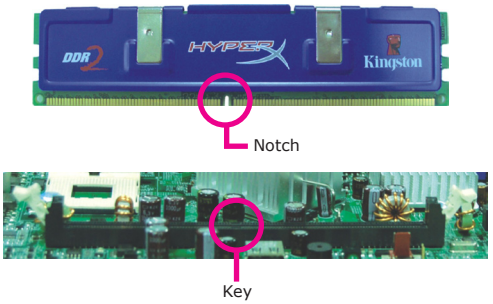
Installing the DIM Module

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

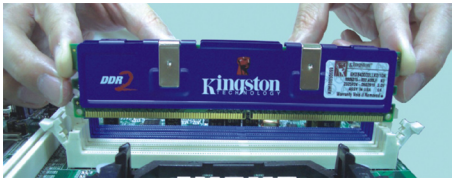
1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the DDR2 socket on the board.
4. Push the "ejector tabs" which are at the ends of the socket to the side.



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

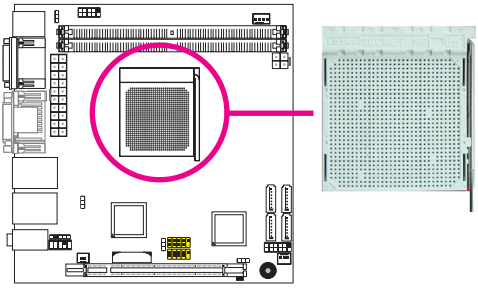
The system board is equipped with Socket AM2+ for installing an AMD CPU designed for this socket.

Installing the CPU

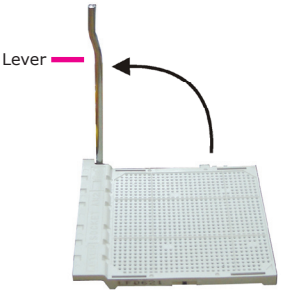
1. Make sure the PC and all other peripheral devices connected to it has been powered down.

2. Disconnect all power cords and cables.

3. Locate Socket AM2+ on the system board.

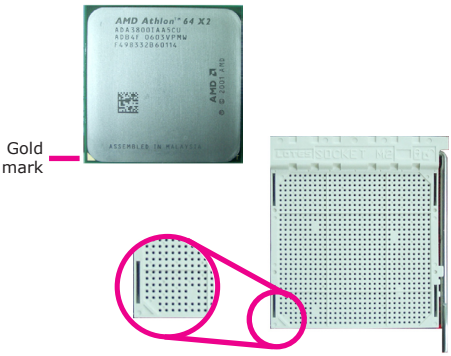


4. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the lever is lifted to at least this angle otherwise the CPU will not fit in properly.



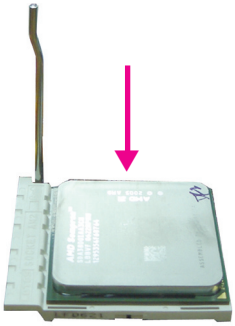
5. Position the CPU above the socket. The gold mark on the CPU must align with pin 1 of the CPU socket.

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

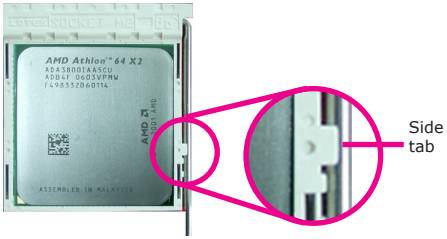


6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

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.



Installing the Fan and Heat Sink

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

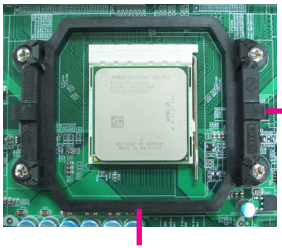
The fan / heat sink assembly must provide airflow adequate to ensure appropriate internal temperature and cooling of the components in the system. Failure to use the appropriate cooling system may result in reduced performance or, in some instances, damage to the system board.

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

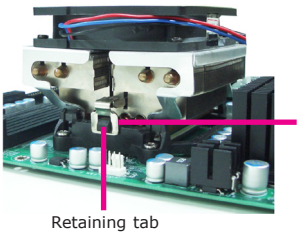
1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the CPU or fan heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound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

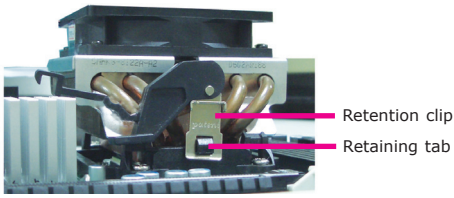
   Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

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

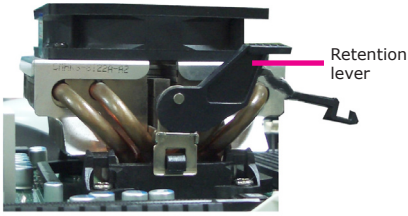


3. Place the heat sink on top of the CPU. Now hook the retention clips on both sides of the heat sink onto the retention module base by fitting the hole(s) on the retention clip into the retaining tab(s) of the retention module base.





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.



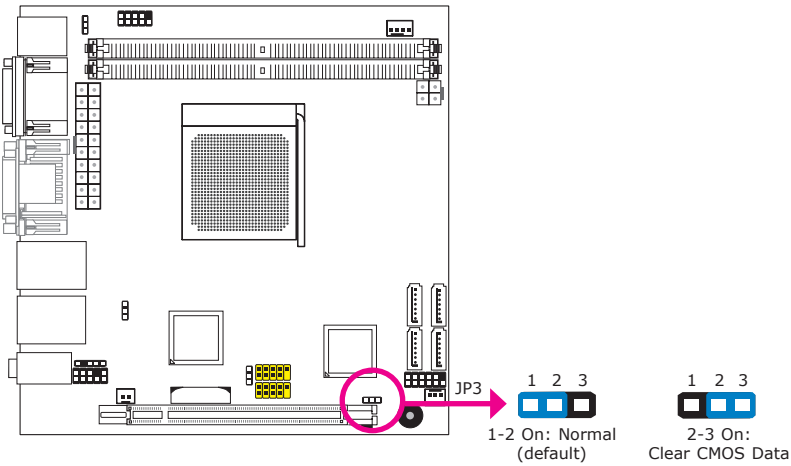
Note:

- 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,

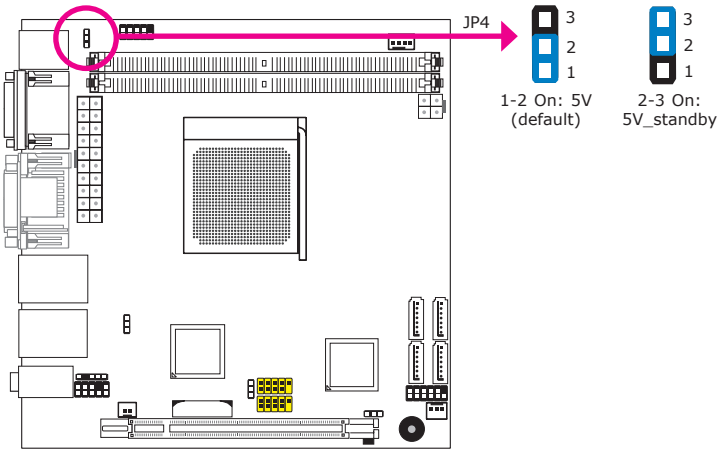
a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

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 JP3 pins 2 and 3 to On. Wait for a few seconds and set JP3 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

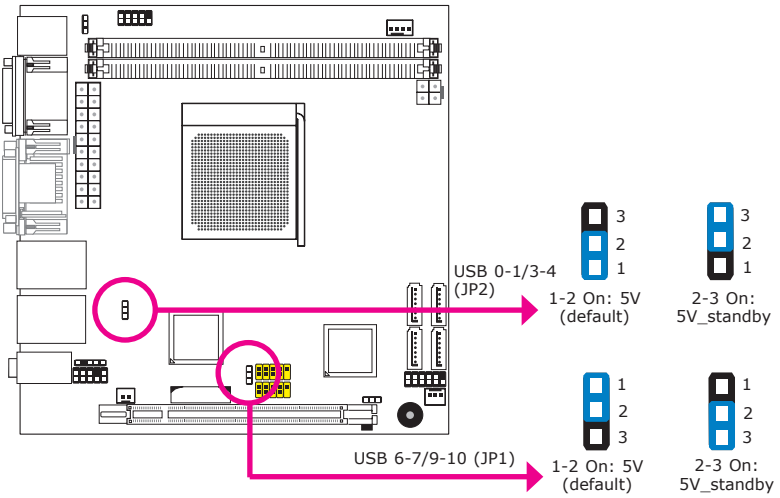
PS/2 Power Select



JP4 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.

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

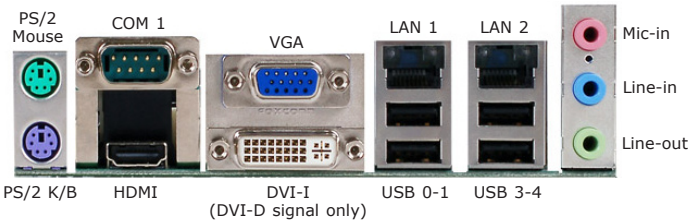
USB Power Select



JP1 (for USB 6-7, 9-10) and JP2 (for USB 0-1, 3-4) 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 ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

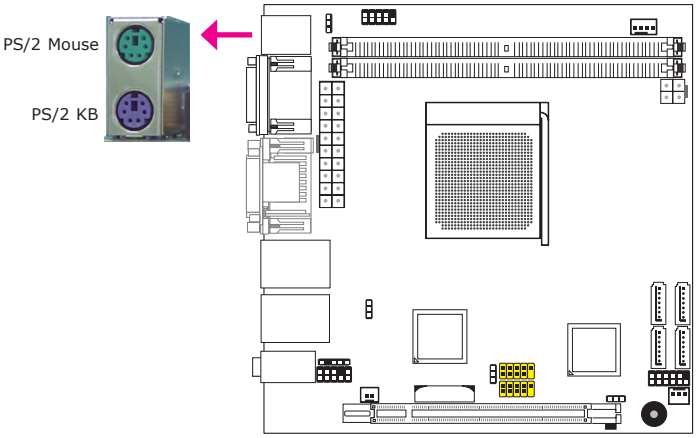
Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- COM 1 port
- HDMI port
- VGA port
- DVI-I port (DVI-D signal only)
- 2 LAN ports
- 4 USB ports
- Mic-in jack
- Line-in jack
- Line-out 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.

Wake-On-PS/2 Keyboard/Mouse

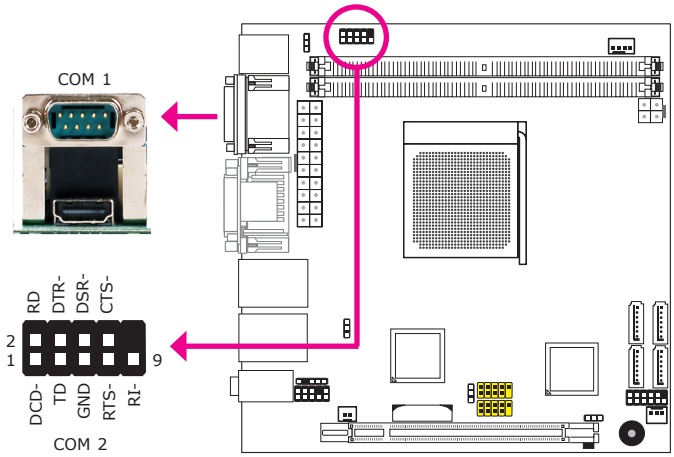
The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- Jumper Setting

  JP4 must be set to "2-3 On: 5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

COM (Serial) Ports

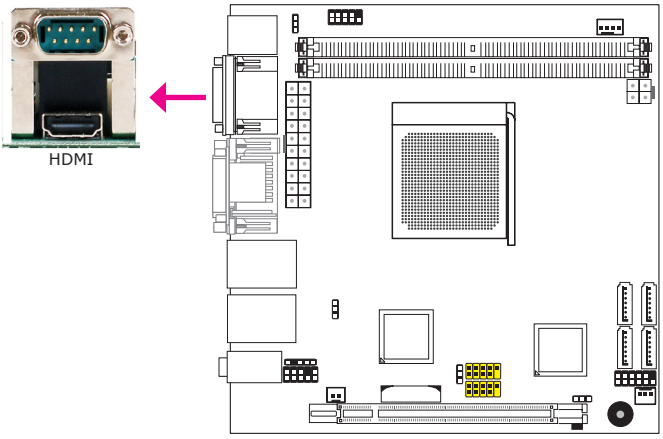


The serial ports are RS232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

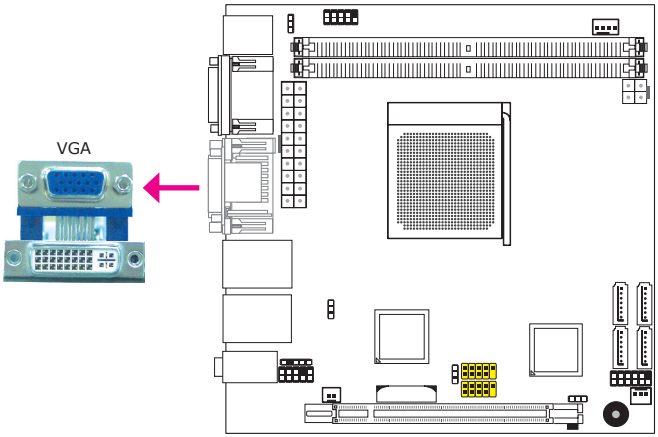
Configure the serial ports in the Integrated Peripherals submenu ("Onboard Devices" section) of the BIOS. Refer to chapter 3 for more information.

HDMI Port



The HDMI port which carries both digital audio and video signals is used to connect a LCD monitor or digital TV that has the HDMI port.

VGA Port

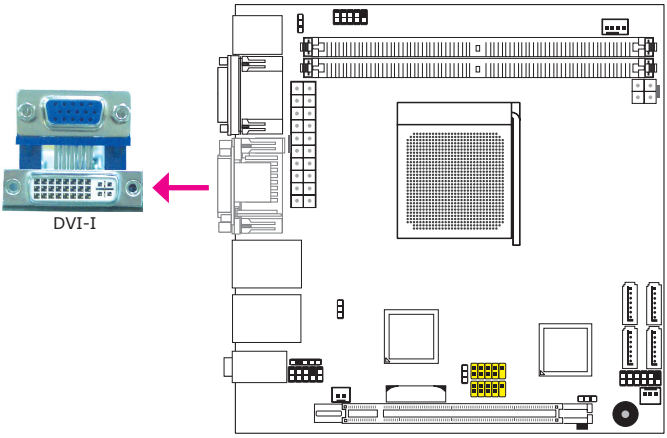


The VGA port is used for connecting a VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

Driver Installation

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

DVI-I Port



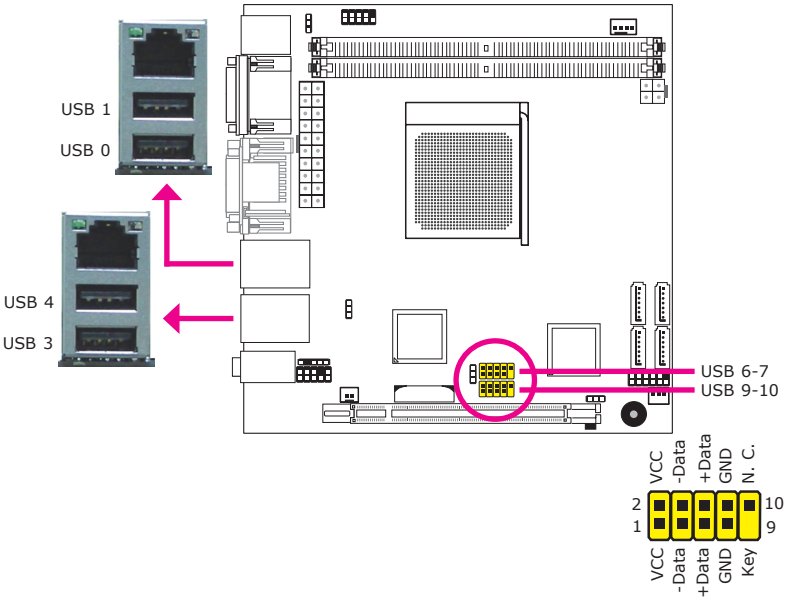
The DVI-I port is used to connect an LCD monitor. The port supports DVI-D signal only.

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.

BIOS Setting

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

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 4 onboard USB 2.0/1.1 ports. The two 10-pin connectors allow you to connect 4 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

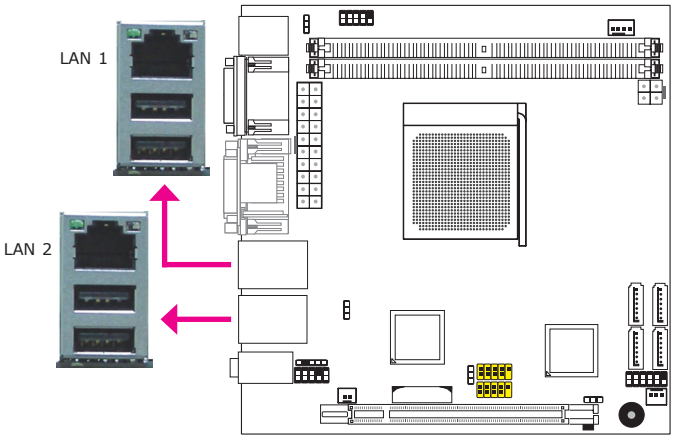
The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- Jumper Setting

  JP1 and/or JP2 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 ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

RJ45 LAN Ports



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

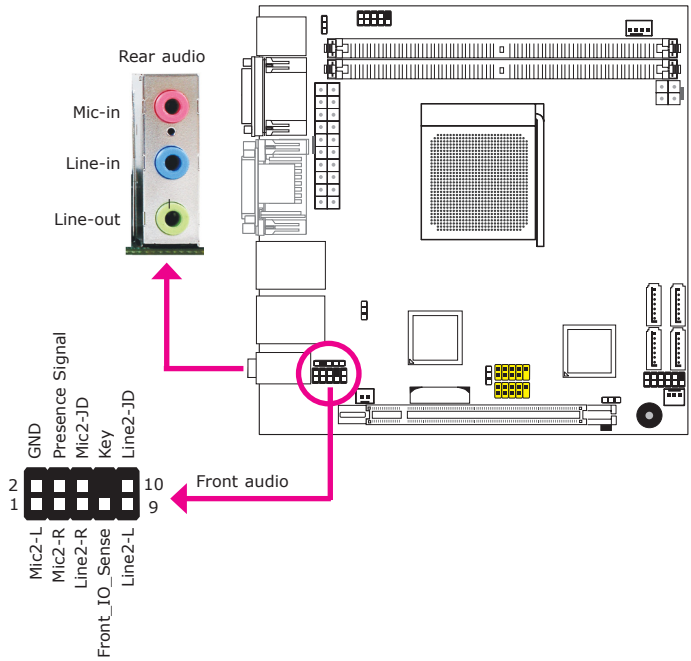
BIOS Setting

Configure the onboard LAN in the Integrated Peripherals submenu ("Onboard Devices" section) 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 Audio

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- Mic-in Jack (Pink)
  This jack is used to connect an external microphone.
- Line-in Jack (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 Jack (Lime)
  This jack is used to connect a headphone or external speakers.

Front Audio

The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

BIOS Setting

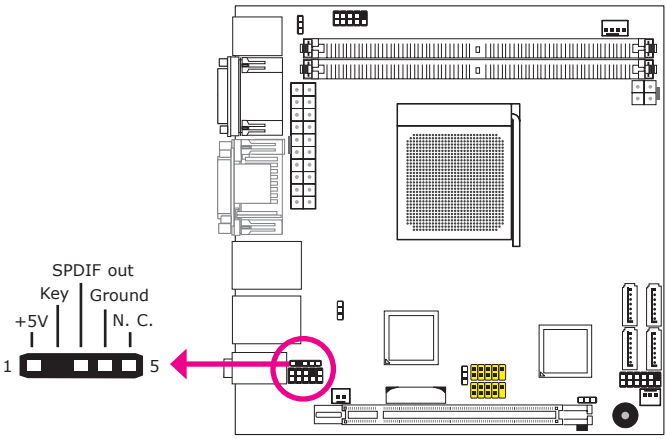
Configure the onboard audio in the Integrated Peripherals submenu ("Onboard Devices" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

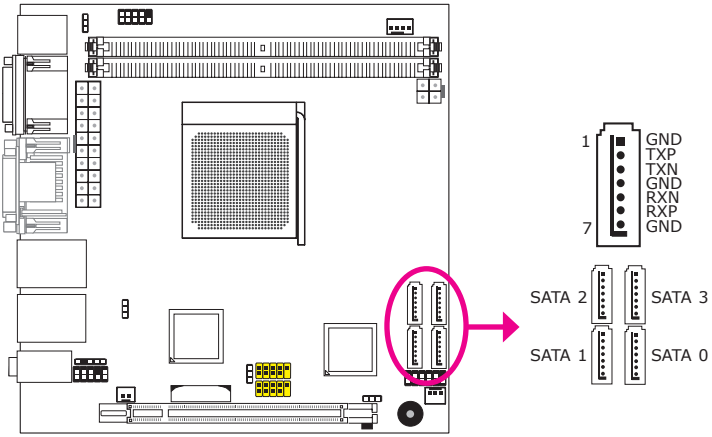
I/O Connectors

S/PDIF-out Connector



The S/PDIF-out 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.

SATA (Serial ATA) Connectors

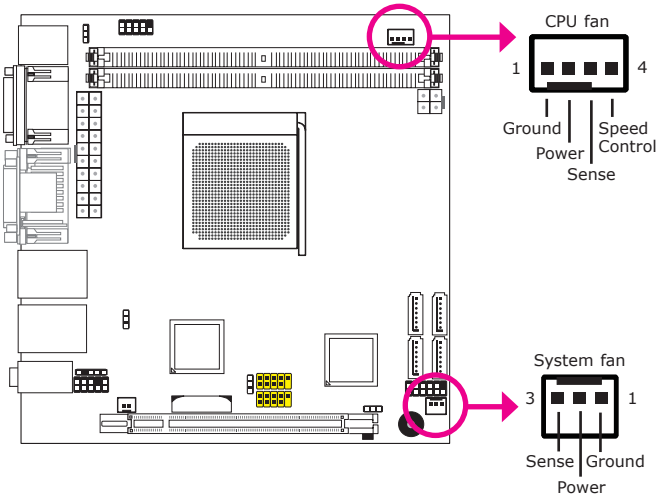


The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

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

Cooling Fan Connectors

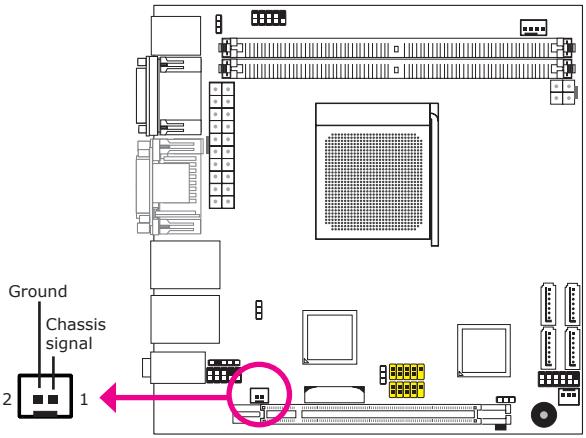


The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

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.

Chassis Instrusion Connector

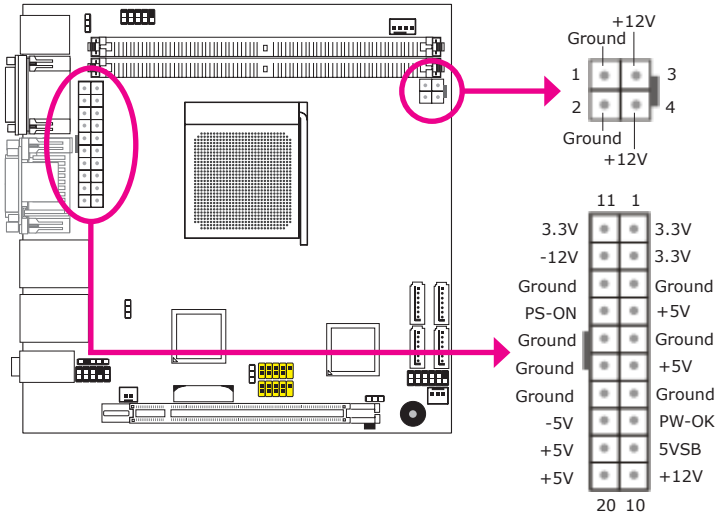


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

Hardware Monitor for Windows

Install the "Hardware Monitor for Windows" utility. By default, the chassis intrusion detection function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the Hardware Monitor for Windows" section in chapter 4 for more information.

Power Connectors



Use a power supply that complies with the ATX12V Power Supply Design Guide Version 2.0. An ATX12V power supply unit has a standard 20-pin ATX main power connector that must be inserted into the 20-pin connector. The 4-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The power connectors from the power supply unit are designed to fit the 20-pin and 4-pin connectors in only one orientation. Make sure to find the proper orientation before plugging the connectors.

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.

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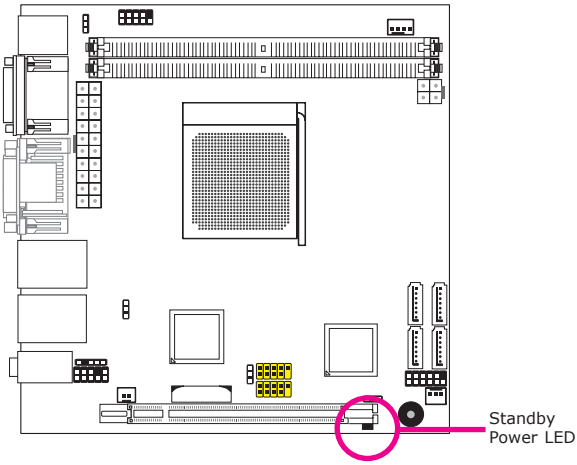
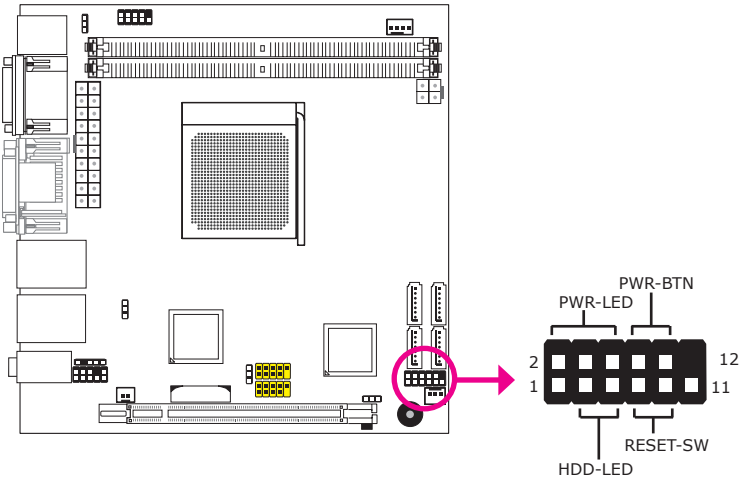
Standby Power LED



This LED will lit red when the system is in the standby mode. It indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

Front Panel Connectors



HDD-LED - HDD LED

This LED will light when the hard drive is being accessed.

RESET-SW - Reset Switch

This switch allows you to reboot without having to power off the system.

PWR-BTN - Power Switch

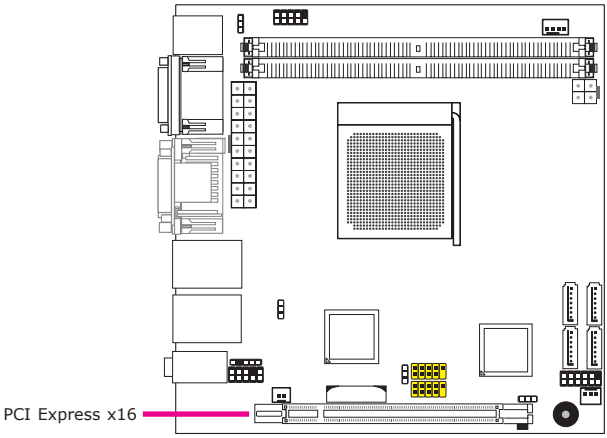
This switch is used to power on or off the system.

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) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

	Pin	Pin Assignment		Pin	Pin Assignment
N. C.	1	N. C.	PWR-LED	2 4 6	LED Power LED Power Signal
HDD-LED	3 5	HDD Power Signal	PWR-BTN	8 10	Signal Ground
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

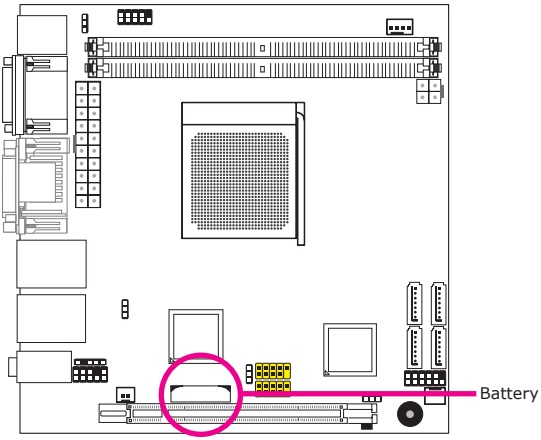
Expansion Slot



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.

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.

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

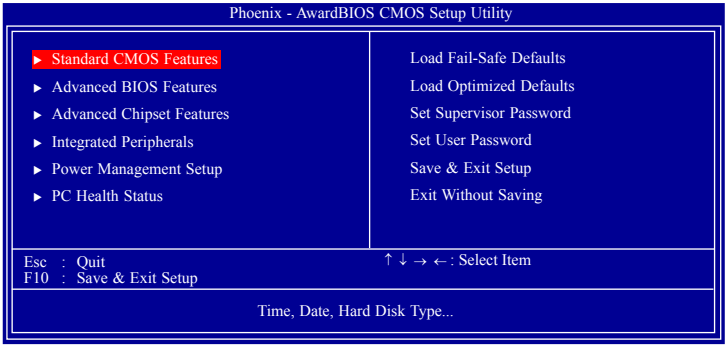
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

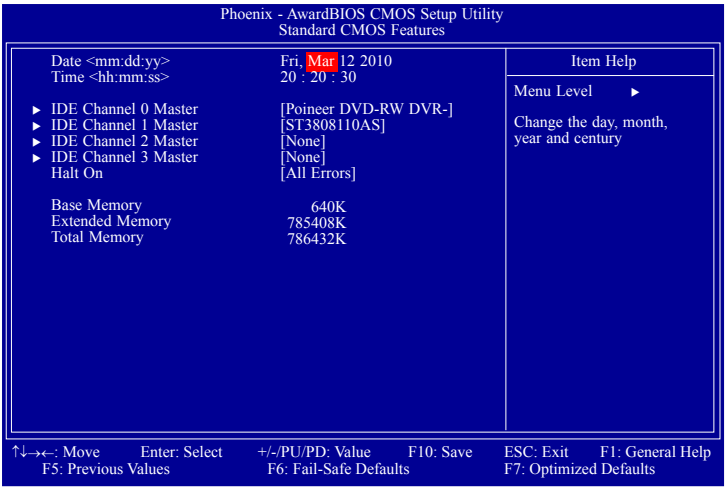
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

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



Standard CMOS Features

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



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

Date

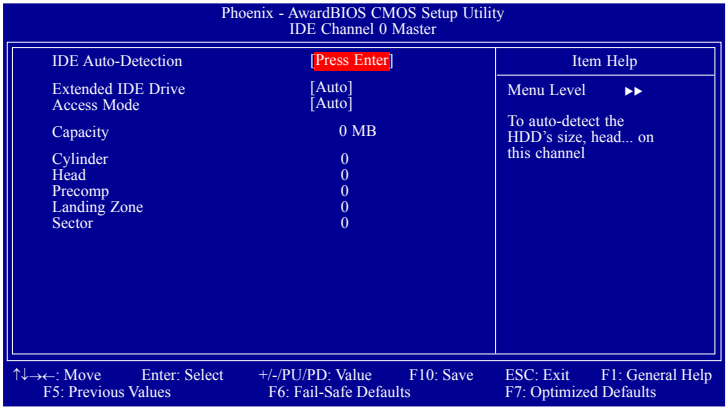
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1994 to 2079.

Time

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

IDE Channel 0 Master to IDE Channel 3 Master

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



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

IDE Auto-Detection

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

Extended IDE Drive

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.

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

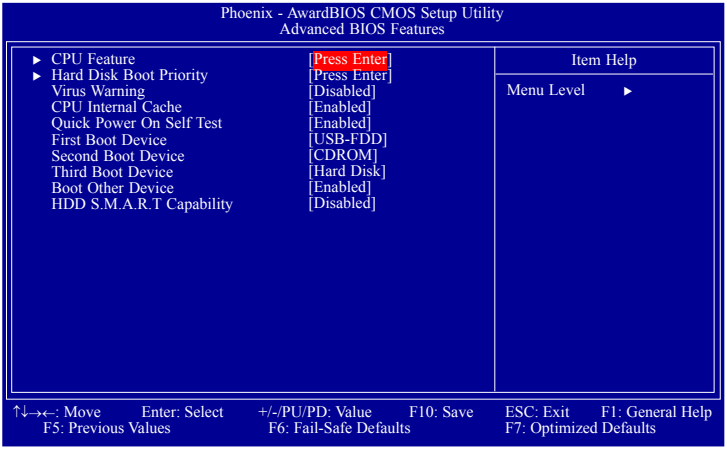
Displays the amount of extended memory detected during boot-up.

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.

CPU Feature

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

Hard Disk Boot Priority

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

Virus Warning

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

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

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field.

CPU Internal Cache

This field speeds 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

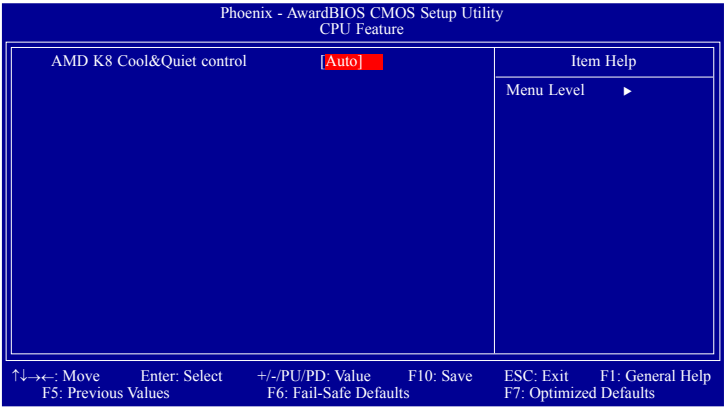
Select the drive to boot first, second and third in the "First Boot Device" "Second Boot Device" and "Third Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set "Boot Other Device" to Enabled if you wish to boot from another device.

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.

CPU Feature

This field is used to configure the CPU that is installed on the system board. Move the cursor to this field then press <Enter>.



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

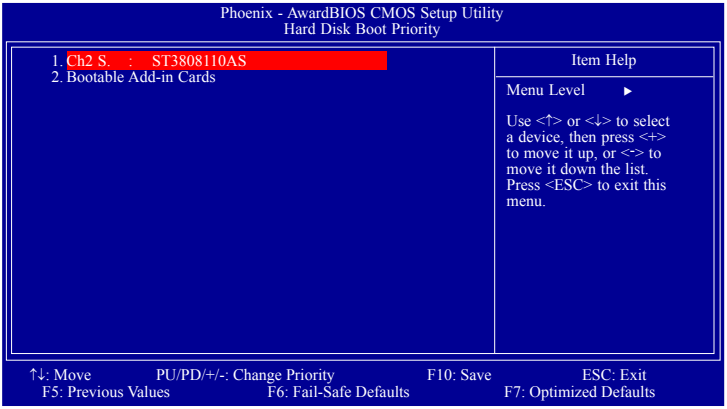
AMD K8 Cool&Quiet Control

Auto
Enables AMD's Cool&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&Quiet technology.

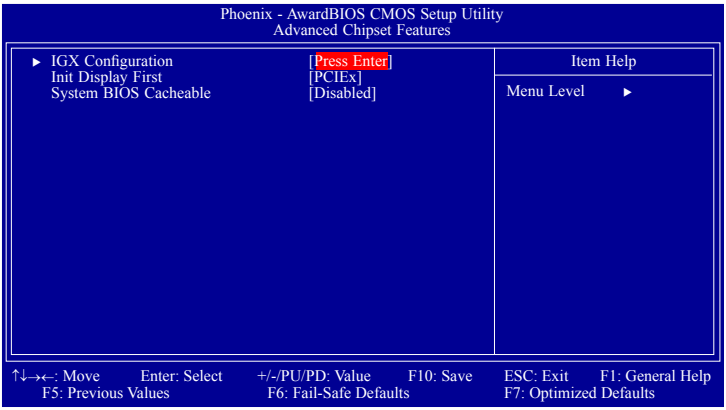
Hard Disk Boot Priority

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.

IGX Configuration

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

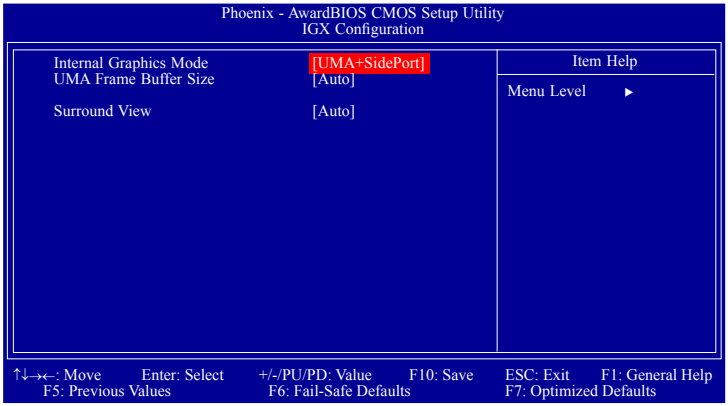
Init Display First

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.

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

IGX Configuration



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

Internal Graphics Mode

Selects the amount of system memory used by the internal graphics device.

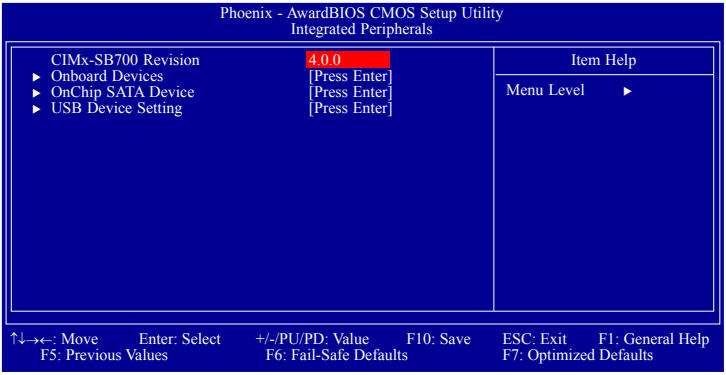
UMA Frame Buffer Size

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.

Surround View

This field is used to enable the Surround View function which allows connecting up to 4 independent display devices.

Integrated Peripherals



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

CIMx-SB700 Revision

This field shows the revision of SB700.

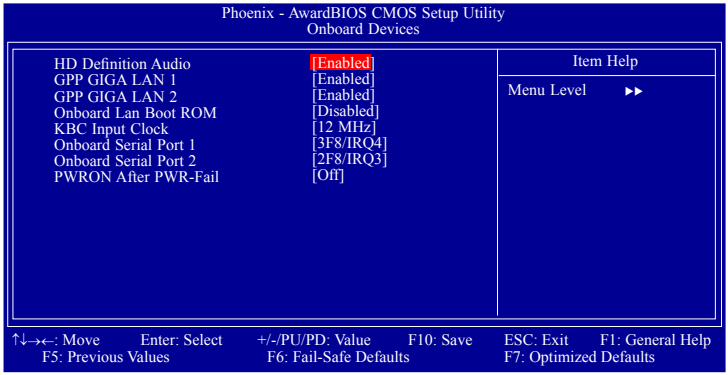
Onboard Devices

Onchip SATA Device

USB Device Setting

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

Onboard Devices



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

HD Definition Audio

Enables or disables the onboard HD audio.

GPP GIGA LAN 1 and GPP GIGA LAN 2

Enables or disables the onboard LAN.

Onboard LAN Boot ROM

Enable this field if you wish to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly.

If you wish to change the boot ROM's settings, type the <Shift> and <F10> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Shift> + <F10>) only when this field is enabled.

KBC Input Clock

This is used to select the input clock of your keyboard. The options are: 8MHz and 12MHz. The default is 8MHz.

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.

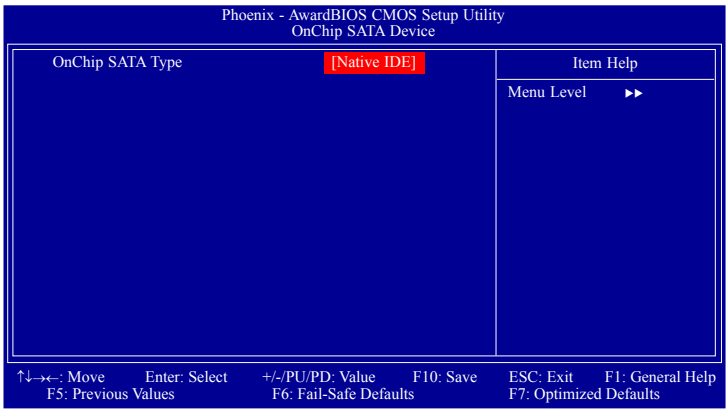
PWRON After PWR-Fail

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

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

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

OnChip SATA Device



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

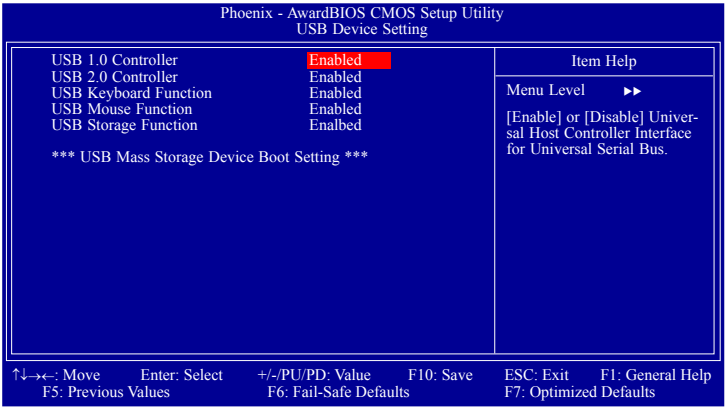
OnChip SATA Type

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.

USB Device Setting



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

USB 1.0 Controller

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

USB 2.0 Controller

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

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.

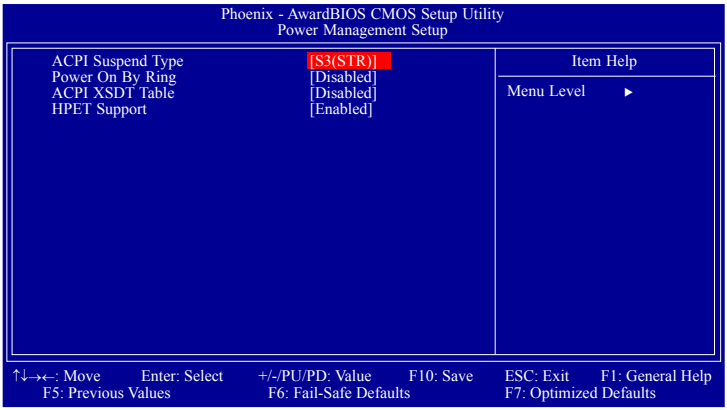
If a PS/2 mouse is not available and you need to use a USB mouse to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

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.



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

ACPI Suspend Type

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

S1(POS)
Enables the Power On Suspend function.

S3(STR)
Enables the Suspend to RAM function.

Power On By Ring

When enabled, the system will power-on to respond to calls coming from an external modem.

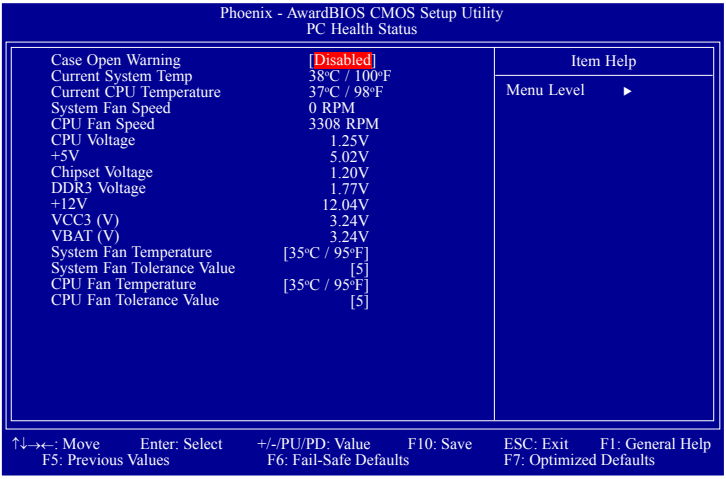
ACPI XSDT Table

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.

PC Health Status



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

Case Open Warning

Set this field to Enabled to allow the system to alert you of a chassis intrusion event.

Current System Temp to VBAT (V)

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

System Fan Temperature

Selects the temperature of the system.

System Fan Tolerance Value

This field is used to select the tolerance value of the system's temperature. The options are 1, 2, 3, 4 and 5. If you selected 3, it allows the temperature to run 3 degrees higher or lower. The system fan will smartly adjust it's speed in accordance to the temperature.

CPU Fan Temperature

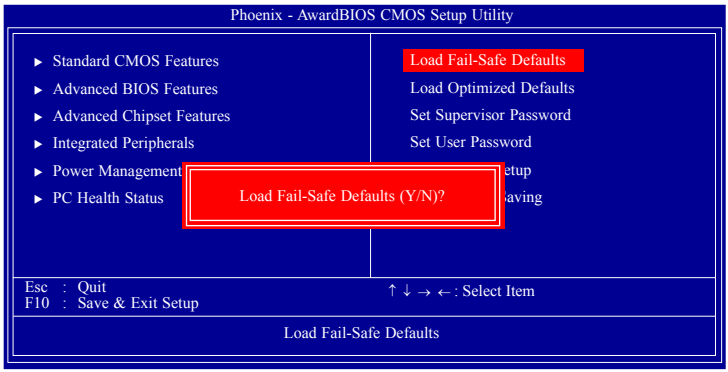
Selects the temperature of the CPU.

CPU Fan Tolerance Value

This field is used to select the tolerance value of the CPU's temperature. The options are 1, 2, 3, 4 and 5. If you selected 3, it allows the temperature to run 3 degrees higher or lower. The CPU fan will smartly adjust it's speed in accordance to the temperature.

Load Fail-Safe Defaults

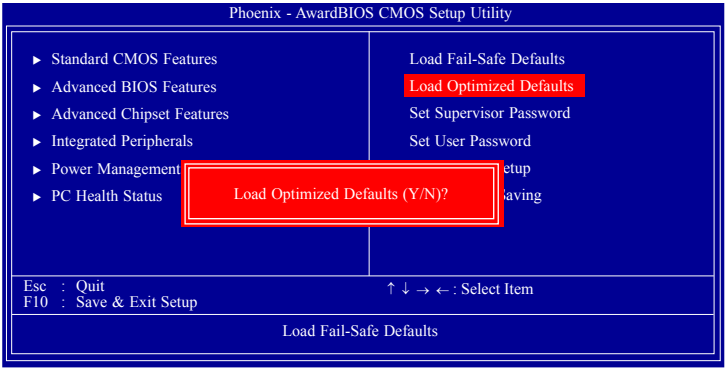
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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

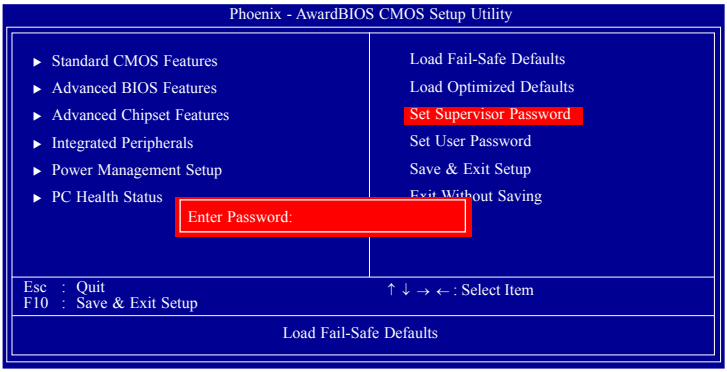


Type <Y> and press <Enter> to load the Setup default values.

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:

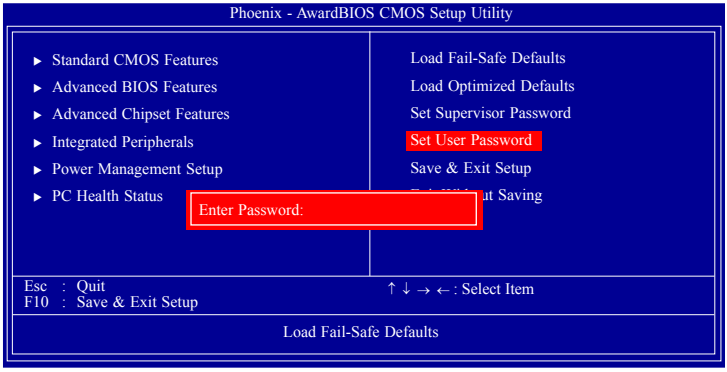
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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



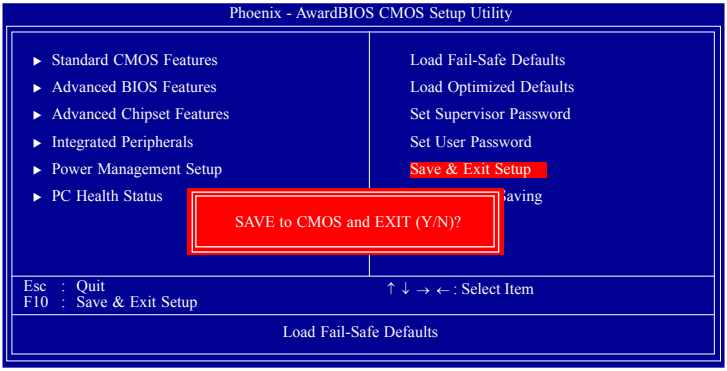
Type in the password. You are limited to eight characters. When done, the message below will appear:

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

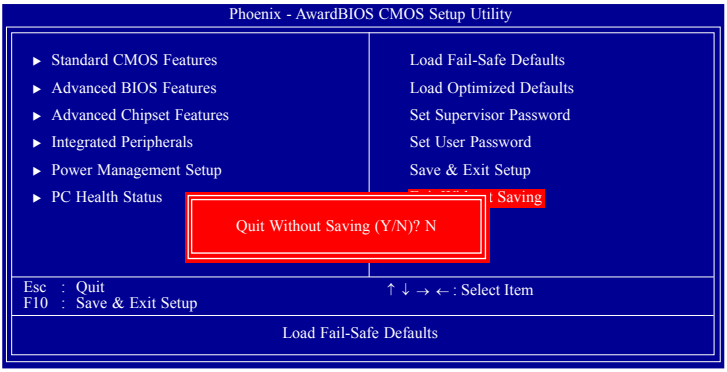
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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 <Del> 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 <Del> 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

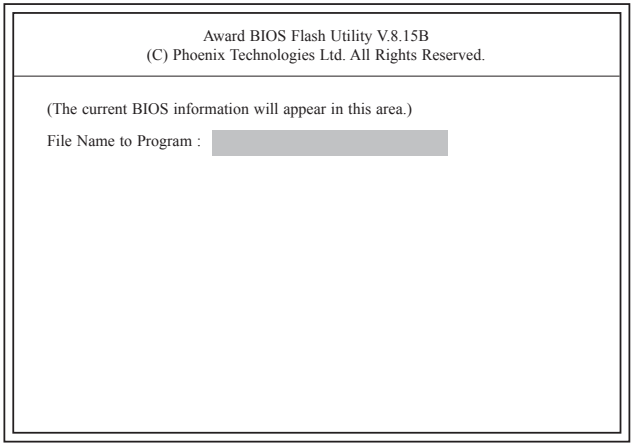
To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. You can download them from DFI's web site or contact technical support or your sales representative.

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

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

3. Save the setting and reboot the system.

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



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

6. The following will appear.

   Do You Want to Save BIOS (Y/N)

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

7. The following will then appear.

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

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

Chapter 4 - Supported Software

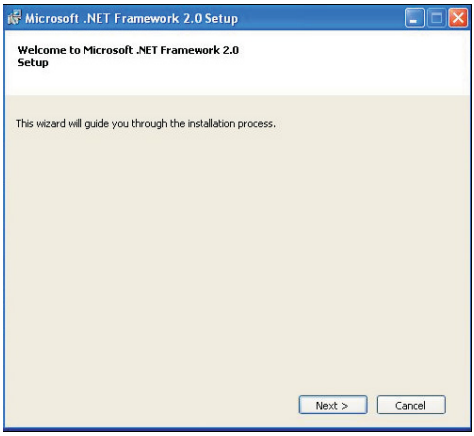
The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

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 2.0

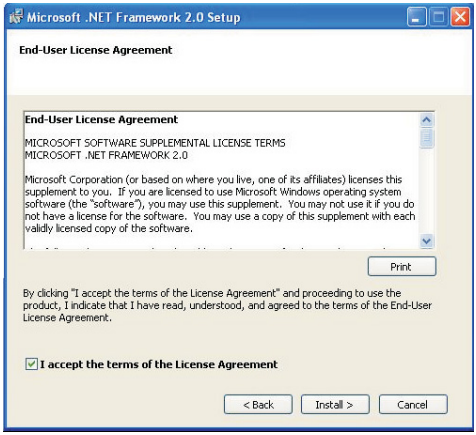
To install the driver, click "Microsoft .NET Framework 2.0" on the main menu.

1. To start the installation, click Next.

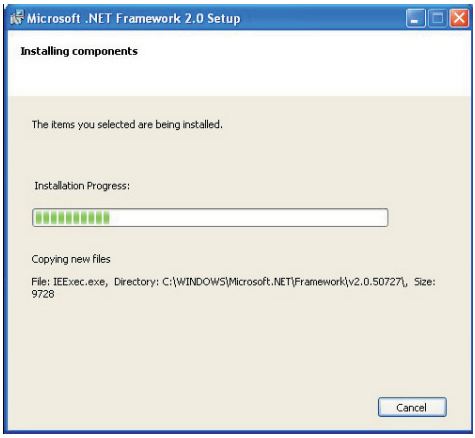


2. Read the license agreement carefully.

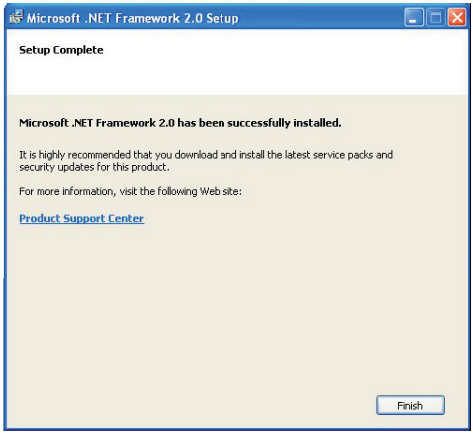
   Click "I accept the terms of the License Agreement" and then click Install.



3. Setup is currently installing the driver.



4. Click Finish.

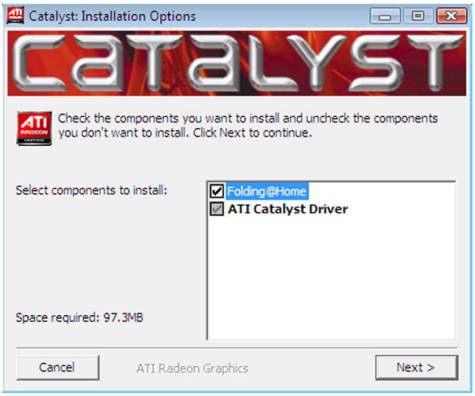


ATI Chipset Software

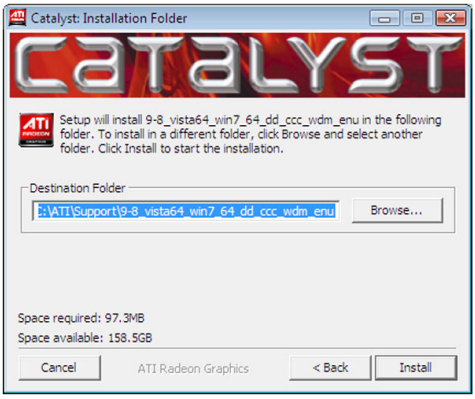
Note:
If the graphics card you intend to use is an ATI graphics card, you must first install the ATI Chipset Software (that is in the provided CD) prior to installing the graphics card's driver.

To install, click "ATI Chipset Software" on the main menu.

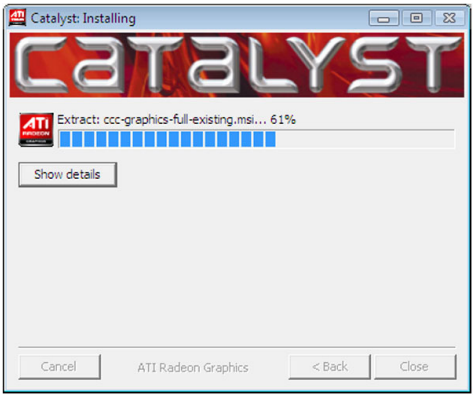
1. Select the components you want to install then click Next.



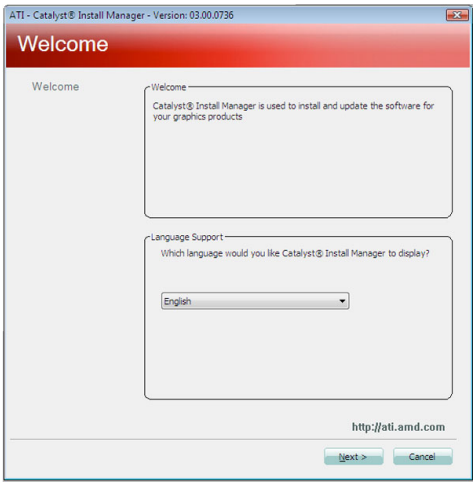
2. Click Install to install to the destination folder or click Browse to select another folder.



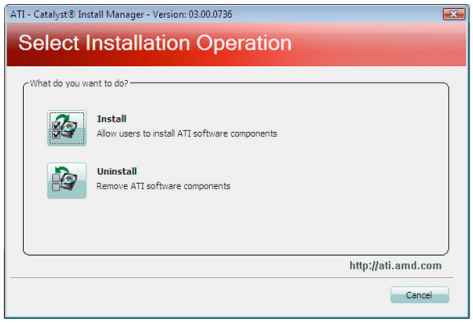
4. The installation program is extracting the files needed to install the driver.



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

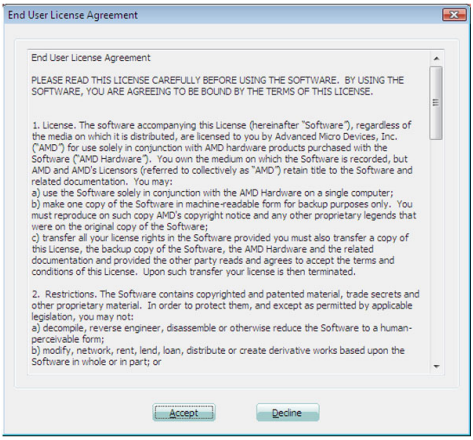


6. The installation program is now ready to install the driver. Click Install.

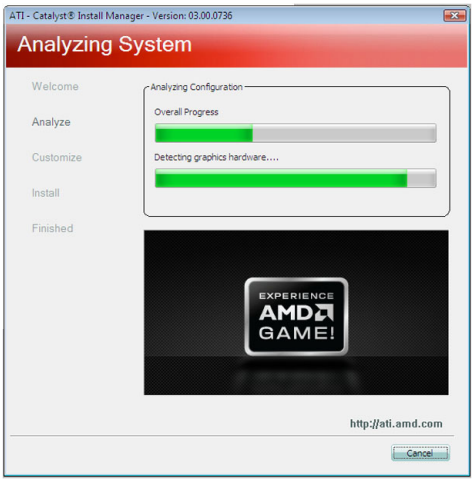


7. Select the component (Express or Custom) you want to install then click Next.

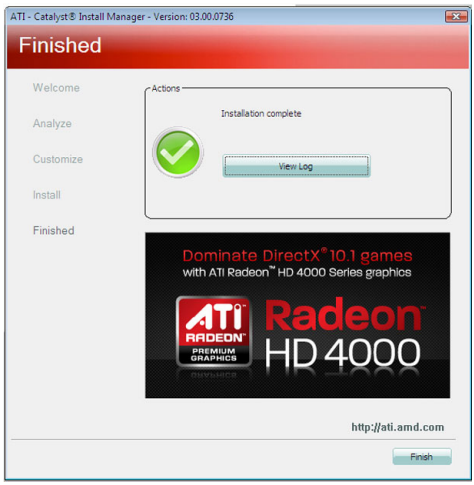
8. Read the license agreement then click Accept.



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

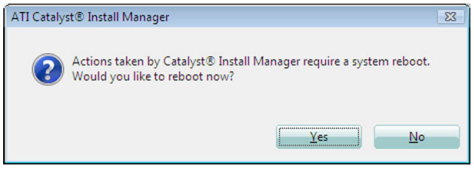


10. The driver has been completely installed. Click Finish.



11. Click Yes to reboot the system.

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

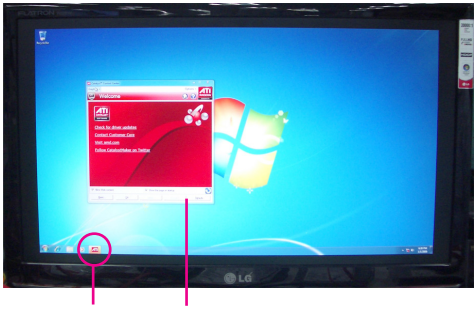


Scaling the Desktop on a HDMI Monitor

When the system is connected with a HDMI monitor, the image or window on your desktop may not appear maximized to cover the full screen. The steps below will guide you on how to scale the window to it's maximum full screen.

1. The photo on the right shows the desktop image smaller than the actual screen size.

2. Double-click the ATI icon on the toolbar to open the Catalyst Control Center utility.

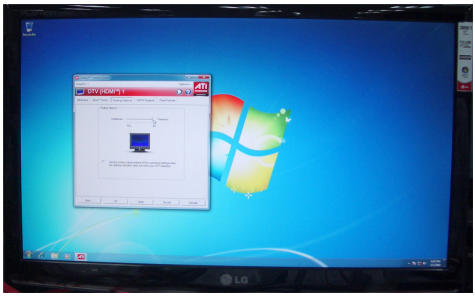


3. Click the Graphics menu and then select Desktops & Displays.

4. Click ▼ and then select Configure.

5. Click Scaling Options.

6. Drag the slider to 0% (Overscan) and then click OK.

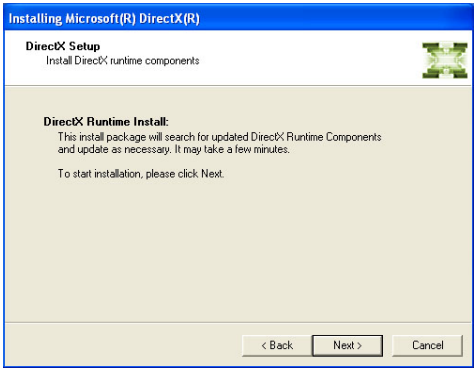


Microsoft DirectX 9.0C Driver

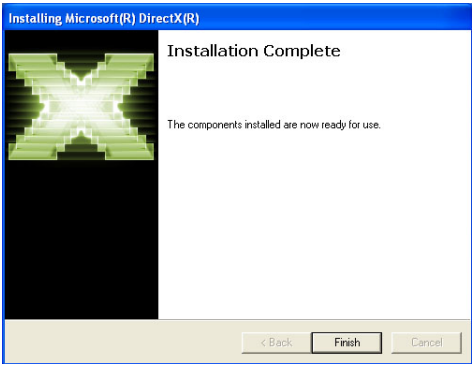
To install the driver, click "Microsoft DirectX 9.0C Driver" on the main menu.

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

2. To start installation, click Next.



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

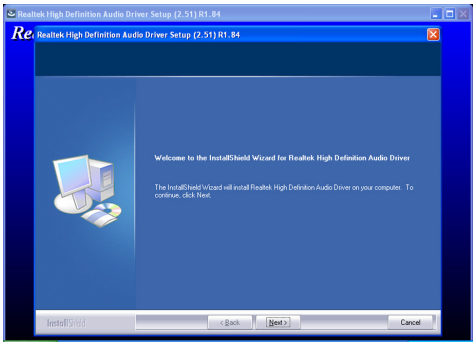


Audio Drivers

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

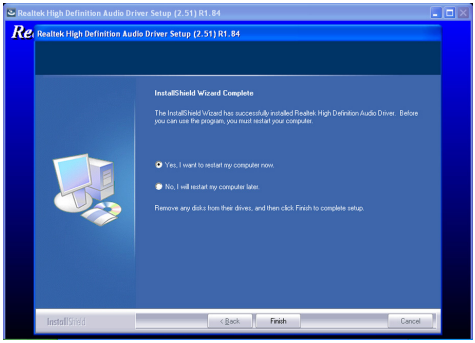
1. Setup is now ready to install the audio driver. Click Next.

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.

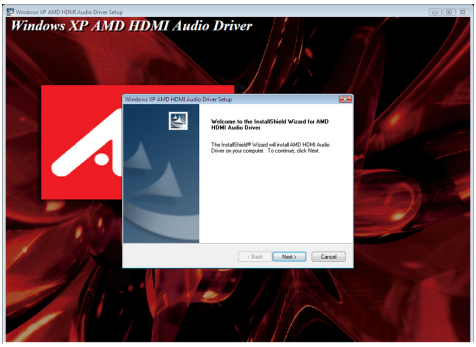
   Restarting the system will allow the new software installation to take effect.



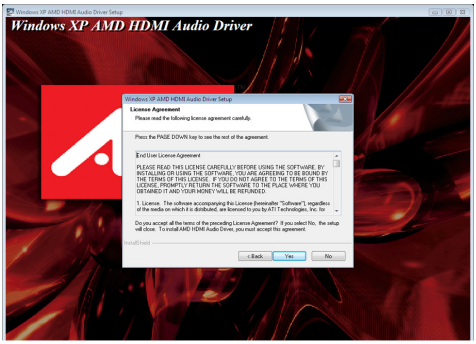
HDMI Audio Drivers

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

1. You are now ready to install the driver. Click Next.

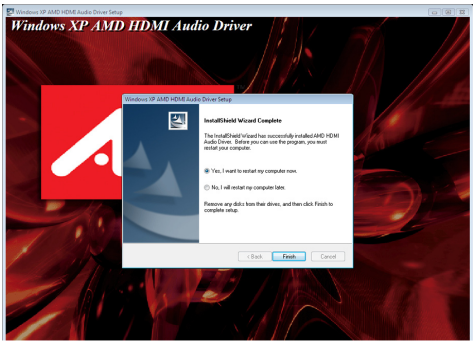


2. Read the license agreement then click Yes.



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

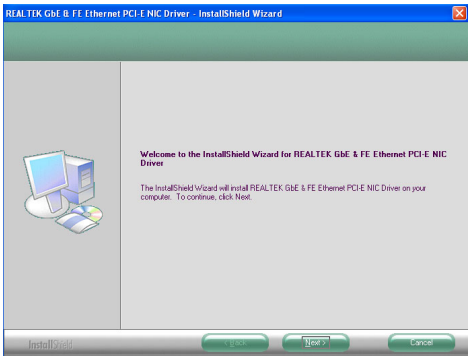
   Restarting the system will allow the new driver installation to take effect.



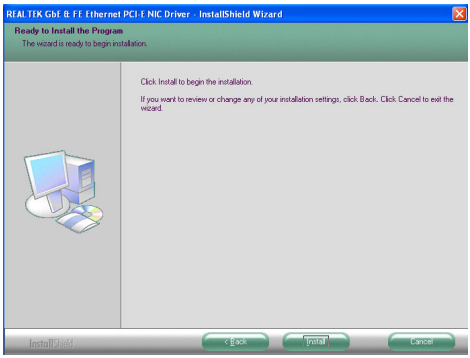
LAN Drivers

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

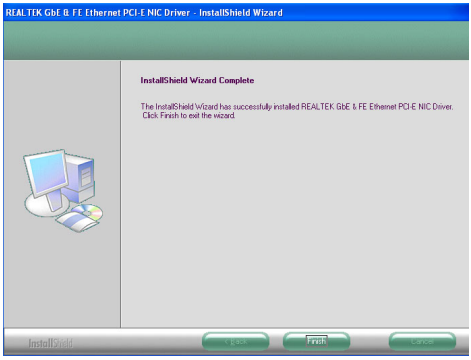
1. Setup is ready to install the driver. Click Next.



2. Click Install to begin the installation.



3. After completing installation, click Finish.



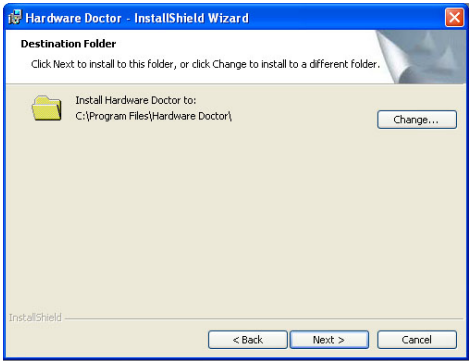
Hardware Monitor for Windows

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.

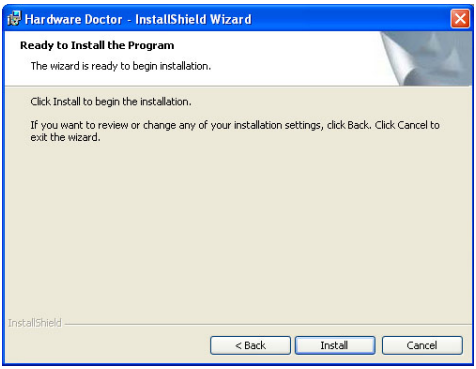
To install, click "Hardware Monitor for Windows" on the main menu.

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

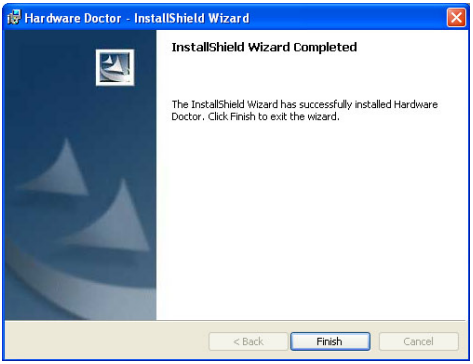
2. Click Next to install or click Change to select another folder.



3. Click Install to begin the installation.



4. After completing installation, click Finish.



RAID Drivers

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.

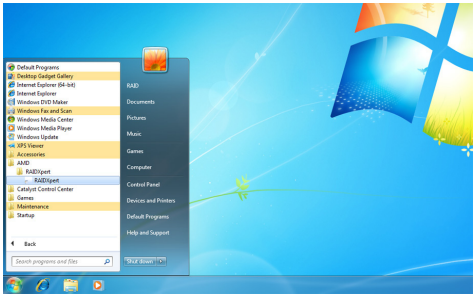
3. Insert a blank floppy diskette then click OK.

4. The system will format and write the necessary driver files into the diskette.

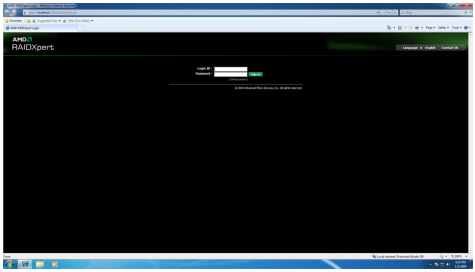
RAIDXpert Utility

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.

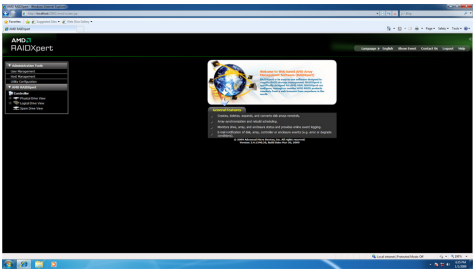
1. On your desktop, click Start -> AMD -> RAIDXpert -> RAIDXpert.



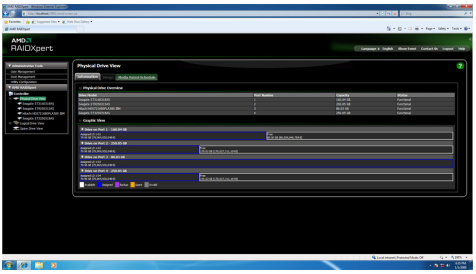
2. Enter the Login ID and Password. The default ID and password is "admin". Click Sign In.



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



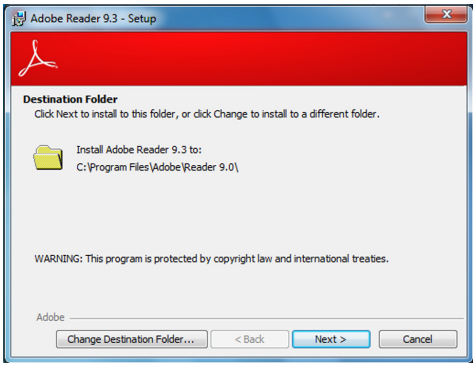
4. Click Physical Drive Overview to view the current status of the drives.



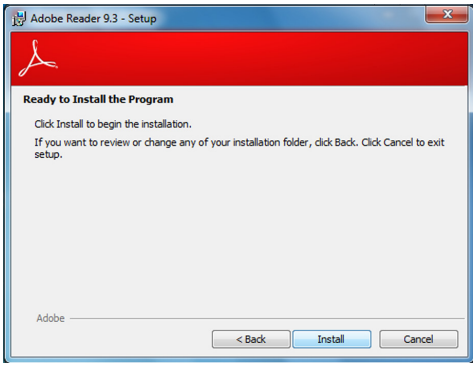
Adobe Acrobat Reader 9.3

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

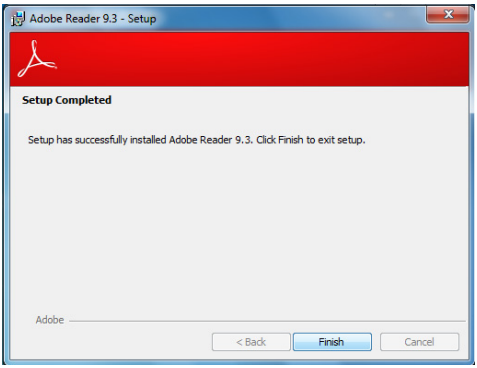
1. Click Next to install or click Change Destination Folder to select another folder.



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.

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 <Del> 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.

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 offical website.

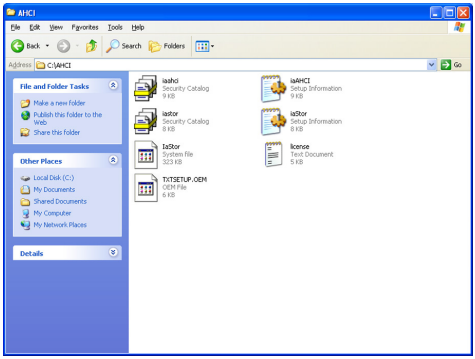
   http://www.nliteos.com/download.html

2. Install nLite.

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

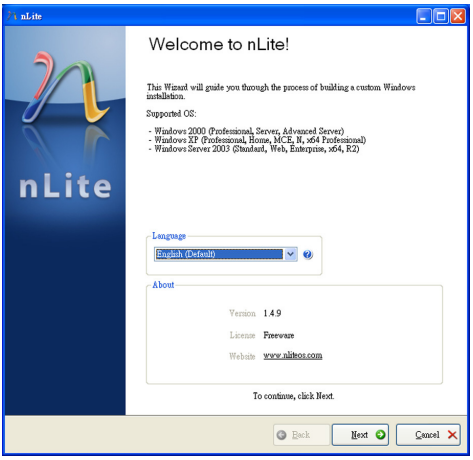
3. Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

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



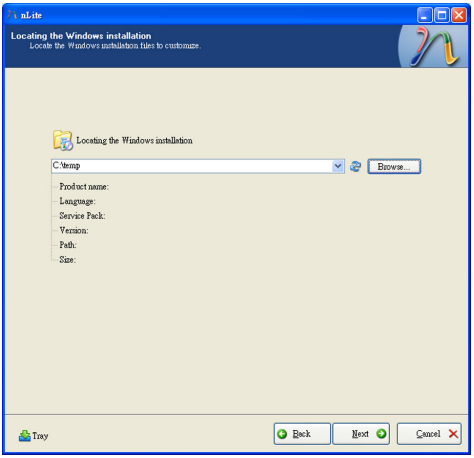
4. Insert the XP installation disc into an optical drive.

5. Launch nLite. The Welcome screen will appear. Click **Next**.

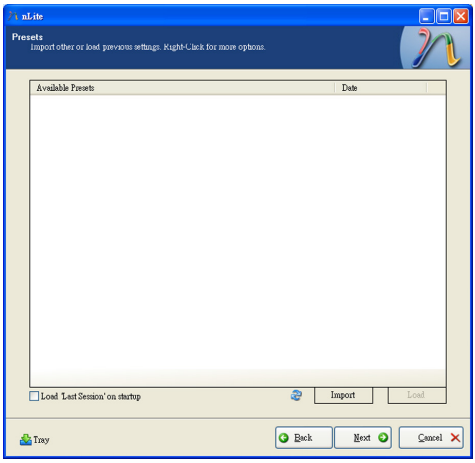


6. Click **Next** to temporarily save the Windows installation files to the designated default folder.

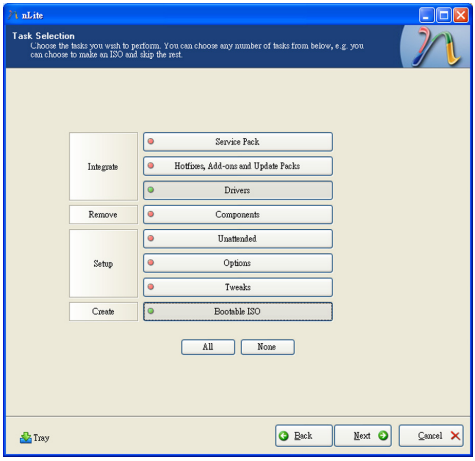
   If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.



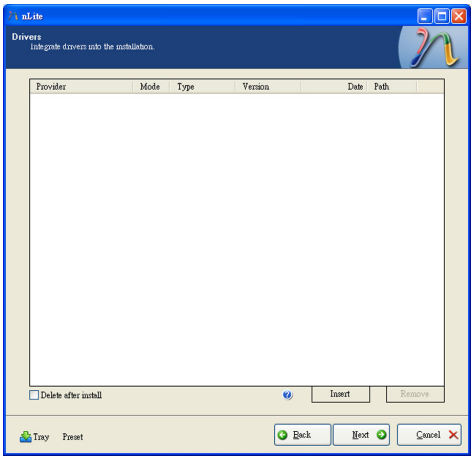
7. Click **Next**.



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

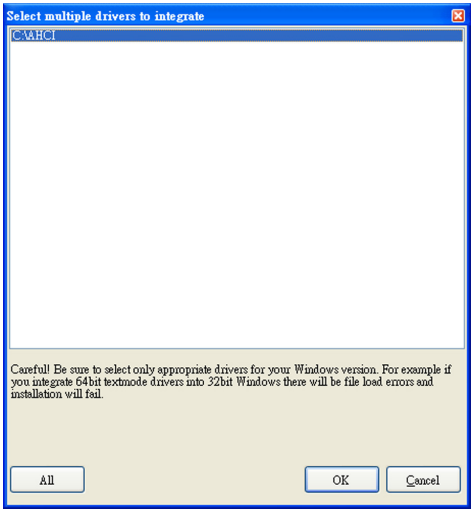


9. Click **Insert** and then select **Multiple driver folder** to select the drivers you will integrate. Click **Next**.

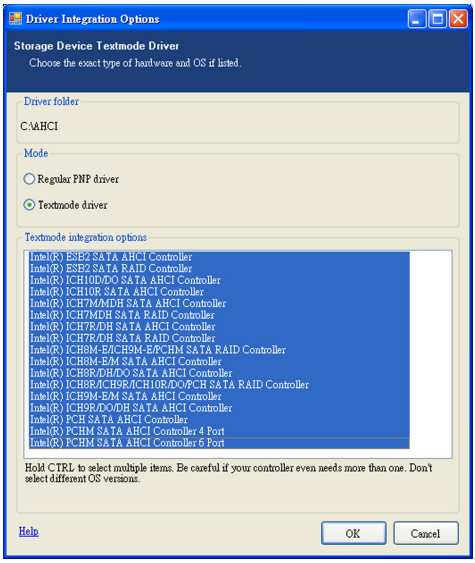


10. Select only the drivers appropriate for the Windows version that you are using and then click **OK**.

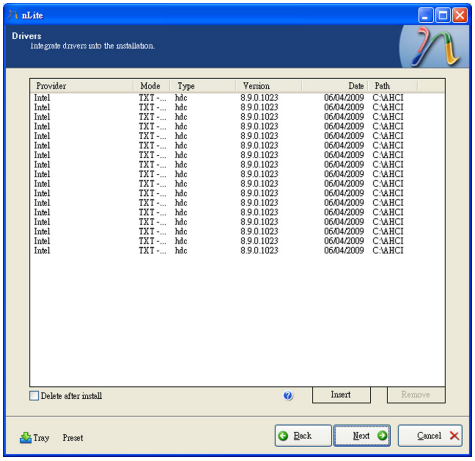
    Integrating 64-bit drivers into 32-bit Windows or vice versa will cause file load errors and failed installation.



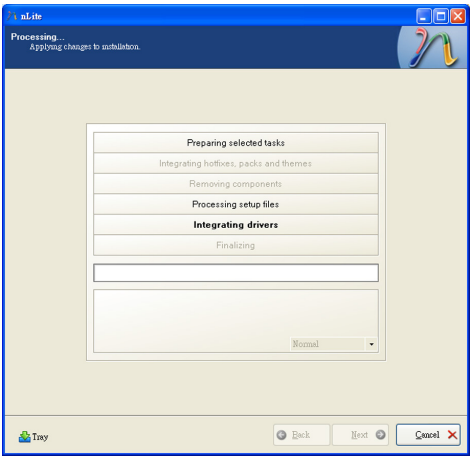
11. If you are uncertain of the southbridge chip used on your motherboard, select all RAID/AHCI controllers and then click **OK**.



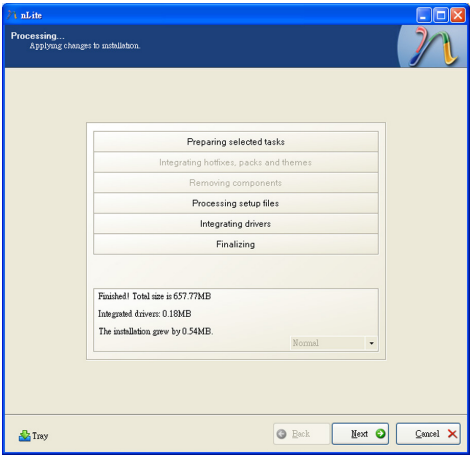
12. Click **Next**.



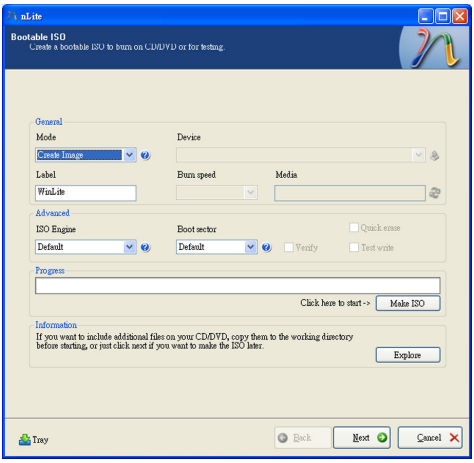
13. The program is currently integrating the drivers and applying changes to the installation.



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

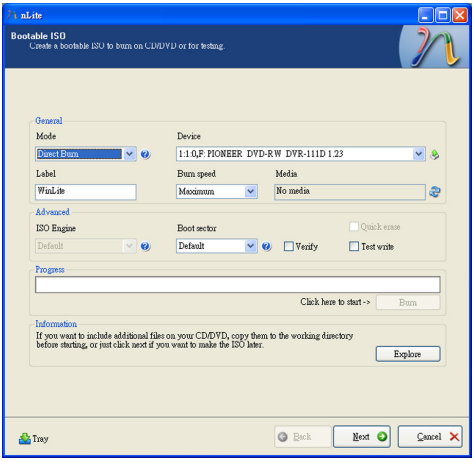


15. To create an image, select the **Create Image** mode under the General section and then click **Next**.



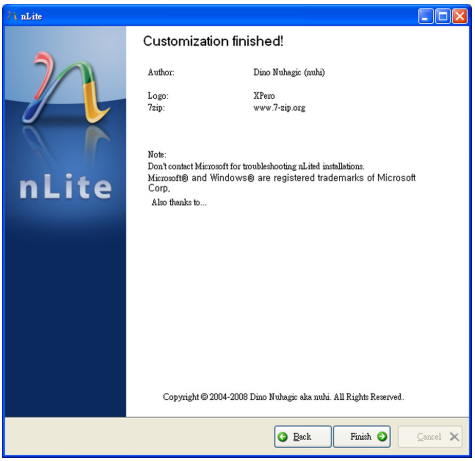
16. Or you can choose to burn it directly to a disc by selecting the **Direct Burn** mode under the General section.

    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

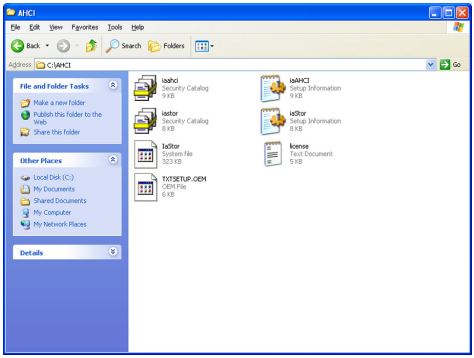
The installation steps below will guide you in configuring your SATA drive to AHCI mode.

1. Enter the BIOS utility and configure the SATA controller to IDE mode.

2. Install Windows XP but do not press F6.

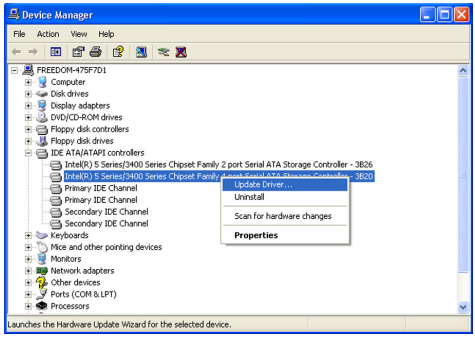
3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

   Transfer the downloaded driver files to C:\AHCI.



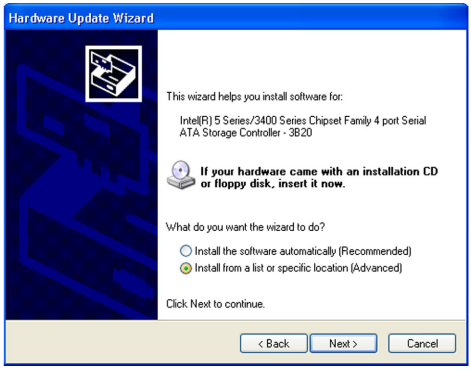
4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

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

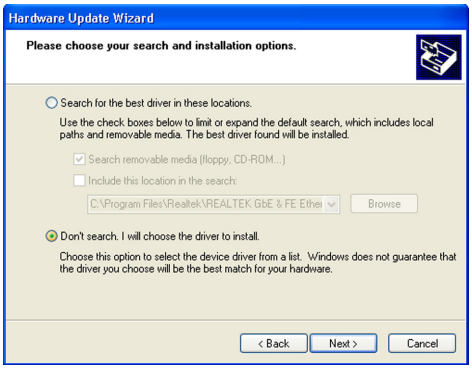


5. In the Hardware Update Wizard dialog box, select **"No, not this time"** then click **Next**.

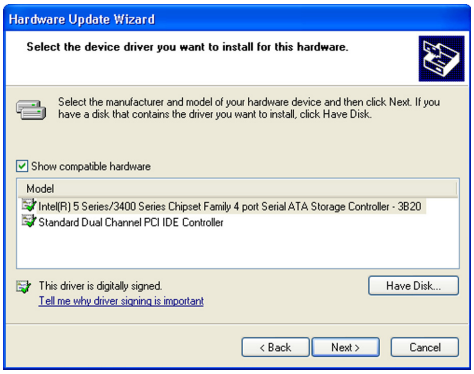
6. Select **"Install from a list or specific location (Advanced)"** and then click **Next**.



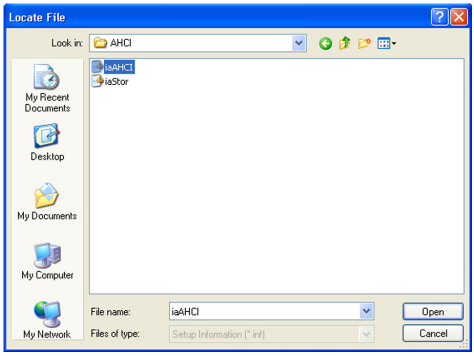
7. Select **"Don't search. I will choose the driver to install"** and then click **Next**.



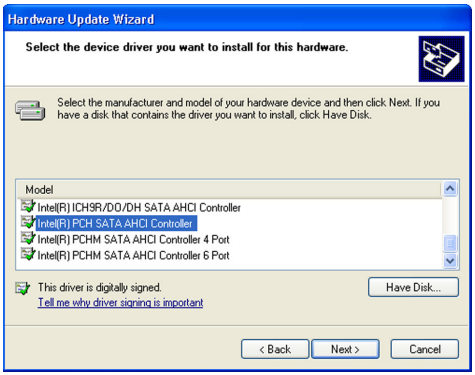
8. Click **"Have Disk"**.



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

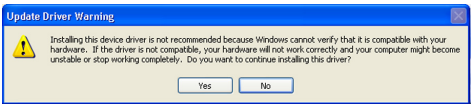


10. Select the appropriate AHCI Controller of your hardware device and then click **Next**.

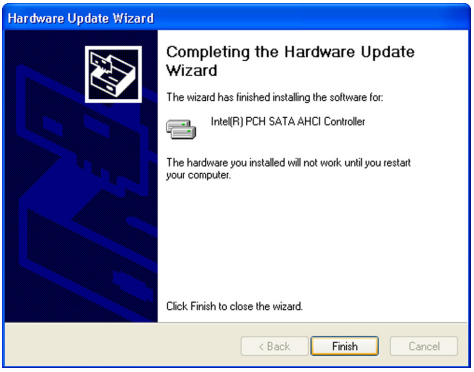


11. A warning message appeared because the selected SATA controller did not match your hardware device.

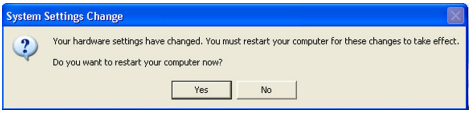
    Ignore the warning and click **Yes** to proceed.



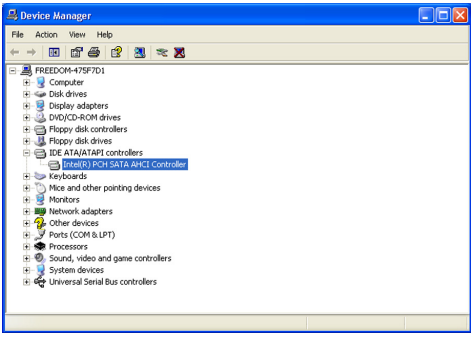
12. Click **Finish**.



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.

System Error Message

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

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

Keyboard error or no keyboard present

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

Manufacturing POST loop

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

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

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

Appendix 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.