Rev. AG+
System Board
User's Manual

69630328

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Caution

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

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

Battery:

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

Joystick or MIDI port:

- Do not use any joystick or MIDI device that requires more than 10A current at 5V DC. There is a risk of fire for devices that exceed this limit.

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.

Important Configuration and Driver Installation Rules

HighPoint RAID IDE Controller

By default, the HighPoint RAID IDE controller is enabled. If you are not using this function, make sure to set the "RAID Device Control" field in the Genie BIOS Setting submenu of the Award BIOS to Disabled.

Make sure to follow the rule mentioned above. Doing it otherwise will slow down the boot up time and affect the performance of the system.

Driver Installation Rules

Please follow the installation sequence below.

1. Install the "Audio Drivers".
2. Install the "Intel Chipset Software Installation Utility".
3. Install the other drivers and utilities.

Make sure to follow this sequence. Doing it otherwise will slow down the boot up time and affect the performance of the system.

Notice

This user's manual contains detailed information about the system board. If, in some cases, some information doesn't match those shown in the multilingual manual, the multilingual manual should always be regarded as the most updated version. The multilingual manual is included in the system board package.

To view the user's manual, insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. Click the "TOOLS" icon then click "Manual" on the main menu.

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Chapter 1 - Introduction

1.1 Features and Specifications

1.1.1 Features

Chipset

- Intel® 875P chipset
  - Intel® 82875P Memory Controller Hub (MCH)
  - Intel® 82801ER I/O Controller Hub (ICH5R)

Processor

The system board is equipped with Socket 478 for installing one of the following supported processors.

- Intel® Pentium® 4 Processor with Hyper-Threading Technology
  - 800MHz/533MHz system data bus
- Intel® Pentium® 4 Northwood processor
  - 533MHz/400MHz system data bus
- Intel® Celeron® Northwood processor
  - 400MHz system data bus

Note:
Refer to section 1.2 and appendix A for more information on the Hyper-Threading Technology.

System Memory

- Supports dual channel (128-bit wide) memory interface
  - Each channel supports 2 DIMM sockets
- Supports up to 4GB system memory
- Supports Dynamic mode to optimize system performance
- Synchronous operation with processor system bus
  - PC2100/PC2700/PC3200 (DDR266/DDR333/DDR400) with 800MHz FSB CPU (supports PAT mode). DDR333 will run at 320MHz memory frequency when used with 800MHz FSB CPU.

- Use PC2100/PC2700 (DDR266/DDR333) with 533MHz FSB CPU
- Use PC2100 (DDR266) with 400MHz FSB CPU

- Supports ECC/non-ECC DIMMs
- Supports unbuffered DIMMs

Density	64 Mbit		128 Mbit		256 Mbit		512 Mbit	
Density Width	X8	X16	X8	X16	X8	X16	X8	X16
Single/Double	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS
184-pin DDR	64/128MB	32MB/NA	128/256MB	64MB/NA	256/512MB	128MB/NA	512/1024MB	256MB/NA

Performance Acceleration Technology (PAT)

PAT mode is supported only when the system uses DDR400 with 800MHz FSB CPU. PAT performs data transactions directly from the CPU to the system memory, bypassing the normal path of operation. This reduces the MCH timing therefore providing improved system performance.

Expansion Slots

The system board is equipped with 1 AGP slot and 5 PCI slots.

AGP (Accelerated Graphics Port)

- Supports AGP 3.0 (AGP 4x and 8x) and AGP 2.0 (AGP 1x and 4x) spec.
- Supports 1.5V AGP 8x (2.13GB/sec.) and AGP 4x (1066MB/sec.) add-in cards.

  AGP is an interface designed to support high performance 3D graphics cards for 3D graphics applications. It handles large amounts of graphics data with the following features:

  - Pipelined memory read and write operations that hide memory access latency.
  - Demultiplexing of address and data on the bus for nearly 100 percent efficiency.

Note:
AGP 2x and 3.3V AGP cards are not supported.

Onboard Audio Features

- 20-bit stereo full-duplex codec with independent variable sampling rate
- High quality differential CD input
- True stereo line level outputs
- S/PDIF-in/out interface
- 6-channel audio output

S/PDIF

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

6-channel Audio

The 6-channel audio output function is supported by using the 4-channel connector, the audio jacks at the rear panel and configuring the audio driver. Please refer to chapters 2 and 4

Onboard LAN Features

- Uses 82547EI Gigabit LAN CSA (Communication Streaming Architecture) interface
- Integrated power management functions
- Full duplex support at both 10 and 100 Mbps
- Supports IEEE 802.3u auto-negotiation
- Supports wire for management

Compatibility

- PCI 2.2 and AC '97 compliant
- Intel AGP version 3.0

ICH5R SATA IDE/RAID0 Interface

Serial ATA is a storage interface that is compliant with SATA 1.0 specification. With speed of up to 1.5Gbps, it improves hard drive performance even in data intensive environments such as audio/video, consumer electronics and entry-level servers.

- Two SATA (Serial ATA) interfaces which are compliant with SATA 1.0 specification (1.5Gbps interface)
- Supports RAID 0 and 1

ATA RAID - Redundant Array of Independent Disk

- Uses HighPoint 372N RAID controller
- RAID 0, 1, 0+1 and 1.5
  - RAID 1.5 performs data stripping and mirroring simultaneously using two drives only
- Two independent IDE channels support up to 4 drives (ATA/33, ATA/66, ATA/100, ATA/133 or EIDE)
- Supports PIO modes 0/1/2/3/4, DMA modes 0/1/2 and UDMA modes 0/1/2/3/4/5/6

PCI Bus Master IDE Controller

- Two PCI IDE interfaces support up to four IDE devices
- Supports ATA/33, ATA/66 and ATA/100 hard drives
- PIO Mode 4 Enhanced IDE (data transfer rate up to 14MB/sec.)
- Bus mastering reduces CPU utilization during disk transfer
- Supports ATAPI CD-ROM, LS-120 and ZIP

IrDA Interface

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

USB Ports

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.

BIOS

- Award BIOS, Windows® 98SE/2000/ME/XP Plug and Play compatible
- Genie BIOS provides:
  - CPU/DRAM overclocking in 1MHz stepping
  - AGP/PCI/SATA overclocking
  - CPU/DIMM/AGP overvoltage
- Flash EPROM for easy BIOS upgrades
- Supports DMI 2.0 function
- 4Mbit flash memory

Desktop Management Interface (DMI)

The system board comes with a DMI 2.0 built into the BIOS. The DMI utility in the BIOS automatically records various information about your system configuration and stores these information in the DMI pool, which is a part of the system board's Plug and Play BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. Refer to chapter 4 for instructions on using the DMI utility.

Rear Panel I/O Ports (PC 99 color-coded connectors)

- 4 USB 2.0/1.1 ports
- 1 RJ45 LAN port
- 2 NS16C550A-compatible DB-9 serial ports
- 1 DB-25 parallel port
- 1 mini-DIN-6 PS/2 mouse port
- 1 mini-DIN-6 PS/2 keyboard port
- 3 audio jacks: line-out, line-in and mic-in

I/O Connectors

- 2 connectors for 4 additional external USB 2.0/1.1 ports
- 1 front audio connector for external line-out and mic-in jacks
- 1 connector for an external game/MIDI port
- 2 internal audio connectors (CD-in and AUX-in)
- 1 4-channel audio output connector
- 1 S/PDIF-in/out connector

- 1 connector for IrDA interface
- 2 RAID IDE connectors
- 2 Serial ATA connectors
- 2 IDE connectors
- 1 floppy drive interface supports up to two 2.88MB floppy drives
- 2 ATX power supply connectors
- 1 Wake-On-LAN connector
- CPU fan, chassis fan and second fan connectors

1.1.2 System Health Monitor Functions

The system board is capable of monitoring the following "system health" conditions.

- Monitors CPU/system temperature and overheat alarm
- Monitors CPU/1.5V/5VSB/VBAT/3.3V/5V/±12V voltages and failure alarm
- Monitors the fan speed of the CPU fan, chassis fan and second fan; and failure alarm
- Automatic chassis fan and second fan on/off control
- Read back capability that displays temperature, voltage and fan speed

Refer to the "PC Health Status" section in chapter 3 and the "Hardware Monitor" section in chapter 4 for more information.

1.1.3 Intelligence

CPU Fan Protection

The CPU Fan Protection function has the capability of monitoring the CPU fan when the system boots. Once it has detected that the CPU fan did not rotate, 5 warning beeps will sound then the system will automatically power-off. This preventive measure has been added to protect the CPU from damage and insure a safe computing environment.

CPU Temperature Protection

The CPU Temperature Protection function has the capability of monitoring the CPU's temperature during system boot-up. Once the system has detected that the CPU's temperature exceeded the temperature limit defined in the BIOS, 5 warning beeps will sound then the system will automatically power-off.

Automatic Chassis/Second Fan Off

The chassis fan and second fan will automatically turn off once the system enters the Suspend mode.

Dual Function Power Button

Depending on the setting in the "Soft-Off By PWR-BTTN" field of the Power Management Setup, this switch will allow the system to enter the Soft-Off or Suspend mode.

Wake-On-Ring

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.

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

Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port, via a PCI LAN card that uses the PCI PME (Power Management Event) signal or via a LAN card that uses the Wake-On-LAN connector. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

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

Wake-On-Keyboard/Wake-On-Mouse

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

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

Wake-On-USB Keyboard

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

Important:
- *If you are using the Wake-On-USB Keyboard function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A.*
- *If you are using the Wake-On-USB Keyboard function for 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

RTC Timer to Power-on the System

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

ACPI

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 98SE/2000/ME/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98SE/2000/ME/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is

capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

Important:
The 5VSB power source of your power supply must support ≥1A.

AC Power Failure Recovery

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

Virus Protection

Most viruses today destroy data stored in hard drives. The system board is designed to protect the boot sector and partition table of your hard disk drive.

1.2 Hyper-Threading Technology Functionality Requirements

Enabling the functionality of Hyper-Threading Technology for your computer system requires **ALL** of the following platforms.

Components:

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

Please refer to Appendix A for information about enabling the functionality of the Hyper-Threading Technology. For more information on Hyper-Threading Technology, go to: www.intel.com/info/hyperthreading.

1.3 Package Checklist

The system board package contains the following items:

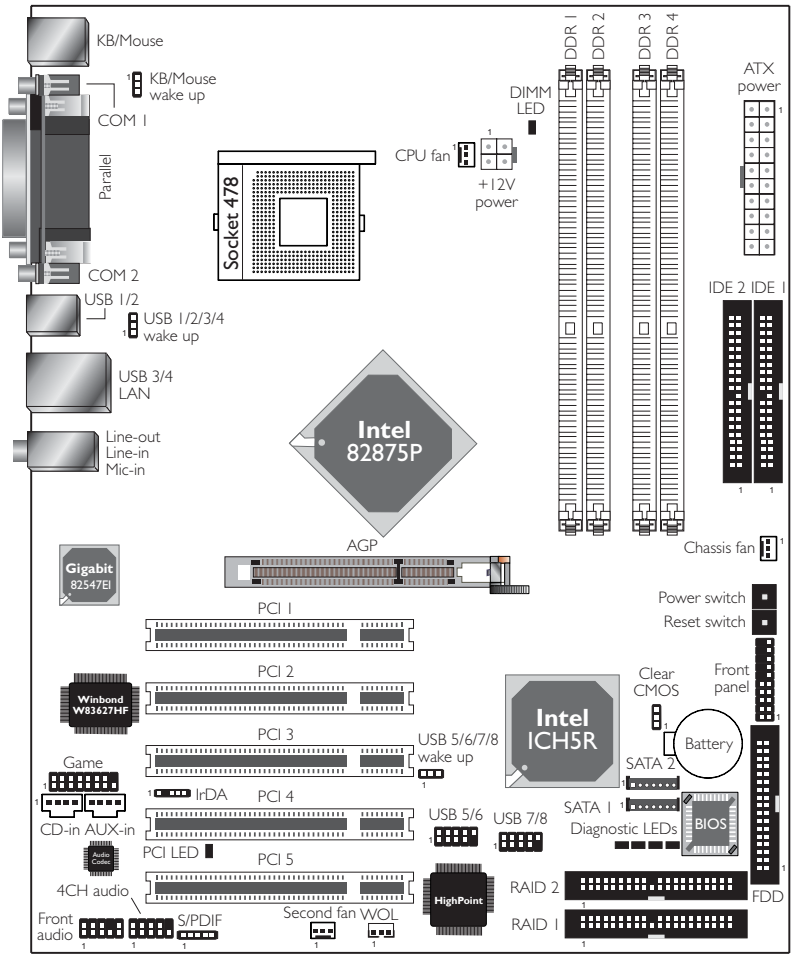
- ☑ The system board
- ☑ Two users manuals
- ☑ Two IDE round cables for ATA/33, ATA/66, ATA/100 or ATA/133 IDE drives
- ☑ One 34-pin floppy disk drive round cable
- ☑ Two serial ATA data cables
- ☑ One serial ATA power cable
- ☑ One card-edge bracket mounted with a game/MIDI port
- ☑ One card-edge bracket mounted with one S/PDIF-in port and one S/PDIF-out port
- ☑ One line-out jack and one mic-in jack on the FrontX device
- ☑ Two USB 2.0/1.1 ports on the FrontX device
- ☐ One card-edge bracket mounted with a 4-channel audio output (optional)
- ☑ One PC Transpo kit
- ☑ One FrontX device
- ☑ One I/O shield
- ☑ One thermal paste
- ☑ One LANPARTY sticker
- ☑ One case badge
- ☑ One pack of jumper caps (five 2.54mm jumper caps)
- ☑ One "HighPoint 372 N RAID Drivers" diskette
- ☑ One "Intel ICH5R RAID Driver" diskette
- ☑ One "Mainboard Utility" CD
- ☑ One "WinDVD/WinRIP Utility" CD

If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

Please refer to the LANPARTY Features manual for more information on the FrontX device.

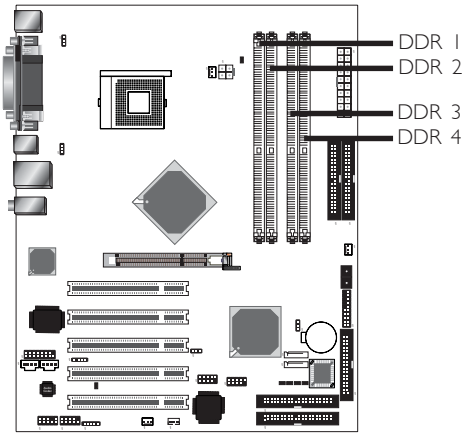
Chapter 2 - Hardware Installation

2.1 System Board Layout



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

2.2 System Memory



The system board supports DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer.

The four DDR DIMM sockets on the system board are divided into 2 channels:

Channel A - DDR 1 and DDR 2
Channel B - DDR 3 and DDR 4

The system board supports the following memory interface.

Single Channel (SC)

Data will be accessed in chunks of 64 bits (8B) from the memory channels.

Virtual Single Channel (VSC)

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

Dual Channel (DC)

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

Dynamic Mode Addressing

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

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

BIOS Setting

"Memory Frequency For" in the Advanced Chipset Features submenu of the BIOS must be set accordingly.

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

Config	DDR 1	DDR 2	DDR 3	DDR 4
No memory	E	E	E	E
Single channel A	P	E	E	E
Single channel A	P	P	E	E
Single channel A	E	P	E	E
Single channel B	E	E	P	E
Single channel B	E	E	P	P
Single channel B	E	E	E	P
Virtual single channel	E	P(**)	E	P(**)
Virtual single channel	E	P	P	E
Virtual single channel	E	P(**)	P	P(**)
Virtual single channel	P	E	E	P
Virtual single channel	P(**)	E	P(**)	E
Virtual single channel	p(**)	E	P(**)	P
Virtual single channel	P	P(**)	E	P(**)
Virtual single channel	P(**)	P	P(**)	E
Virtual single channel	P(**)	P(**)	P(**)	P(**)
Dual channel	E	P(*)(2,4)	E	P(*)(2,4)
Dual channel	P(*)(1,3)	E	P(*)(1,3)	E
Dual channel	P(*)(1,3)	P(*)(2,4)	P(*)(1,3)	P(*)(2,4)

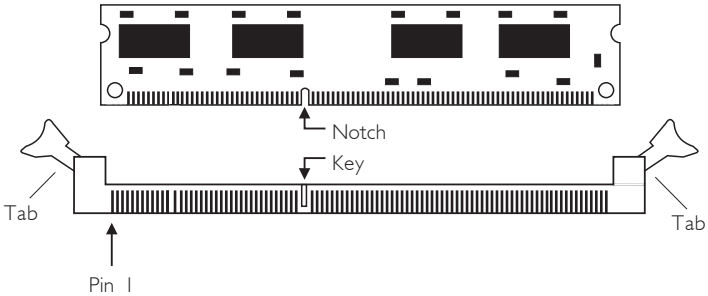
Continued on the next page...

Config	DDR 1	DDR 2	DDR 3	DDR 4
Dynamic Mode Addressing	E	P(*)(2,4) DS	E	P(*)(2,4) DS
Dynamic Mode Addressing	P(*)(1,3) DS	E	P(*)(1,3) DS	E
Dynamic Mode Addressing	P(*)(1,3) DS	P(*)(2,4) DS	P(*)(1,3) DS	P(*)(2,4) DS
Dynamic Mode Addressing	E	P(*)(2,4) SS	E	P(*)(2,4) SS
Dynamic Mode Addressing	P(*)(1,3) SS	E	P(*)(1,3) SS	E
Dynamic Mode Addressing	P(*)(1,3) SS	P(*)(2,4) SS	P(*)(1,3) SS	P(*)(2,4) SS

P - denotes populated
E - denotes empty
* - denotes DIMMs are identical
** - denotes DIMMs are not identical
SS - denotes Single Sided DIMM
DS - denotes Double Sided DIMM
1, 2, 3 or 4 - denotes the DDR DIMM slot

2.2.1 Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.



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

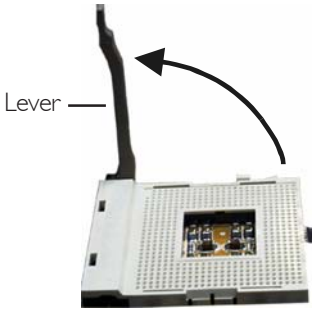
2.3 CPU

2.3.1 Overview

The system board is equipped with a surface mount 478-pin CPU socket. This socket is exclusively designed for installing an Intel processor.

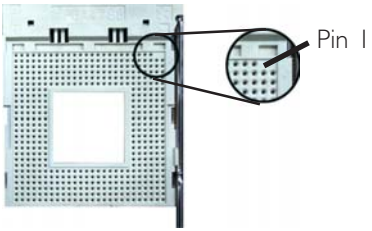
2.3.2 Installing the CPU

1. Locate Socket 478 on the system board.
2. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the socket is lifted to at least this angle otherwise the CPU will not fit in properly.



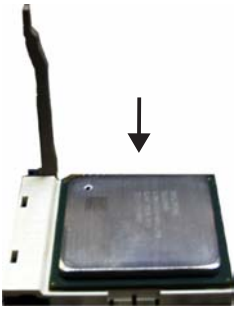
3. Position the CPU above the socket then align the gold mark on the corner of the CPU (designated as pin 1) with pin 1 of the socket.

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



4. 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.



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

2.3.3 Installing the Fan and Heat Sink

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

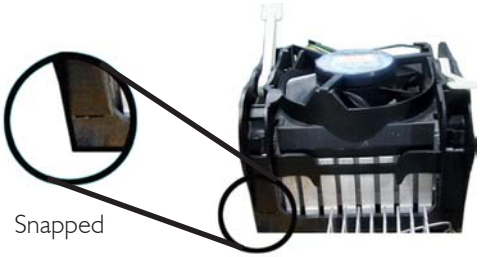
Note:

- *Only use Intel® certified fan and heat sink.*
- *An Intel® boxed processor package contains a retention mechanism, heat sink, fan and 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.*
- *If you are installing a non-boxed processor, the heat sink, fan and retention mechanism assembly may look different from the one shown in this section but the procedure will more or less be the same.*

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

2. Position the fan / heat sink and retention mechanism assembly on the CPU, then align and snap the retention legs' hooks to the retention holes at the 4 corners of the retention module base.

Note:
You will not be able to snap the hooks into the holes if the fan / heat sink and retention mechanism assembly did not fit properly onto the CPU and retention module base.



3. The retention levers at this time remains unlocked as shown in the illustration below.

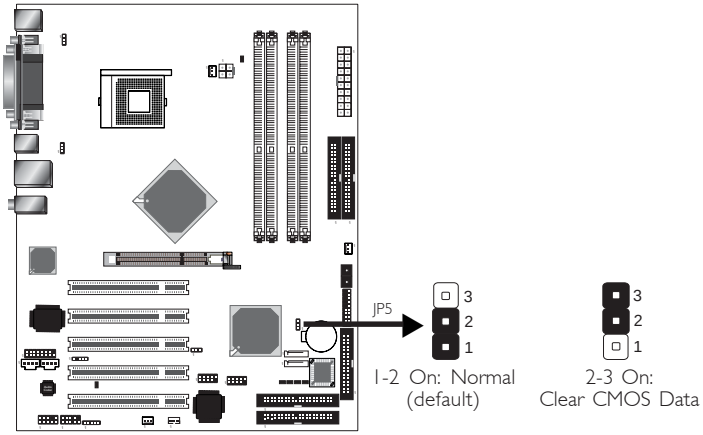
4. Move the retention levers to their opposite directions then push them down. This will secure the fan / heat sink and retention mechanism assembly to the retention module base.

Note:
You will not be able to push the lever down if the direction is incorrect.

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

2.4 Jumper Settings

2.4.1 Jumper Settings for Clearing CMOS Data



If you encounter the following,

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

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

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

1. Power-off the system.

2. Set JP5 pins 2 and 3 to On. Wait for a few seconds and set JP5 back to its default setting, pins 1 and 2 On.

3. Now power-on the system.

   If your reason for clearing the CMOS data is due to incorrect setting of the processor's ratio/clock in the BIOS, please proceed to step 4.

4. After powering-on the system, press <Del> to enter the main menu of the BIOS.

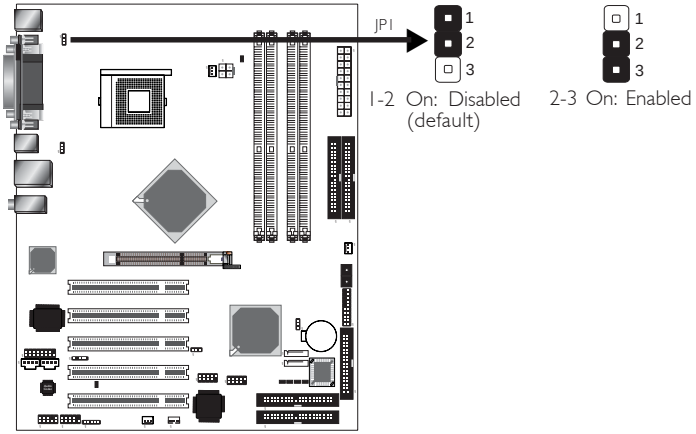
5. Select the Genie BIOS Setting submenu and press <Enter>.

6. Set the "CPU Clock" or "CPU Clock Ratio" field to its default setting or an appropriate bus clock or frequency ratio. Refer to the Genie BIOS Setting section in chapter 3 for more information.

7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

8. Type <Y> and press <Enter>.

2.4.2 Jumper Settings for Wake-On-Keyboard/Wake-On-Mouse



This Wake-On-Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to wake up a system from the S3/S4/S5 state. To enable this function, set JP1 pins 2 and 3 to On.

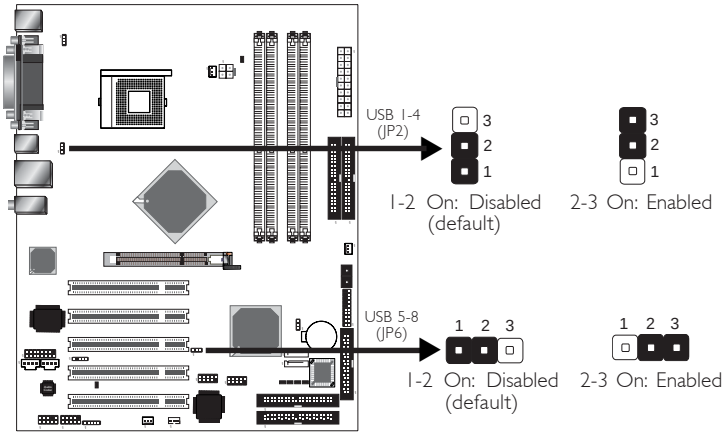
BIOS Setting:

"Keyboard/Mouse Power On" in the Power Management Setup submenu of the BIOS must be set accordingly. Refer to chapter 3 for more information.

Warning:

1. *If JP1 was enabled with a password set in the "KB Power On Password" field, and now you wish to disable the keyboard password function, make sure to set the "Keyboard/Mouse Power On" field to "Disabled" prior to setting JP1 to disabled. You will not be able to boot up the system if you fail to do so.*
2. *The power button will not function once a keyboard password has been set in the "KB Power On Password" field. You must type the correct password to power-on the system.*
3. *The 5VSB power source of your power supply must support ≥720mA.*

2.4.3 Jumper Settings for Wake-On-USB Keyboard



The Wake-On-USB Keyboard function allows you to use a USB keyboard to wake up a system from the S3 (STR - Suspend To RAM) state. To enable this function, set JP2 and/or JP6 pins 2 and 3 to On.

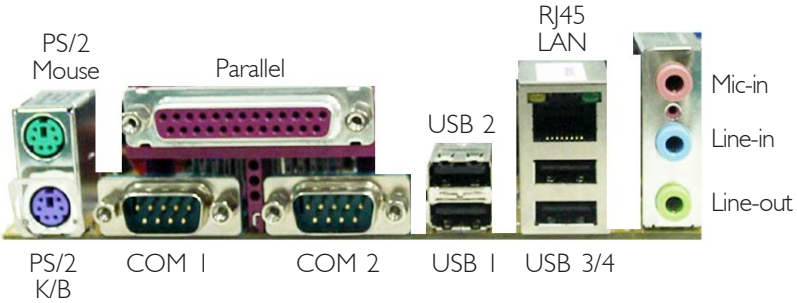
BIOS Setting:

Regardless of the USB port used, make sure "USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS is set to Enabled. Refer to chapter 3 for more information.

Important:

- *If you are using the Wake-On-USB Keyboard function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A.*
- *If you are using the Wake-On-USB Keyboard function for 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

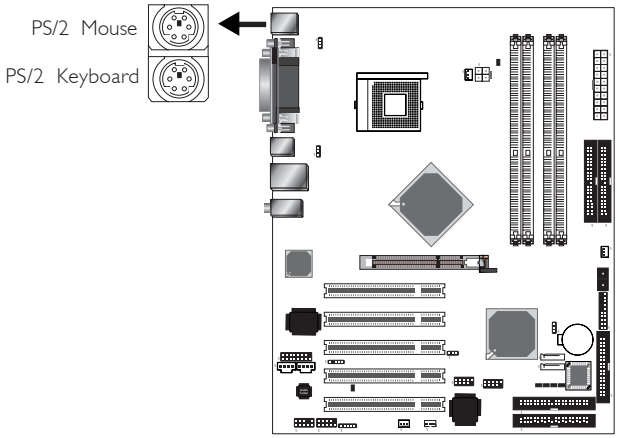
2.5 Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- Parallel port
- Serial ports
- USB ports
- LAN port
- Mic-in, Line-in and Line-out jacks

2.5.1 PS/2 Mouse and PS/2 Keyboard Ports



The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN1 of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

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

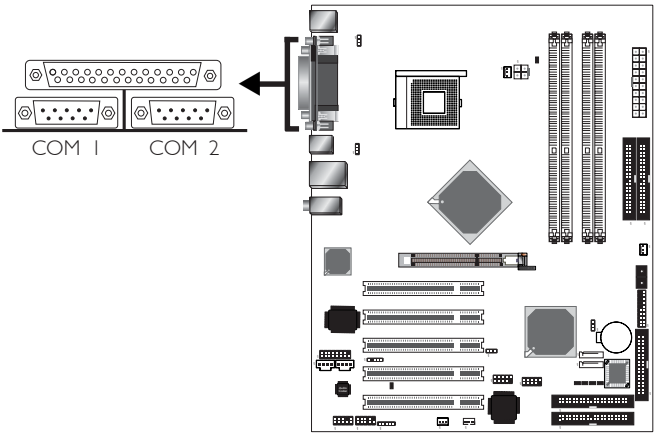
Wake-On-Keyboard/Mouse

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

- **Jumper Setting:**
  JP1 must be set to "2-3 On: Enabled". Refer to "Jumper Settings for Wake-On-Keyboard/Wake-On-Mouse" in this chapter for more information.

- **BIOS Setting:**
  "Keyboard/Mouse Power On" in the Power Management Setup submenu of the BIOS must be set accordingly. Refer to chapter 3 for more information.

2.5.2 Serial Ports



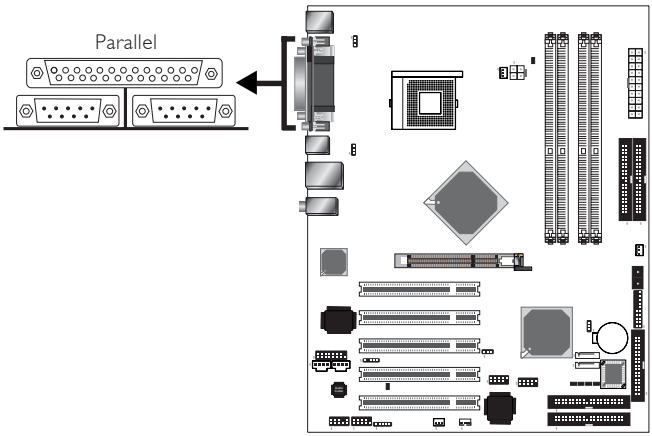
The system board is equipped with onboard serial ports (COM 1: CN3 and COM 2: CN6) - both in Teal/Turquoise color.

These ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

Select the serial ports' I/O address in the Integrated Peripherals submenu ("Onboard Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

2.5.3 Parallel Port



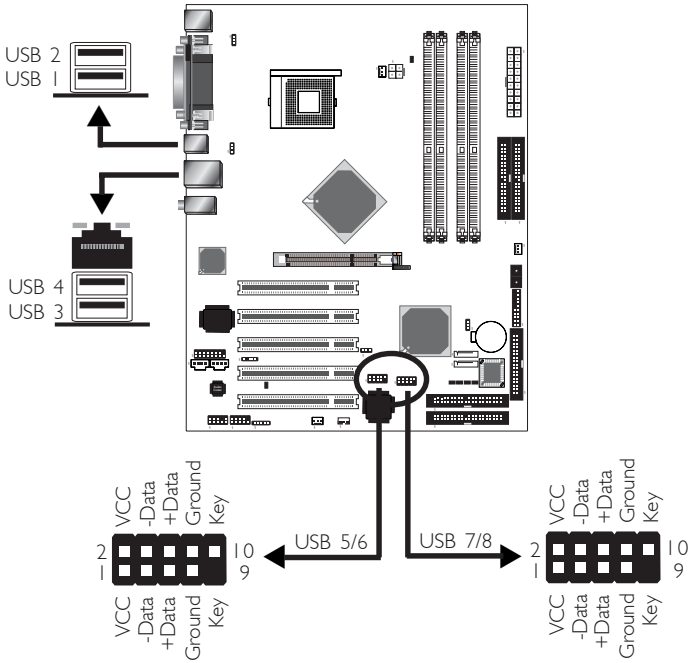
The system board has a standard parallel port (Burgundy) at location CN5 for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP.

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

BIOS Setting

Select the parallel port's mode in the Integrated Peripherals submenu ("Onboard Super IO Device" field) of the BIOS. Refer to chapter 3 for more information.

2.5.4 Universal Serial Bus Ports



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

Four onboard USB 2.0/1.1 ports (Black) are at locations CN7 and CN8 of the system board.

J13 (USB 5/6) and J14 (USB 7/8) connectors allow you to connect 4 additional USB 2.0/1.1 ports. One of these connectors allows you to connect to the 2 USB ports that are on the FrontX device. (The FrontX device, which comes with LANPARTY series products, must be installed into a drive bay of the chassis.) Connect the USB cable connector from FrontX to J13 or J14. Make sure pin 1 of the cable connector is aligned with pin 1 of J13 or J14.

BIOS Setting

Enable or disable the onboard USB in the Integrated Peripherals submenu ("Intel OnChip PCI Device" field) 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.

If you are using a USB 2.0 device, install the "Intel USB 2.0 Drivers". Refer to chapter 4 for more information.

Wake-On-USB Keyboard

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

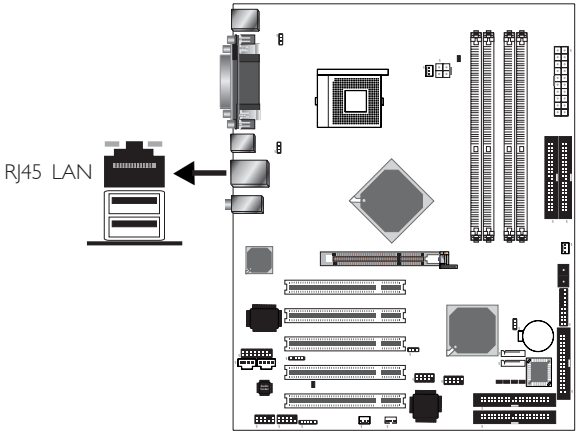
- **Jumper Setting:**
  JP2 and/or JP6 must be set to "2-3 On: Enabled". Refer to "Jumper Settings for Wake-On-USB Keyboard" in this chapter for more information.

- **BIOS Setting:**
  "USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.

Important:

- *If you are using the Wake-On-USB Keyboard function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A.*
- *If you are using the Wake-On-USB Keyboard function for 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.*

2.5.5 RJ45 LAN Port



The system board is equipped with an onboard RJ45 LAN port at location CN8 of the system board. It allows the system board to connect to a local area network by means of a network hub.

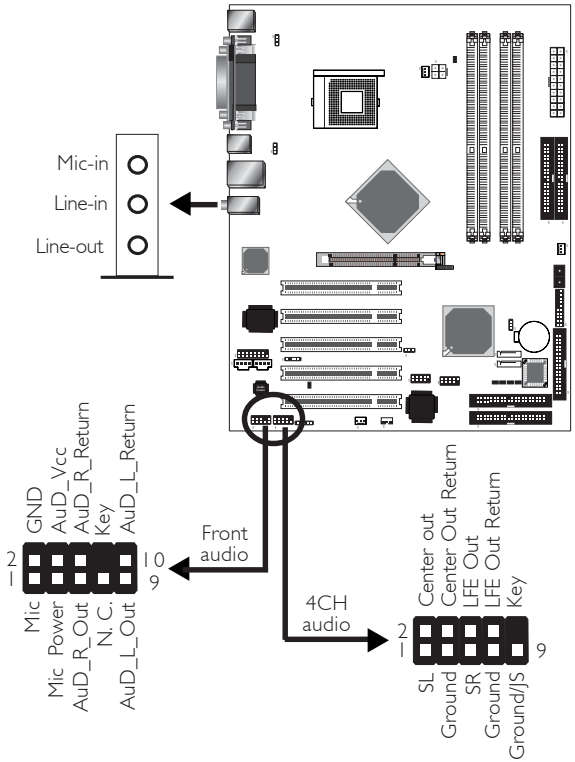
BIOS Setting

Enable or disable the onboard LAN in the Genie BIOS Setting submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the "LAN Drivers". Refer to chapter 4 for more information.

2.5.6 Audio



Audio Jacks (CN9)

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

- **Line-out Jack (Lime)**

  This jack is used to connect external speakers for audio output from the system board. Using this jack disables the front audio's line-out function.

- **Line-in Jack (Light Blue)**
  This jack can be connected to the line-out jack of any external audio devices such as Hi-fi set, CD player, AM/FM radio tuner, synthesizer, etc. Connect a stereo cable from the line-out jack of your external device to this line-in jack.

- **Mic-in Jack (Pink)**
  This jack is used to connect an external microphone. Use the C-Media application software to select between using this jack and the front audio's mic-in jack.

Front Audio

The front audio connector (J19) allows you to connect to the line-out and mic-in jacks that are on the FrontX device. Using the line-out and mic-in jacks will disable the rear audio's line-out and mic-in functions. (The FrontX device, which comes with LANPARTY series products, must be installed into a drive bay of the chassis.)

Remove the jumper caps from pins 5-6 and pins 9-10 of J19 prior to connecting the front audio cable connector. Connect the audio cable connector from FrontX to J19. Make sure pin 1 of the cable connector is aligned with pin 1 of J19. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

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

4-Channel Audio

The 4-channel connector supports four audio output signals: center channel, subwoofer, rear right channel and rear left channel. The 4 audio output signals together with the line-out jack (at the rear panel) support 6-channel audio output.

One card-edge bracket, mounted with a rear jack and a center/subwoofer jack, will be provided as an option. Remove the jumper

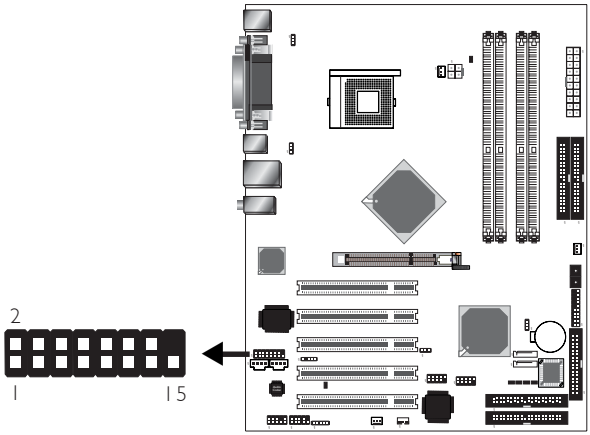
caps from pins 2-4 and pins 6-8 of J20 prior to connecting the audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J20. If you are not using this connector, replace the jumper caps back to their original pin locations. Now install the card-edge bracket to the system chassis.

Driver Installation

Install the "Audio Drivers". The 3D Audio Configuration software, which is an audio panel for setting basic audio configurations, will at the same time be installed into your system. The application program will allow you to configure 2-channel, 4-channel and 6-channel audio modes as well as configure the audio effects. Refer to chapter 4 for more information.

2.6 I/O Connectors

2.6.1 Game/MIDI Port

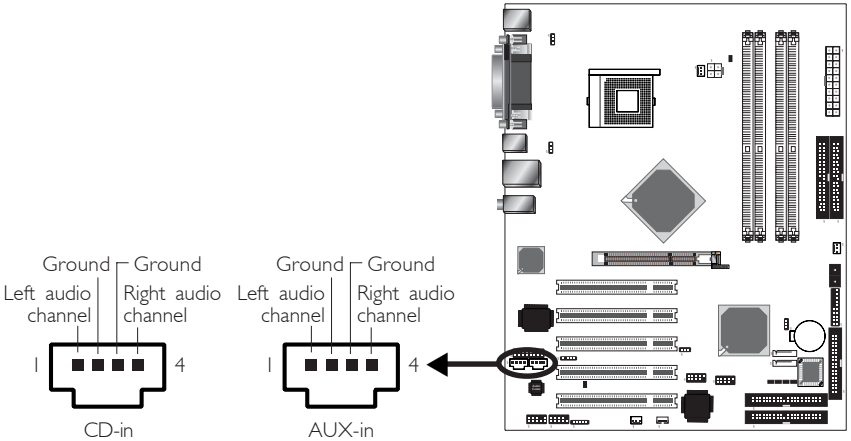


The system board is equipped with a 15-pin connector at location J8 for connecting an external game/MIDI port. One card-edge bracket, mounted with a game/MIDI port cable, is provided with the system board. Install the card-edge bracket to the system chassis then connect the game/MIDI port cable to connector J8. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of connector J8.

BIOS Setting

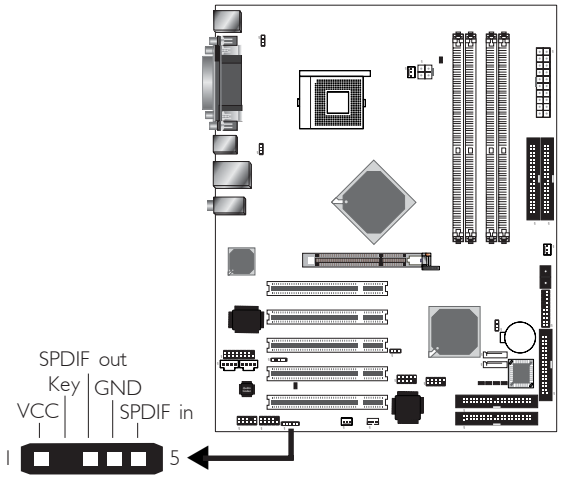
Configure the game port in the Integrated Peripherals submenu ("Onboard Super I/O Device" field) of the BIOS. Refer to chapter 3 for more information.

2.6.2 Internal Audio Connectors



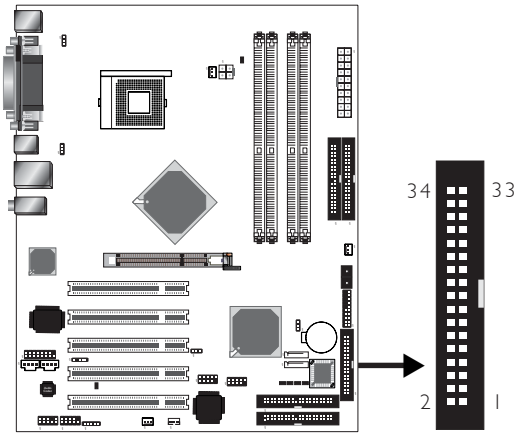
The CD-in (J10) and AUX-in (J11) connectors are used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

2.6.3 S/PDIF Connector



The system board is equipped with a S/PDIF connector. One card-edge bracket, mounted with S/PDIF ports, is provided with the system board. Install the card-edge bracket to the system chassis then connect the audio cable connector to J22. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J22.

2.6.4 Floppy Disk Drive Connector



The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

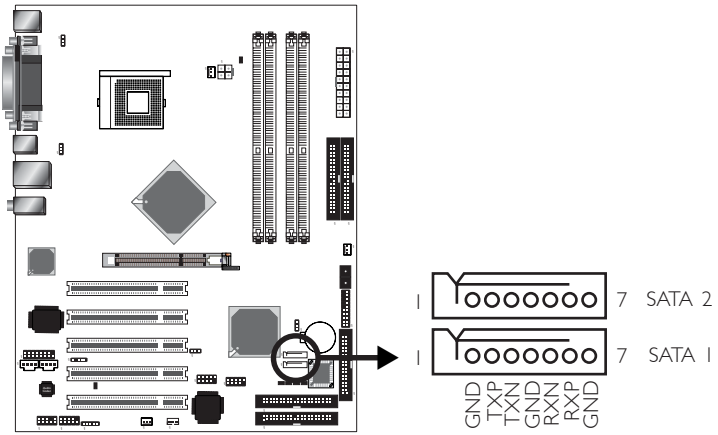
Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the shrouded floppy disk header (J15) on the system board and the other end-most connector to the drive you want to designate as Drive A. If you are connecting another drive (Drive B), install the middle connector of the cable to the drive. The colored edge of the daisy chained ribbon cable should be aligned with pin 1 of J15.

BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("Onboard Super I/O Device" field) of the BIOS. Refer to chapter 3 for more information.

2.6.5 Serial ATA Connectors



Two Serial ATA cables are provided with the system board. Connect one end of the cable to J6 (SATA 2) or J12 (SATA 1) and the other end to your serial ATA device.

BIOS Setting

Configure the Serial ATA drives in the Integrated Peripherals submenu ("Intel OnChip IDE Device" field) of the BIOS. Refer to chapter 3 for more information.

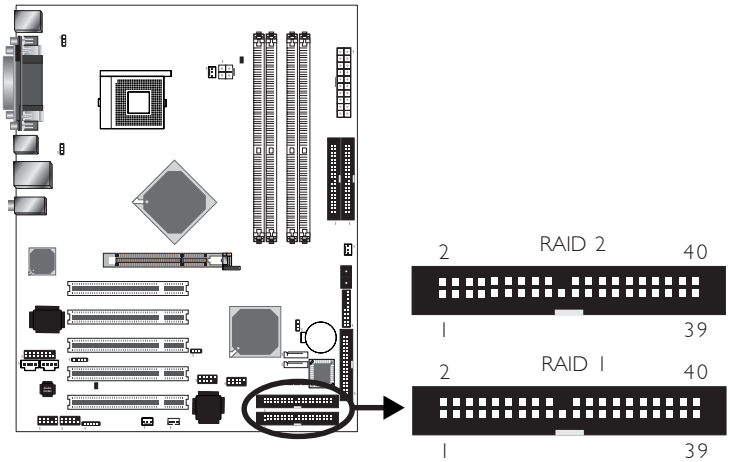
Configuring RAID on Serial ATA Drives

The ICH5R south bridge chip allows configuring RAID on serial ATA drives. It supports RAID 0 and 1. The following must be set accordingly.

- **BIOS Setting**
  1. Enable the RAID function for Serial ATA drives in the Integrated Peripherals submenu ("Intel OnChip IDE Device" field) of the Award BIOS.
  2. Configure and manage RAID in the Intel ICH5R BIOS Setting Utility. Refer to chapter 3 for more information.

- **Drivers and Utility**
  Install the Intel ICH5R drivers and utility. Refer to chapter 4 for more information.

2.6.6 RAID IDE Disk Drive Connectors



The HighPoint RAID controller allows configuring RAID on hard drives connected to the RAID IDE connectors. It supports RAID levels 0, 1, 0+1 and 1.5.

RAID Level	Minimum Number of Drives
RAID 0	2
RAID 1	2
RAID 0+1	4
RAID 1.5	2

The two shrouded RAID IDE headers (RAID 1 - J17 and RAID 2 - J16) can interface up to four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, the shrouded RAID IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

Hard drives must be Ultra ATA/133, Ultra ATA/100, Ultra ATA/66, Ultra ATA/33, EIDE and/or Fast ATA-2 compatible. For optimal performance, install identical drives of the same model and capacity. The drives' matched performance allows the RAID array to function better as a single drive.

Drives in an array must be identical. If striping for performance, use two new drives. If mirroring for protection, you can use two new drives or use an existing drive and a new drive (the new drive must be the same size or larger than the existing drive). Only two drives can be configured as RAID. Since both of these drives must be in Master mode, striping or mirroring must be done between 2 RAID IDE channels; not between 2 drives that are chained on the same channel.

Note:
Only connect IDE hard drives to the RAID IDE connectors.

BIOS Setting

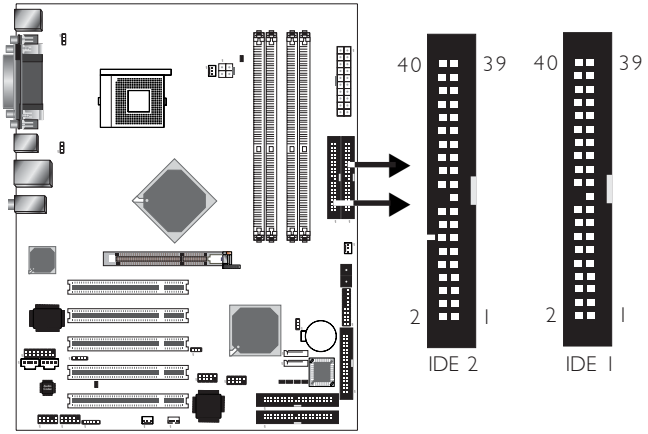
1. Enable or disable the HighPoint RAID controller in the Genie BIOS Setting submenu of the Award BIOS. If the hard drives connected to the RAID IDE connectors will not be configured as RAID, make sure to set the "RAID Device Control" field in the Award BIOS to Disabled.

2. Configure and manage RAID in the HighPoint BIOS Configuration Utility. Refer to chapter 3 for more information.

Driver Installation

Install the HighPoint RAID drivers and utility. Refer to chapter 4 for more information.

2.6.7 IDE Disk Drive Connector



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

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

Connecting the IDE Disk Drive Cable

Install one end of the IDE cable into the IDE 1 header (J3) on the system board and the other connectors to the IDE devices.

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

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

Adding a Second IDE Disk Drive

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

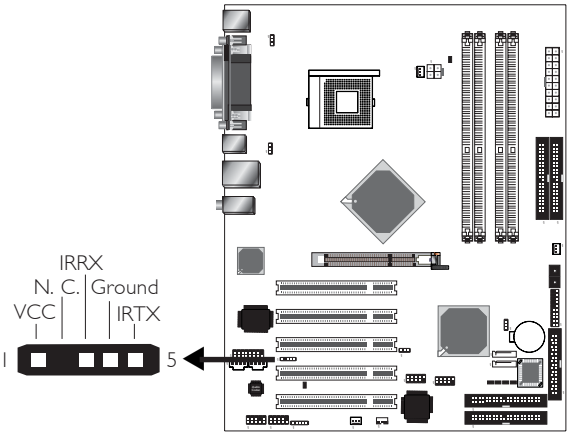
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 or ATA/100 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

Important:
If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.

BIOS Setting

Enable or disable the onboard primary or secondary IDE in the Integrated Peripherals submenu ("Intel OnChip IDE Device" field) of the BIOS. Refer to chapter 3 for more information.

2.6.8 IrDA Connector



Connect your IrDA cable to connector J9 on the system board.

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

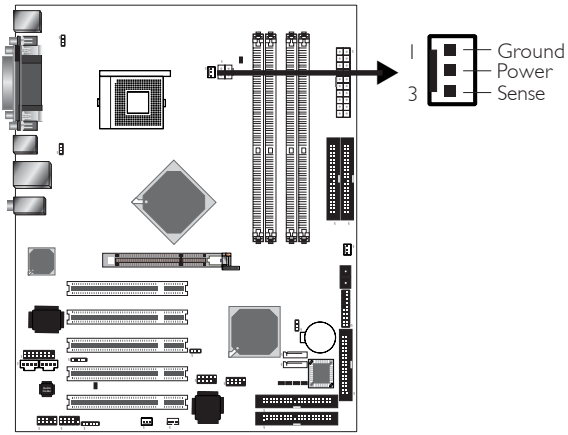
BIOS Setting

Set "UART2 Mode Select" ("Onboard Super IO Device" field) in the Integrated Peripherals submenu of the BIOS to the type of IrDA standard supported by your device.

Driver Installation

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

2.6.9 CPU Fan Connector



The CPU must be kept cool by using a fan with heatsink. Connect the CPU fan to the 3-pin fan connector at location J1 of the system board. The system is capable of monitoring the speed of the CPU fan.

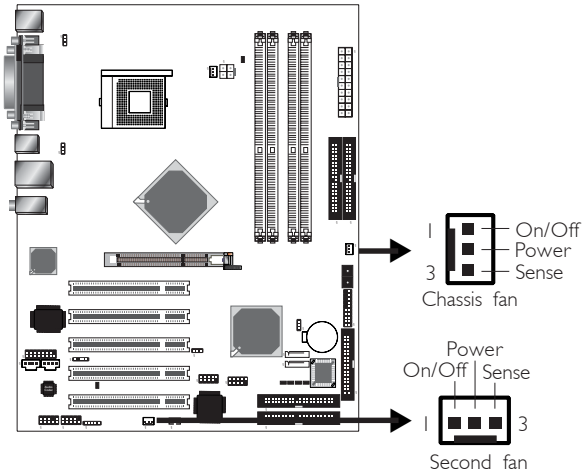
BIOS Setting

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

More Information

Refer to appendix B for information on using the CPU Fan Protection function.

2.6.10 Chassis Fan and Second Fan Connectors

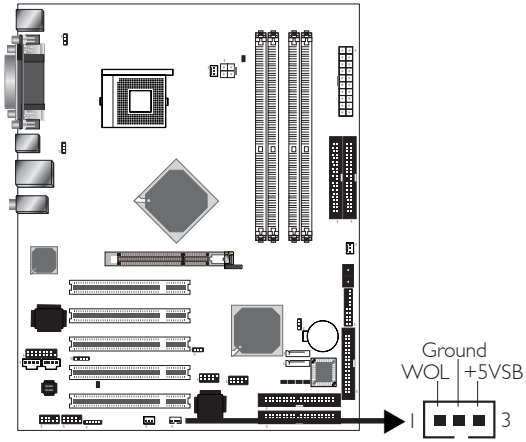


The chassis fan connector (J4) and second fan connector (J18) are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components. The system is capable of monitoring and controlling the speed of these cooling fans. These fans will automatically turn off once the system enters the Suspend mode.

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.

2.6.11 Wake-On-LAN Connector



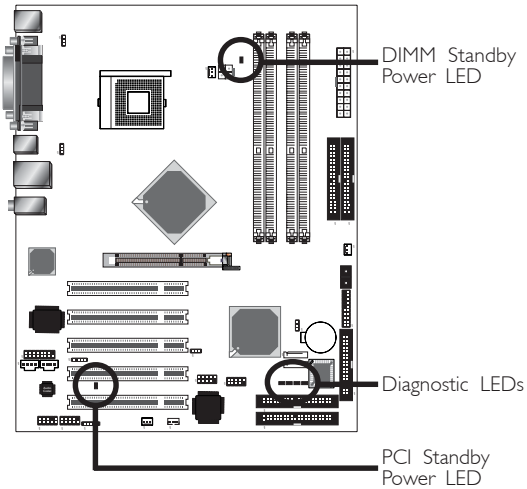
Your LAN card package should include a cable. Connect one end of the cable to the wakeup header on the card and the other end to location J21 on the system board. The network will detect Magic Packet and assert a wakeup signal to power-up the system. Refer to the add-in card's manual for details. Note: Your LAN card must support the remote wake up function.

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

BIOS Setting

To use the Wake-On-LAN function, you must enable the "Resume On LAN" field in the Power Management Setup of the BIOS.

2.6.12 LEDs



DIMM Standby Power LED

This LED will turn red when the system's power is on or when it is in the Suspend state (Power On Suspend or Suspend to RAM). It will not light when the system is in the Soft-Off state.

PCI Standby Power LED

This LED will turn red when the system is in the power-on, Soft-Off or Suspend (Power On Suspend or Suspend to RAM) state.

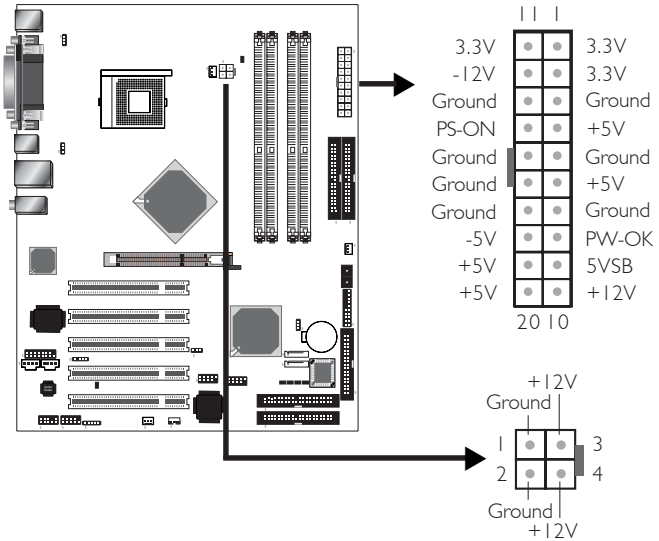
Important:
If the DIMM Standby Power LED or PCI Standby Power LED is lighted, you must power-off the system then turn off the power supply's switch or unplug the power cord prior to installing any memory modules or add-in cards.

Diagnostic LEDs

LED 1 to LED 4 are diagnostic LEDs. These LEDs will indicate the current condition of the system.

	LED 1	LED 2	LED 3	LED 4
Early program chipset register before POST.	On	Off	Off	Off
Testing memory presence.	Off	On	Off	Off
Detecting memory size.	On	On	Off	Off
No memory present.	Off	Off	On	Off
Programming DRAM timing register.	On	Off	On	Off
Calculating DRAM size variable including row, column and bank.	Off	On	On	Off
Initializing JEDEC of current DRAM row.	On	On	On	Off
Checking CMOS checksum and battery.	Off	Off	Off	On
Initializing the clock generator.	On	Off	Off	On
Initializing USB.	Off	On	Off	On
Testing all memory (cleared all extended memory to 0).	On	On	Off	On
Initializing the onboard Super IO.	Off	Off	On	On
Detecting and installing an IDE device.	On	Off	On	On
Final initialization.	Off	On	On	On
Booting the system.	On	On	On	On

2.6.13 Power Connectors

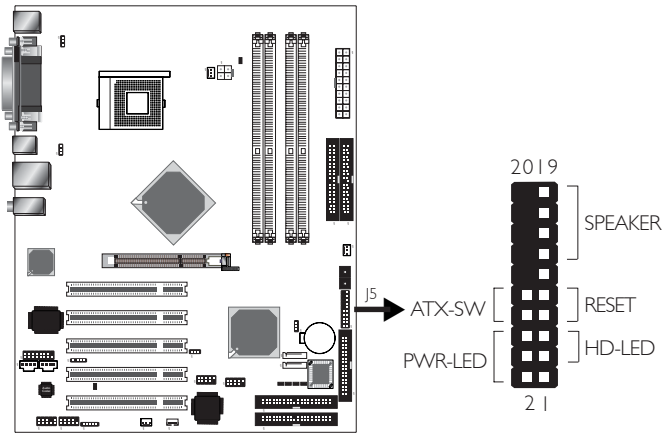


We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply has a standard 20-pin ATX main power connector and a 4-pin +12V power connector that must be inserted onto CN2 and CN4 connectors respectively.

The 4-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The system board requires a minimum of 250 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, use a 300 Watt (or greater) power supply.

2.6.14 Front Panel Connectors



HD-LED: Primary/Secondary IDE LED

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

RESET: Reset Switch

This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

ATX-SW: ATX Power Switch

Depending on the setting in the BIOS setup, this switch is a "dual function power button" that will allow your system to enter the Soft-Off or Suspend mode. Refer to "Soft-Off By PWR-BTTN" in the Power Management Setup (Chapter 3).

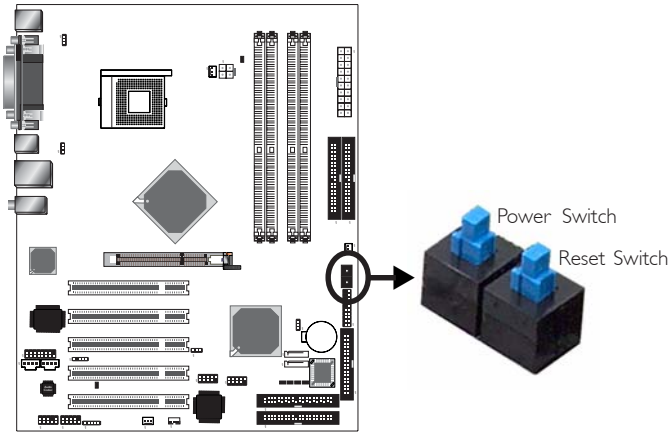
PWR-LED: Power/Standby LED

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

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

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

2.6.15 EZ Touch Switches (Power Switch and Reset Switch)



The presence of the power switch and reset switch on the system board are user-friendly especially to DIY users. They provide convenience in powering on and/or resetting the system while fine tuning the system board before it is installed into the system chassis.

Chapter 3 - BIOS Setup

3.1 Award BIOS Setup Utility

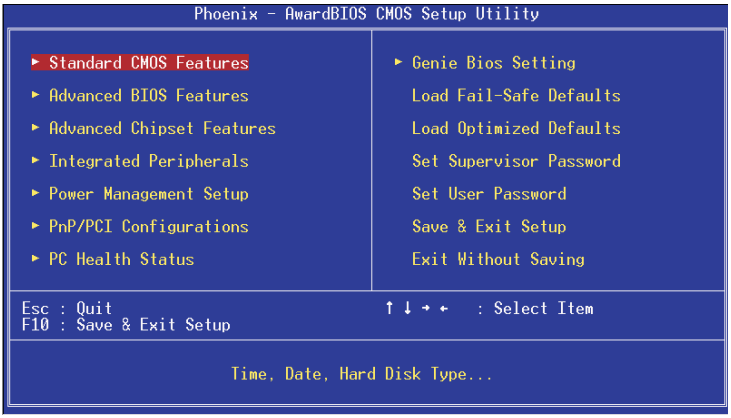
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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.



3.1.1 Standard CMOS Features

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

```
Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)              Fri, Jul  4 2003          Item Help
Time (hh:mm:ss)              17 : 20 : 53
                                                       Menu Level  ▶
▶ IDE Channel 0 Master                                 Change the day, month,
▶ IDE Channel 0 Slave                                  year and century
▶ IDE Channel 1 Master
▶ IDE Channel 1 Slave

Drive A                      1.44M, 3.5 in.
Drive B                      None

Video                        EGA/VGA
Halt On                      All Errors

Base Memory                       640K
Extended Memory                  1024K
Total Memory                     2048K

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

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

3.1.1.1 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 1990 to 2098.

3.1.1.2 Time

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

3.1.1.3 IDE Channel 0 Master, IDE Channel 0 Slave, IDE Channel 1 Master and IDE Channel 1 Slave

Move the cursor to the "IDE Channel 0 Master", "IDE Channel 0 Slave", "IDE Channel 1 Master" or "IDE Channel 1 Slave" field, then press <Enter>.

Note:
The fields in this section will vary in accordance to the settings in the "On-Chip Serial ATA" field ("Intel OnChip IDE Device" section) of the Integrated Peripherals submenu.

```
Phoenix - AwardBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection        Press Enter        Item Help

IDE Channel 0 Master          Auto               Menu Level  ▶▶
Access Mode                   Auto

Capacity                          0 MB           To auto-detect the
                                                 HDD's size, head... on
Cylinder                          0              this channel
Head                              0
Precomp                           0
Landing Zone                      0
Sector                            0

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

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

IDE HDD Auto Detection

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

IDE Channel 0 Master/Slave and IDE Channel 1 Master/Slave

The drive type information should be included in the documentation from your hard disk vendor. If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

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

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

3.1.1.4 Drive A and Drive B

These fields identify the types of floppy disk drives installed.

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

3.1.1.5 Video

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

EGA/VGA Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.

CGA 40 Color Graphics Adapter. Power up in 40-column mode.

CGA 80 Color Graphics Adapter. Power up in 80-column mode.

Mono Monochrome adapter. Includes high resolution monochrome adapters.

3.1.1.6 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.

3.1.1.7 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.

3.1.1.8 Extended Memory

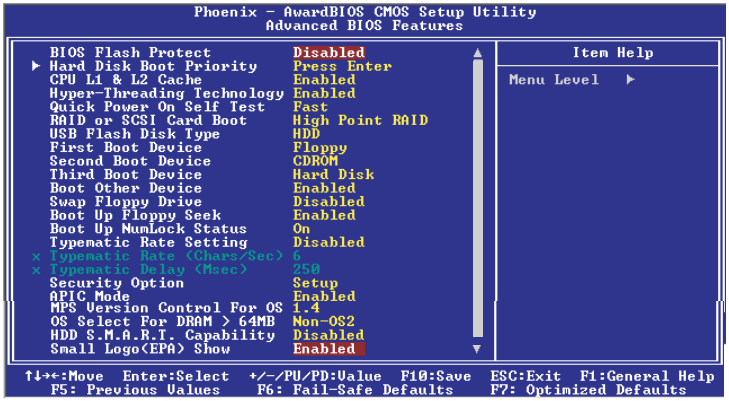
Displays the amount of extended memory detected during boot-up.

3.1.1.9 Total Memory

Displays the total memory available in the system.

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

3.1.2.1 BIOS Flash Protect

Enabled This option will protect the system from unnecessary updating or flashing of the BIOS. When enabled, it secures the BIOS therefore any updates to the BIOS will not take effect.

Disabled Disables the "BIOS flash lock" function, allowing you to update or flash the BIOS any time needed.

3.1.2.2 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.

3.1.2.3 CPU L1 & L2 Cache

These fields speed up the memory access. The default value is enabled. Enable the external cache for better performance.

3.1.2.4 Hyper-Threading Technology (for Intel® Pentium® 4 Processor with Hyper-Threading Technology only)

This field is used to enable the functionality of the Intel® Pentium® 4 Processor with Hyper-Threading Technology and will appear only when using this processor.

3.1.2.5 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".

3.1.2.6 RAID or SCSI Card Boot

This field is used to select the RAID device you want to boot.

HighPoint RAID	The drive connected to the RAID IDE connector.
ICH5R	The drive connected to the SATA connector.
PCI SCSI Card	The drive connected to the SCSI add-in card that is installed in a PCI slot.

If only one type of interface is connected with RAID device(s), you don't need to particularly select an option in this field because the system will automatically detect for the existing drive.

3.1.2.7 USB Flash Disk Type

HDD Emulates the USB flash disk to HDD mode.
Floppy Emulates the USB flash disk to floppy mode.

3.1.2.8 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.

3.1.2.9 Swap Floppy Drive

When this field is enabled and the system is booting from the floppy drive, the system will boot from drive B instead of drive A. When this field is disabled and the system is booting from the floppy drive, the system will boot from drive A. You must have two floppy drives to use this function.

3.1.2.10 Boot Up Floppy Seek

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

3.1.2.11 Boot Up NumLock Status

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

3.1.2.12 Typematic Rate Setting

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

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

3.1.2.13 Typematic Rate (Chars/Sec)

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

3.1.2.14 Typematic Delay (Msec)

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

3.1.2.15 Security Option

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

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

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

3.1.2.16 APIC Mode

Leave this field in its default setting.

3.1.2.17 MPS Version Control for OS

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

3.1.2.18 OS Select for DRAM > 64MB

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

3.1.2.19 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.

3.1.2.20 Small Logo(EPA) Show

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

3.1.3 Advanced Chipset Features

```
Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable        By SPD          Item Help
CAS Latency Time              2
Active to Precharge Delay     8               Menu Level  ►
DRAM RAS# to CAS# Delay       4
DRAM RAS# Precharge           4
Memory Frequency For          Auto
Dram R/W Timing               Auto
System BIOS Cacheable         Enabled
Video  BIOS Cacheable         Disabled
Delay Prior to Thermal        16 Min
AGP Aperture Size (MB)        128
Memory Parity Check           Enabled

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

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

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.

3.1.3.1 DRAM Timing Selectable

This field is used to select the timing of the DRAM.

By SPD The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this option is selected, the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system. The "CAS Latency Time" to "DRAM RAS# Precharge" fields will show the default settings by SPD.

Manual If you want better performance for your system other than the one "by SPD", select "Manual" then select the best option in the "CAS Latency Time" to "DRAM RAS# Precharge" fields.

3.1.3.2 CAS Latency Time

This field is used to select the local memory clock periods.

3.1.3.3 Active to Precharge Delay

The options are 5, 6, 7 and 8.

3.1.3.4 DRAM RAS# to CAS# Delay

The options are 2, 3 and 4.

3.1.3.5 DRAM RAS# Precharge

This field controls RAS# precharge (in local memory clocks).

3.1.3.6 Memory Frequency For

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

The system board supports DDR266, DDR333 or DDR400 when using 800MHz FSB CPU.

DDR333 will run at 320MHz memory frequency when used with 800MHz FSB CPU. Under such circumstance, make sure this field is set to Auto or DDR320.

Refer to chapter 1 (System Memory section) for detailed specification of the memory supported by the system board.

3.1.3.7 DRAM R/W Timing

This field is used to select the read/write cycle speed. Select "Fast" if you want the system to run at a faster cycle speed.

3.1.3.8 System BIOS Cacheable

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

3.1.3.9 Video BIOS Cacheable

As with caching the system BIOS, enabling the Video BIOS cache will allow access to video BIOS addresssed at C0000H to C7FFFH to be cached, if the cache controller is also enabled. The larger the range of the Cache RAM, the faster the video performance.

3.1.3.10 Delay Prior To Thermal

This field is used to select the time that would force the CPU to a 50% duty cycle when it exceeds its maximum operating temperature therefore protecting the CPU and the system board from overheating to ensure a safe computing environment..

3.1.3.11 AGP Aperture Size (MB)

This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. Leave this in its default setting.

3.1.3.12 Memory Parity Check

Select Enabled if the DIMM you are using supports parity. When the system boots, it will add parity check during the boot-up memory test to check the accuracy of transmitted data.

3.1.4 Integrated Peripherals

```
Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

► INTEL OnChip IDE Device      Press Enter        Item Help
► INTEL OnChip PCI Device      Press Enter
► Onboard SuperIO Device       Press Enter        Menu Level  ►
  Init Display First           AGP

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

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

3.1.4.1 Intel OnChip IDE Device

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

```
Phoenix - AwardBIOS CMOS Setup Utility
INTEL OnChip IDE Device

IDE DMA transfer access        Enabled            Item Help
On-Chip Primary   PCI IDE      Enabled
IDE Primary Master PIO         Auto               Menu Level  ►►
IDE Primary Slave  PIO         Auto
IDE Primary Master UDMA        Auto
IDE Primary Slave  UDMA        Auto
On-Chip Secondary PCI IDE      Enabled
IDE Secondary Master PIO       Auto
IDE Secondary Slave  PIO       Auto
IDE Secondary Master UDMA      Auto
IDE Secondary Slave  UDMA      Auto
IDE HDD Block Mode             Enabled

*** On-Chip Serial ATA Setting ***
SATA Mode                      IDE
On-Chip Serial ATA             Disabled
Serial ATA Port1 Mode          Primary Master
Serial ATA Port2 Mode          Primary Master

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

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

IDE DMA Transfer Access

This field, when Enabled, will enhance the IDE DMA transfer of an IDE hard disk drive.

On-Chip Primary PCI IDE and On-Chip Secondary PCI IDE

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

IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO

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

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

IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA

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

Auto	The BIOS will automatically detect the settings for you.
Disabled	The BIOS will not detect these categories.

IDE HDD Block Mode

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

Disabled The IDE HDD uses the standard mode.

On-Chip Serial ATA Setting

This section is used to configure the serial ATA drives.

SATA Mode

IDE This option configures the Serial ATA drives in IDE mode.

RAID This option configures RAID on the Serial ATA drives.

On-Chip Serial ATA

Disabled Disables the onboard SATA.

Auto The system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.

Combined Mode This option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives. You must manually set the SATA drives' master/slave mode in the "Serial ATA Port1 Mode" and "Serial ATA Port2 Mode" fields.

Enhanced Mode This option allows you to use both IDE and SATA drives; allowing a maximum of 6 drives.

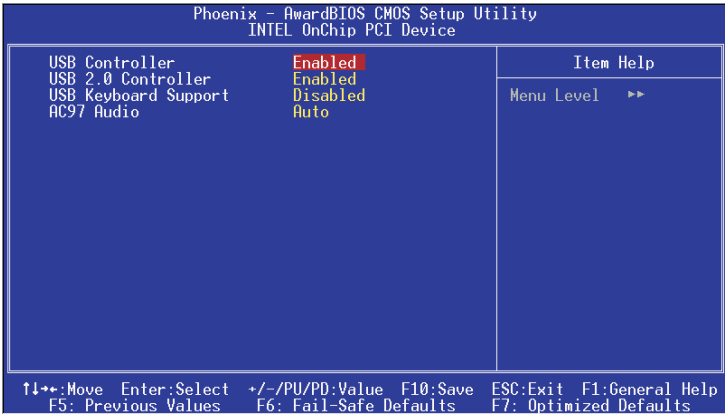
SATA Only This option automatically sets the SATA drives to Primary Master and Secondary Master modes. Since both drives are in master mode, you cannot set the IDE drives to Master mode. The "Serial ATA Port1 Mode" and "Serial ATA Port2 Mode" fields will not be configurable.

Serial ATA Port1 Mode and Serial ATA Port2 Mode

These fields are used to select the master/slave mode of the serial ATA drives. Make sure they do not conflict with the settings of the IDE hard drives.

3.1.4.2 Intel OnChip PCI Device

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



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

USB Controller

Enabled Enables the onboard USB. You can further configure the USB in the "USB 2.0 Controller" and "USB Keyboard Support" fields.

Disabled Disables the onboard USB. "USB 2.0 Controller" and "USB Keyboard Support" fields are not configurable.

USB 2.0 Controller

If you are using a USB 2.0 device, this field must be set to Enabled.

USB Keyboard Support

By default, this field is Disabled. However, if you are using a USB keyboard under DOS, make sure to enable this function.

AC97 Audio

Auto Select this option when using the onboard AC97 codec.

Disabled Select this option when using a PCI sound card.

3.1.4.3 Onboard Super IO Device

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

```
Phoenix - AwardBIOS CMOS Setup Utility
Onboard SuperIO Device

KBC input clock              12 MHz        Item Help
Onboard FDC Controller       Enabled
Onboard Serial Port 1        3F8/IRQ4      Menu Level  ►►
Onboard Serial Port 2        2F8/IRQ3
UART2 Mode Select            Normal
RxD , TxD Active             Hi,Lo
IR Transmission Delay        Enabled
UR2 Duplex Mode              Half
Use IR Pins                  IR-Rx2Tx2
Onboard Parallel Port        378/IRQ7
Parallel Port Mode           ECP+EPP
EPP Mode Select              EPP1.7
ECP Mode Use DMA             3
Game Port Address            201
Midi Port Address            Disabled
x Midi Port IRQ              10

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

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

KBC Input Clock

This is used to select the input clock of your keyboard.

Onboard FDC Controller

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

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.

UART2 Mode Select

The system board supports IrDA function for wireless connectivity between your computer and peripheral devices. You may not use IrDA and the COM 2 serial port at the same time. If you are using the COM 2 serial port, make sure this field is set to Normal.

To use the IrDA function, follow the steps below.

1. Connect your IrDA cable to connector J9 on the system board.
2. Set the "UART2 Mode Select" field to the type of IrDA standard supported by your IrDA peripheral/device. For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter.
3. Set the "RxD, TxD Active", "IR Transmission Delay", "UR2 Duplex Mode" and "Use IR Pins" fields appropriately.

RxD, TxD Active

The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

IR Transmission Delay

If this field is Enabled, transmission of data will be slower. This is recommended when you encounter transmission problem with your device. The options are: Enabled and Disabled.

UR2 Duplex Mode

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

Use IR Pins

The options are IR-Rx2Tx2 and RxD2TxD2.

Onboard Parallel Port

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

Parallel Port Mode

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

SPP
Allows normal speed operation but in one direction only.

"ECP (Extended Capabilities Port)"
Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

"EPP (Enhanced Parallel Port)"
Allows bidirectional parallel port operation at maximum speed.

If you selected EPP, the "EPP Mode Select" field is selectable. If you selected ECP, the "ECP Mode Use DMA" field is selectable. If you selected ECP+EPP, both "EPP Mode Select" and "ECP Mode Use DMA" are selectable.

EPP Mode Select

This field is used to select the EPP mode of the parallel port.

ECP Mode Use DMA

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

Game Port Address

This field is used to select the game port's address.

Midi Port Address

This field is used to select the midi port's address. If you have selected the midi port's address, you may select its IRQ in the "Midi Port IRQ" field.

Midi Port IRQ

This field is used to select the midi port's IRQ.

3.1.4.4 Init Display First

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

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

3.1.5 Power Management Setup

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

```
                Phoenix - AwardBIOS CMOS Setup Utility
                          Power Management Setup

   ACPI Function                  Enabled                 Item Help
   ACPI Suspend Type              S1(POS)
 x Run VGABIOS if S3 Resume       Auto                    Menu Level  ►
   Power Management               User Define
   Video Off Method               DPMS
   Video Off In Suspend           Yes
   Suspend Mode                   Disabled
   HDD Power Down                 Disabled
   Soft-Off by PWR-BTTN           Instant-Off
   Resume On PCI Event            Disabled
   Resume On Ring                 Disabled
   Resume On LAN                  Disabled
 x USB KB Wake-Up From S3         Disabled
   Resume by Alarm                Disabled
 x  Date(of Month) Alarm           0
 x  Time(hh:mm:ss) Alarm           0 :  0 :  0
   Keyboard/Mouse Power On        Disabled
   KB Power ON Password           Enter
   KB Power On Hot Key            Ctrl-F1
   PWR Lost Resume State          Keep Off

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

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

3.1.5.1 ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the "ACPI Suspend Type" field.

3.1.5.2 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.

3.1.5.3 Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

3.1.5.4 Power Management

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the Suspend mode and HDD Power Down fields are activated.

Min Saving	Minimum power saving time for the Suspend Mode (1 hour) and HDD Power Down (15 min.)
Max Saving	Maximum power saving time for the. Suspend Mode and HDD Power Down = 1 min.
User Define	Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" fields.

3.1.5.5 Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initializes display power management signaling. Use this option if your video board supports it.

3.1.5.6 Video Off In Suspend

This field is used to activate the video off feature when the system enters the Suspend mode. The options are Yes and No.

3.1.5.7 Suspend Mode

This is selectable only when the Power Management field is set to User Define. When the system enters the Suspend mode according to the power saving time selected, the CPU and onboard peripherals will be shut off.

3.1.5.8 HDD Power Down

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

3.1.5.9 Soft-Off by PWR-BTTN

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

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

Instant-Off Pressing and then releasing the power button at once will immediately power off your system.

3.1.5.10 Resume on PCI Event

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

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

3.1.5.11 Resume On Ring

Set this field to Enabled to use the modem ring-on function. This will allow your system to power-on to respond to calls coming from an external modem.

3.1.5.12 Resume On LAN

If you are using a LAN card that supports the remote wake up function, set this field to Enabled. The will allow the network to remotely wake up a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can wake up the system only through an IRQ or DMA interrupt. Refer to "Wake-On-LAN Connector" in chapter 2 for more information.

3.1.5.13 USB KB Wake-Up From S3

This field, when enabled, allows you to use a USB keyboard to wake up a system that is in the S3 (STR - Suspend To RAM) state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

3.1.5.14 Resume By Alarm

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

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

3.1.5.15 Date (of Month) Alarm

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

1-31 Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

3.1.5.16 Time (hh:mm:ss) Alarm

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

3.1.5.17 Keyboard/Mouse Power On

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

Disabled Default setting. Uses the power button to power on the system.

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

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

Mouse Left When this option is selected, double-click the left button of the mouse to power-on the system.

Mouse Right When this option is selected, double-click the right button of the mouse to power-on the system.

Keyboard 98 When this option is selected, press the "wake up" key of the Windows® 98 compatible keyboard to power-on the system.

3.1.5.18 KB Power On Password

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

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

3.1.5.19 KB Power On Hot Key

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

3.1.5.20 PWR Lost Resume State

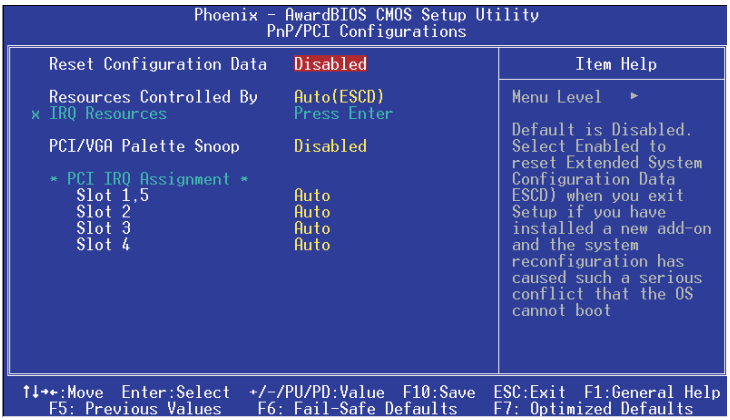
Keep Off When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

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

Last State 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.

3.1.6 PnP/PCI Configurations

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



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

3.1.6.1 Reset Configuration Data

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

Disabled The BIOS will not reset the configuration data.

3.1.6.2 Resources Controlled By

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

Auto The system will automatically detect the settings for you.

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

3.1.6.3 IRQ Resources

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

3.1.6.4 PCI/VGA Palette Snoop

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

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

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

3.1.6.5 PCI IRQ Assignment

By default, an IRQ is automatically assigned to the PCI devices that are installed in the PCI slots.

If a PCI device has not been assigned an IRQ, you must manually assign an IRQ for the device. During system boot-up, you will see "NA" for the device that does not have an IRQ assigned.

3.1.7 PC Health Status

```
Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

  CPU Fan Protection          Disabled        Item Help
  CPU Temp. Prot. Function    Disabled
x CPU Temp. Prot. Alarm       70              Menu Level  ►
  Shutdown Temperature        Disabled
  Current System Temp.                        If you Enable CFP
  Current CPU Temperature                     function, then system
  Current Chassis FAN Speed                   will shut down
  Current CPU FAN Speed                       automatically after 5
  Current Second FAN Speed                    warning beeps if CPU
  CPU(V)                                      Fan Speed has been
  +1.5V                                       detected 0 RPM.
  +3.3V
  + 5 V
  +12 V
  -12 V
  VBAT(V)
  5VSB(V)

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

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

3.1.7.1 CPU Fan Protection

The CPU Fan Protection function, when enabled, has the capability of monitoring the CPU fan when the system boots. Once it has detected that the CPU fan did not rotate, 5 warning beeps will sound then the system will automatically power-off.

3.1.7.2 CPU Temp. Prot. Function and CPU Temp. Prot. Alarm

The CPU Temperature Protection function has the capability of monitoring the CPU's temperature during system boot-up. To use this function, set the "CPU Temp. Prot. Function" field to "Enabled" then select the desired CPU temperature limit in the "CPU Temp. Prot. Alarm" field. Once the system has detected that the CPU's temperature exceeded the one set in the latter field, 5 warning beeps will sound then the system will automatically power-off.

3.1.7.3 Shutdown Temperature

You can prevent the system from overheating by selecting a temperature in this field. If the system detected that its temperature exceeded the one set in this field, it will automatically shutdown. This function will work only when you enable this function in the Hardware Monitor utility.

3.1.7.4 Current System Temperature, Current CPU Temperature, Current Chassis Fan Speed, Current CPU Fan Speed and Current Second Fan Speed

These fields show the internal temperature of the system, current temperature of the CPU, and the current fan speed of the chassis, CPU and second fans in RPM (Revolutions Per Minute).

3.1.7.5 CPU(V)

These fields show the voltage of the processor.

3.1.7.6 +1.5V, +3.3V, +5V, +12V, -12V, VBAT(V) and 5VSB(V)

These fields show the output voltage of the power supply.

Note:
The onboard hardware monitor function is capable of detecting "system health" conditions but if you want a warning message to pop-up or a warning alarm to sound when an abnormal condition occurs, you must install the Hardware Monitor utility. This utility is included in the CD that came with the system board. Refer to the Hardware Monitor section in chapter 4 for more information.

3.1.8 Genie BIOS Setting

```
Phoenix - AwardBIOS CMOS Setup Utility
Genie Bios Setting

======= CPU/DRAM Clock Setting =======
CPU Clock                    100MHz
CPU Clock Ratio               8 X
AGP/PCI/SATA Clock           Auto
Auto Detect PCI Clk          Enabled
Spread Spectrum              Enabled
Super_Gear                   Auto

======= Over Voltage Setting    =======
Current CPU Voltage
CPU Voltage Control          Default
Dimm Voltage Control         2.6 V
AGP Voltage Control          1.5 V

======= Onboard Device Control =======
CSA LAN (Giga-LAN)           Enabled
CSA Lan Boot ROM             Disabled
RAID Device Control          Enabled

Item Help
Menu Level ▶
If you Enable this
OverClock function and
system hangs up after
saving cmos and reset
, please Press "INS"
key to run safe mode
and choose another
safe frequency

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

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

3.1.8.1 CPU Clock

This field provides several options for selecting the external system bus clock of the processor. The available options allow you to adjust the processor's bus clock by 1MHz increment.

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

3.1.8.2 CPU Clock Ratio

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

Important:
The frequency ratio of some processors may have been locked by the manufacturer. If you are using this kind of processor, setting an extended ratio for the processor will have no effect. The system will instead use its factory default ratio.

3.1.8.3 AGP/PCI/SATA Clock

This field is used to select the bus clock of the AGP, PCI and SATA.

3.1.8.4 Auto Detect PCI Clk

When enabled, the system will automatically send clock signals to existing PCI devices.

3.1.8.5 Spread Spectrum

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

3.1.8.6 Super_Gear

The options are Auto and Enabled.

3.1.8.7 Current CPU Voltage

This field will show the current CPU voltage.

3.1.8.8 CPU Voltage Control

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

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

3.1.8.9 DIMM Voltage Control

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

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

3.1.8.10 AGP Voltage Control

This field allows you to manually select higher voltage supplied to the AGP. If you want to use the default voltage, leave this field in its default setting, which is "Default".

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

3.1.8.11 CSA LAN (Giga-LAN)

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

3.1.8.12 CSA 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.

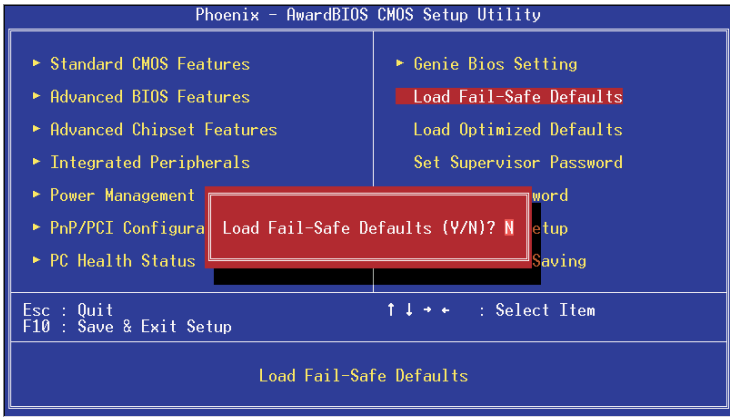
If you wish to change the boot ROM's settings, type the <Shift> and <F10> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Shift> + <F10>) only when this field is enabled.

3.1.8.13 RAID Device Control

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

3.1.9 Load Fail-Safe Defaults

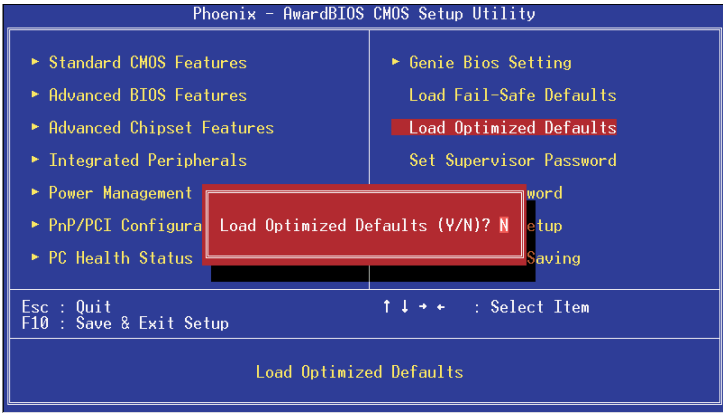
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



If you want to proceed, type <Y> and press <Enter>. The default settings will be loaded.

3.1.10 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>.

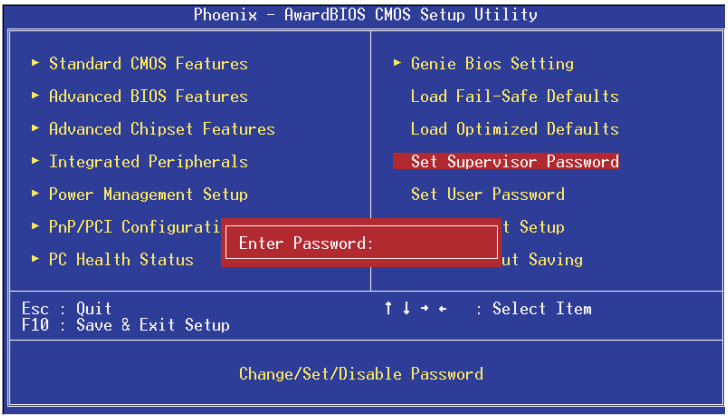


Type <Y> and press <Enter> to load the Setup default values.

3.1.11 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:

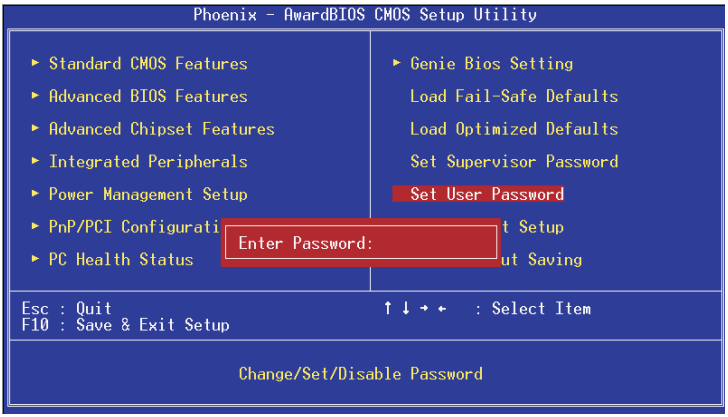
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

3.1.12 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>.



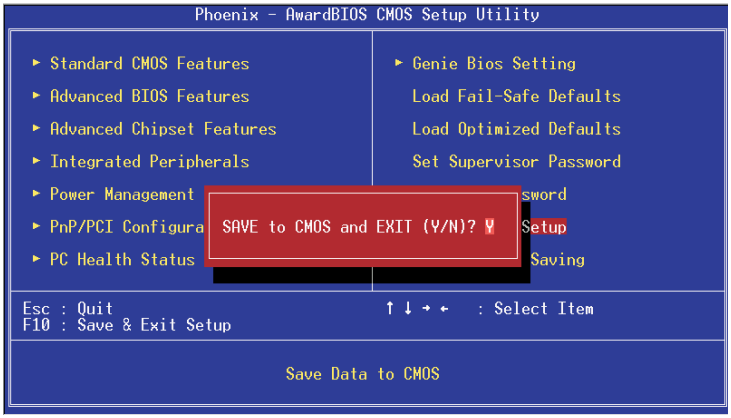
Type in the password. You are limited to eight characters. When done, the message below will appear:

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.

3.1.13 Save & Exit Setup

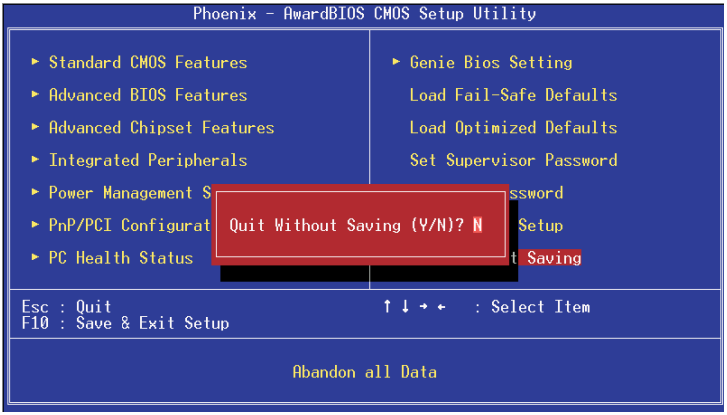
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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.

3.1.14 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.

3.2 Intel LAN BIOS Setting Utility

The Intel LAN BIOS Setting Utility is used to configure and manage the onboard LAN. You can configure the system to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly.

After you power up the system and all hard disk drives have been detected, the boot ROM message screen will appear. Press the <Ctrl> and <S> keys simultaneously to enter the utility. This will allow you to change the boot ROM's settings.

3.3 Intel ICH5R BIOS Setting Utility

The Intel ICH5R BIOS Setting Utility is used to configure and manage RAID on Serial ATA drives.

Important:
Before you run the Intel ICH5R BIOS Setting Utility, make sure "SATA Mode" ("Intel OnChip IDE Device" section) in the Integrated Peripherals submenu of the Award BIOS is set to "RAID".

After you power up the system and all hard disk drives have been detected, the Intel RAID BIOS status message screen will appear. Press the <Ctrl> and <I> keys simultaneously to enter the utility. The utility allows you to build a RAID system with Windows® XP or Windows® 2000 installed on a RAID 0 or RAID 1 Volume using two Serial ATA (SATA) hard drives.

3.4 HighPoint BIOS Configuration Utility

The HighPoint BIOS Configuration Utility is used to configure and manage RAID on drives connected to the RAID IDE connector.

Important:
Before you run the HighPoint BIOS Configuration Utility, make sure the "RAID Device Control" field in the Genie BIOS Setting submenu of the Award BIOS is set to Enabled.

After you power up the system and all hard disk drives have been detected, the boot ROM message screen will appear as shown below.

```
HighPoint Technologies, Inc. HPT370/372 BIOS Setting Utility v2.3
(c) 1999-2001. HighPoint Technologies, Inc. All rights reserved

Press <Ctrl><H> to run BIOS Setting Utility
Scan Devices. Please wait ...
```

Press the <Ctrl> and <H> keys simultaneously. The BIOS Configuration Utility screen will appear.

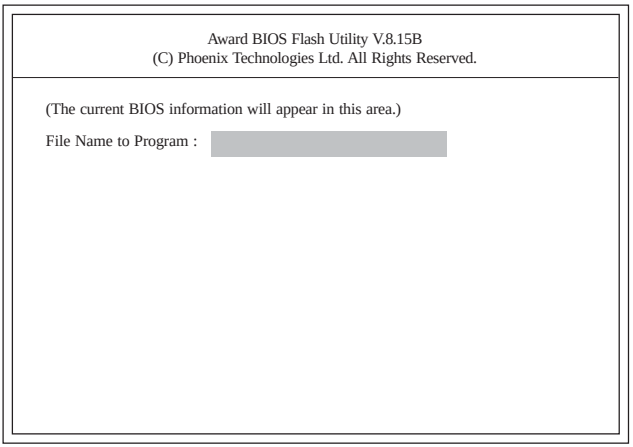
Note:
Refer to the "BIOS Configuration Utility" section in the HighPoint RAID User's Manual for information on using the utility. The manual is included in the CD.

3.5 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.

Note:
AWDFLASH.EXE works only in DOS mode.

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

4.1 Desktop Management Interface (DMI)

The system board comes with a DMI built into the BIOS. DMI, along with the appropriately networked software, is designed to make inventory, maintenance and troubleshooting of computer systems easier. With DMI, a network administrator or MIS engineer can remotely access some information about a particular computer system without physically going to it. Quite often a service call may be unnecessary as the problem can be solved remotely.

The DMI utility in the BIOS automatically records various information about your system configuration. Information about the type and speed of CPU, type and amount of memory for each memory slot, BIOS revision level, types of add-in PCI boards and components, certain revision numbers of hardware installed, etc. are automatically detected and stored in the DMI pool, which is a part of the system board's Plug and Play BIOS. Additional information, such as ISA based peripherals, which may not be automatically detected, can be manually recorded in the DMI pool by using the Add DMI menu. The DMI pool data is then verified or updated whenever the system hardware or setup is altered.

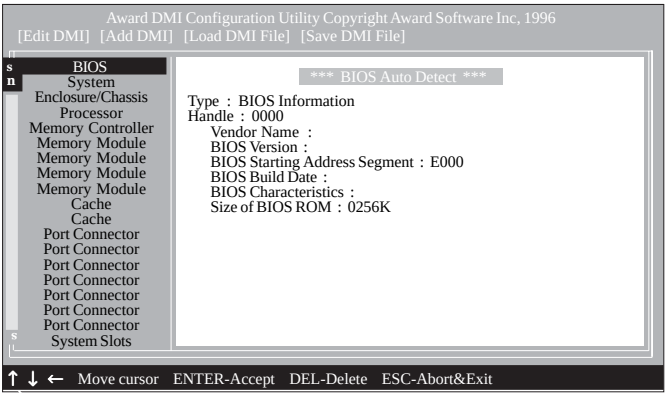
4.1.1 Running the DMI Utility

To run the DMI utility, type: DMICFG.EXE. You can download this utility from ftp.dfiusa.com - /utilities/DMI directory.

The DMI utility must run in real mode with at least 180K of base memory. Memory managers like HIMEM.SYS (required by Windows) must not be installed. You may do this by using one of the 3 methods listed below.

1. Boot up from a system diskette without the AUTOEXEC.BAT and CONFIG.SYS files,
2. "REM" HIMEM.SYS in the CONFIG.SYS, or
3. Press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

4.1.2 Using the DMI Utility



The four menus located on top of the DMI Configuration Utility screen are Edit DMI, Add DMI, Load DMI File and Save DMI File. Use the ← or → (left or right) arrow keys to select a menu from the Menu bar.

On the left side of the screen is a list of the system configuration items. Use the ↑ or ↓ (up or down) arrow keys to select an item.

The commands at the bottom of the screen will allow you to navigate through the various setup menus.

Edit DMI

1. Use the ← or → arrow keys to select the Edit DMI menu.
2. Highlight the item on the left screen that you would like to edit by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to edit information. The screen will also display the auto-detected information.
4. Press <F10> to update the edited information into the flash ROM.

Add DMI

1. Use the ← or → arrow keys to select the Add DMI menu.
2. Highlight the item on the left screen that you would like to add by using the ↑ or ↓ arrow keys, then press <Enter>.
3. The cursor will move to the screen you select allowing you to enter information about the added item.
4. Press <F10> to save information into the flash ROM.

To view information about the added items, go to the Edit DMI menu.

Load DMI File

1. Use the ← or → arrow keys to select the Load DMI File menu.
2. The following message will appear.

   Press [Enter] to select DMI file for load

   Press <Enter>.
3. The DMI files will appear on the screen. Select the file you would like to load and press <Enter>.
4. The following message will appear.

   Do you want to execute? (Y/N)

   Type <Y>. All previous DMI structures will be destroyed and the new file will be saved into the flash ROM.

Save DMI File

1. Use the ← or → arrow keys to select the Save DMI File menu.
2. The following message will appear.

   Press [Enter] to select DMI file for save

   Press <Enter>.
3. Enter the directory and filename under which you would like the DMI file saved.

4.2 Drivers, Utilities and Software Applications

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

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

Important Installation Rules

Please follow the installation sequence below.

1. Install the "Audio Drivers".
2. Install the "Intel Chipset Software Installation Utility".
3. Install the other drivers and utilities.

Make sure to follow this sequence. Doing it otherwise will slow down the boot up time and affect the performance of the system.

4.2.1 Audio Drivers

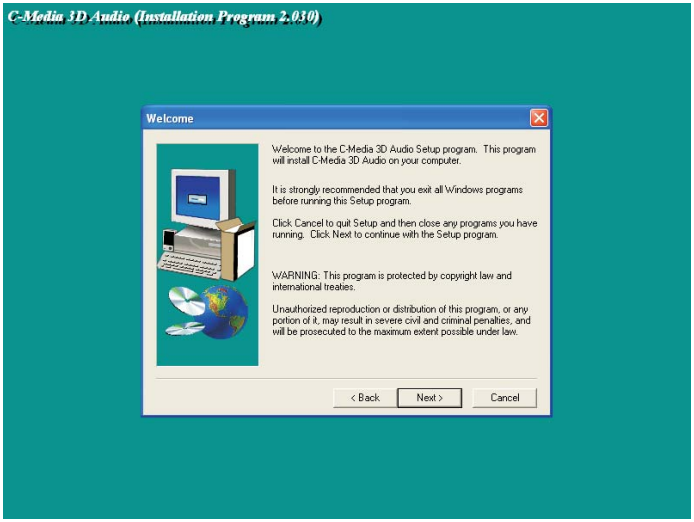
The audio drivers are supported in the following operating systems: Windows® 98, Windows® 98 SE, Windows® ME, Windows NT® 4.0, Windows® 2000 and Windows® XP.

To install the driver, please follow the steps below.

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

2. Click "Audio Drivers" on the main menu. The following screen will appear. Click "Install Device Driver".

3. The following screen will appear.



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

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

Note:
The 3D Audio Configuration software, which is an audio panel for setting basic audio configurations, will at the same time be installed into your system. Refer to the "3D Audio Configuration" section in this chapter for more information.

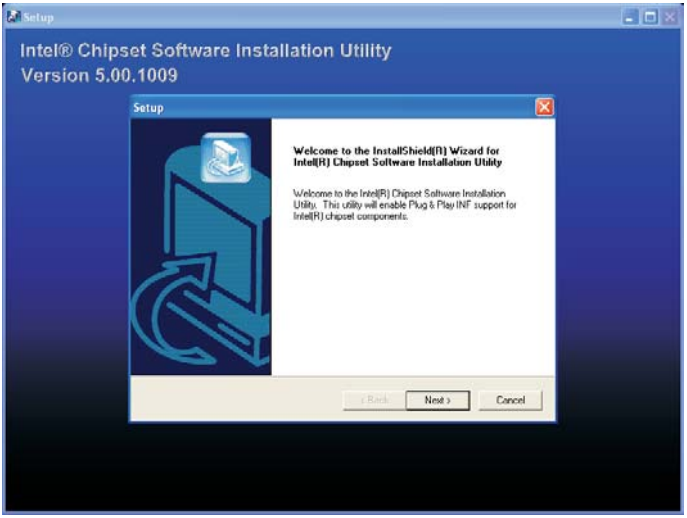
4.2.2 Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows® 98/98SE/2000/ME/XP's INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, please follow the steps below.

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

2. Click "Intel Chipset Software Installation Utility" on the main menu. The following screen will appear.



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

4. Reboot the system for the utility to take effect.

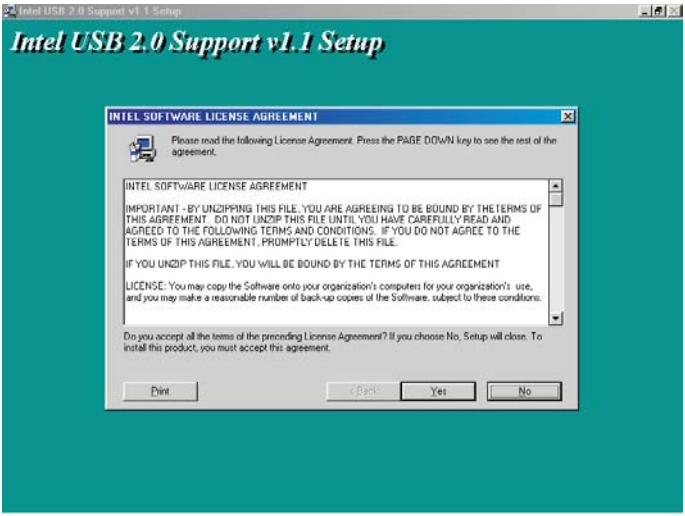
4.2.3 Intel USB 2.0 Drivers

If you are using a USB 2.0 device, you must install the USB 2.0 driver. The drivers are supported in the following operating systems: Windows® 98 SE, Windows® ME and Windows® 2000.

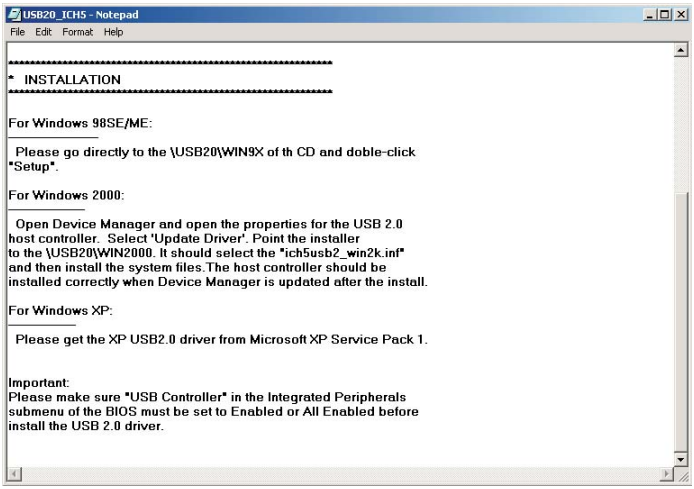
To install the driver, please follow the steps below.

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

2. Click "Intel USB 2.0 Drivers" on the main menu. If you are using Windows® 98 SE or Windows® ME, the following screen will appear.



Windows® 2000 does not support auto-installation of the USB 2.0 driver. When you click "Intel USB 2.0 Drivers", the "readme" screen will appear.



3. Follow the installation instructions shown on the screen.

4. Reboot the system for the driver to take effect.

Important:
If you are using Windows® XP, you must install the Windows Service Pack 1 USB 2.0 driver which comes available after you have installed the operating system.

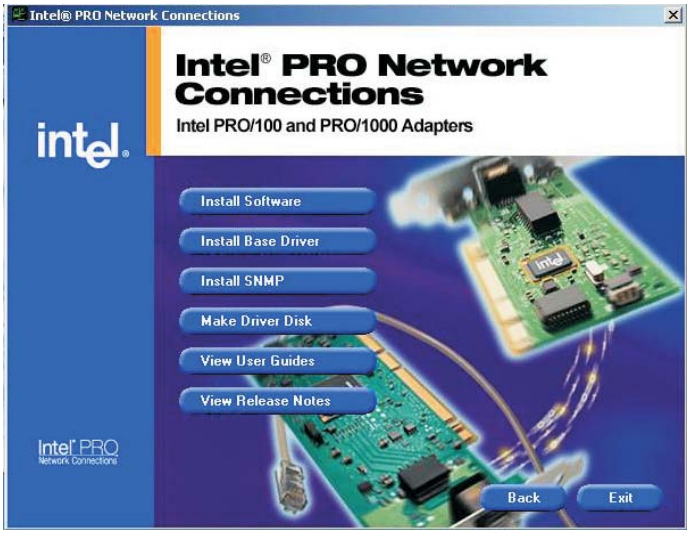
4.2.4 LAN Drivers

To install the driver, please follow the steps below.

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

2. Click "LAN Drivers" on the main menu.

3. Click "Wired LAN Adapters". The following screen will appear.



4. Click "Install Software". This will install the LAN application software. After installing the software, run the application software by double-clicking the icon on the lower right of the taskbar. The "Intel(R) PROSet II" screen will appear. For more information about using the utility, click "View User Guide" on the screen above.

5. Go back to the screen above to install the LAN driver. Click "Install Base Driver".

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

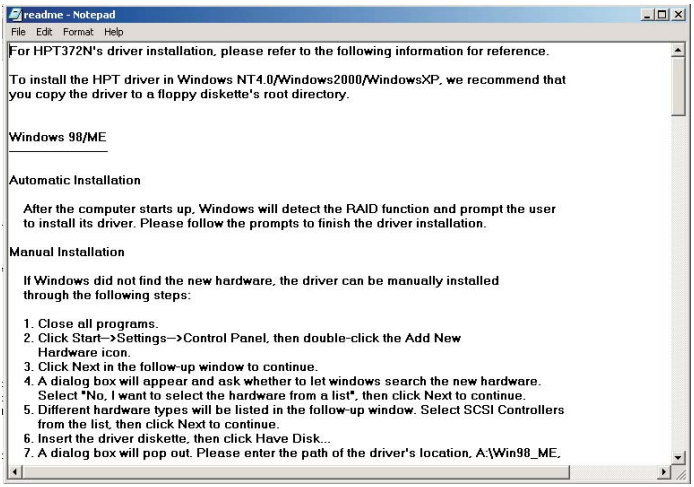
7. Reboot the system for the driver to take effect.

4.2.5 HighPoint RAID Drivers

If the hard drives connected to the RAID IDE connectors will be configured as RAID, you must install the Highpoint RAID drivers.

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

2. Click "HighPoint RAID Drivers" on the main menu. A "readme" screen which contains the RAID drivers installation instructions will appear.



The installation procedure will lead you to install the driver from a diskette. The diskette is included in the system board package.

To install the RAID drivers:

1. Insert the "HighPoint 372 N RAID Drivers" diskette.

2. Follow the installation instructions shown on the screen.

3. Reboot the system for the driver to take effect.

Note:
Refer to the HighPoint RAID User's Manual for more information about the RAID drivers. The manual is included in the CD.

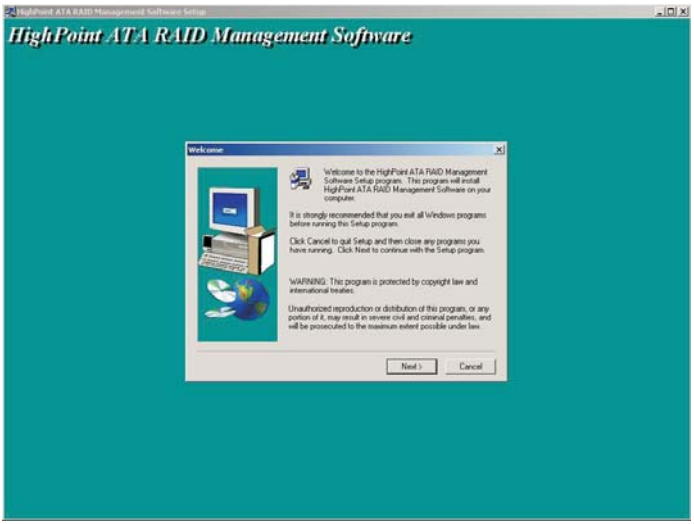
4.2.6 HighPoint RAID Utility

This utility is used to configure and manage RAID on drives connected to the RAID IDE connectors.

To install the utility, please follow the steps below.

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

2. Click "HighPoint RAID Utility" on the main menu. The following screen will appear.



3. Follow the installation instructions shown on the screen.

4. Reboot the system for the driver to take effect.

Note:
Refer to the HighPoint RAID User's Manual for more information about the utility. The manual is included in the CD.

4.2.7 Intel ICH5R RAID Driver (for Windows XP and Windows 2000 only)

After the SATA drives have been configured with a RAID volume in the Intel ICH5R BIOS Setting Utility, you must install the ICH5R RAID driver.

To install the RAID driver:

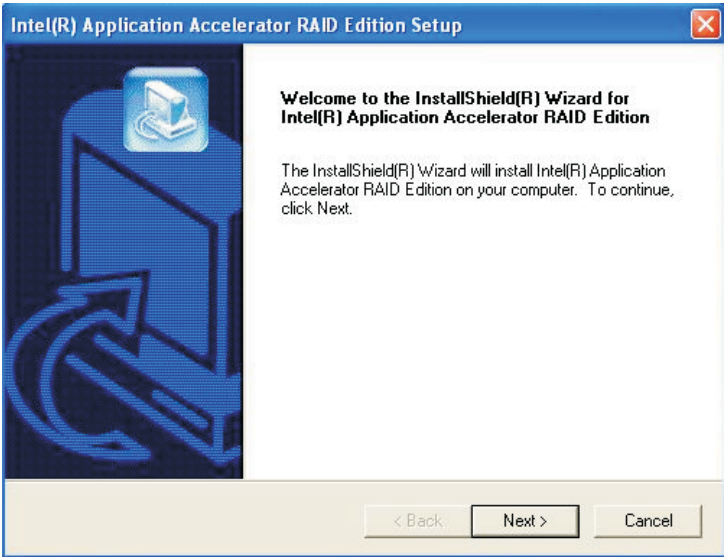
1. Start Windows Setup by booting from the installation CD.
2. Press <F6> when prompted at the beginning of Windows setup.
3. Press <S> to select "Specify Additional Device".
4. At this point you should be prompted to insert a floppy disk containing the Intel RAID driver. Insert the "Intel ICH5R RAID Driver" diskette.
5. Select "Intel® 82801ER SATA RAID Controller" from the list then press <Enter>.
6. The next screen should confirm that you have selected the Intel(r) RAID controller. Press <Enter> again to continue.
7. Finish the Windows installation. Leave the floppy disk in the floppy drive until the system reboots itself. Windows setup will need to copy the files from the floppy disk again after the RAID volume is formatted, then Windows setup starts copying files.
8. Install the "Intel Application Accelerator RAID Edition" software. (Refer to the next page). This will add the Intel Application Accelerator RAID Edition user interface utility that can be used to manage the RAID configuration.

4.2.8 Intel Application Accelerator RAID Edition (for Windows XP and Windows 2000 only)

This utility is used to configure and manage RAID on Serial ATA drives.

To install the utility, please follow the steps below.

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "Intel Application Accelerator RAID Edition" on the main menu. The following screen will appear.



3. Follow the installation instructions shown on the screen.
4. Reboot the system for the driver to take effect.

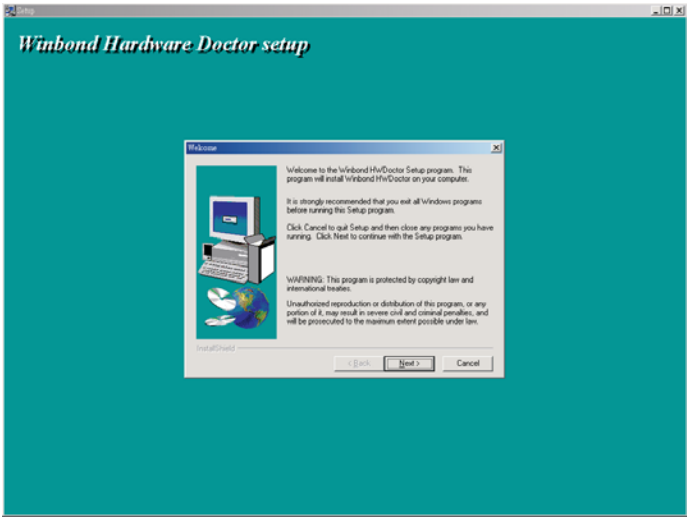
4.2.9 Hardware Monitor

The system board comes with the Hardware Monitor utility contained in the provided CD. This utility is capable of monitoring the system's "health" conditions 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, please follow the steps below.

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

2. Click "Hardware Monitor" on the main menu. The following screen will appear.



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

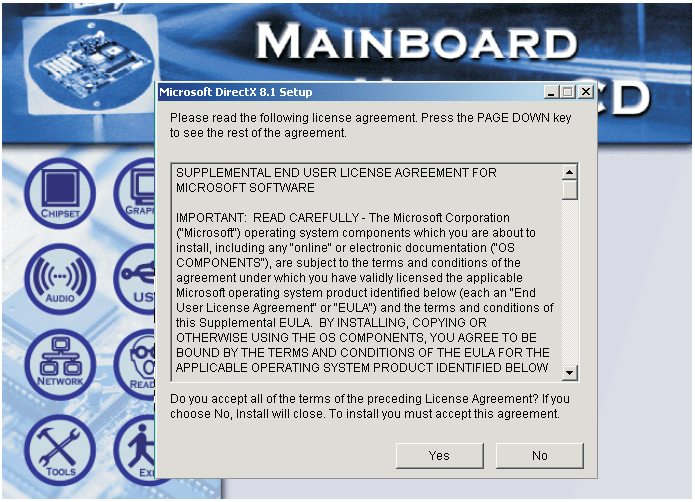
4. Reboot the system for the driver to take effect.

4.2.10 Microsoft DirectX 8.1

To install, please follow the steps below.

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

2. Click "Microsoft DirectX 8.1" on the main menu. The following screen will appear.



3. Click "Yes" to continue.

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

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

Note:
If you are using Windows® XP, you do not need to install "Microsoft DirectX 8.1" because it is already supported by the operating system.

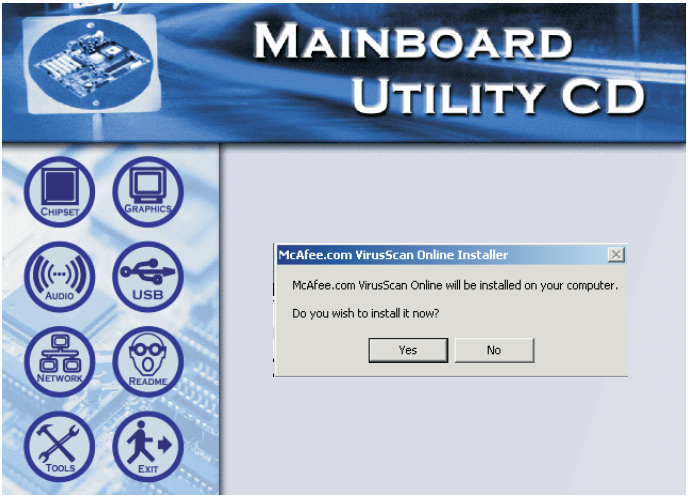
4.2.11 McAfee VirusScan Online (English OS only)

The McAfee VirusScan Online is the most reliable and convenient way of protecting your PC from computer viruses. When you install McAfee VirusScan Online, your computer is safe because it automatically scans for viruses and checks for virus updates so that PC protection stays up-to-date.

To install, please follow the steps below.

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

2. Click "McAfee VirusScan Online" on the main menu. The following screen will appear.



3. Click "Yes" to continue.

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

5. Restart the system.

4.2.12 RadarSync

RadarSync is a software utility that must be installed in your system to allow online updates of the system's BIOS. It provides an easy and fast way of accessing the website for downloading the latest version of the BIOS. Using your existing Internet connection, the utility can automatically connect to the web server.

Installing RadarSync

1. On the left side of the autorun screen, click the "TOOLS" icon.
2. Click "RadarSync" on the main menu. The following screen will appear.

3. Follow the prompts on the screen to complete installation.
4. Reboot the system for the driver to take effect.

Launching RadarSync

Click Start on your Windows desktop, point to Programs then click RadarSync. The RadarSync icon will appear on the taskbar.

If you are online, it will start to "radar" (rotate) looking for updates for your PC. If you are not online, RadarSync will be in sleep mode.

If you want to customize or manage the options in RadarSync, double-click the icon to open the RadarSync. software.

Updating the System

When RadarSync is running and you are online, the Update Window will from time to time pop up on your computer screen. This means RadarSync has found an update file for the system's BIOS.

By finding the updates for you and downloading them, RadarSync saves you time.

To get an update once RadarSync notifies you about it, click "Download" on the Update Window.

Note:
Refer to the RadarSync User's Manual for more information. The manual is included in the CD.

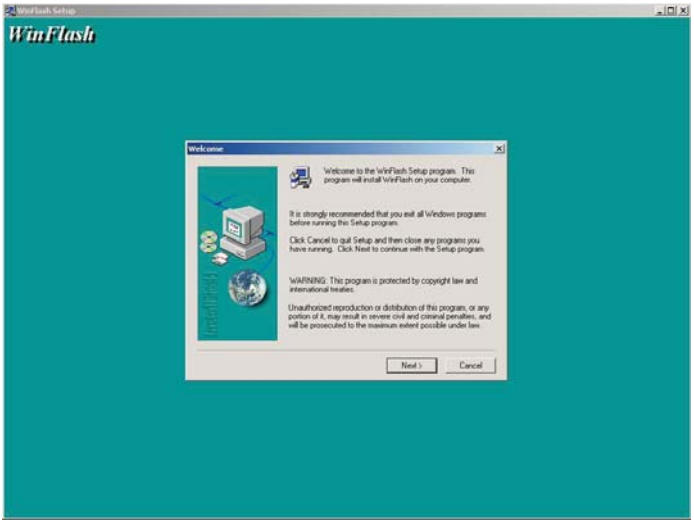
4.2.13 WinFlash

WinFlash is a utility program that allows you to flash the BIOS under an operating system.

To install, please follow the steps below.

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

2. Click "WinFlash" on the main menu. The following screen will appear.



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

4. Restart the system.

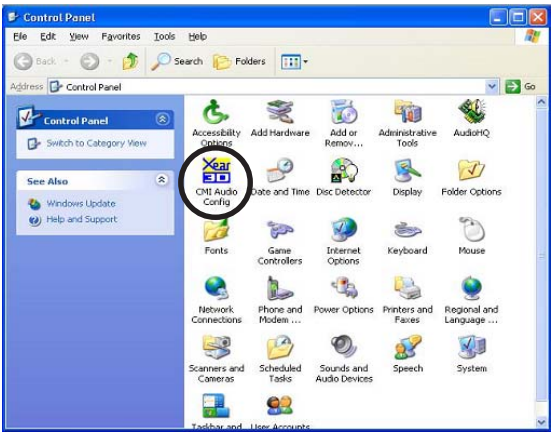
To flash the BIOS, run the WinFlash utility.

4.3 3D Audio Configuration

When you install the audio driver, the 3D Audio Configuration software will at the same time be installed into your system. 3D Audio Configuration is an audio panel for setting basic audio configurations. It allows you to configure 2-channel, 4-channel and 6-channel audio modes as well as configure the audio effects. After installing the audio driver and rebooting the system, you can run 3D Audio Configuration either from the taskbar or from the Control Panel.

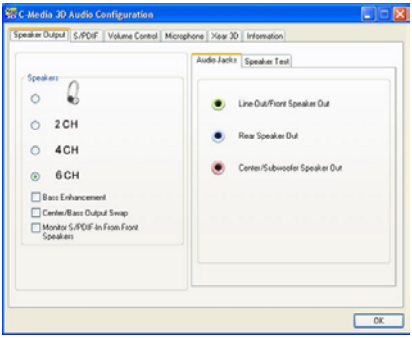
a. Right-click the 3D Audio Configuration icon which you will find in the taskbar at the lower right corner of the desktop screen.

b. On your Windows desktop, click Start, point to Settings then click Control Panel. The Control Panel dialog box will appear. Double-click CMI Audio Config.



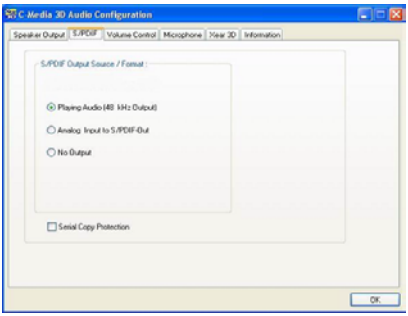
Speaker Output

When you open 3D Audio Configuration, the default screen that appears is the Speaker Output. This is where you will configure analog output settings to speakers.



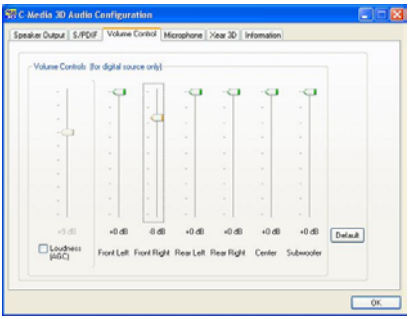
S/PDIF

This panel is used to configure S/PDIF output which provides a low-distortion digital data transfer between audio devices.



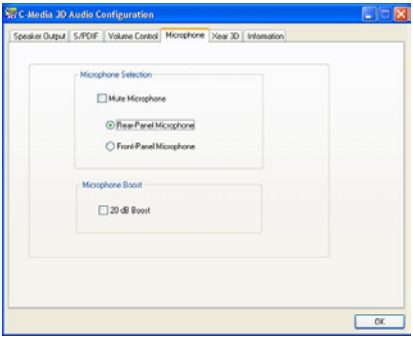
Volume Control

This panel provides digital volume control for all 6 channels. You can regulate each volume to the speaker when playing digital sound sources.



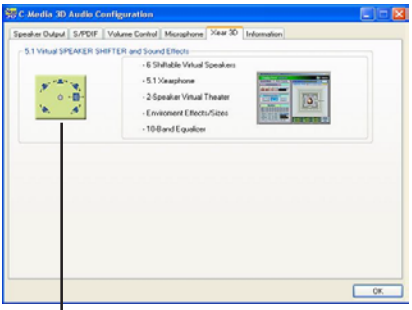
Microphone

This panel is used to configure the microphone.



Xear 3D

Xear 3D is a sound technology for 2-channel virtual surround, adjustable multi-channel sound field, innovative listening mode, amazing sound effects and 3D positional audio. It has 3 functional blocks: Virtual Speaker Shifter, Sound Effect and Multi-channel Music Demo.



Note:
Refer to the Audio User's Manual for more information about 3D Audio Configuration. The manual is included in the CD.

4.4 Installation Notes

1. "Autorun" ONLY supports the Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

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

Appendix A - Enabling Hyper-Threading Technology

A.1 Enabling Hyper-Threading Technology

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

1. The system requires a minimum of 300 Watt ATX 12V power supply.

2. Aside from installing a CPU fan on the Intel® Pentium® 4 Processor with Hyper-Threading Technology, make sure to install cooling fans. The system requires adequate airflow throughout the chassis to prevent overheating the processor.

3. The "CPU Hyper-Threading" field in the Advanced BIOS Features submenu of the Award BIOS setup will appear. Make sure this field is set to Enabled.

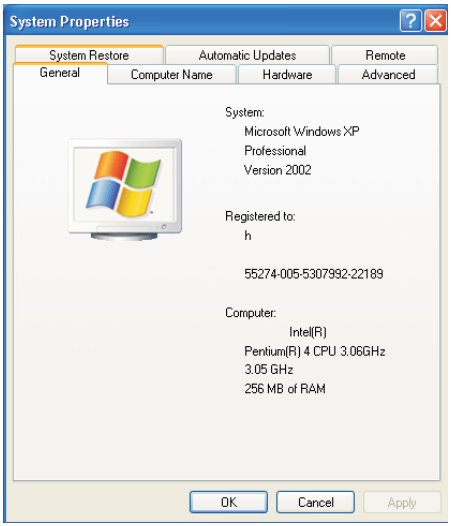
4. Currently, only Windows® XP supports the Hyper-Threading Technology. If this OS has been previously installed, you must **REINSTALL** it.

5. After installing Windows® XP, please check the following to ensure that the operating system has been properly installed.

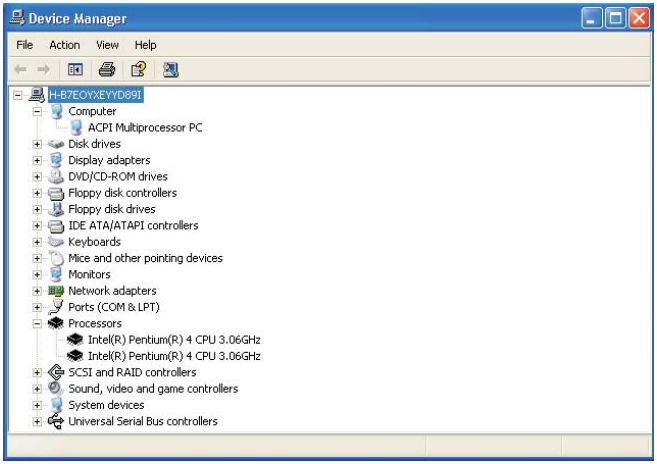
   a. Click Start, point to Settings then click Control Panel.

   b. Double-click the System icon. The System Properties dialog box will appear.

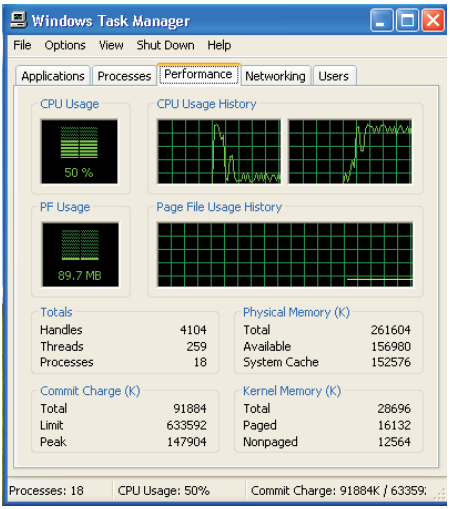
c. Click the General tab. The processor shown under Computer should resemble the one shown below.



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



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



Appendix B - CPU Fan Protection

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 system board supports the CPU Fan Protection function. It has the capability of monitoring the CPU fan when the system boots. Once it has detected that the CPU fan did not rotate, 5 warning beeps will sound then the system will automatically power-off. This preventive measure has been added to protect the CPU from damage and insure a safe computing environment.

To use the CPU Fan Protection function, please follow the steps below.

1. Before you power-on the system, make sure the heat sink and CPU fan are correctly installed onto the CPU. The system is capable of monitoring the CPU fan, therefore you must use a fan with sense pin to support this function. Connect the CPU fan to the CPU fan connector on the system board.

2. The "CPU Fan Protection" field in the PC Health Status submenu of the BIOS must be set to "Enabled".

3. You may now power-on the system.

Three circumstances may occur causing the system to detect CPU fan failure.

1. The CPU fan is not connected to the CPU fan connector on the system board.

2. The CPU fan may be damaged. Replace it with a new fan.

3. The CPU fan did not rotate immediately upon system boot-up or it took some time before the CPU fan rotated. Check whether the heat sink and fan are mounted properly onto the CPU then restart the system. If the same problem occurs, you must replace it with a good quality fan - one that will rotate immediately once power comes in and also one that will dissipate heat more efficiently, otherwise, you have to disable this function in the BIOS.

Appendix C - CPU Temperature Protection

The CPU Temperature Protection function has the capability of monitoring the CPU's temperature during system boot-up.

To use the CPU Temperature Protection function, please follow the steps below.

1. Select the "PC Health Status" submenu in the BIOS.
2. Set the "CPU Temp. Prot. Function" field to "Enabled".
3. Select the CPU temperature limit in the "CPU Temp. Prot. Alarm" field.
4. Press <Esc> to return to the main menu then save the settings by selecting "Save & Exit Setup".

Once the system has detected that the CPU's temperature exceeded the temperature limit defined in the BIOS, 5 warning beeps will sound then the system will automatically power-off.

Check whether the heat sink and fan are mounted properly onto the CPU because high CPU temperature may be due to incorrect fan / heat sink installation. Now restart the system. If the same problem persist, it may be the CPU fan is damaged or it is not rotating properly. Try replacing it with a new fan. If it is due to other contributing factors that resulted to high CPU temperature, you may need to set a lower CPU temperature limit.

CPU Temperature References

When you power-up a system, the BIOS message appears on the screen and the memory count begins. After the memory test, the CPU temperature range is normally between 32°C and 35°C. When you run an operating system then tried to reboot the system, the CPU temperature range at this time is between 40°C and 45°C. These temperature references serve as a guide when you select the CPU temperature limit.

Appendix D - 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.

D.1 POST Beep

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

D.2 Error Messages

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

CMOS BATTERY HAS FAILED

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

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different

setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

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

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

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

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

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

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

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

Keyboard is locked out - Unlock the key
The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

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

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

BIOS ROM checksum error - System halted
The checksum of ROM address F0000H-FFFFFH is bad.

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

Appendix E - Troubleshooting

E.1 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.

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

Parallel Port

The parallel printer doesn't respond when you try to print.

1. Make sure that your printer is turned on and that the printer is on-line.
2. Make sure your software is configured for the right type of printer attached.
3. Verify that the onboard LPT port's I/O address and IRQ settings are configured correctly.
4. Verify that the attached device works by attaching it to a parallel port that is working and configured correctly. If it works, the printer can be assumed to be in good condition. If the printer remains inoperative, replace the printer cable and try again.

Serial Port

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

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

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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