

**NS80-EA**  
**NS80-EC**  
**NS80-EL**

**Rev. A+**  
**System Board**  
**User's Manual**

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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.

## 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 (Main Board Utility CD) will appear. Click "User's Manual".

## System Board

This user's manual is for the NS80-EA, NS80-EC and NS80-EL system boards. The differences between these boards are shown below.

	NS80-EA	NS80-EC	NS80-EL
RJ45 LAN port	✓	✗	✓
IEEE 1394A	✓	✗	✗

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# Chapter I - Introduction

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## I.I Features and Specifications

### I.I.I Features

#### Chipset

- SiS® 648/963

#### Processor

The system board is equipped with Socket 478 for installing a Pentium® 4 or Celeron® processor:

- Intel® Pentium® 4 processor (478-pin)
  - 533MHz system data bus - supports up to 2.53 GHz CPU speed
  - 400MHz system data bus - supports up to 2.4 GHz CPU speed
- Intel® Celeron® processor (478-pin)
  - 400MHz system data bus - supports up to 1.7 GHz CPU speed

#### System Memory

- Three 184-pin DDR DIMM sockets
- Supports 6 banks up to 3GB using PC1600 (DDR200), PC2100 (DDR266) or PC2700 (DDR333) unbuffered DDR SDRAM DIMM, 2.5V type
- 16Mb, 64Mb, 128Mb, 256Mb and 512Mb SDRAM technology with page size from 2KB up to 16KB

### Expansion Slots

The system board is equipped with 1 AGP slot and 6 PCI slots.

AGP is an interface designed to support high performance 3D graphics cards. It utilizes a dedicated pipeline to access system memory for texturing, z-buffering and alpha blending. The universal AGP slot supports AGP 8x with up to 2132MB/sec. bandwidth and AGP 4x with up to 1066MB/sec. bandwidth for 3D graphics applications. AGP in this system board will deliver faster and better graphics to your PC.

### Onboard Audio Features

- AC'97 2.2 extension compliant codec
- Supports Microsoft® DirectSound/DirectSound 3D
- AC'97 supported with full duplex, independent sample rate converter for audio recording and playback
- S/PDIF-in/out interface (S/PDIF-in is optional)
- 6-channel audio output

### S/PDIF

The system board is equipped with the S/PDIF (Sony/Philips Digital Interface) digital audio interface. 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.



### Onboard LAN Features (NS80-EA and NS80-EL only)

- Uses Phy fast ethernet controller
- Integrated IEEE 802.3, 10BASE-T and 100BASE-TX compatible PHY
- 32-bit PCI master interface
- Integrated power management functions
- Full duplex support at both 10 and 100 Mbps
- Supports IEEE 802.3u auto-negotiation
- Supports wire for management

### IEEE 1394A Interface (NS80-EA only)

- Uses Realtek RTL8801 chip
- Supports three 100/200/400 Mb/sec ports

The Realtek RTL8801 Phy 1394A controller works with the SiS 963 chip to support IEEE 1394A. It is fully compliant with the 1394A OHCI (Open Host Controller Interface) 1.1 specification. 1394A is a fast external bus standard that supports data transfer rates of up to 400Mbps. In addition to its high speed, it also supports isochronous data transfer which is ideal for video devices that need to transfer high levels of data in real-time. 1394A supports both Plug-and-Play and hot plugging allowing devices to be attached or removed from the system, even with the power on.

### PCI Bus Master IDE Controller

- Two PCI IDE interfaces support up to four IDE devices
- Supports ATA/33, ATA/66, ATA/100 and ATA/133 hard drives
- UDMA Modes 3, 4, 5 and 6 Enhanced IDE (data transfer rate up to 133MB/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.

## USB Ports

The system board supports 6 USB 2.0/1.1 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® 98/2000/ME/XP Plug and Play compatible
- Supports SCSI sequential boot-up
- Flash EPROM for easy BIOS upgrades
- Supports DMI 2.0 function
- 2Mbit 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)

- Four USB 2.0/1.1 ports
- One RJ45 LAN port (NS80-EA and NS80-EL only)
- Two NS16C550A-compatible DB-9 serial ports
- One DB-25 parallel port
- One mini-DIN-6 PS/2 mouse port
- One mini-DIN-6 PS/2 keyboard port
- Three audio jacks: line-out, line-in and mic-in

## Connectors

- One connector for 2 additional external USB 2.0/1.1 ports
- Three connectors for 3 external IEEE 1394A ports (NS80-EA only)
- One connector for an external game/MIDI port
- One connector for external line-out and mic-in jacks
- Two internal audio connectors (AUX-in and CD-in)
- One S/PDIF-in/out connector (S/PDIF-in is optional)
- One 4-channel audio output connector (optional)
- One connector for IrDA interface
- Two IDE connectors
- One floppy drive interface supports up to two 2.88MB floppy drives
- Two ATX power supply connectors
- CPU fan and chassis 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/3.3V/±5V/±12V/VBAT/5VSB voltages and failure alarm
- Monitors CPU/chassis fan speed and failure alarm
- Automatic chassis 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

#### Automatic Chassis Fan Off

The chassis 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 PWRBTN" field of the Power Management Setup, this switch will allow the system to enter the Soft-Off or Suspend mode.

#### Wake-On-PS/2 Keyboard/Mouse

This function allows you to use the PS/2 keyboard or PS/2 mouse to wake up a system from the S3/S4/S5 state. Refer to "PS2KB Wakeup from S3/S4/S5" and "PS2MS Wakeup from S3/S4/S5" ("PM Wake Up Events" field) in the Power Management Setup section in chapter 3 for more information.



**Important:**

- *If you forgot the password, you must power-off the system, unplug the power cord and clear the CMOS data. Follow the steps in the "Jumper Settings for Clearing CMOS Data" section in chapter 2.*
- *The 5VSB power source of your power supply must support  $\geq 720\text{mA}$ .*

#### Wake-On-USB Keyboard/Mouse

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 state. Refer to "USB Resume From S3" ("PM Wake Up Events" field) in the Power Management Setup section in chapter 3 for more information.



**Important:**

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

### 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. Refer to and “Power Up By Alarm” (“PM Wake Up Events” field) in the Power Management Setup section in chapter 3 for more information.

### ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 98/2000/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® 98/2000/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. Refer to “Using the Suspend to RAM Function” in appendix A for more information.



**Important:**

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

### 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. Refer to “PWR Lost Resume State” in the Power Management Setup section in chapter 3 for more information.

### 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.

## I.2 Package Checklist

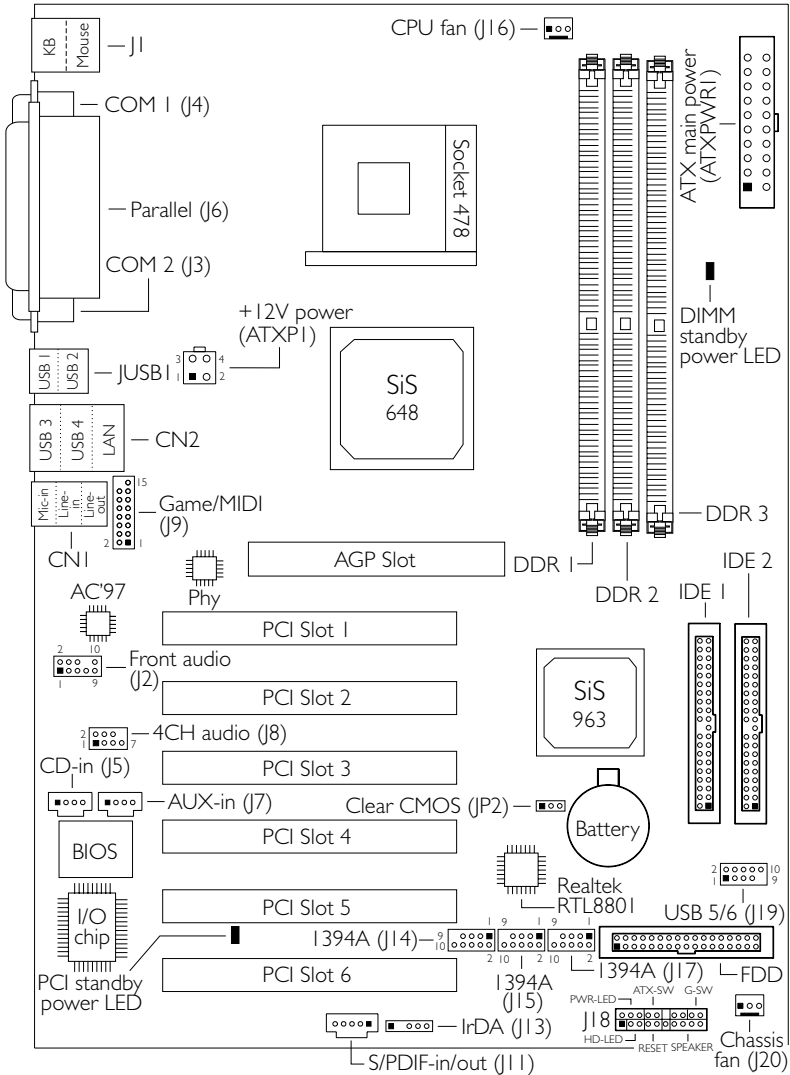
The system board package contains the following items:

- The system board
- A user's manual
- One IDE cable for ATA/33, ATA/66, ATA/100 or ATA/133 IDE drives
- One 34-pin floppy disk drive cable
- One card-edge bracket mounted with S/PDIF ports (optional)
- One card-edge bracket mounted with a 4-channel audio output connector (optional)
- One "Main Board Utility" CD

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

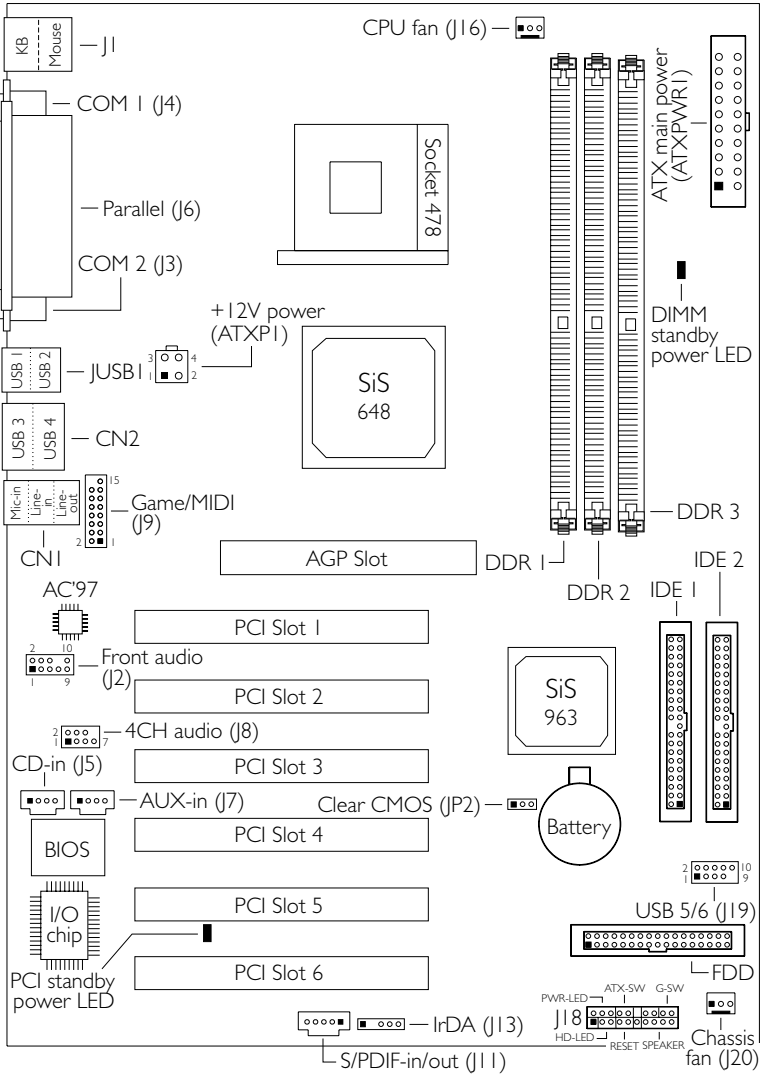
# Chapter 2 - Hardware Installation

## 2.1 System Board Layout



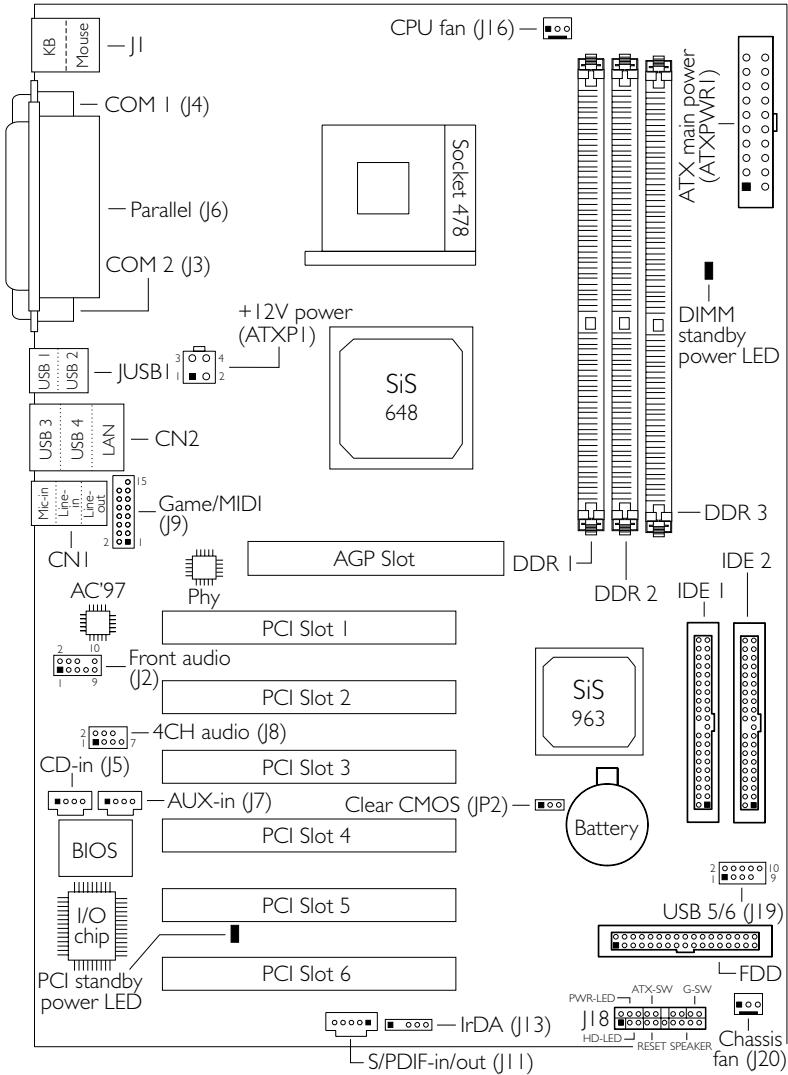
### NS80-EA

(Supports IEEE 1394A and onboard LAN)



**NS80-EC**

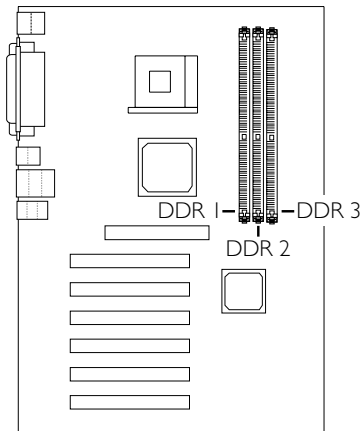




**Warning:**

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

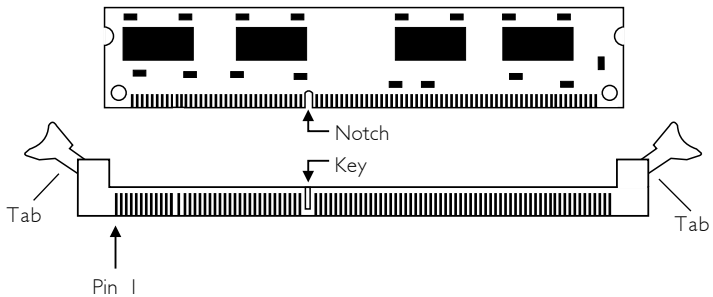


The system board is equipped with three 184-pin DDR SDRAM DIMM (Dual In-line Memory Module) sockets that support 2.5V DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer:

Refer to chapter 1 for the type of memory supported by the system board.

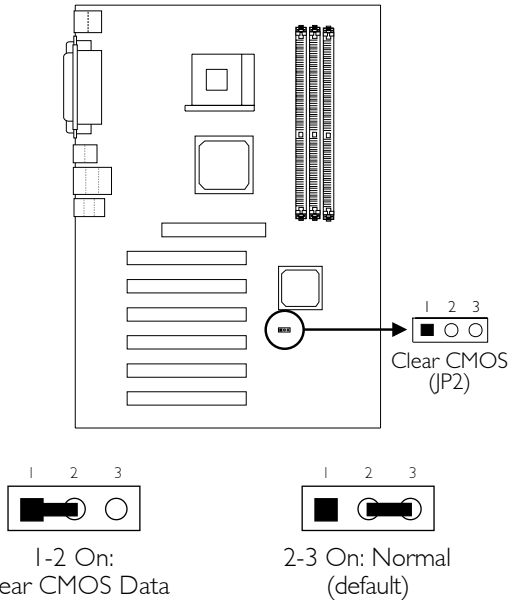
## 2.2.1 Installing the DIM Module

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 Jumper Settings for Clearing CMOS Data



### Clear CMOS Data - Jumper JP2

If you encounter the following,

- CMOS data becomes corrupted.*
- You forgot the keyboard, supervisor or user password.*
- 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.

- Power-off the system and unplug the power cord.
- Set JP2 pins 1 and 2 to On. Wait for a few seconds and set JP2 back to its default setting, pins 2 and 3 On.

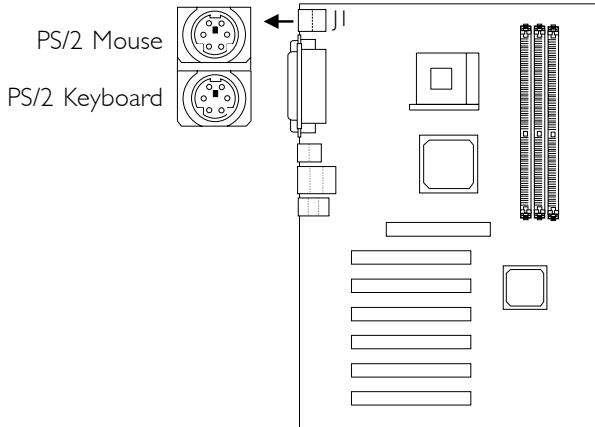
3. Now power-on the system.

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 Frequency/Voltage Control submenu and press <Enter>.
6. Set the "CPU Clock Ratio" or "CPU Frequency" field to its default setting or an appropriate frequency ratio or bus clock. Refer to the Frequency/Voltage Control 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 Rear Panel I/O Ports

### 2.4.1 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 J1 of the ATX double deck ports 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.

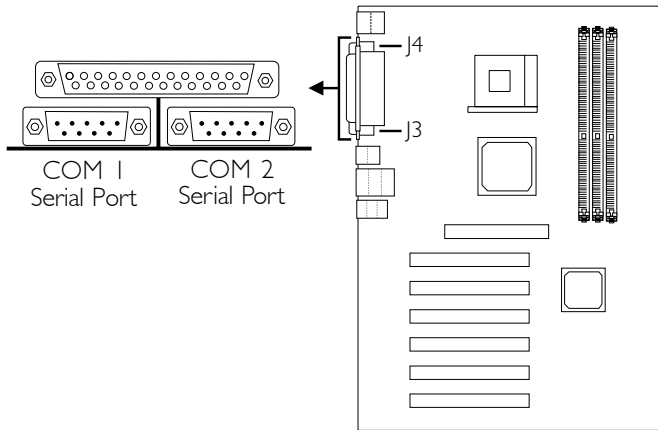
The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to wake up a system from the S3/S4/S5 state. "PS2KB Wakeup from S3/S4/S5" and "PS2MS Wakeup from S3/S4/S5" ("PM Wake Up Events" field) in the Power Management Setup submenu of the BIOS must be set accordingly.



**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.*

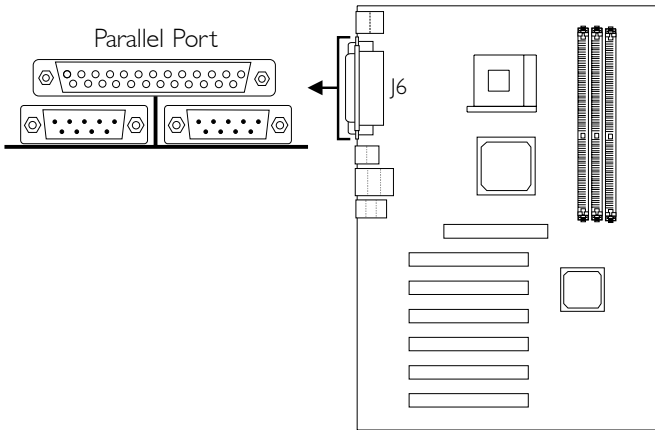
## 2.4.2 Serial Ports



The system board is equipped with onboard serial ports (COM 1: J4 and COM 2: J3) - both in Teal/Turquoise color located at the ATX double deck ports of the board.

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. You can select the serial ports' I/O address in the Integrated Peripherals submenu ("Onboard Super IO Device" field) of the BIOS.

## 2.4.3 Parallel Port

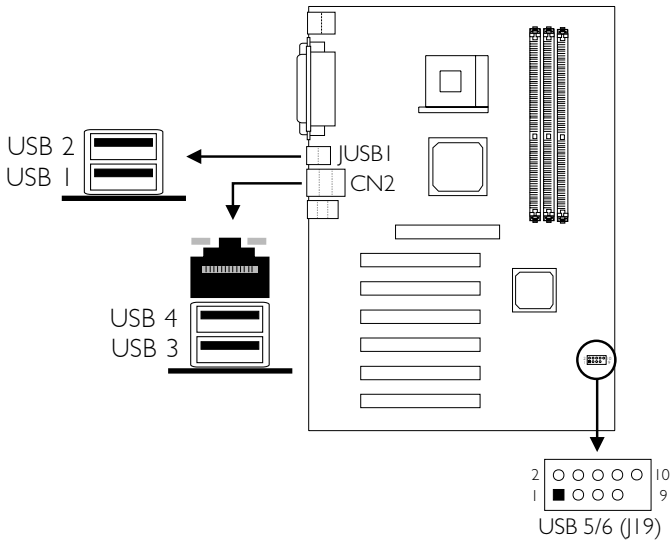


The system board has a standard parallel port (J6 - Burgundy) located at the ATX double deck ports of the board for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP modes. You can select the port's mode in the Integrated Peripherals submenu ("Onboard Super IO Device" field) of the BIOS.

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.



2.4.4 Universal Serial Bus Ports



Additional USB Ports (USB 5 and USB 6)

Pin	Function	Pin	Function
1	5V_Dul	2	5V_Dul
3	Data-	4	Data-
5	Data+	6	Data+
7	Ground	8	Ground
9	Key	10	Ground

The system board supports 6 USB 2.0/1.1 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.

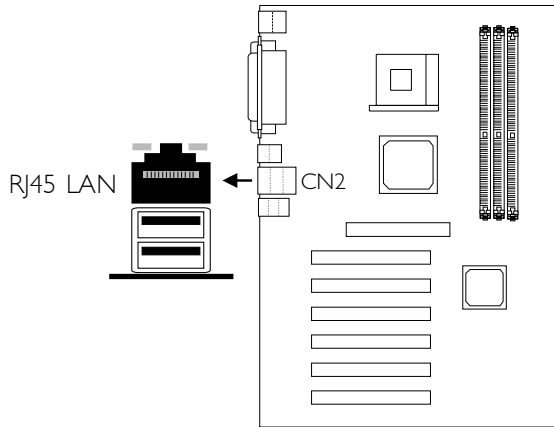
The system board is equipped with four onboard USB 2.0/1.1 ports (JUSB1 and CN2 - Black) located at the ATX double deck ports of the board.

The system board is also equipped with J19 for connecting 2 external USB 2.0/1.1 ports. The USB 2.0/1.1 ports, which are mounted on a card-edge bracket, will be provided as an option. If you wish to use the optional USB 2.0/1.1 ports, install the card-edge bracket to the system chassis then insert the connector that is attached to the USB 2.0/1.1 port cables to J19. The USB ports' cable connector can be inserted only if pin 1 of the connector is aligned with pin 1 of J19. Now connect the interface cable connector of your USB 2.0/1.1 device to the USB 2.0/1.1 port that is on the bracket.

To use the USB function, "SIS USB Controller" ("SIS OnChip PCI Device" field) in the Integrated Peripherals submenu of the BIOS must be set to Enabled. If you are using USB 2.0, "USB 2.0 Support" ("SIS OnChip PCI Device" field) in the Integrated Peripherals submenu of the BIOS must also be set to Enabled.

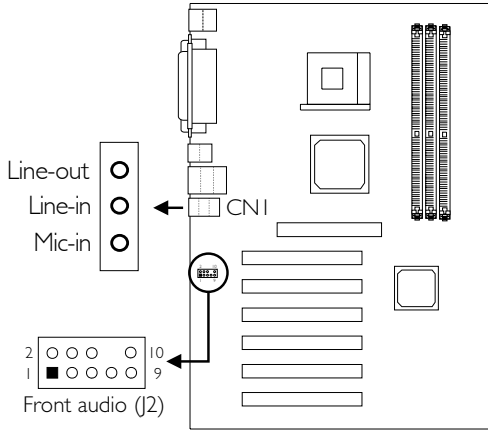
The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 state. "USB Resume From S3" ("PM Wake Up Events" field) in the Power Management Setup submenu of the BIOS must be set to Enabled.

### 2.4.5 RJ45 Fast-Ethernet Port (NS80-EA and NS80-EL only)



The NS80-EA and NS80-EL system boards are each equipped with an onboard RJ45 fast-ethernet LAN port at location CN2 of the ATX double deck ports. It allows the system board to connect to a local area network by means of a network hub. You can enable or disable the onboard LAN in the Integrated Peripherals submenu ("SIS OnChip PCI Device" field) of the BIOS.

## 2.4.6 Audio Jacks



Front Audio (J2)

Pin	Function	Pin	Function
1	Mic+	2	Ground
3	N. C.	4	AuD_Vcc (Avcc)
5	AuD_R_Out	6	N. C.
7	N. C.	8	Key
9	AuD_L_Out	10	N. C.

### Onboard Audio Jacks (CNI)

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.

#### ***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)***

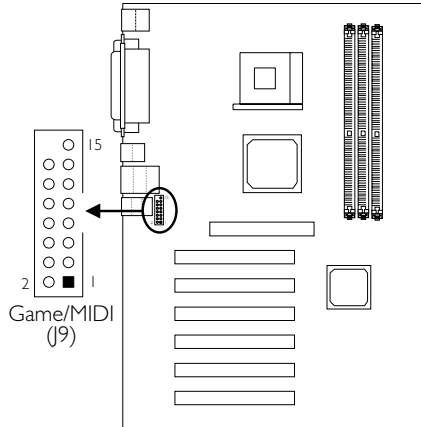
Connect a microphone to the mic-in jack.

### Front Audio (J2)

J2 provides you the option of connecting another line-out and mic-in jacks.

## 2.5 I/O Connectors

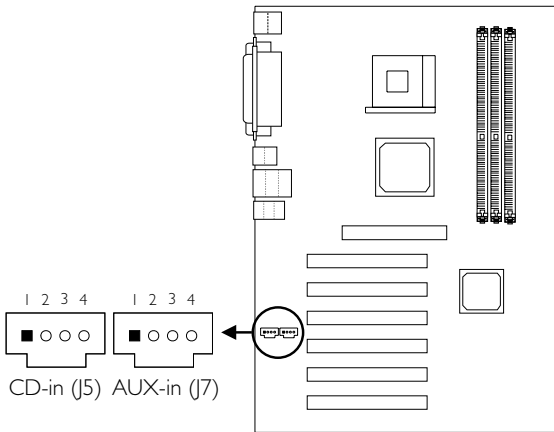
### 2.5.1 Game/MIDI Port



The system board is equipped with a 15-pin connector at location J9 for connecting an external game/MIDI port. Connect your game/MIDI port cable to connector J9. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of connector J9.

The Game/MIDI port is identical to that of a standard PC game adapter or game I/O port. This port works well with any application that is compatible with the standard PC joystick. You can configure the game port in the Integrated Peripherals submenu ("Onboard Super I/O Device" field) of the BIOS.

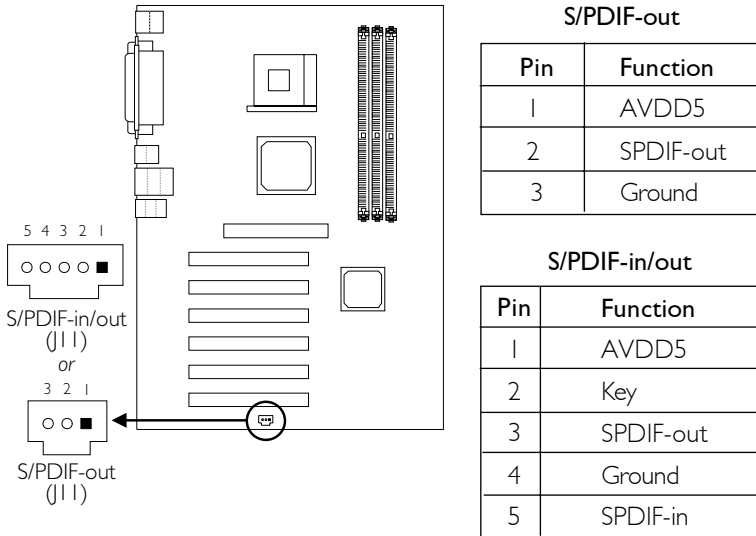
## 2.5.2 Internal Audio Connectors



Pin	Function
1	Left audio channel
2	Ground
3	Ground
4	Right audio channel

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

## 2.5.3 S/PDIF-in/out Connector (S/PDIF-in is optional)

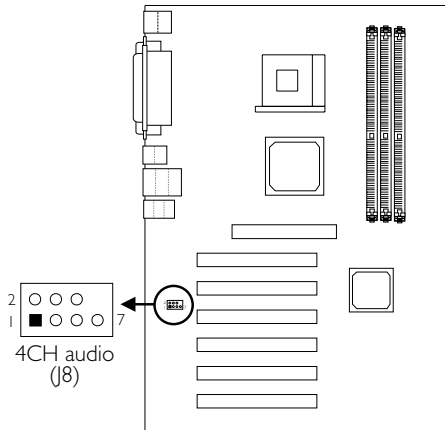


The system board is equipped with the S/PDIF (Sony/Philips Digital Interface) digital audio interface. S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog.

S/PDIF-in is optional. The system board comes standard with the S/PDIF-out connector which is a 3-pin connector at location J11. With the S/PDIF-in supported, J11 will be a 5-pin connector as shown above. One card-edge bracket, mounted with S/PDIF ports, will be provided as an option. Install the card-edge bracket to the system chassis then connect the audio cable connector to J11. Make sure pin 1 of the cable connector is aligned with pin 1 of J11. Now connect external speakers or a device that supports digital output to the S/PDIF ports that are on the bracket.



## 2.5.4 4-Channel Audio Output Connector (optional)



Pin	Function	Pin	Function
1	SL	2	Center out
3	Ground	4	Ground
5	SR	6	LFE Out
7	Ground	8	Key

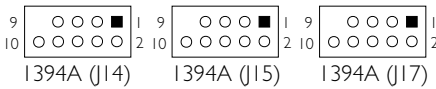
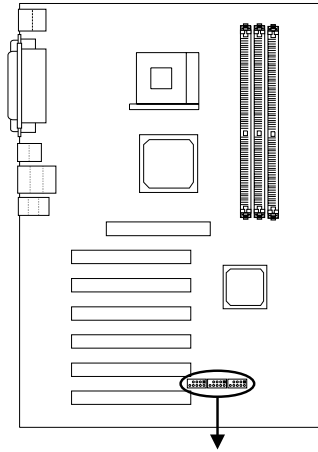
The 4-channel audio connector (J8) supports 4 audio output signals: center channel, subwoofer; rear right channel and rear left channel. The 4-channel audio connector together with the line-in and mic-in jacks (at the rear panel) supports 6-channel audio output. One card-edge bracket, mounted with a 4-channel audio output connector; will be provided as an option. Install the card-edge bracket to the system chassis then connect the audio cable connector to J8. Make sure pin 1 of the cable connector is aligned with pin 1 of J8. Now connect the external speakers' cable connector to the 4-channel audio output connector that is on the bracket.



### Note:

If, for any reason, you are not using the 4-channel audio connector which is made possible by connecting a 4-channel audio cable, the 6-channel audio output function can be supported using software. Refer to chapter 4 for more information.

## 2.5.5 IEEE 1394A Connectors (NS80-EA only)



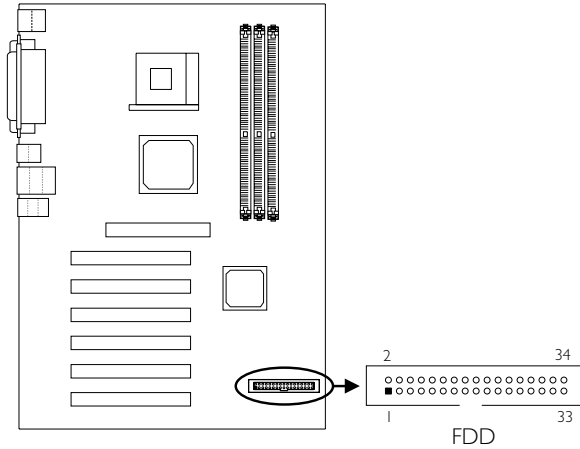
Pin	Function	Pin	Function
1	TPA+	2	TPA-
3	Ground	4	Ground
5	TPB+	6	TPB-
7	VCC	8	VCC
9	Key	10	Shield

The Realtek RTL8801 Phy 1394A controller works with the SiS 963 chip to support IEEE 1394A. It is fully compliant with the 1394A OHCI (Open Host Controller Interface) 1.1 specification. 1394A is a fast external bus standard that supports data transfer rates of up to 400Mbps. In addition to its high speed, it also supports isochronous data transfer which is ideal for video devices that need to transfer high levels of data in real-time. 1394A supports both Plug-and-Play and hot plugging allowing devices to be attached or removed from the system, even with the power on.

One card-edge bracket, mounted with 3 IEEE 1394A ports, will be provided as an option. Install the card-edge bracket to the system chassis then connect the cable connectors to J14, J15 and/or J17. Make sure pin 1 of the cable connectors is aligned with pin 1 of J14, J15 and/or J17. Now connect your 1394A devices to the 1394A ports that are on the bracket.

You can enable or disable the onboard 1394A controller in the Integrated Peripherals submenu ("SiS OnChip PCI Device" field) of the BIOS.

## 2.5.6 Floppy Disk Drive Connector

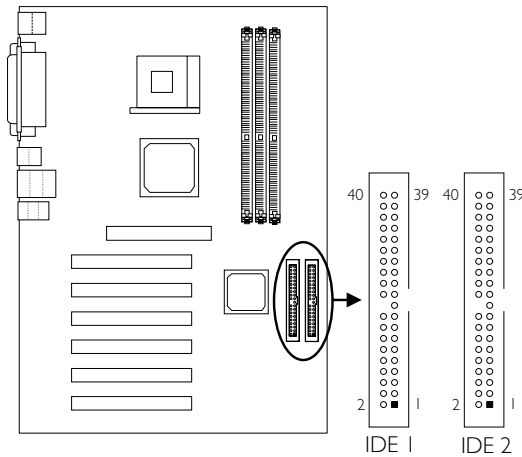


The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header. You may enable or disable this function in the Integrated Peripherals submenu ("Onboard Super IO Device" field) of the BIOS.

### Connecting the Floppy Disk Drive Cable

1. Install the 34-pin header connector of the floppy disk drive cable into the shrouded floppy disk header (FDD) on the system board. The colored edge of the ribbon should be aligned with pin 1 of FDD.
2. Install the other 34-pin header connector(s) into the disk drive(s). Align the colored edge of the daisy chained ribbon cable with pin 1 of the drive edge connector(s). The end-most connector should be attached to the drive you want to designate as Drive A.

## 2.5.7 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. You may enable or disable the onboard primary or secondary IDE controller in the Integrated Peripherals submenu ("SIS OnChip IDE Device" field) of the BIOS.

### Connecting the IDE Disk Drive Cable

1. If you are connecting two IDE drives, install the 40-pin connector of the IDE cable into the primary shrouded IDE header (connector IDE 1). If you are adding a third or fourth IDE device, install the 40-pin connector of the other IDE cable into the secondary shrouded IDE header (connector IDE 2).
2. Install the other 40-pin header connector(s) into the device with the colored edge of the ribbon cable aligned with pin 1 of the drive edge connector(s).



**Note:**

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

## Adding a Second IDE Disk Drive

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

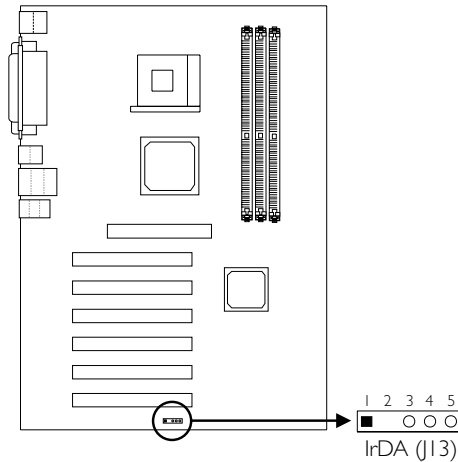
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 or ATA/133 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.



**Important:**

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

## 2.5.8 IrDA Connector



Pin	Function
1	VCC
2	Key
3	IRRX
4	Ground
5	IRTX

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.

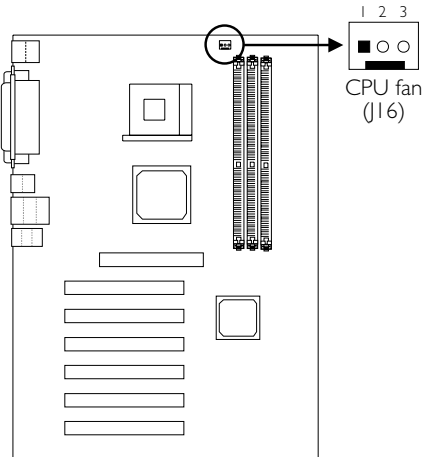
Connect your IrDA cable to connector J13 on the system board. Set “UART2 Mode Select” in the Integrated Peripherals submenu (“Onboard Super IO Device” field) of the BIOS to the type of IrDA standard supported by your device. You must have the proper drivers installed in your operating system to use this connector. Refer to your operating system’s manual or documentation.



**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.*

## 2.5.9 CPU Fan Connector

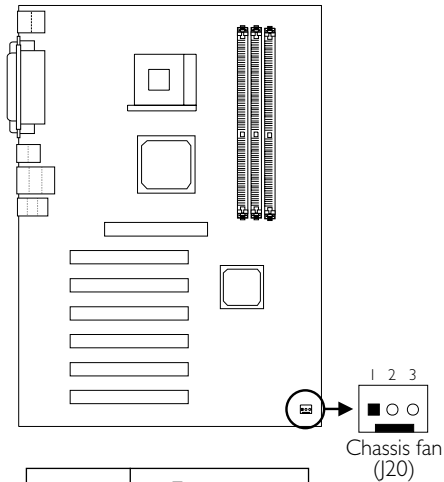


Pin	Function
1	Ground
2	Power
3	Sense

The processor must be kept cool by using a fan with heatsink. Connect the CPU fan to the 3-pin fan connector at location J16 on the system board. The system is capable of monitoring the speed of the CPU fan.



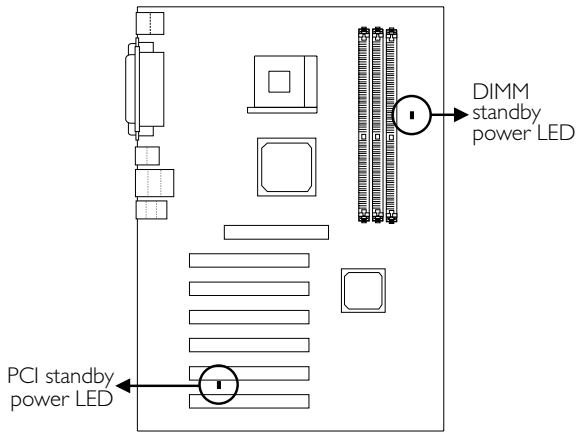
## 2.5.10 Chassis Fan Connector



Pin	Function
1	Ground
2	On/Off
3	Sense

If you are installing a chassis fan in the system unit, connect the fan's connector to J20 on the system board. The fan will provide adequate airflow throughout the system to prevent overheating the processor. The system is capable of monitoring and controlling the speed of the chassis fan. The chassis fan will automatically turn off once the system enters the Suspend mode.

## 2.5.1.1 DIMM/PCI Standby Power LED



### 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

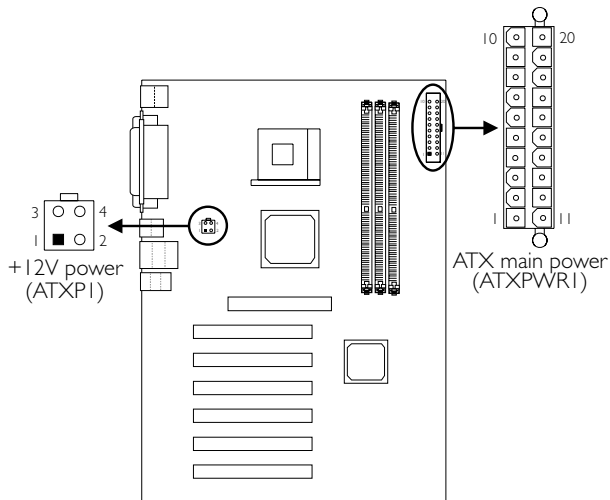
This LED will turn red when the system is in the power-on, Soft-Off or Suspend (Power On Suspend or Suspend to RAM) state.



**Important:**

*Lighted LEDs serve as a reminder that 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.*

## 2.5.12 Power Connector



We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. Connect the ATX12V power supply's 20-pin ATX main power connector and 4-pin +12V power connector to ATXPWR1 and ATXP1 respectively.

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

The mainboard 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.

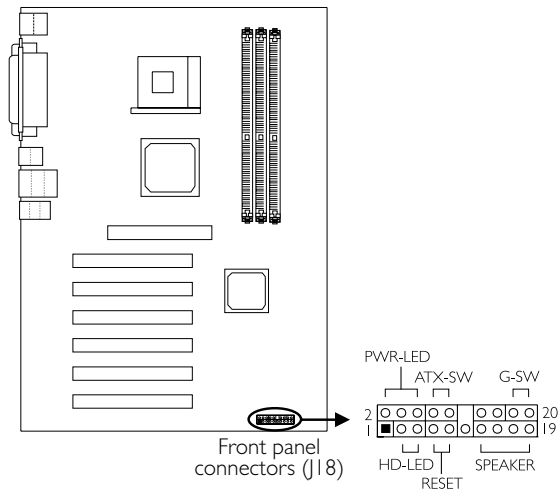
**ATX Main Power Connector**

Pin	Function	Pin	Function
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PW-OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

**+12V Power Connector**

Pin	Function
1	Ground
2	Ground
3	+12V
4	+12V

### 2.5.13 Front Panel Connectors



#### HD-LED: Primary/Secondary IDE LED

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

#### 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 PWRBTN” in the Power Management Setup (Chapter 3).

#### G-SW: Green Switch

This switch will allow your system to enter the Suspend mode.

#### 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.

**PWR-LED: Power/Standby LED**

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second. When the system is in the S4 or S5 state, it will not light.

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



Phoenix - AwardBIOS CMOS Setup Utility  
Standard CMOS Features

		Item Help
Date (mm:dd:yy)	Mon, Aug 12 2002	Menu Level Change the day, month, year and century
Time (hh:mm:ss)	4 : 35 : 5	
▶ IDE Primary Master	Press Enter None	
▶ IDE Primary Slave	Press Enter None	
▶ IDE Secondary Master	Press Enter None	
▶ IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	
↑↓→← :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 Primary Master, IDE Primary Slave, IDE Secondary Master and IDE Secondary Slave

Move the cursor to the "IDE Primary Master", "IDE Primary Slave", "IDE Secondary Master" or "IDE Secondary Slave" field, then press <Enter>.





### 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.

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

#### 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.

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

<i>No Errors</i>	The system boot will not stop for any errors detected.
<i>All Errors</i>	The system boot will stop whenever the BIOS detects a non-fatal error.
<i>All, But Keyboard</i>	The system boot will not stop for a keyboard error; it will stop for all other errors.
<i>All, But Diskette</i>	The system boot will not stop for a disk error; it will stop for all other errors.
<i>All, But Disk/Key</i>	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

### 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 mainboard, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Phoenix - AwardBIOS CMOS Setup Utility  
Advanced BIOS Features

Virus Warning	Disabled	↑ ↓	Item Help
CPU L1 & L2 Cache	Enabled		Menu Level
Quick Power On Self Test	Fast		Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
First Boot Device	Floppy		
Second Boot Device	HDD-0		
Third Boot Device	LS120		
Boot Other Device	Enabled		
Swap Floppy Drive	Disabled		
Boot Up Floppy Seek	Disabled		
Boot Up NumLock Status	On		
Typematic Rate Setting	Disabled		
X Typematic Rate (Chars/Sec)	6		
X Typematic Delay (Msec)	250		
Security Option	Setup		
APIC Mode	Enabled		
MPS Version Control For OS	1,4		
OS Select For DRAM > 64MB	Non-OS2		
HDD S.M.A.R.T. Capability	Disabled		
Report No FDD for WIN 95	No		
Full Screen LOGO Show	Enabled		
Onboard LAN Boot ROM	Enabled		
			⌂:Exit F1:General Help Optimized Defaults

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 Virus Warning

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

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

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are

running such a program, we recommend that you first disable this field. Also, disable this field if you are installing or running certain operating systems like Windows® 98/2000/ME/XP or the operating system may not install nor work.

### 3.1.2.2 CPU L1 & L2 Cache

These fields speed up the memory access.

### 3.1.2.3 Quick Power On Self Test

This field speeds up Power On SelfTest (POST) after you power on the system. It allows the system to skip certain tests while booting, therefore decreasing the time needed to boot the system.

### 3.1.2.4 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.

### 3.1.2.5 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 option 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.

### 3.1.2.6 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.

### 3.1.2.7 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.

### 3.1.2.8 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.

### 3.1.2.9 Typematic Rate (Chars/Sec)

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

### 3.1.2.10 Typematic Delay (Msec)

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

### 3.1.2.11 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.

### 3.1.2.12 APIC Mode

Leave this field in its default setting.

### 3.1.2.13 MPS Version Control for OS

This field is used to select the MPS version used by the system.

### 3.1.2.14 OS Select for DRAM > 64MB

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

### 3.1.2.15 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.

### 3.1.2.16 Report No FDD For WIN 95

The options are Yes and No.

### 3.1.2.17 Full Screen Logo Show

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

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

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

### 3.1.2.18 Onboard LAN Boot ROM (NS80-EA and NS80-EL only)

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.



### 3.1.3 Advanced Chipset Features

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Advanced Chipset Features		Menu Level
▶ DRAM Clock/Timing Control	Press Enter	
▶ AGP & P2P Bridge Control	Press Enter	
Prefetch Caching	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	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.



### DRAM CAS Latency

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

### RAS Active Time ( $t_{RAS}$ )

This field controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks).

### RAS Precharge Time ( $t_{RP}$ )

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

### RAS to CAS Delay ( $t_{RCD}$ )

Leave this field in its default setting.

### DRAM Addr/Cmd Rate

The options are Auto, 1T Command and 2T Command.



### 3.1.3.3 Prefetch Caching

The options are Enabled and Disabled.

### 3.1.3.4 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.

### 3.1.3.5 Video RAM Cacheable

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

## 3.1.4 Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility  
Integrated Peripherals

		Item Help
▶ SIS OnChip IDE Device	Press Enter	Menu Level
▶ SIS OnChip PCI Device	Press Enter	
▶ Onboard Super IO Device	Press Enter	
IDE HDD Block Mode	Disabled	
Init Display First	PCI Slot	
IDECH0 Access Interface	EDB Bus	
IDECH1 Access Interface	EDB Bus	
USB0 Access Interface	EDB Bus	
USB1 Access Interface	EDB Bus	
USB2 Access Interface	EDB Bus	
USB2.0 Access Interface	EDB Bus	
MAC Access Interface	EDB Bus	
Audio Access Interface	EDB Bus	
↑↓→← 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 SIS OnChip IDE Device

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

Phoenix - AwardBIOS CMOS Setup Utility  
SIS OnChip IDE Device

		Item Help
Internal PCI/IDE	Both	Menu Level
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UltraDMA	Auto	
IDE Primary Slave UltraDMA	Auto	
IDE Secondary Master UltraDMA	Auto	
IDE Secondary Slave UltraDMA	Auto	
IDE DMA Transfer Access	Enabled	
IDE Burst Mode	Enabled	
IDE Prefetch Mode	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.

### Internal PCI/IDE

This field allows you to enable or disable the primary and secondary IDE controller:

<i>Both</i>	Allows you to configure the IDE Primary Master/Slave PIO, IDE Secondary Master/Slave PIO, IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA fields.
<i>Disabled</i>	Select this option if you want to use a different hard drive controller.
<i>Primary</i>	Allows you to configure the IDE Primary Master/Slave PIO and IDE Primary Master/Slave UDMA fields.
<i>Secondary</i>	Allows you to configure the IDE Secondary Master/Slave PIO and IDE Secondary Master/Slave UDMA fields.

### 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.

<i>Auto</i>	The BIOS will automatically set the system according to your hard disk drive's timing.
<i>Mode 0-4</i>	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 UltraDMA and IDE Secondary Master/Slave UltraDMA

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

- |                 |  |
|-----------------|--|
| <i>Auto</i>     | The BIOS will automatically detect the settings for you. |
| <i>Disabled</i> | The BIOS will not detect these categories.               |

### IDE DMA Transfer Access

The options are Enabled and Disabled.

### IDE Burst Mode

When the IDE Burst Mode function is enabled, it will reduce the latency time between each drive's read and write cycle. To enable this function, make sure the "Internal PCI/IDE" field is not set to Disabled.

### IDE Prefetch Mode

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



### 3.1.4.2 SIS OnChip PCI Device

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

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
SIS OnChip PCI Device		Menu Level
SIS USB Controller	Enabled	
USB 2.0 Support	Enabled	
USB Keyboard Support	Disabled	
AC97 Audio	Enabled	
AC97 Modem	Enabled	
SIS 10/100M Ethernet	Enabled	
SIS 1394 Controller	Disabled	
↑↓→← 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.

#### SIS USB Controller

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

#### USB 2.0 Support

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

#### USB Keyboard Support

If you are using a USB keyboard under DOS, set this field to Enabled. This field can be configured only if the "SIS USB Controller" field is set to Enabled.

#### AC97 Audio

- Enabled* Select this option when using the onboard audio codec.
- Disabled* Select this option when using a PCI sound card.

### AC97 Modem

*Enabled*      Select this option when using a primary or secondary modem riser card.

*Disabled*     Select this option when using a PCI modem card.

### SIS 10/100M Ethernet (NS80-EA and NS80-EL only)

By default, the onboard LAN is enabled. If you are not using the onboard LAN, set this field to Disabled.

### SIS 1394 Controller (NS80-EA only)

The field is used to enable or disable the onboard 1394 controller.



### UART2 Mode Select

The mainboard supports IrDA function for wireless connectivity between your computer and peripheral devices. You may not use IrDA (J13) and the COM 2 (J3) 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 J13 on the mainboard.
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" and "IR Transmission Delay" fields appropriately.

### RxD, TxD Active

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

### IR Transmission Delay

If this option is Enabled, transmission of data will be slower. This is recommended when you encounter transmission problem with your device.

### 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 standard specifications 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.

### EPP Mode Select

This is used to select the EPP mode.

### ECP Mode Use DMA

This is used to select the DMA channel used for 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 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.

#### 3.1.4.5 Init Display First

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

*AGP* When the system boots, it will first initialize AGP.

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

#### 3.1.4.6 IDECH0 Access Interface and IDECH1 Access Interface

These fields are used to select the access interface of the IDE devices. The options are Embedded Bus and PCI Bus.

#### 3.1.4.7 USB0 Access Interface, USB1 Access Interface and USB2 Access Interface

These fields are used to select the access interface of the USB devices. The options are Embedded Bus and PCI Bus.

#### 3.1.4.8 USB2.0 Access Interface

This field is used to select the access interface of the USB 2.0 device. The options are Embedded Bus and PCI Bus.

#### 3.1.4.9 MAC Access Interface and Audio Access Interface

These fields are used to select the access interface of the MAC and audio device. The options are Embedded Bus and PCI Bus.



### 3.1.5.3 Power Management

This field allows you to select the type (or degree) of power saving mode.

### 3.1.5.4 Suspend Mode

This is configurable only when the "Power Management" field is set to "User Define". When the system enters the power saving time set in this field, the CPU and onboard peripherals will be shut off.

### 3.1.5.5 Video Off Option

- Always On*            The system BIOS will never turn off the screen.
- Suspend -> Off*    The screen is off when the system is in the Suspend mode.
- All Modes -> Off*   The screen is always Off.
- Susp, Stby -> Off*   The screen is off when the system is in the Suspend or Standby mode.

### 3.1.5.6 Video Off Method

This determines the manner in which the monitor is blanked.

- VIH SYNC + Blank*   This will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
- Blank Screen*        This only writes blanks to the video buffer.
- DPMS Support*        Initializes display power management signaling. Select this if your video board supports it.

### 3.1.5.7 Switch Function

The options are Disabled and Break/Wake.

### 3.1.5.8 MODEM Use IRQ

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



### 3.1.5.9 Hot Key Function As

This field allows you to use the <Ctrl>, <Alt> and <Backspace> keys to enter the Power Off or Suspend mode.

- Power Off* Press the <Ctrl>, <Alt> and <Backspace> keys simultaneously to enter the power off mode.
- Suspend* Press the <Ctrl>, <Alt> and <Backspace> keys simultaneously to enter the Suspend mode.
- Disable* Disables the hot key function.

### 3.1.5.10 HDD Power Down

After the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

### 3.1.5.11 Soft-Off by PWRBTN

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

- Delay 4 Sec* Regardless of whether the Power Management field 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.

### 3.1.5.12 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



### MACPME Power Up Control

This field is used to enable the Wake-On-LAN function of the onboard LAN. The next field - "PCIPME Power Up Control" must also be set to Enabled.

### PCIPME Power Up Control

This field must 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 PC. Refer to the card's documentation for more information.

If you are using the Wake-On-LAN function of the onboard LAN, you must also set this field to Enabled.

### USB Resume From S3

This field, when enabled, allows you to use a USB device to wake up the system from the S3 state.

### PS2KB Wakeup from S3/S4/S5

This field allows you to use the PS/2 keyboard to wake up the system from the S3/S4/S5 state.

<i>Disable</i>	Disables the PS/2 keyboard wake up function.
<i>Any Key</i>	Use any keyboard keys to wake up the system.
<i>Hot Keys</i>	Use any of the function keys, between F1 and F12, to wake up the system.
<i>Password</i>	To use a password to wake up the system, select this option then press <Enter>. Enter your password. You can enter up to 5 characters. Type in exactly the same password to confirm, then press <Enter>.



#### **Important:**

*If you forgot the password, you must power-off the system, unplug the power cord and clear the CMOS data. Follow the steps in the "Jumper Settings for Clearing CMOS Data" section in chapter 2.*

### PS2MS Wakeup from S3/S4/S5

This field allows you to use the PS/2 mouse to wake up the system from the S3/S4/S5 state.

- |                |   |
|----------------|---|
| <i>Disable</i> | Disables the PS/2 mouse wake up function. |
| <i>Enable</i>  | Enables the PS/2 mouse wake up function.  |

### Power Up By Alarm

- |                 |   |
|-----------------|---|
| <i>Enabled</i>  | When Enabled, you can set the date and time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Month Alarm", "Day of Month Alarm" and "Time (hh:mm:ss) Alarm" fields. However, if the system is being accessed by incoming calls or the network prior to the date and time set in these fields, the system will give priority to the incoming calls or network. |
| <i>Disabled</i> | Disables the automatic power-on function. (default)   |

### Month Alarm

This is used to select the month you would like the PC to power-on.

### Day of Month Alarm

- |      |   |
|------|---|
| 0    | The system will power-on everyday according to the time set in the "Time (hh:mm:ss) Alarm" field.   |
| 1-31 | Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field. |

### Time (hh:mm:ss) Alarm

This is used to set the time you would like the system to power-on. If you want the system to power-on everyday as set in the "Day 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.



### 3.1.6.3 IRQ Resources

Move the cursor to this field and press <Enter>. The “IRQ-3 assigned to” to “IRQ-15 assigned to” fields will appear. Set each system interrupt to either “PCI Device” or “Reserved”.

### 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.

### 3.1.7 PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility  
PC Health Status

		Item Help	
Current System Temp.	27C/80F	Menu Level	
Current CPU Temperature	37C/98F		
Current CPU FAN Speed	0 RPM		
Current Chassis FAN Speed	0 RPM		
CPU(V)	1.75 V		
+3.3 V	3.35 V		
+5 V	4.90 V		
+12 V	11.85 V		
-12 V	-11.45 V		
-5 V	- 4.80 V		
VBAT(V)	3.24 V		
5VSB(V)	5.37 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.

#### 3.1.7.2 Current System Temp., Current CPU Temperature, Current CPU Fan Speed and Current Chassis Fan Speed

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

#### 3.1.7.3 CPU(V)

This field shows the voltage of the processor.

#### 3.1.7.4 +3.3V, +5V, +12V, -12V, -5V,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 mainboard. Refer to the Hardware Monitor section in chapter 4 for more information.





### 3.1.8.4 CPU Frequency

This field provides several options for selecting the external system bus clock of the processor.



**Important:**

*Overclocking may result in the processor's or system's instability and is not guaranteed to provide better system performance.*

If, in the "CPU Clock Ratio" or "CPU Frequency" field, you selected an option other than the default setting and is unable to boot up the system, there are 2 methods of booting up the system and going back to its default setting.

Method 1:

Clear the CMOS data by setting JP2 to 1-2 On. All fields in the BIOS Setup will automatically be set to their default settings.

Method 2:

Press the <Insert> key and power button simultaneously, then release the power button first. Keep-on pressing the <Insert> key until the power-on screen appears. This will allow the system to boot according to the FSB of the processor. Now press the <Del> key to enter the main menu of the BIOS. Select "Frequency/Voltage Control" and set the "CPU Clock Ratio" or "CPU Frequency" field to its default setting or an appropriate bus clock.



**Note:**

*Use a PS/2 or AT (requires a DIN to mini DIN adapter) keyboard for method 2.*

### 3.1.8.5 CPU:DRAM Frequency Ratio

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

### 3.1.8.6 DRAM Frequency

This field shows the detected frequency of the DDR SDRAM DIMM.

### 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>. The message below will appear:

Load Fail-Safe Defaults (Y/N)? N

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>. The message below will appear:

Load Optimized Defaults (Y/N)? N

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>. The message below will appear:

Enter Password:

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. To set, confirm, verify, disable or delete a user's password, follow the procedures described in the section "Set Supervisor Password".

### 3.1.13 Save & Exit Setup

When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>. The message below will appear:

Save to CMOS and Exit (Y/N)? N

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>. The message below will appear:

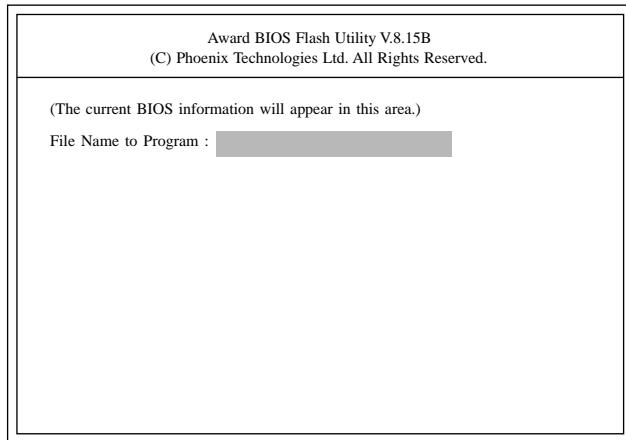
Quit Without Saving (Y/N)? N

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 Updating the BIOS

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

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



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

6. The following will appear:

Do You Want to Save BIOS (Y/N)

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

7. The following will then appear:

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

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

## Chapter 4 - Supported Softwares

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### 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.

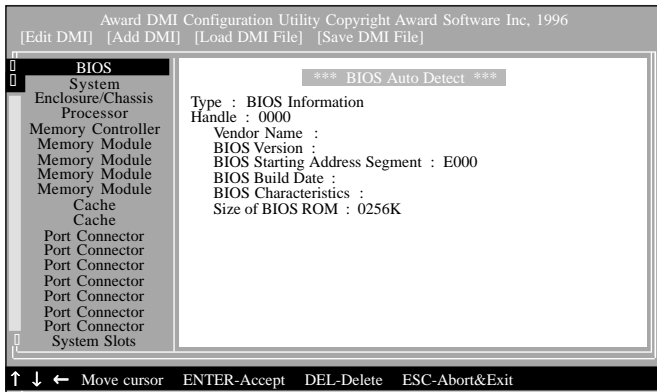
#### 4.1.1 Running the DMI Utility

To run the DMI utility, type: DMICFG.EXE. You can download this utility from <ftp.dfusa.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 (Main Board Utility CD) will appear. 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".

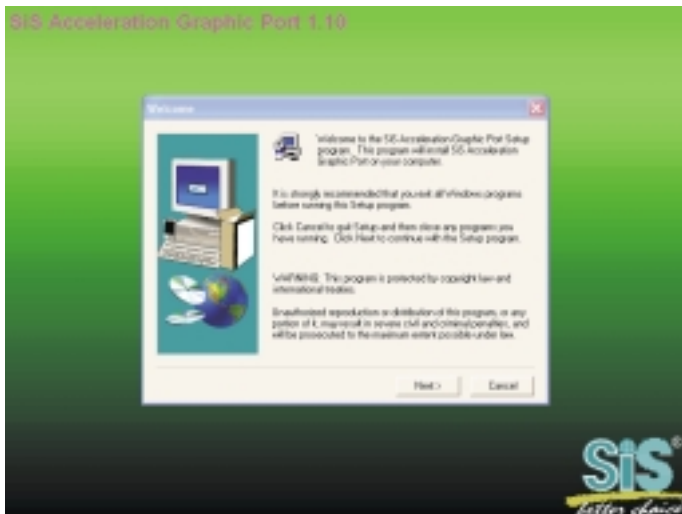


### 4.2.1 SiS AGP Drivers

The SiS AGP driver includes the SIS VxD driver and SiS Miniport driver.

To install the AGP driver, please follow the steps below.

1. On the left side of the autorun screen, click the "CHIPSET" icon.
2. Click "SiS AGP Drivers" on the main screen. The screen below will appear:



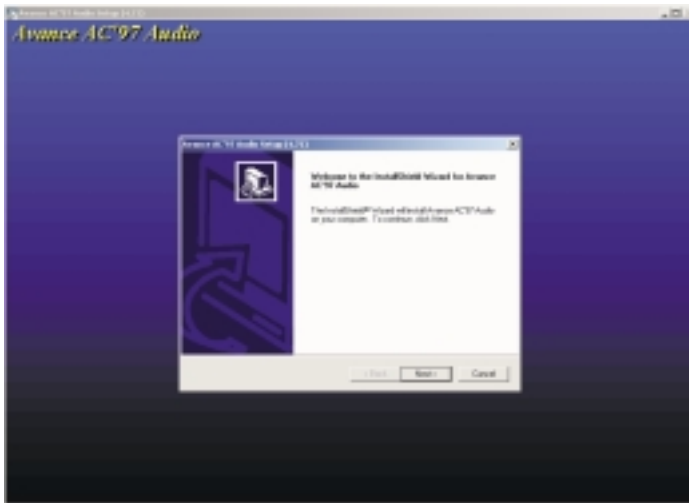
3. Follow the prompts on the screen to complete installation.
4. Restart the system.

## 4.2.2 Realtek Audio Drivers

The Realtek audio drivers support the Windows® 98, Windows® 98 SE, Windows® ME, Windows NT® 4.0, Windows® 2000 and Windows® XP operating systems.

To install the audio driver, please follow the steps below.

1. On the left side of the autorun screen, click the "AUDIO" icon.
2. Click ""Realtek Audio Drivers"" on the main screen. The screen below will appear:



3. Follow the prompts on the screen to complete installation.
4. Restart the system.

### 4.2.3 SiS USB 2.0 Drivers

To install the USB 2.0 driver, please follow the steps below.

1. On the left side of the autorun screen, click the "USB" icon.
2. Click "SiS USB 2.0 Drivers" on the main screen. The screen below will appear:



3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.



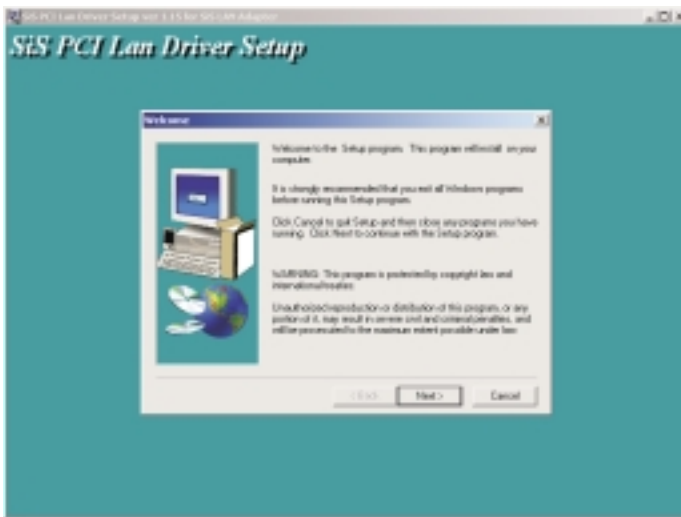
**Note:**

A "Yellow" mark will appear in Windows® 9x and Windows® ME's Device Manager because these operating systems does not support USB 2.0. Currently, only Windows® XP and Windows® 2000 support USB 2.0.

#### 4.2.4 SiS LAN Drivers for Windows (NS80-EA and NS80-EL only)

To install the LAN driver, please follow the steps below.

1. On the left side of the autorun screen, click the "NETWORK" icon.
2. Click "SiS LAN Drivers for Windows" on the main screen. The screen below will appear:



3. Follow the prompts on the screen to complete installation.
4. Restart the system.



### 4.2.6 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 screen. The screen below will appear:



3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.



### 4.2.7 McAfee VirusScan Online

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 screen. The screen below will appear:



3. Click "Yes" to continue.
4. Follow the prompts on the screen to complete installation.
5. Restart the system.

### 4.2.8 Hardware Monitor

The system board comes with the Hardware Monitor utility contained in the provided CD. It is capable of monitoring the system's hardware conditions such as the temperature of the CPU and system, voltage, and speed of the CPU and system fans. It also allows you to manually set a range to the items being monitored. If the 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.

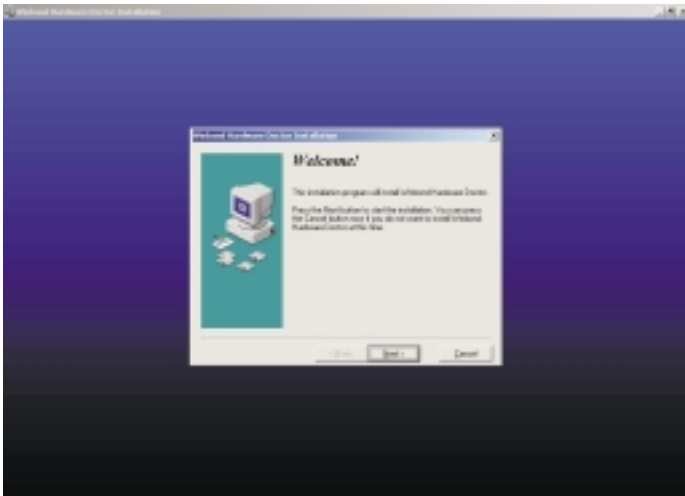


**Note:**

*Use this utility only in Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000, Windows NT® 4.0 or Windows® XP operating system.*

To install Hardware Monitor, 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 screen. The screen below will appear:



3. Follow the prompts on the screen to complete installation.
4. Restart the system.

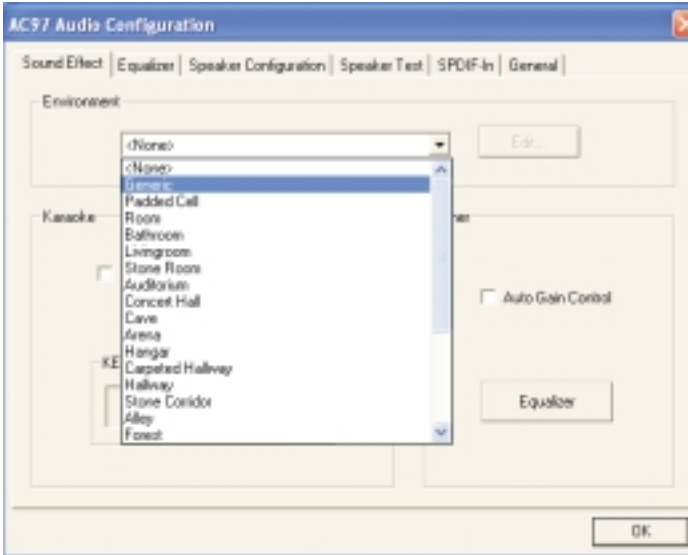
### 4.3 6-Channel Audio Output via Software

The line-in and mic-in jacks (at the rear panel) together with the 4-channel audio connector supports 6-channel audio output. If, for any reason, you are not using the 4-channel audio connector which is made possible by connecting a 4-channel audio cable, the 6-channel audio output function can be supported via software. Please follow the steps below.

1. Insert the provided CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear:
2. Install the audio driver. Refer to the "Realtek Audio Drivers" section in this chapter:
3. After installing the audio driver, the "SoundEffect" icon will appear on the taskbar:
4. Click the "SoundEffect" icon. The "AC97 Audio Configuration" screen will appear:
5. Click the "Speaker Configuration" tab, then select "6 channels mode for 5.1 speakers output".



- Click the "Sound Effect" tab, then under "Environment", select the sound effect you want. You must select one to create 6-channel audio output.



**Note:**

*With the 6-channel mode supported using software, both the line-in and mic-jacks at the rear panel will instead function as line-out. Therefore you can connect your speakers to these jacks (line-out, line-in and mic-in) for 6-channel audio output. Under such circumstance, line-in will not be supported. Mic-in on the other hand is supported by using the Front Audio connector on the system board.*

## 4.4 Installation Notes

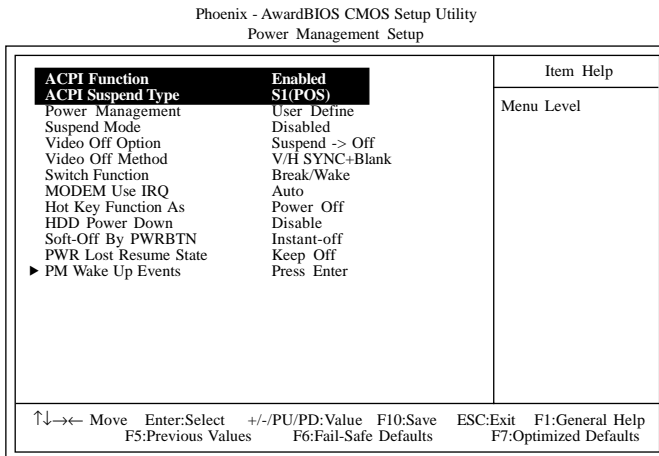
1. "Autorun" ONLY supports the Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000, Windows NT® 4.0 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory 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 occasionally updated. Please go to DFI's web site at "<http://www.dfi.com/support1/download2.asp>" for the latest version of the drivers or software applications.

# Appendix A - Using the Suspend to RAM Function

## A.1 Using the Suspend to RAM Function

If you are using the Windows® 98 operating system, please follow the steps below.

1. Select "Power Management Setup" in the main menu screen and press <Enter>.
2. In the "ACPI Function" field, select "Enabled".
3. In the "ACPI Suspend Type" field, select "S3(STR)".



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

4. Press <Esc> to return to the main menu.
5. Select "Save & Exit Setup" and press <Enter>. Type <Y> and press <Enter>.
6. Install Windows® 98 by typing the following parameter. This is to ensure that the ACPI function is supported.

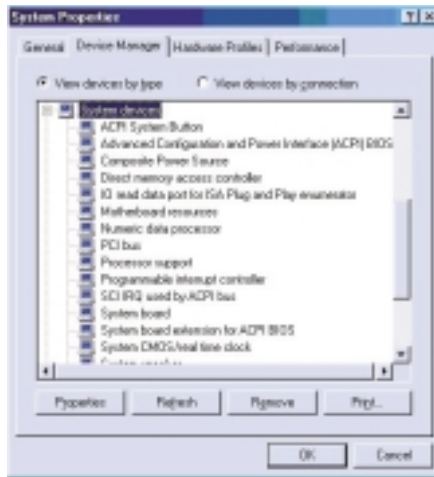
[drive]:>setup /p j

If you have previously installed Windows® 98, you need to upgrade the system in order to support ACPI. Please contact Microsoft for upgrade information.

## Using the Suspend to RAM Function

7. Boot Windows® 98. In the Windows® 98 desktop, click the Start button. Move the cursor to Settings, then click Control Panel.

To check whether ACPI was properly installed, double-click the System icon. In the System Properties dialog box, click the “Device Manager” tab. In “View devices by type”, click “System devices”.

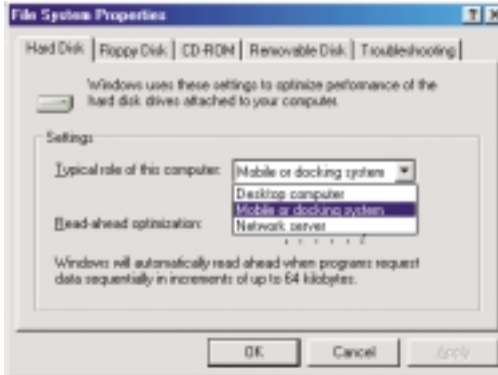


8. Double-click the System icon. In the System Properties dialog box, click the Performance tab.

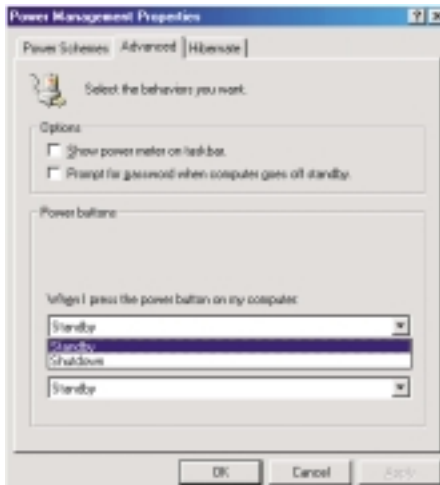


## Using the Suspend to RAM Function .....

- Click File System. In the "Typical role of this computer" field, select "Mobile or docking system". Click Apply, then click OK. Restart the computer.



- Repeat step 7 to open the Control Panel dialog box. Double-click the Power Management icon.
- Click the Advanced tab. In the "When I press the power button on my computer" field, select "Standby".



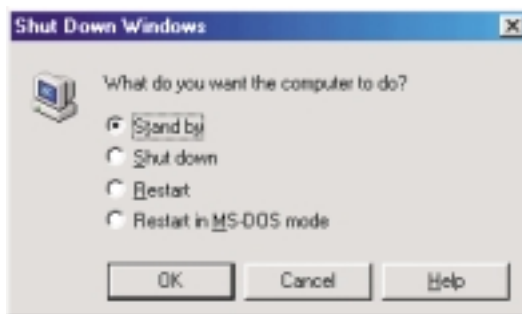


## Using the Suspend to RAM Function

- After completing the steps above and you want to power-off the computer, you do not need to go through the process of closing files, applications and operating system. You can power-off the computer at once by pressing the power button or selecting "Standby" when you shut down Windows® 98.

To power-on the computer, just press the power button. The operating session where you left off when you power-off the computer will resume in not more than 8 seconds.

If you have changed the color or resolution (in the Display Properties dialog box), do not apply the settings without restarting. You must restart the computer.



### **Important:**

*If you are unable to use the Suspend to RAM function (after performing the steps above in Windows® 98 or when you are in Windows® 2000/ME/XP), please check whether your add-in cards or devices support this function. If this function is not supported, you need to download the appropriate driver from their respective website.*

## Appendix B - System Error Message

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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.

### B.1 POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occurred 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 occurred. This beep code consists of a single long beep.

### B.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-FFFFFFH is bad.

#### Memory test fail

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

## Appendix C - Troubleshooting

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### C.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.