GIC68-B
GIC68-N

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 is for the GIC68-N and GIC68-B system boards.
The differences between these boards are shown below.

GIC68-N	Intel 82562 and 82559 LAN controllers
	2 onboard LAN ports
	1 onboard COM 1 port and 3 connectors for external COM 2, COM 3 and COM 4 ports.
GIC68-B	Intel 82562 LAN controller
	1 onboard LAN port
	1 onboard COM 1 port and 1 connector for an external COM 2 port.

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Chapter 1 - Introduction

1.1 Features and Specifications

1.1.1 Features

Chipset

- Intel® 815E B-step

Processor

The system board is equipped with Socket 370. It is also equipped with a switching voltage regulator that automatically detects 1.050V to 1.825V.

- Pentium® III
  - FCPGA2 133MHz FSB (1.13GHz-1.26GHz on 0.13μ)
  - FCPGA 133MHz FSB (533EB-1GHz)
  - FCPGA 100MHz FSB (500E-1.1GHz)
- Celeron™
  - FCPGA2 100MHz FSB (≥1.2GHz on 0.13μ)
  - FCPGA 100MHz FSB (800MHz-1.1GHz)
  - FCPGA 66MHz FSB (566MHz-700MHz)
- VIA CyrixIII processor

System Memory

- 32MB to 512MB memory using unbuffered DIMMs
- Two 168-pin DIMM sockets
- Uses x64 PC-133/PC-100 SDRAM DIMM (3.3V) for 133MHz/ 100MHz system memory bus

DIMMs	Memory Size
2MBx64	16MB
4MBx64	32MB
8MBx64	64MB
16MBx64	128MB
32MBx64	256MB

Expansion Slots

The system board is equipped with 4 PCI slots.

Onboard Graphics Features

- Graphics memory
  - Shares 1MB of the system memory. This is fixed regardless of the size of the system memory.
  - Uses the Dynamic Video Memory Technology (DVMT) technology. This freely changes in size because graphics memory is allocated from the system memory according to current needs.
- Graphics controller
  - 3D hyper pipelined architecture
  - 2D hardware and motion video acceleration
  - 9-bit precision hardware motion compensation assistance for software MPEG2 decode
  - Software DVD at 30fps
- 2D graphics features
  - Resolution: up to 1600x1200 in 8-bit color at 85Hz refresh
  - 3 Operand Raster BitBLTs
  - 64x64x3 color transparent cursor
- 3D graphics features
  - Flat and Gouraud shading
  - MIP mapping with tri-linear and anisotropic filtering
  - Full color specular / Z-buffering
  - Fogging atmospheric effect
  - 3D pipe 2D clipping / backface culling
- Intel DVO (Digital Video Out) interface
- Software drivers
  - Windows® 95/98/ME
  - Windows NT® 4.0 / Windows® 2000 / Windows® XP

Onboard Audio Features

- 18-bit stereo full-duplex codec with independent variable sampling rate
- High quality differential CD input
- True stereo line level outputs

Onboard LAN Features

- Uses 82559 fast ethernet controller (GIC68-N only)
  - Integrated IEEE 802.3, 10BASE-T and 100BASE-TX compatible PHY
  - Glueless 32-bit PCI master interface
  - Glueless CardBus master interface
  - 128 Kbyte Flash interface
  - Thin BGA 15 mm^2 package
- Uses 82562 fast ethernet controller (GIC68-N and GIC68-B)
  - Basic 10/100 Client Connection. Supports 559 level cable and PHY Stats. Support for Server OS included as check item, but no Server function included
  - Same Quality Driver suits as 82559
  - Supports DMI/SNMP/WMI
  - 10/100 Auto Sensing
  - IEEE 802.3, 10BASE-T/100BASE-TX compliant physical layer interface
  - IEEE 802.3u Auto-Negotiation
  - 48-pin SSOP, 3.3V device

PCI Bus Master IDE Controller

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

IrDA Interface

The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices.

USB Ports

The system board supports 4 USB ports. USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Introduction ·····································

Watchdog Timer

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

BIOS

- Award BIOS, Windows® 98/2000/ME/XP Plug and Play compatible
- Supports SCSI sequential boot-up
- Flash EPROM for easy BIOS upgrades (4Mbit)
- Supports DMI 2.0 function

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.

Compatibility

- Microsoft PC '98 compliant
- VESA Display Power Management Signaling (DPMS)
- VESA DDC2B for Plug and Play monitors
- PCI 2.2 compliant
- Intel AGP version 2.0
- AC '97 compliant

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

- Four USB ports
- Two RJ45 LAN ports (GIC68-N only)
  One RJ45 LAN port (GIC68-B only)
- One NS16C550A-compatible DB-9 serial port
- One DB-15 VGA port
- One SPP/ECP/EPP 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

I/O Connectors

- Three connectors for 3 external COM 2, COM 3 and COM 4 serial ports (GIC68-N only)
  GIC68-B is only equipped with 1 connector for an external COM 2 serial port.
- One connector for an external game/MIDI port
- One connector for DVO port
- One connector for IrDA interface
- One CompactFlash™ socket
- Two IDE connectors
- One floppy drive interface supports up to two 2.88MB floppy drives
- One ATX power supply connector
- One Wake-On-LAN connector
- One Wake-On-Ring connector
- CPU fan, system fan and chassis fan connectors
- One opened chassis alarm connector
- Two internal audio connectors (CD-in and AUX-in)

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 Core / CPU VTT / VCC3 / 5V / ±12V / VBAT / 5VSB voltages and failure alarm
- Monitors the fan speed of the CPU fan, system fan and chassis fan; and failure alarm
- Automatic system fan and chassis fan on/off control
- Read back capability that displays temperature, voltage and fan speed
- Opened chassis alarm
- Supports Intel® processor thermal diode output (real processor temperature)

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

1.1.3 Intelligence

Automatic System/Chassis Fan Off

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

Dual Function Power Button

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

Wake-On-Ring

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an internal or external modem. Refer to "Wake-On-Ring Connector" in chapter 2 and "Power On by Ring_conn" in the Power Management Setup section in chapter 3 for more information.

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

Wake-On-LAN

The Wake-On-LAN function allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. Your LAN card must support the remote wakeup function. Refer to "Wake-On-LAN Connector" in chapter 2 and "Wake Up On LAN_conn" in the Power Management Setup section in chapter 3 for more information.

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

Wake-On-Keyboard/Wake-On-Mouse

This function allows you to use the keyboard or PS/2 mouse to power-on the system. Refer to "Jumper Settings for PS/2 Wake Up" in chapter 2 and "Power On Function" in the Integrated Peripherals section in chapter 3 for more information.

> Important:
> *   *The power button will not function once a keyboard password has been set in the "KB Power On Password" field of the Integrated Peripherals submenu. You must type the correct password to power-on the system. If you forgot the password, power-off the system and remove the battery. Wait for a few seconds and install it back before powering-on the system.*
> *   *The 5VSB power source of your power supply must support ≥720mA.*

Wake-On-USB Keyboard

The Wake-On-USB Keyboard function allows you to use a USB keyboard to wake up a system from the S3 (STR - Suspend To RAM) state. Refer to "Jumper Settings for USB Wake Up" in chapter 2 and "USB KB Wake-Up From S3" in the Power Management Setup section in chapter 3 for more information.

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

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 "Resume By Alarm" in the Power Management Setup section in chapter 3 for more information.

Introduction

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® 98/98SE/2000/ME/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98/98SE/2000/ME/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system. 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 ≥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 Integrated Peripherals 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.

1.2 Package Checklist

The system board package contains the following items:

- ☑ The system board
- ☑ A user's manual
- ☑ One card-edge bracket mounted with 2 serial ports (GIC68-N only)
- ☑ One card-edge bracket mounted with a serial port and a game/MIDI port (GIC68-B and GIC68-N)
- ☑ One IDE cable for ATA/33, ATA/66 or ATA/100 IDE drives
- ☑ One 34-pin floppy disk drive cable
- ☑ 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
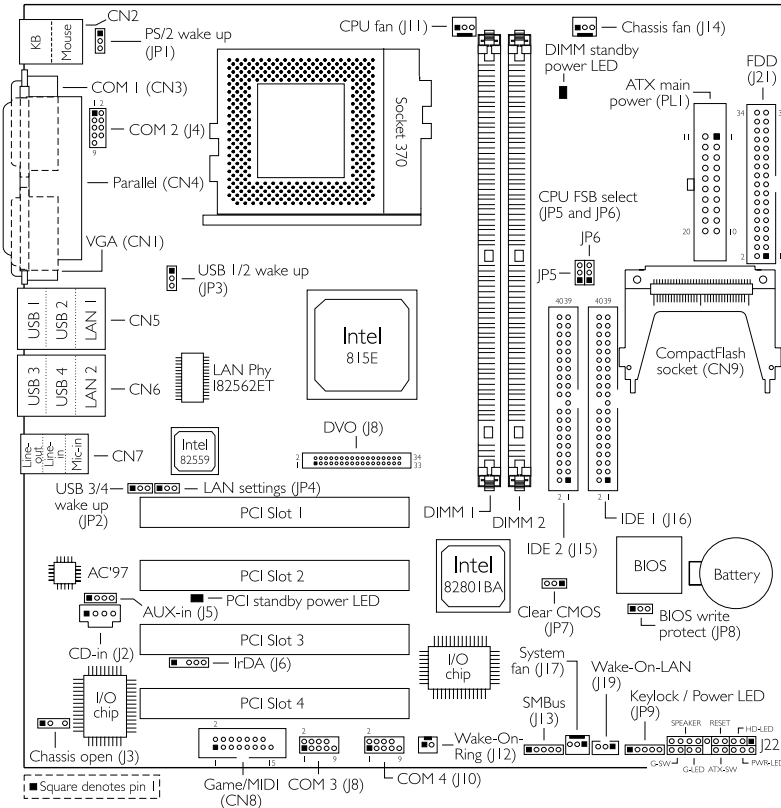
GIC68-N

Note:
The connectors for COM 3 (J8) and COM 4 (J10) as well as the I/O chip which supports COM 3 and COM 4 are present only on the GIC68-N system board.

GIC68-B

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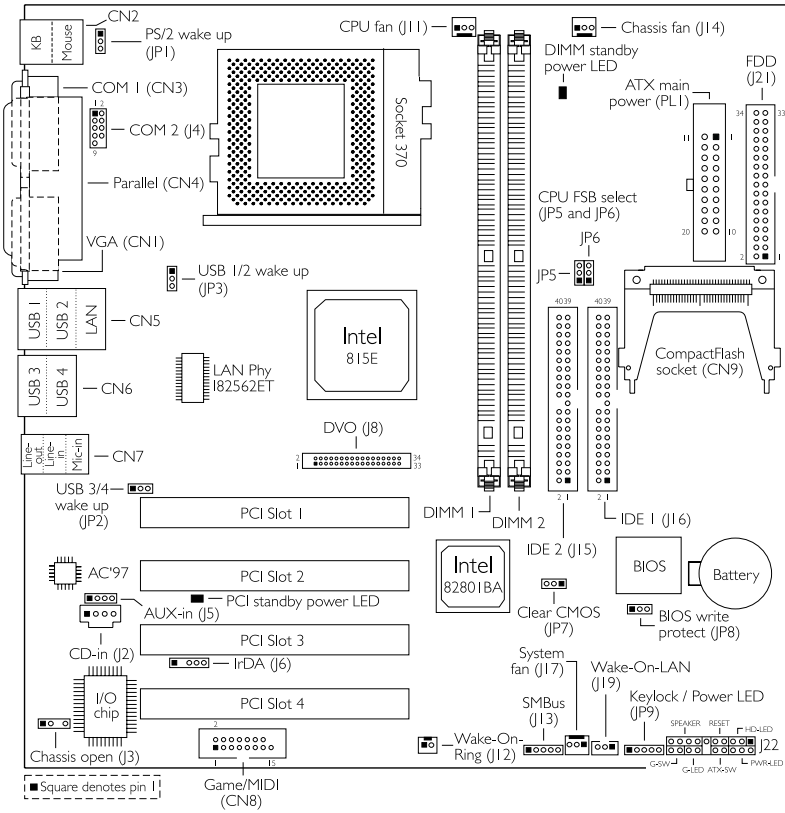
> **Warning:**
> *Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing 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

DIMM 1 — DIMM 2
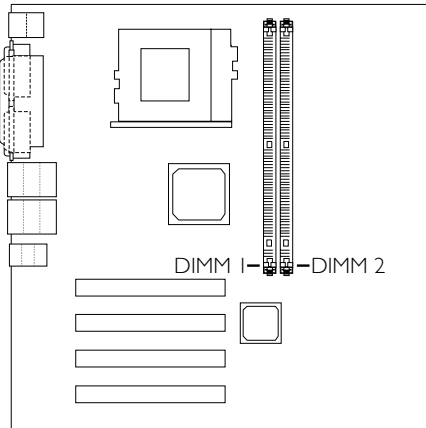
The system board is equipped with two 168-pin DIMM (Dual In-line Memory Module) sockets that support unbuffered PC-133/PC-100 SDRAM DIMM for 133MHz/100MHz system memory bus. PC SDRAM (Synchronous Dynamic Random Access Memory) is a fast memory interface technology that uses the clock on the chip to synchronize with the CPU clock so that the timing of the memory chips and the timing of the CPU are synchronized. This saves time during transmission of data, subsequently increasing system performance.

The "System Memory Frequency" field in the Advanced Chipset Features submenu of the BIOS must be set according to the type of PC SDRAM DIMM used.

The onboard VGA shares 1MB of the system memory. This is fixed regardless of the size of the system memory. Aside from the 1MB shared memory, it also uses Dynamic Video Memory Technology (DVMT). DVMT freely changes in size because graphics memory is allocated from the system memory according to current needs. Refer to chapter 1 for the type of memory supported by the system board.

2.2.2 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.
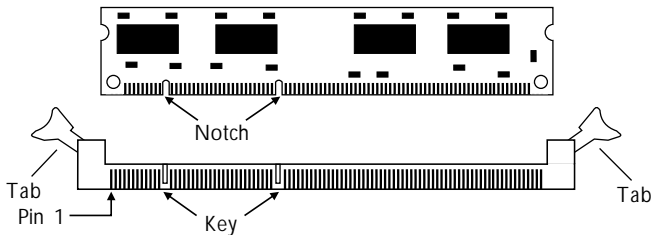
1. Pull the "tabs" which are at the ends of the socket to the side.

2. Position the DIMM above the socket with the "notches" in the module aligned with the "keys" 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

3 2 1
Clear CMOS
(JP7)

3 2 1
1-2 On: Normal
(default)

3 2 1
2-3 On:
Clear CMOS Data
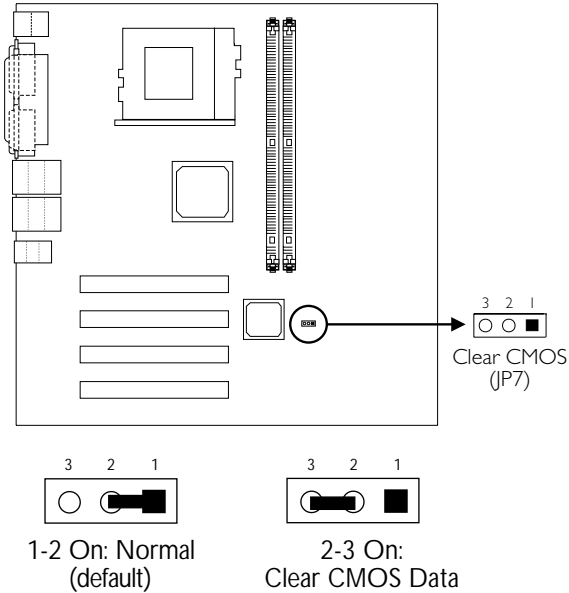
Clear CMOS Data - Jumper JP7

If you encounter the following,

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

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

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

1. Power-off the system.

2. Set JP7 pins 2 and 3 to On. Wait for a few seconds and set JP7 back to its default setting, pins 1 and 2 On.

3. Now power-on the system.

If your reason for clearing the CMOS data is due to incorrect setting of the processor's clock/ratio 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 Host/PCI Clock" or "CPU Clock Ratio" field to its default setting or an appropriate bus clock or frequency ratio. 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 Jumper Settings for Selecting the CPU's Front Side Bus

JP5

JP6
CPU FSB select
(JP5 and JP6)

1-2 On

2-3 On
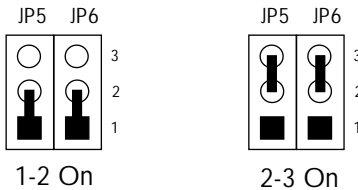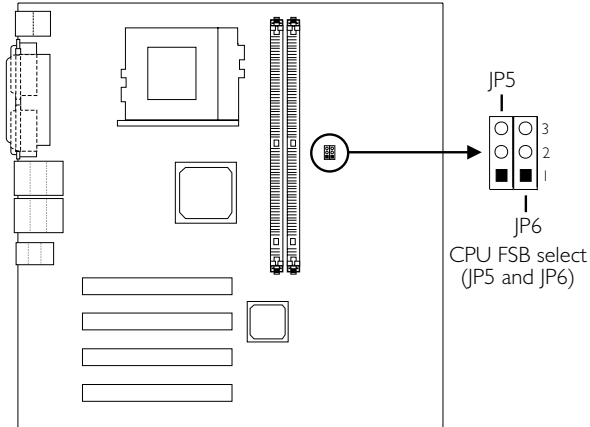
CPU Front Side Bus Select - Jumpers JP5 and JP6

This jumper is used to select the front side bus of the CPU installed on the system board. The default setting is 1-2 On: Auto. The system will run according to the CPU's FSB.

CPU	JP5	JP6
Auto*	1-2 On	1-2 On
66MHz	2-3 On	2-3 On
100MHz	2-3 On	1-2 On
133MHz	1-2 On	1-2 On

"*" denotes default setting

Important:
Overclocking may result in the processor's or system's instability and is not guaranteed to provide better system performance. If you are unable to boot your system due to overclocking, make sure to set these jumpers back to their default settings.

2.5 Jumper Settings for PS/2 Wake Up
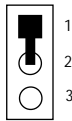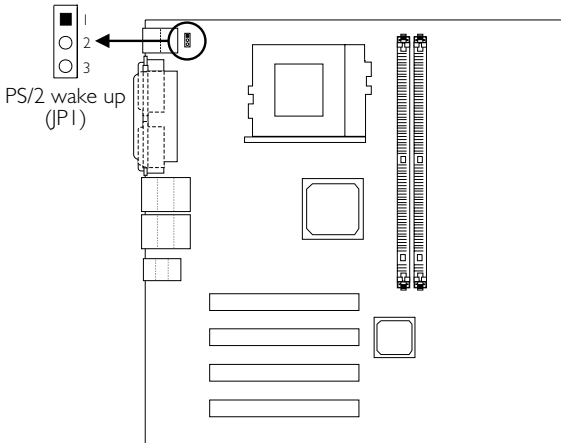
PS/2 wake up
(JP1)

1-2 On: VCC - Disabled
(default)
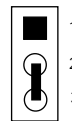
2-3 On: 5VSB - Enabled

PS/2 Wake Up Settings - Jumper JP1

The Wake-On-Keyboard/Wake-On-Mouse function allows you to use the keyboard or PS/2 mouse to power-on the system. By default, JP1 is disabled. To use this function, set JP1 to 2-3 On. "Power On Function" in the Integrated Peripherals submenu of the BIOS must be set accordingly. Refer to chapter 3 for details.

Warning:
1. *If JP1 was enabled with a password set in the "KB Power On Password" field, and now you wish to disable the keyboard password function, make sure to set the "Power On Function" field to "Button Only" prior to setting JP1 to disabled. You will not be able to boot up the system if you fail to do so.*

2. *The power button will not function once a keyboard password has been set in the "KB Power On Password" field of the Integrated Peripherals submenu. You must type the correct password to power-on the system.*

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

2.6 Jumper Settings for USB Wake Up

USB 1/2
wake up
(JP3)

USB 3/4
wake up
(JP2)

1-2 On: VCC - Disabled
(default)

2-3 On: 5VSB - Enabled
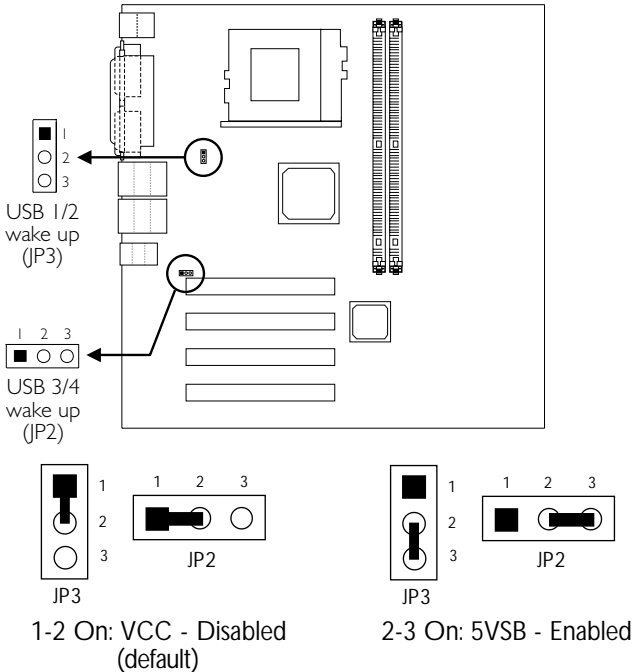
USB Wake Up Settings - Jumpers JP2 and JP3

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

JP2 - for the USB keyboard that is connected to the USB 3 or USB 4 port.

JP3 - for the USB keyboard that is connected to the USB 1 or USB 2 port.

By default, this function is disabled. To use this function, set the appropriate jumper - pins 2 and 3 to On. "USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must also be enabled.

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

2.7 Jumper Settings for the Onboard LAN 2 Port (GIC68-N only)

1 2 3
LAN 2 settings
(JP4)

1   2   3
1-2 On: Enabled
(default)

1   2   3
2-3 On: Disabled
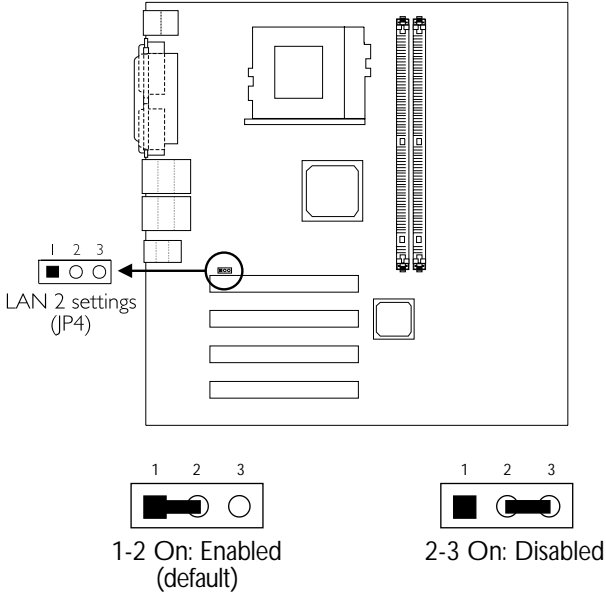
Onboard LAN 2 Settings - Jumper JP4

This jumper is used to enable or disable the onboard Intel 82559 LAN chip that controls the LAN 2 port.

2.8 Jumper Settings for BIOS Write Protect

BIOS write protect
(JP8)
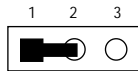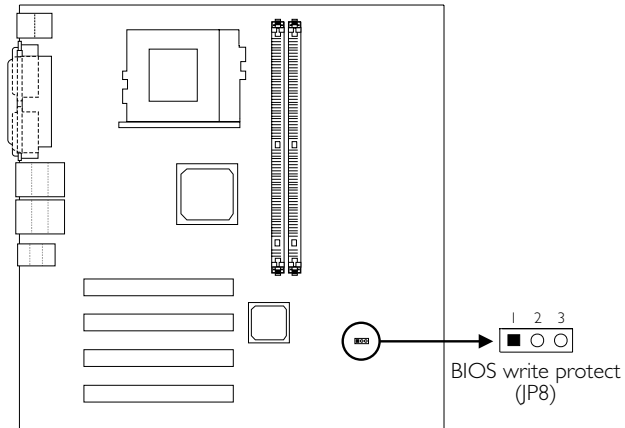
1-2 On: BIOS Write
Protect Disabled
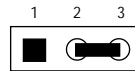
2-3 On: BIOS Write
Protect Enabled
(default)

BIOS Write Protect Settings - Jumper JP8

The default setting is 2-3 On. This setting will protect the system
from unnecessary updating or flashing of the BIOS. It secures the
BIOS therefore any updates to it will not take effect.

2.9 Rear Panel I/O Ports

PS/2 Mouse   Parallel   RJ45 LAN 1   RJ45 LAN 2   Mic-in   Line-in   Line-out

PS/2 K/B   COM 1   VGA   USB 1/2   USB 3/4

GIC68-N

PS/2 Mouse   Parallel   RJ45 LAN   USB 4   Mic-in   Line-in   Line-out

PS/2 K/B   COM 1   VGA   USB 1/2   USB 3

GIC68-B
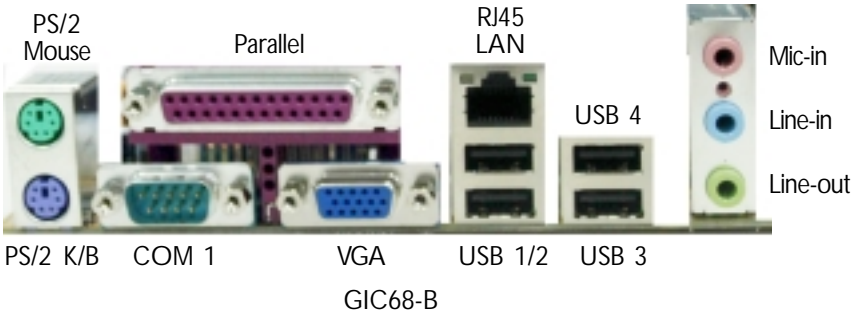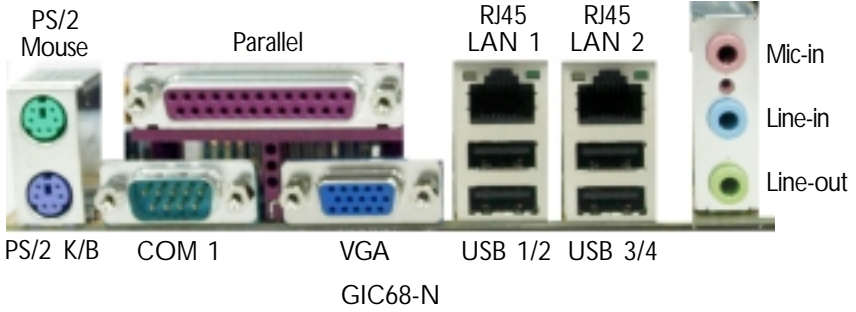
2.9.1 PS/2 Mouse and PS/2 Keyboard Ports

PS/2 Mouse

PS/2 Keyboard

CN2
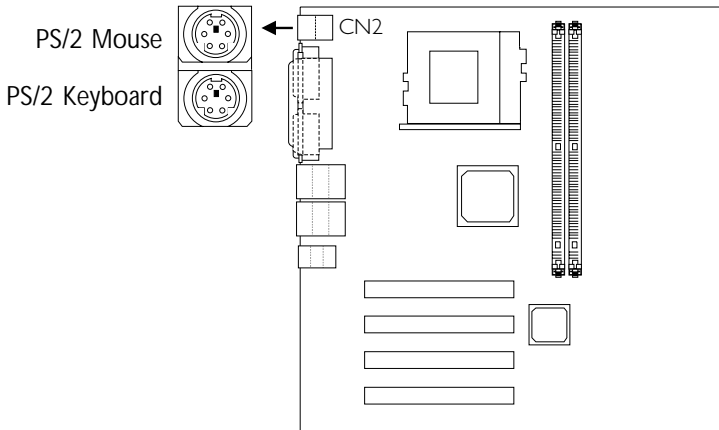
The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN2 of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

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

To use this function:

• JP1 pins 2 and 3 must be set to On.

• "Power On Function" in the Integrated Peripherals submenu of the BIOS must be set accordingly. Refer to chapter 3 for more information.

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.

2.9.2 Serial Ports

COM 1
Serial Port

CN3

COM 2
(J4)

COM 3 (J8)   COM 4 (J10)
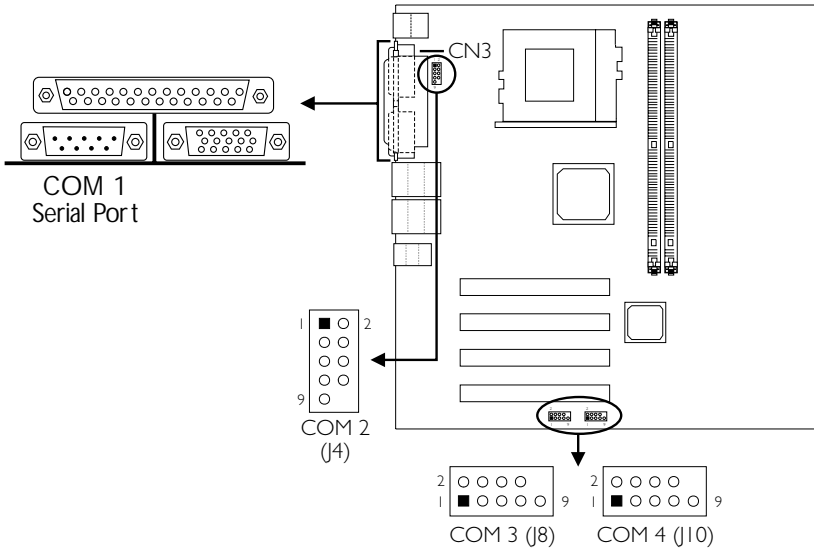
The built-in serial ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices. You can select the serial ports' I/O address in the Integrated Peripherals submenu of the BIOS.

Connecting the Serial Ports

The GIC68-N system board is equipped with an onboard serial port (CN3 - Teal/Turquoise) for COM 1. It is also equipped with three 9-pin connectors at locations J4, J8 and J10 for COM 2, COM 3 and COM 4 respectively.

The GIC68-B system board is equipped with 1 onboard serial port (CN3 - Teal/Turquoise) for COM 1 and a 9-pin connector at location J4 for COM 2 serial port.

Card-edge brackets, mounted with serial port cables, are provided with the system board. Install the card-edge bracket to the system chassis then insert the connector that is attached to the serial port cable to the appropriate connector on the system board. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the connector.

2.9.3 Parallel Port

Parallel Port

CN4
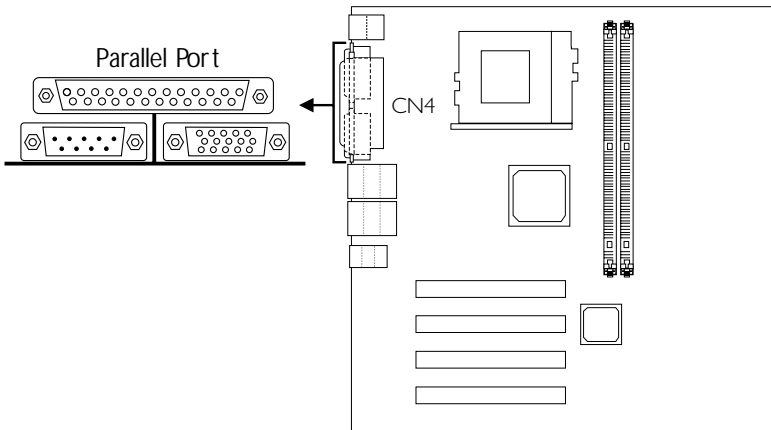
The system board has a standard parallel port (CN4 - Burgundy) for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP modes. You can select the port's mode in the Integrated Peripherals submenu of the BIOS.

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.

2.9.4 VGA Port

VGA Port

CN1
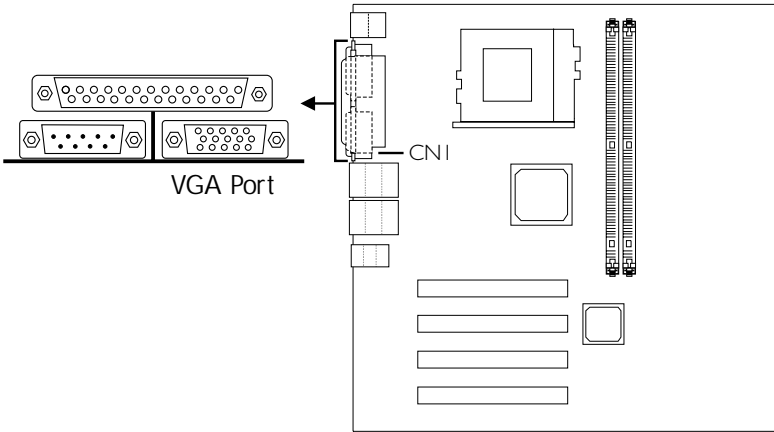
The system board can only be used with an analog video monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port (CN1 - Blue). If your monitor supports analog video but does not have a 15-pin D-shell connector, see your monitor dealer for the adapter or optional cable. After you plug the monitor cable into the VGA port, gently tighten the cable screws to hold the connector in place. Some monitors have a switch that chooses between analog and TTL (or digital) operation. If your monitor has such a switch, set it for analog. You can configure the display in the Advanced Chipset Features submenu of the BIOS.

2.9.5 Universal Serial Bus Ports
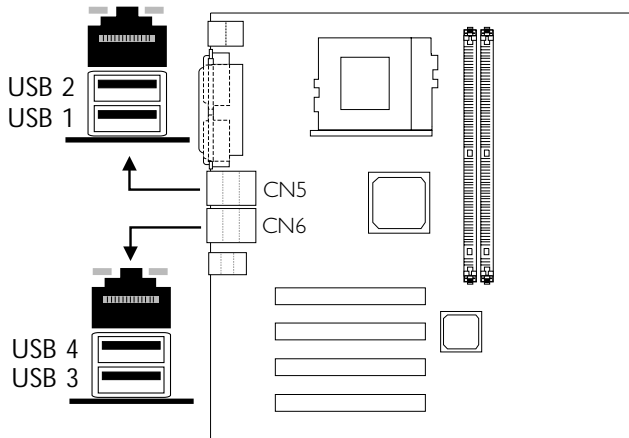
The system board is equipped with four onboard USB ports (CN5 and CN6 - Black). USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals. You must have the proper drivers installed in your operating system to use the USB ports. Refer to your operating system's manual or documentation.

You can enable or disable the USB ports in the Integrated Peripherals submenu ("USB Controller" field) of the BIOS.

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

To use this function:

• JP2 or JP3 pins 2 and 3 must be set to On.

• "USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled.

2.9.6 RJ45 Fast-Ethernet Port

RJ45 LAN 1

CN5
CN6

RJ45 LAN 2
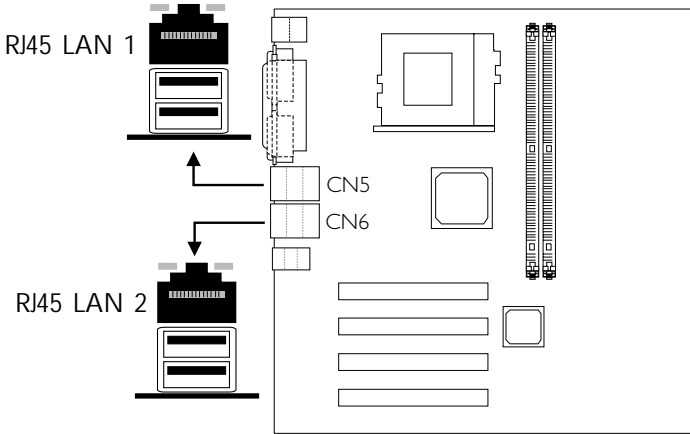
The GIC68-N system board is equipped with 2 onboard RJ45 fast-ethernet LAN ports at locations CN5 and CN6. GIC68-B is equipped with only 1 onboard LAN port at location CN5.

The LAN port allows the system board to connect to a local area network by means of a network hub. The Intel 82559 chip which controls the LAN 2 port can be enabled or disabled using JP4. Refer to "Jumper Settings for the Onboard LAN 2 Port" in chapter 2 for more information.

2.9.7 Audio Jacks
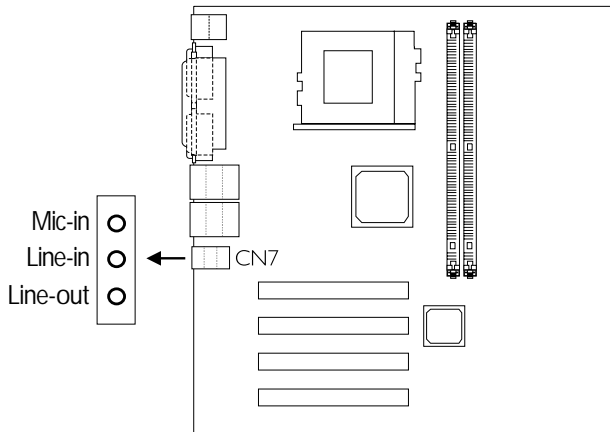
Onboard Audio Jacks (CN7)

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.

2.10 I/O Connectors

2.10.1 Internal Audio Connectors

AUX-in (J5)

CD-in (J2)
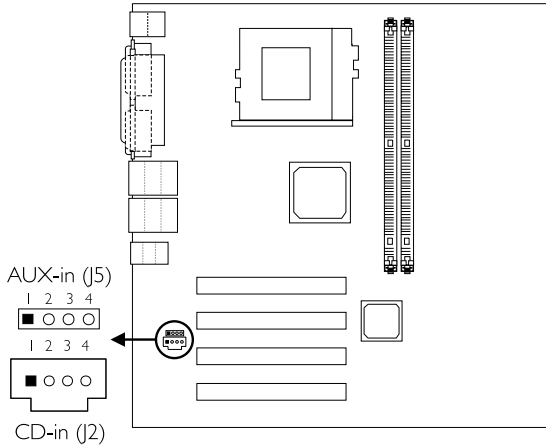
Pin	Function
1	Left audio channel
2	Ground
3	Ground
4	Right audio channel

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

2.10.2 Game/MIDI Port
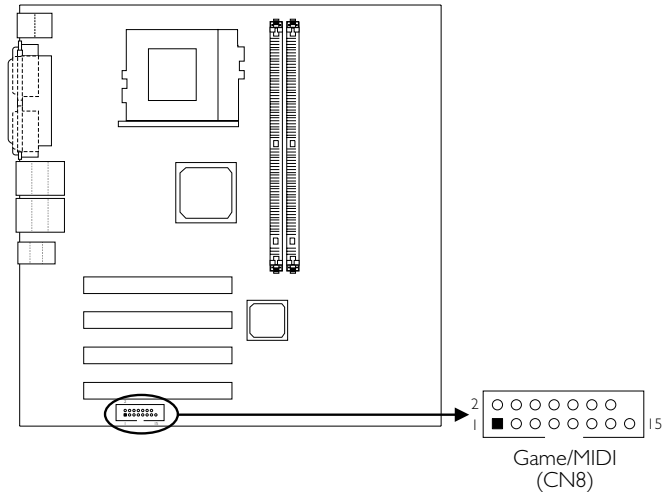
Game/MIDI
(CN8)

The system board is equipped with a 15-pin connector at location CN8 for connecting an external game/MIDI port. Connect your game/MIDI port cable to connector CN8. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of connector CN8.

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 of the BIOS.

2.10.3 Floppy Disk Drive Connector

FDD
(J21)
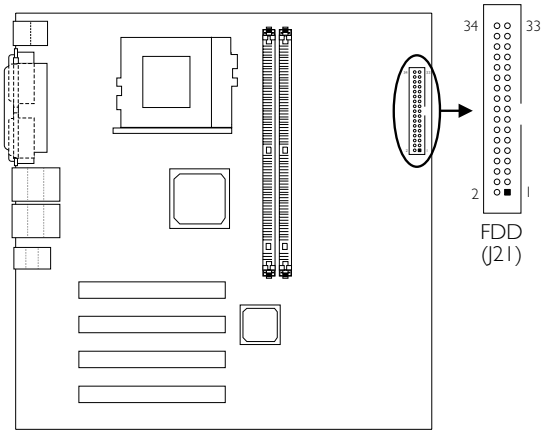
The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header. You can enable or disable this function in the Integrated Peripherals submenu 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 (J21) on the system board. The colored edge of the ribbon should be aligned with pin 1 of J21.

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.

2.10.4 IDE Disk Drive Connector

CompactFlash
socket (CN9)

40   39   40   39

2   1   2   1

IDE 2   IDE 1
(J15)   (J16)
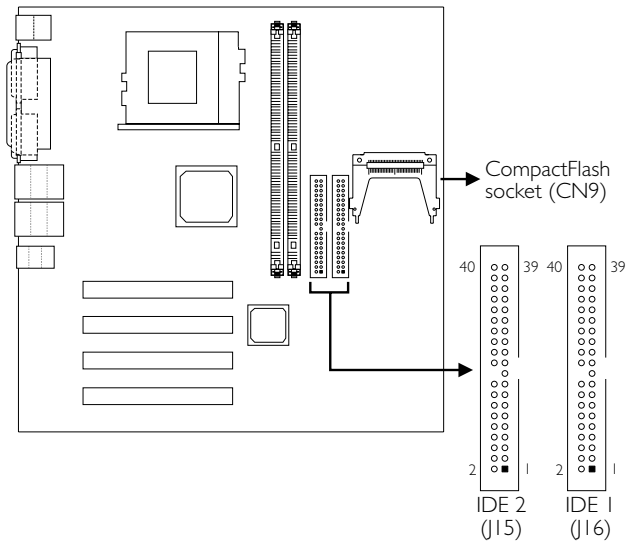
The system board is equipped with two shrouded PCI IDE headers
that will interface four Enhanced IDE (Integrated Drive Electronics)
disk drives. To prevent improper IDE cable installation, each shrouded
PCI IDE header has a keying mechanism. The 40-pin connector on
the IDE cable can be placed into the header only if pin 1 of the
connector is aligned with pin 1 of the header. You can enable or
disable the onboard primary or secondary IDE controller in the
Integrated Peripherals submenu 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 (IDE 1 -
   J16). 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 (IDE 2 - J15).

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

Important:
- *CompactFlash^{TM} and IDE 2 share the same channel. Since CompactFlash^{TM} on this board is always in Master mode, if a CompactFlash^{TM} card is installed in the socket, make sure the drive connected to the IDE 2 connector is set to Slave mode.*
- *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.*

2.10.5 IrDA Connector

IrDA (J6)
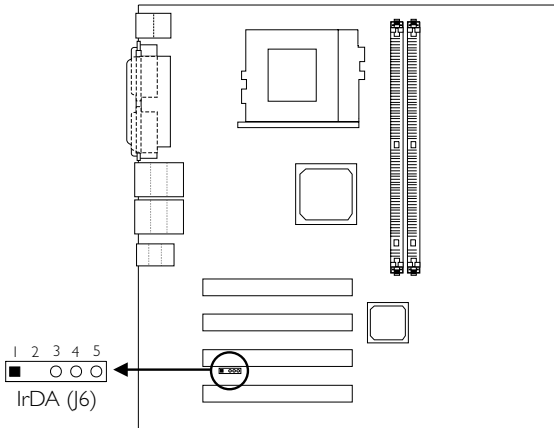
Pin	Function
1	VCC
2	N. C.
3	IRRX
4	Ground
5	IRTX

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 J6 on the system board. Set "UART Mode Select" in the Integrated Peripherals submenu 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.

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2.10.6 CPU Fan Connector
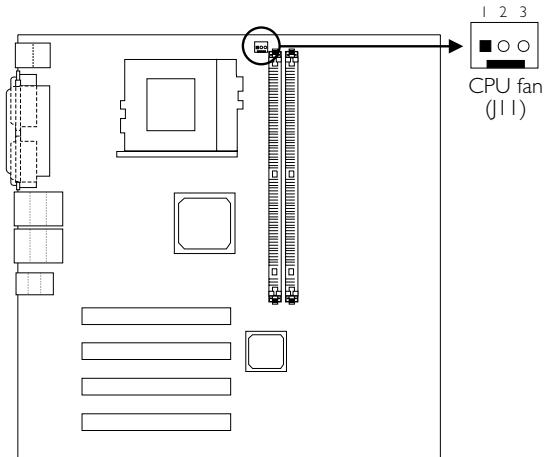
CPU fan
(J11)

Pin	Function
1	Ground
2	Power
3	Sense

The CPU must be kept cool by using a fan with heatsink. Connect the CPU fan to the 3-pin fan connector at location J11 on the system board. The system is capable of monitoring the speed of the CPU fan.

2.10.7 Chassis Fan Connector
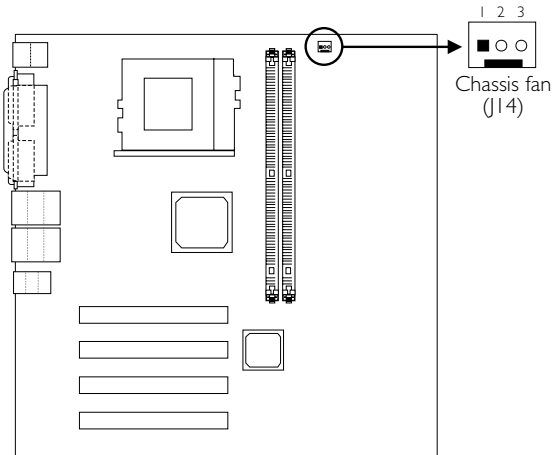
Chassis fan
(J14)

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 location J14 on the system board. The fan will provide adequate airflow throughout the chassis to prevent overheating the CPU. 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.

2.10.8 System Fan Connector

3 2 1
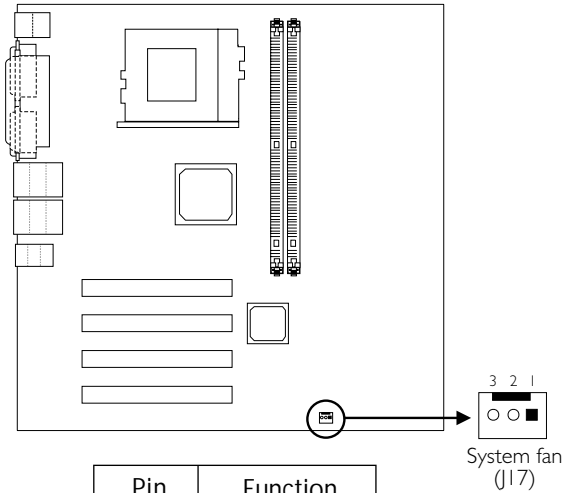
System fan
(J17)

Pin	Function
1	Ground
2	On/Off
3	Sense

If you are installing a system fan in the system unit, connect the fan's connector to location J17 on the system board. The system is capable of monitoring and controlling the speed of the system fan. The system fan will automatically turn off once the system enters the Suspend mode.

2.10.9 Wake-On-LAN Connector

3 2 1
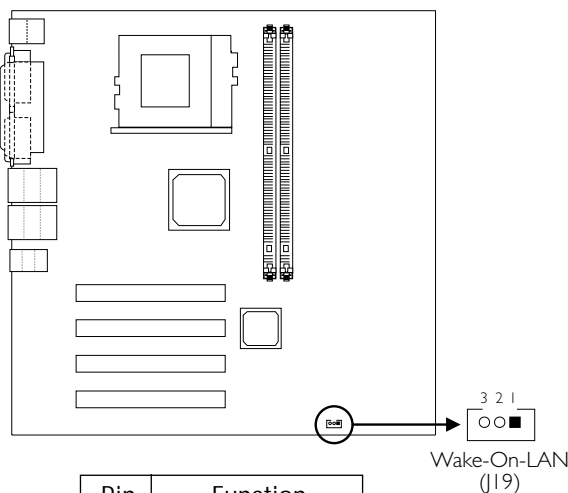
Wake-On-LAN
(J19)

Pin	Function
1	WOL
2	Ground
3	+5VSB

The Wake-On-LAN function is applicable only when you are using a LAN add-in card that has the same function. It will allow the network to remotely power-on a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

To use the Wake-On-LAN function, you must enable the "Wake Up On LAN_conn" field in the Power Management Setup of the BIOS. Your LAN card package should include a cable. Connect one end of the cable to the wakeup header on the card and the other end to location J19 on the system board. The network will detect Magic Packet and assert a wakeup signal to power-up the system. Refer to the add-in card's manual for details. Note: Your LAN card must support the remote wake up function.

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

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2.10.10 Wake-On-Ring Connector

Wake-On-Ring
(J12)

Pin	Function
1	Ground
2	RI#
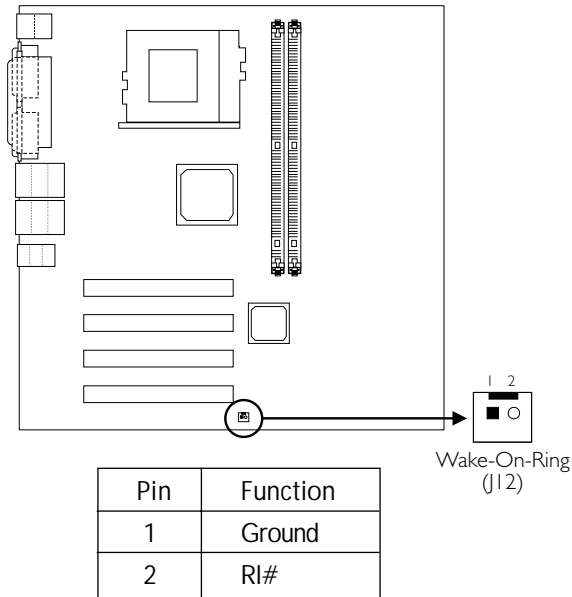
The Wake-On-Ring connector is used to connect to an internal modem card that has the same connector. It will allow the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from the internal modem card.

To use this function, connect one end of the cable (that came with the card) to the card's wake-on-ring connector and the other end to location J12 on the system board. You must also enable "Power On By Ring_conn" in the Power Management Setup of the BIOS.

If you are using an external modem, the ring-on function will come through the serial port where the external modem is connected.

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

2.10.11 SMBus Connector

SMBus (J13)
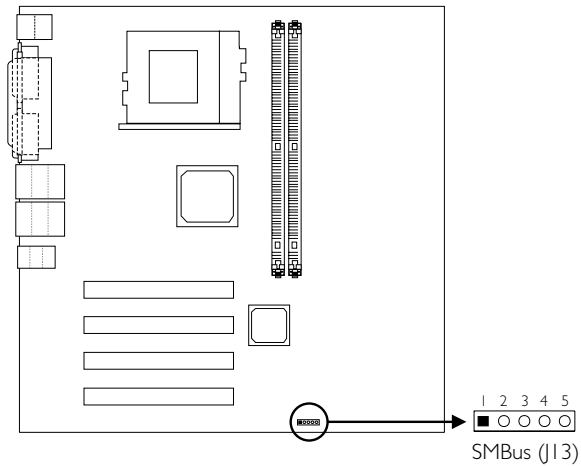
Pin	Function
1	3VSB
2	N. C.
3	SMBus Clk
4	SMBus Data
5	Ground

The SMBus (System Management Bus) connector is used to connect SMBus devices. It is a multiple device bus that allows multiple chips to connect to the same bus allowing each device to initiate data transfer.

2.10.12 CompactFlash Socket

CompactFlash socket (CN9)
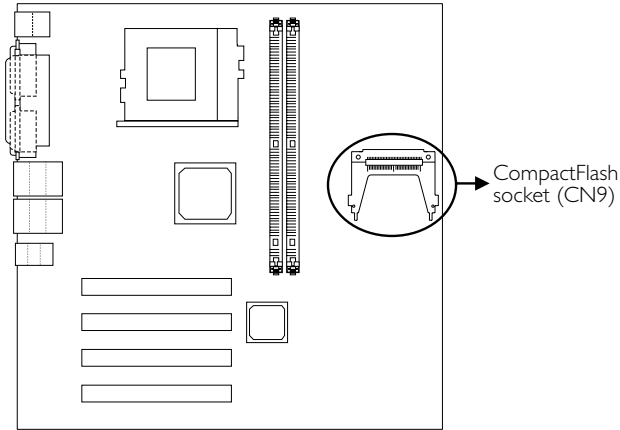
The system board is equipped with the CompactFlash™ socket for inserting a CompactFlash™ card. CompactFlash™ card is a small removable mass storage device designed with flash technology - a non-volatile storage solution that does not require a battery to retain data indefinitely. The CompactFlash™ technology is widely used in products such as portable and desktop computers, digital cameras, handheld data collection scanners, PDAs, Pocket PCs, handy terminals and personal communicators.

CompactFlash™ and IDE 2 share the same channel. Since CompactFlash™ on this board is always in Master mode, if a CompactFlash™ card is installed in the socket, make sure the drive connected to the IDE 2 connector is set to Slave mode.

2.10.13 DVO Connector


```
2              34
oooooooooooooooo
■ooooooooooooooo
1              33
```
DVO (J8)
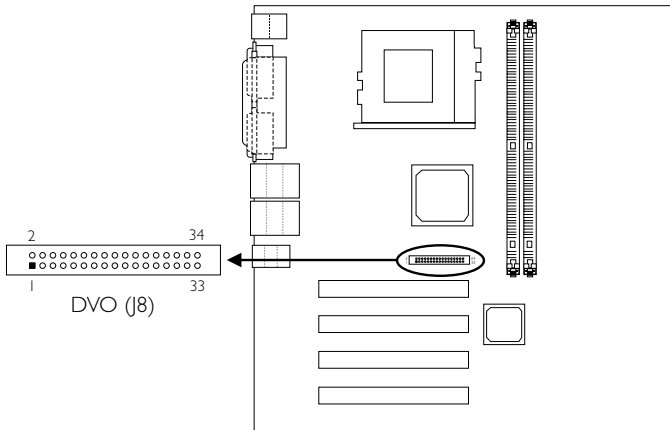
The Intel Digital Video Out (DVO) interface is a scaleable, low-voltage interface that ranges from 1.1V to 1.8V. It interfaces with a discrete TV encoder to enable platform support for TV-Out, with a discrete TMDS transmitter to enable platform support for DVI-compliant digital displays, or with an integrated TV encoder and TMDS transmitter. Refer to the next page for the pin function of the DVO interface.

Pin	Function	Pin	Function
1	PCIRST-	2	GP22
3	LTVDATA0	4	CLKOUT0
5	LTVDATA1	6	CLKOUT1
7	LTVDATA2	8	TVVSYNC
9	LTVDATA3	10	TVRSYNC
11	LTVDATA4	12	TVLBLANK#
13	LTVDATA5	14	LTVCL
15	LTVDATA6	16	LTVDA
17	LTVDATA7	18	TVCLK1
19	LTVDATA8	20	VCC18
21	LTVDATA9	22	VCC18
23	LTVDATA10	24	VCC
25	LTVDATA11	26	VCC
27	VCC3;O	28	+12V
29	VCC3;O	30	+12V
31	Ground	32	Ground
33	Ground	34	Ground

2.10.14 Chassis Open Connector

1 2 3 4
Chassis open
(J3)
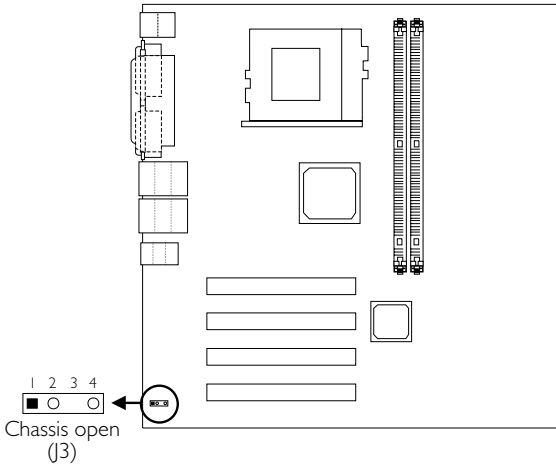
Pin	Function
1	Ground
2	Chassis signal
3	N. C.
4	+5V

The "chassis open" function, when enabled, will alert you that the system chassis is open. To use this function, please follow the steps below.

1. Connect the "chassis sensor" cable that is attached on your system chassis to location J3 on the system board.

2. Install the "Winbond Hardware Doctor" utility contained in the provided CD. By default, this function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the "Winbond Hardware Doctor" section in chapter 4 for information on installing the utility.

2.10.15   DIMM/PCI Standby Power LED

DIMM standby power LED

PCI standby power LED
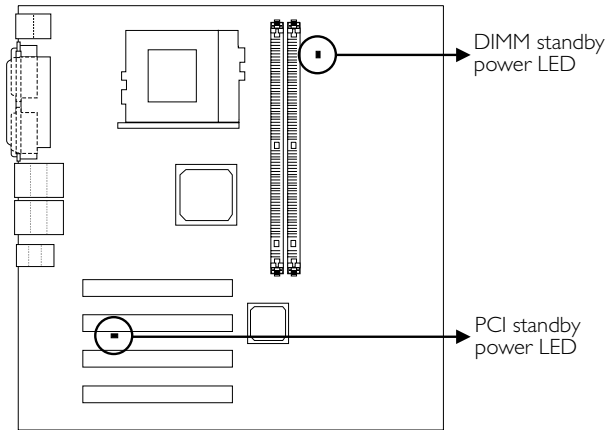
DIMM Standby Power LED

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.*

2.10.16 Power Connector

ATX main
power (PL1)
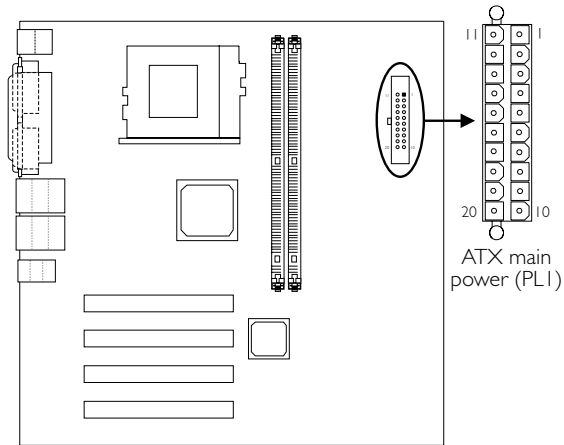
The pin function of the ATX power connector is shown below.

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

Important:
The system board requires a minimum of 3.3V/6A electric current.

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2.10.17 Keylock / Power LED Connector

Keylock / Power LED
(JP9)
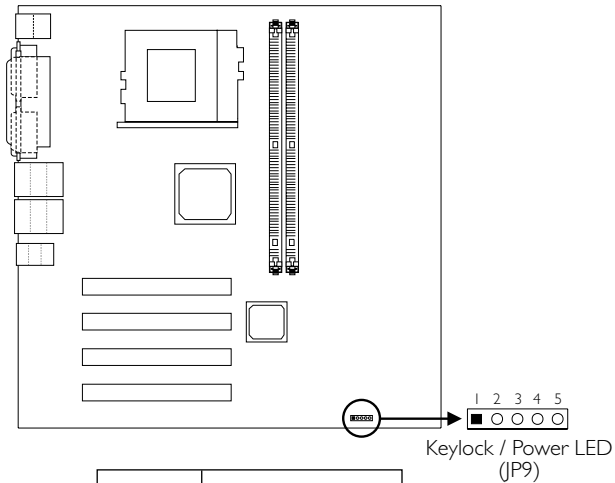
Pin	Function
1	VCC
2	N. C.
3	Ground
4	Ground
5	Keylock

To lock the keyboard, connect the keyboard lock's cable connector from the front panel of the system chassis to pins 1 and 2. Connect the power LED's cable connector from the front panel of the system chassis to pins 3 to 5. The power LED will light only when the system's power is on.

2.10.18 Front Panel Connector

Front panel
connector (J22)

HD-LED

SPEAKER   RESET

19 ○ ○ ○ ○ ○   ○ ○ ○ ○ ■   1
20 ○ ○ ○ ○   ○ ○ ○ ○ ○   2

| G-LED | PWR-LED

G-SW   ATX-SW
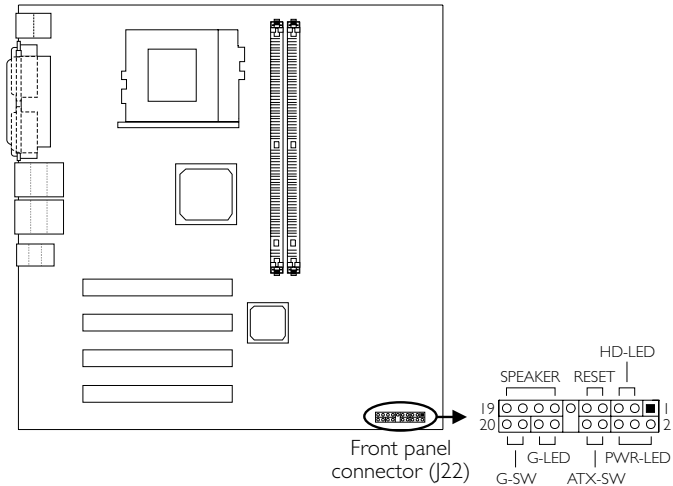
HD-LED: Primary/Secondary IDE LED

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

RESET: Reset Switch

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

SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

G-SW: Green Switch

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

G-LED: Green LED

This LED will not light when the system's power is on or when the system is in the S3 (STR - Suspend To RAM) state. It will blink every second when the system is in the S1 (POS - Power On Suspend) state.

ATX-SW: ATX Power Switch

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

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Hardware Installation ....

PWR-LED: Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

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

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

Chapter 3 - Award BIOS Setup Utility

3.1 The Basic Input/Output System

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

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

<div align="center">Press DEL to enter setup</div>

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

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

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving

Esc   :   Quit   ↑↓→←   :   Select Item
F10   :   Save & Exit Setup

Time, Date, Hard Disk Type...

3.1.1 Standard CMOS Features

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

```
                    CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                                   Standard CMOS Features
    ┌─────────────────────────────────────────────────┬───────────────────────┐
    │                                                  │      Item  Help       │
    │  Date (mm:dd:yy)        Thu, Sep 5 2000          ├───────────────────────┤
    │  Time (hh:mm:ss)        4 : 35 : 5               │ Menu Level            │
    │                                                  │                       │
    │  IDE Primary Master     Press Enter None         │ Change the day, month,│
    │  IDE Primary Slave      Press Enter None         │ year and century      │
    │  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.

Date

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

Time

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

IDE 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>.

Phoenix - AwardBIOS CMOS Setup Utility
IDE Primary Master

		Item Help
IDE HDD Auto Detection	Press Enter	
		Menu Level
IDE Primary Master	Auto	
Access Mode	Auto	Change the day, month, year and century
Capacity	0 M	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector		

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

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

IDE HDD Auto Detection

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

IDE Primary Master/Slave and IDE Secondary Master/Slave

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

Access Mode

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

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

Drive A and Drive B

These fields identify the types of floppy disk drives installed.

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

Video

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

EGA/VGA   Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.
CGA 40   Color Graphics Adapter. Power up in 40-column mode.
CGA 80   Color Graphics Adapter. Power up in 80-column mode.
Mono   Monochrome adapter. Includes high resolution monochrome adapters.

Halt On

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

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

Base Memory

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

Extended Memory

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

Total Memory

Displays the total memory available in the system.

3.1.2 Advanced BIOS Features

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

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Advanced BIOS Features

		Item Help
Virus Warning	Disabled	
CPU Internal Cache	Enabled	Menu Level
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	Allows you to choose
Processor Serial Number	Enabled	the VIRUS warning
Quick Power On Self Test	Enabled	feature for IDE Hard
First Boot Device	Floppy	Disk boot sector
Second Boot Device	HDD-0	protection. If this
Third Boot Device	LS/ZIP	function is enabled and
Fourth Boot Device	Enabled	someone attempt to
Swap Floppy Drive	Disabled	write data into this
Boot Up Floppy Seek	Disabled	area, BIOS will show a
Boot Up NumLock Status	On	warning message on
Gate A20 Option	Fast	screen and alarm beep
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	Yes	
Small Logo (EPA) Show	Disabled	
		:Exit F1:General Help
		F7: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.

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® 98SE/2000/ME/XP or the operating system may not install nor work.

CPU Internal Cache and External Cache

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

CPU L2 Cache ECC Checking

The processors supported by the system board come with built-in Level 2 cache. By default, ECC is enabled to check the Level 2 cache. If you are not using this function, set this field to Disabled.

Processor Serial Number

This field will appear only when you are using Intel's Pentium® III or later processor. These processors come with an individual "processor serial number" which by default is activated. Therefore, when connected to the Internet, the processor transmits the serial number online making it possible to track your online activity. This field provides you the option of disabling this function.

Quick Power On Self Test

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

First Boot Device, Second Boot Device, Third Boot Device and Fourth Boot Device

Select the drive to boot first, second, third and fourth in the "First Boot Device" "Second Boot Device", "Third Boot Device" and "Fourth Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

Swap Floppy Drive

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

Boot Up Floppy Seek

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

Boot Up NumLock Status

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

Gate A20 Option

This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 Mbyte. Initially, gate A20 was handled via the keyboard controller. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Security Option

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

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

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

APIC Mode

Leave this field in its default setting.

MPS Version Control for OS

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

OS Select for DRAM > 64MB

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

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

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

Report No FDD For WIN 95

The options are Yes and No.

Small Logo(EPA) Show

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

3.1.3 Advanced Chipset Features

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Advanced Chipset Features

```
┌─────────────────────────────────────────────────┬──────────────────────┐
│ SDRAM CAS Latency Time      3                  ▲ │   Item  Help         │
│ SDRAM Cycle Time Tras/Trc   Auto                 ├──────────────────────┤
│ SDRAM RAS-to-CAS Delay      Auto                 │ Menu Level           │
│ SDRAM RAS Precharge Time    Auto                 │                      │
│ System BIOS Cacheable       Disabled             │                      │
│ Video BIOS Cacheable        Disabled             │                      │
│ CPU Latency Timer           Enabled              │                      │
│ Delayed Transaction         Enabled              │                      │
│ AGP Graphics Aperture Size  64                   │                      │
│ Display Cache Frequency     100 MHz              │                      │
│ System Memory Frequency     Auto                 │                      │
│ On-Chip Video Window Size   64MB                 │                      │
│    GFX Scaling              Auto/EDID            │                      │
│    Show VBIOS Message       Disabled             │                      │
│    TV Format                NTSC                 │                      │
│    Output Device Syncronous Disabled             │                      │
│    Output Device Priority   CRT/FP/TV            │                      │
│                                                  │                      │
│ * Onboard Display Cache Setting *                │                      │
│ CAS# Latency                3                    ├──────────────────────┤
│ Paging Mode Control         Open                 │                      │
│ RAS-to-CAS Override         by CAS# LT           │ Exit  F1:General Help│
│ RAS# Timing                 Fast                 │ F7:Optimized Defaults│
│ RAS# Precharge Timing       Fast               ▼ │                      │
└─────────────────────────────────────────────────┴──────────────────────┘
```

The screen above list all the fields available in the Advanced Chipset 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.

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.

SDRAM CAS Latency Time

The default setting is 3 which is 3 clock cycles for the CAS latency.

SDRAM Cycle Time Tras/Trc

This field selects the number of SCLKs for an access cycle.

SDRAM RAS-to-CAS Delay

This field allows you to insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. This field applies only when synchronous DRAM is installed in the system.

SDRAM RAS Precharge Time

If there is insufficient number of cycles for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data.

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.

Video BIOS Cacheable

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

CPU Latency Timer

The options are Enabled and Disabled.

Delayed Transaction

When enabled, this function frees up the PCI bus for other PCI masters during the PCI-to-ISA transactions. This allows PCI and ISA buses to be used more efficiently and prevents degradation of performance on the PCI bus when ISA accesses are made.

AGP Graphics Aperture Size

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

Display Cache Frequency

This field is used to select the display cache frequency.

System Memory Frequency

Auto   The BIOS will automatically detect the type of PC SDRAM DIMM installed on the system board.

100 MHz   Select this option if you are using a PC-100 SDRAM DIMM.

133 MHz   Select this option if you are using a PC-133 SDRAM DIMM.

On-Chip Video Window Size

This field selects the on-chip video window size.

For DVO interface only - the following fields will appear only when you are using the DVO interface.

GFX Scaling

This default setting is Auto/EDID.

Show VBIOS Message

This default setting is Disabled.

TV Format

This default setting is NTSC.

Output Device Syncronous

This default setting is Disabled.

Output Device Priority

This default setting is CRT/FP/TV.

Onboard Display Cache Setting

CAS# Latency

This field is used to select the local memory clock periods. The options are 2 and 3.

Paging Mode Control

This field is used to select the paging mode control. The options are Open and Close.

RAS-to-CAS Override

This field is used to select the display cache clock periods control. The options are "by CAS# LT" and "Override(2)".

RAS# Timing

This field controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks). The options are Slow and Fast.

RAS# Precharge Timing

This field controls RAS# precharge (in local memory clocks). The options are Slow and Fast.

3.1.4 Integrated Peripherals

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Integrated Peripherals

		Item Help
On-Chip Primary PCI IDE	Enabled	
On-Chip Secondary PCI IDE	Enabled	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 UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Auto	
Watchdog Function	Disabled	
IDE HDD Block Mode	Enabled	
Power On Function	Disabled	
X KB Power On Password	Enter	
X Hot Key Power On	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	ve ESC:Exit F1:General Help
X RxD, TxD Active	Hi,Lo	s F7:Optimized Defaults
X IR Transmission Delay	Enabled	
X UR2 Duplex Mode	Half	
X Use IR Pins	RxD2TxD2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	ECP+EPP	
EPP Mode Select	EPP1.7	
ECP Mode Use DMA	1	
PWR Lost Resume State	LASTATE	
Game Port Address	Disabled	
Midi Port Address	Disabled	
X Midi Port IRQ	10	
Onboard Serial Port 3	3E8	
Serial Port 3 Use IRQ	IRQ11	
Onboard Serial Port 4	2E8	
Serial Port 4 Use IRQ	IRQ10	

The screen above list all the fields available in the Integrated Peripherals 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.

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

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

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

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which

primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

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

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

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

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

USB Controller

We recommend that you leave this field in its default setting - Enabled.

USB Keyboard Support

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

Init Display First

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

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

AC97 Audio

Auto Select this option when using the onboard audio codec, primary or secondary audio riser card, or audio/modem riser card.
Disabled Select this option when using a PCI sound card.

Watchdog Function

Enabled   Enables the Watchdog function.
Disabled   Disables the Watchdog function.

Refer to Appendix A for more information.

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.

Power On Function

This field allows you to use the keyboard or PS/2 mouse to power-
on the system. To use this function, make sure JP1 is set to 2-3 On -
Enabled. Refer to "Jumper Settings for PS/2 Wake Up" in chapter 2
for more information.

Button only   Default setting. Uses the power button to power
                on the system.

> Warning:
> *If JP1 was previously enabled with a pass-
> word set in the "KB Power On Password" field,
> and now you wish to disable the keyboard
> password function, make sure to set this field
> to disabled prior to setting JP1 to disabled
> (1-2 On). You will not be able to boot up the
> system if you fail to do so.*

Password   When this option is selected, move the cursor to
                the "KB Power On Password" field and press
                <Enter>. Enter your password. You can enter up to
                5 characters. Type in exactly the same password to
                confirm, then press <Enter>.

> Important:
> *The power button will not function once a
> keyboard password has been set in the "KB
> Power On Password" field. You must type the
> correct password to power-on the system. If
> you forgot the password, power-off the*

system and remove the battery. Wait for a few seconds and install it back before powering-on the system.

Hot Key　　When this option is selected, move the cursor to the "Hot Key Power On" field to select a function key you would like to use to power-on the system. The options are from Ctrl-F1 to Ctrl-F12.

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

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

Any Key　　Press any key to power-on the system.

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

Onboard FDC Controller

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

Onboard Serial Port 1 and Onboard Serial Port 2

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

3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.

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

UART Mode Select

The system board supports IrDA function for wireless connectivity between your computer and peripheral devices. You may not use IrDA (J6) and the COM 2 serial port (J4) 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 J6 on the system board.

2. Set the "UART Mode Select" field to the type of IrDA standard supported by your IrDA peripheral/device (IrDA or ASKIR). For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter.

3. Set the "RxD, TxD Active", "IR Transmission Delay", "UR2 Duplex Mode" and "Use IR Pins" fields appropriately.

RxD, TxD Active

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

IR Transmission Delay

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

UR2 Duplex Mode

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

Use IR Pins

The options are IR-Rx2Tx2 and RxD2TxD2.

Onboard Parallel Port

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

Parallel Port Mode

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

SPP
Allows normal speed operation but in one direction only.

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

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

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

EPP Mode Select

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

ECP Mode Use DMA

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

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.

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

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

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.

Onboard Serial Port 3 (GIC68-N only)

This field is used to select the serial port 3's I/O address.

Serial Port 3 Use IRQ (GIC68-N only)

This field is used to select the serial port 3's IRQ address. This field is not configurable if the "Onboard Serial Port 3" field is set to Disabled.

Onboard Serial Port 4 (GIC68-N only)

This field is used to select the serial port 4's I/O address.

Serial Port 4 Use IRQ (GIC68-N only)

This field is used to select the serial port 4's IRQ address. This field is not configurable if the "Onboard Serial Port 4" field is set to Disabled.

3.1.5 Power Management Setup

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

```
           CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          Power  Management  Setup

    ACPI Function                 Enabled            │     Item  Help
    ACPI Suspend Type             S1(POS)            │
  X Run VGABIOS if S3 Resume      Auto               │  Menu Level
    Power  Management             User Define        │
    Video Off Method              DPMS               │
    Video Off In Suspend          Yes                │
    Suspend Type                  PwrOn Suspend      │
    Modem Use IRQ                 NA                 │
    Suspend Mode                  Disabled           │
    HDD Power Down                Disabled           │
    Soft-Off By PWR-BTTN          Instant-Off        │
    Wake-Up by PCI / PME#         Disabled           │
    Power On by Ring_conn         Disabled           │
    Wake Up On LAN_conn           Disabled           │
  X USB KB Wake-Up From S3        Disabled           │
    CPU  Thermal-Throttling       50.0%              │
    Resume by Alarm               Disabled           │
  X   Date(of Month) Alarm        0                  │
  X   Time (hh:mm:ss) Alarm       0 : 0 : 0          │
                                                     │
    ** Reload Global Timer Events **                 │
                                                     │ SC:Exit   F1:General Help
    Primary  IDE0                 Disabled           │     F7:Optimized Defaults
    Primary  IDE1                 Disabled           │
    Secondary  IDE0               Disabled           │
    Secondary  IDE1               Disabled           │
    FDD, COM, LPT Port            Disabled           │
    PCI  PIRQ[A-D]#               Disabled           │
```

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

ACPI Function

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

ACPI Suspend Type

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

S1(POS)   Enables the Power On Suspend function.
S3(STR)   Enables the Suspend to RAM function. Refer to "Using the Suspend to RAM Function" in appendix A for more information.

Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state.

Power Management

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

Min Saving   Minimum power saving time for the Suspend Mode and HDD Power Down = 1 hr.

Max Saving   Maximum power saving time for the. Suspend Mode and HDD Power Down = 1 min.

User Define   Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" fields.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank   This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen   This option only writes blanks to the video buffer.

DPMS   Initializes display power management signaling. Use this option if your video board supports it.

Video Off In Suspend

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

Suspend Type

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

Modem Use IRQ

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

Suspend Mode

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

HDD Power Down

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

Soft-Off by PWR-BTTN

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

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

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

Wake-Up by PCI / PME#

Enabled Access to a PCI card such as a modem or onboard LAN will cause the system to wake up. The PCI card must support the wake up function.

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

Power On By Ring_conn

Set this field to Enabled to use the modem ring-on function. This will allow your system to power-on to respond to calls coming from an external or internal modem. Refer to "Wake-On-Ring Connector" in chapter 2 for more information.

Wake Up On LAN_conn

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

USB KB Wake-Up From S3

Set this field to Enabled to use the Wake-On-USB Keyboard function. This function allows you to use a USB keyboard to wake up a system from the S3 (STR - Suspend To RAM) state. Refer to "Jumper Settings for USB Wake Up" in chapter 2 for more information.

CPU Thermal-Throttling

We recommend that you leave this field in its default setting.

Resume By Alarm

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

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

Date (of Month) Alarm

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

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

Time (hh:mm:ss) Alarm

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

Reload Global Timer Events

When enabled, access to the specified field (Primary IDE 0/1, Secondary IDE 0/1, FDD/COM/LPT Port or PCI PIRQ[A-D]#) will cause the system to wake up completely from the power management mode. When disabled, the system will not wake up from the power management mode despite access to the specified field.

3.1.6 PnP/PCI Configurations

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

```
            CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                           PnP/PCI Configurations
┌─────────────────────────────────────────────────────┬──────────────────────┐
│                                                       │      Item Help       │
│   PNP OS Installed            Yes                     │                      │
│   Reset Configuration Data    Disabled                │  Menu Level          │
│                                                       │                      │
│ X Resources Controlled By     Auto(ESCD)              │  Default is Disabled.│
│   IRQ Resources               Press Enter             │  Select Enabled to   │
│                                                       │  reset Extended System│
│   PCI/VGA Palette Snoop        Disabled               │  Configuration Data  │
│   INT Pin 1 Assignment         Auto                   │  (ESCD) when you exit│
│   INT Pin 2 Assignment         Auto                   │  Setup if you have   │
│   INT Pin 3 Assignment         Auto                   │  installed a new add-on│
│   INT Pin 4 Assignment         Auto                   │  and the system      │
│   INT Pin 5 Assignment         Auto                   │  reconfiguration has │
│   INT Pin 6 Assignment         Auto                   │  caused such a serious│
│   INT Pin 7 Assignment         Auto                   │  conflict that the OS│
│   INT Pin 8 Assignment         Auto                   │  cannot boot.        │
│                                                       │                      │
│                                                       │                      │
│                                                       │                      │
│                                                       │                      │
├───────────────────────────────────────────────────────────────────────────┤
│ ↑↓→←  Move   Enter:Select   +/-/PU/PD:Value  F10:Save   ESC:Exit  F1:General Help│
│             F5:Previous Values      F6:Fail-Safe Defaults      F7:Optimized Defaults│
└───────────────────────────────────────────────────────────────────────────┘
```

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

PNP OS Installed

The options are Yes and No.

Reset Configuration Data

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

Disabled The BIOS will not reset the configuration data.

Resources Controlled By

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

Auto   The system will automatically detect the settings for you.

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

IRQ Resources

This field is used to set each system interrupt to either Legacy ISA or PCI.

PCI   For devices compliant with the PCI bus architecture.
Legacy ISA For devices compliant with the original PC AT bus specification.

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.

INT Pin 1 Assignment to INT Pin 8 Assignment

By default, an IRQ is automatically assigned to each field. You may also manually assign an IRQ to these fields.

3.1.7 PC Health Status

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
PC Health Status

		Item Help
CPU Warning Temperature	Disabled	
Current System Temp.	27C/80F	Menu Level
Current CPU Temperature	37C/98F	
Current System Fan Speed	0 RPM	
Current CPU Fan Speed	0 RPM	
Current Chassis Fan Speed	0 RPM	
CPU Core	1.45 V	
CPU VTT	1.18 V	
VCC3	1.75 V	
+5 V :	5.05 V	
+12 V :	12.03 V	
-12 V :	-11.37 V	
VBAT (V) :	3.21 V	
5VSB (V) :	5.40 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.

CPU Warning Temperature

This field is used to select the CPU's temperature limit. Once the system has detected that the CPU's temperature exceeded the limit set in this field, a warning alarm will beep.

Current System Temperature, Current CPU Temperature, Current System Fan Speed, 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 system, CPU and chassis fans in RPM (Revolutions Per Minute).

CPU Core, CPU VTT and VCC3

These fields show the voltage of the processor.

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+5V, +12V, -12V, VBAT (V) and 5VSB (V)

These fields show the output voltage of the power supply.

If you want a warning message to pop-up or a warning alarm to sound when an abnormal condition occurs, you must install the Winbond Hardware Doctor utility. This utility is included in the CD that came with the system board. Refer to the "Winbond Hardware Doctor" section in chapter 4 for more information.

3.1.8 Frequency/Voltage Control

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Frequency/Voltage Control

```
┌─────────────────────────────────────────────┬──────────────────────┐
│  Auto Detect DIMM/PCI Clk    Enabled         │      Item Help       │
│  Spread Spectrum             Enabled         ├──────────────────────┤
│  CPU Host/PCI Clock          Disabled        │  Menu Level          │
│  CPU Clock Ratio             X 3             │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→← 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.

Auto Detect DIMM/PCI Clk

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

Spread Spectrum

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

CPU Host/PCI Clock

This field provides several options for selecting the external system bus clock of the processor. The PCI clock will at the same time appear next to the external bus clock selected. For example, if you selected "66/33", 66MHz is the external bus clock and 33MHz is the PCI clock. Regardless of the type of processor used, the default setting is "Default". Under this setting, the system will run according to the processor's clock frequency.

Important:
Overclocking may result to the processor's or system's instability and are not guaranteed to provide better system performance.

CPU Clock Ratio

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

Important:
- *The frequency ratio of some processors may have been locked by the manufacturer. If you are using this kind of processor, setting an extended ratio for the processor will have no effect. The system will instead use its factory default ratio.*
- *The frequency ratio of processors greater than 8x has been locked by the manufacturer and will no longer have the flexibility of using extended ratios. Therefore, the system will use the processor's factory default ratio.*

If you selected an option other than the default setting and is unable to boot up the system, clear the CMOS data by setting JP7 to 2-3 On. All fields in the BIOS Setup will automatically be set to their default settings.

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.

<p align="center">Load Fail-Safe Defaults (Y/N)? N</p>

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.

<p align="center">Load Optimized Defaults (Y/N)? N</p>

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:
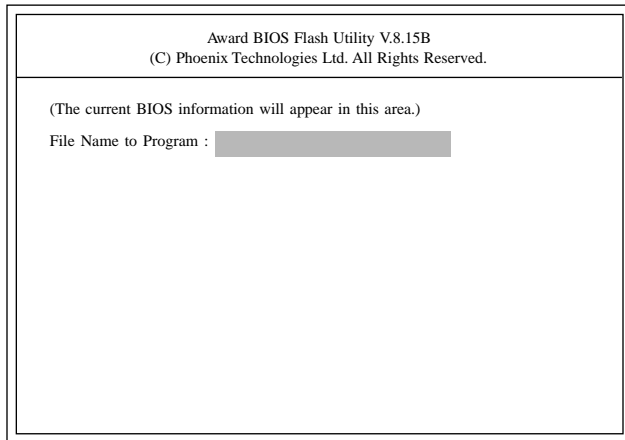
Quit Without Saving (Y/N)? N

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. Please contact technical support or your
sales representative for the files.

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

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

3. Save the setting and reboot the system.

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

```
                    Award BIOS Flash Utility V.8.15B
              (C) Phoenix Technologies Ltd. All Rights Reserved.

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

   File Name to Program :
```

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

6. The following will appear.

Do You Want to Save BIOS (Y/N)

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

7. The following will then appear.

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

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

Chapter 4 - Supported Software

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. Please contact technical support or your sales representative for the utility.

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.

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4.1.2 Using the DMI Utility

```
        Award DMI Configuration Utility Copyright Award Software Inc, 1996
    [Edit DMI]   [Add DMI]   [Load DMI File]   [Save DMI File]

        BIOS                    *** BIOS Auto Detect ***
       System
    Enclosure/Chassis      Type : BIOS Information
       Processor           Handle : 0000
    Memory Controller        Vendor Name :
     Memory Module           BIOS Version :
     Memory Module           BIOS Starting Address Segment : E000
     Memory Module           BIOS Build Date :
     Memory Module           BIOS Characteristics :
        Cache                Size of BIOS ROM : 0256K
        Cache
     Port Connector
     Port Connector
     Port Connector
     Port Connector
     Port Connector
     Port Connector
     Port Connector
     System Slots

  ↑ ↓ ←  Move cursor   ENTER-Accept   DEL-Delete   ESC-Abort&Exit
```

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".
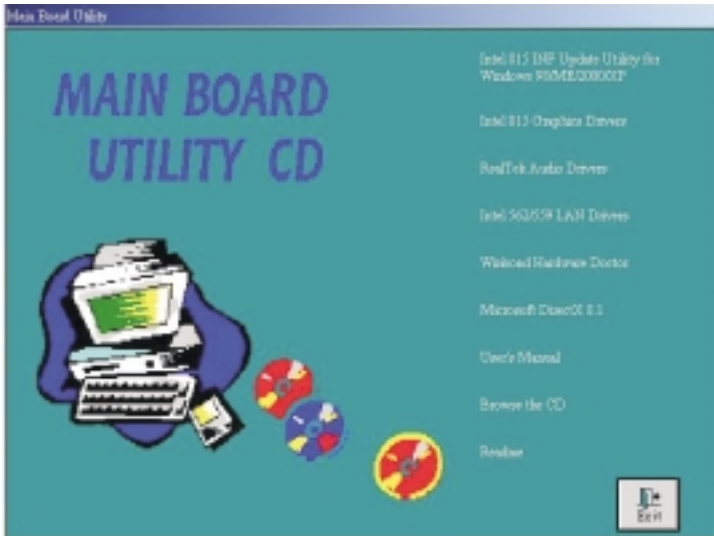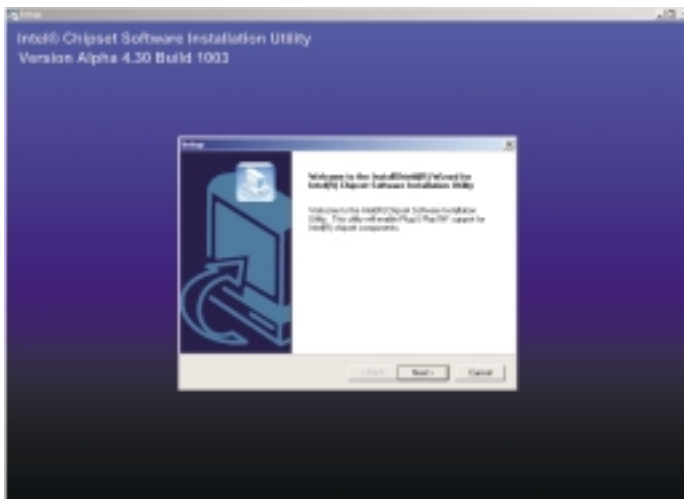
4.2.1 Intel 815 INF Update Utility

The Intel 815 INF Update Utility is used for updating Windows®
98/ME/2000/XP's INF files so that the Intel chipset can be
recognized and configured properly in the system.

To install the utility, please follow the steps below.

1. Click "Intel 815 INF Update Utility for Windows 98/ME/2000/
   XP". The following screen will appear.

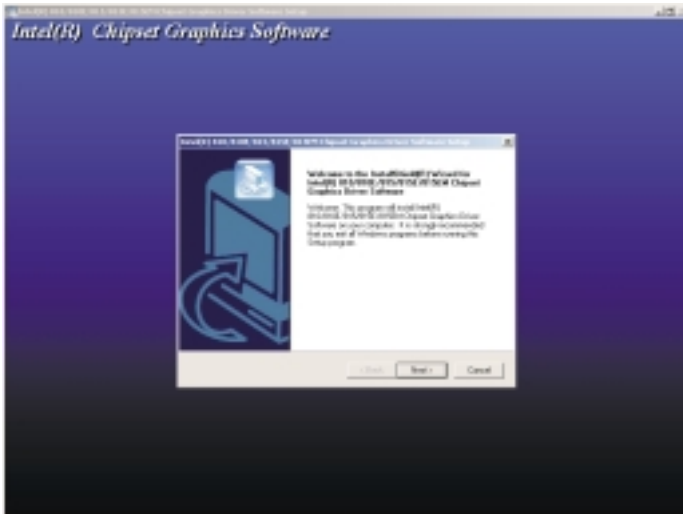2. Follow the prompts on the screen to complete installation.

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

4.2.2 Intel 815 Graphics Drivers

To install the driver, please follow the steps below.

1. Click "Intel 815 Graphics Drivers". The following screen will appear.

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

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

4.2.3 Realtek Audio Drivers

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

To install the driver, please follow the steps below.

1. Click "Realtek Audio Drivers". The following screen will appear.

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

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

4.2.4 Intel 562/599 LAN Drivers

To install the driver, please follow the steps below.

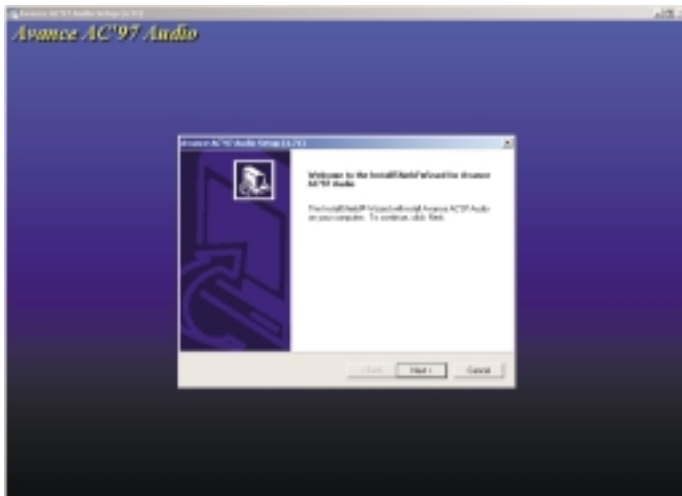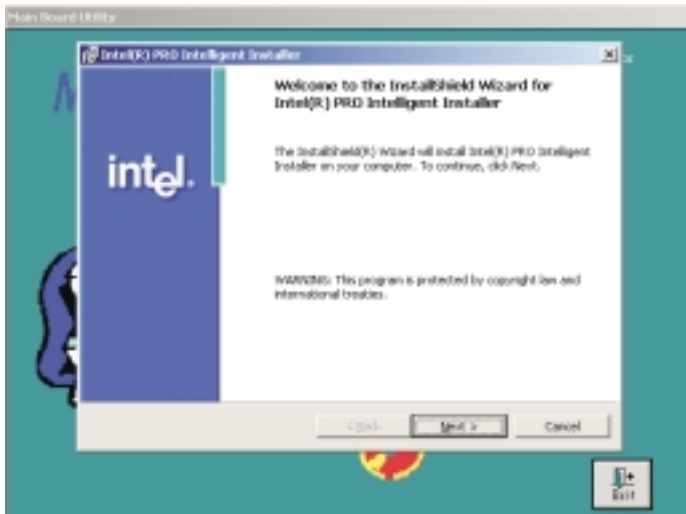1. Click "Intel 562/599 LAN Drivers". The following screen will appear.

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

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

4.2.5 Winbond Hardware Doctor

The Winbond Hardware Doctor is capable of monitoring the system's hardware conditions such as the temperature of the CPU and system, voltage, and speed of the CPU, chassis 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. Click "Winbond Hardware Doctor". The screen below will appear.
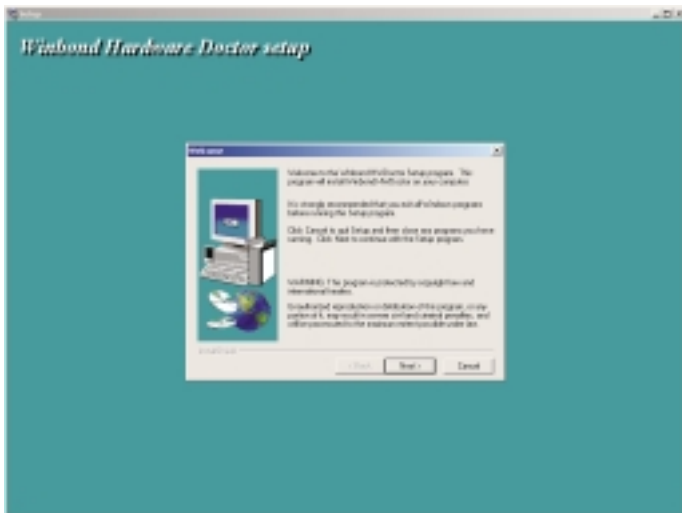
2. Follow the prompts on the screen to complete installation.

3. Restart the system.

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4.2.6 Microsoft DirectX 8.1

To install, please follow the steps below.

1. Click "Microsoft DirectX 8.1". The following screen will appear.
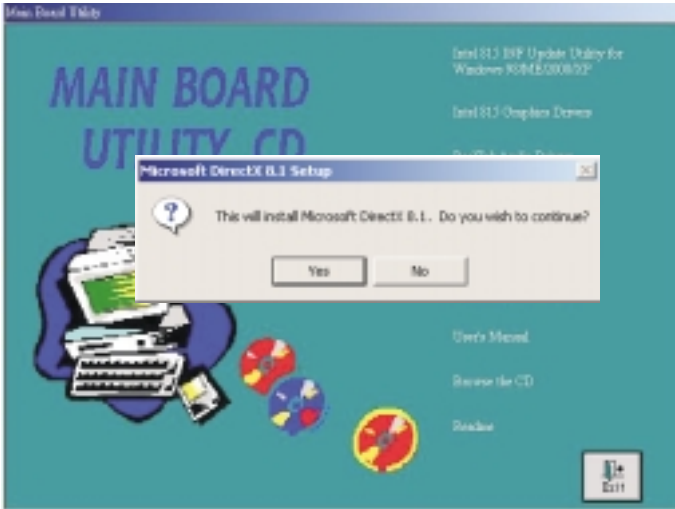
2. Click "Yes" to continue.

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

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

4.3 Installation Notes

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

2. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please contact technical support or your sales representative for the latest version of the drivers or software applications.

Appendix A - Watchdog Timer

A.1 Watchdog Timer

The following are parameters for setting the time interval of the Watchdog Timer function. The system will be regularly "cleared" according to the set time interval. If the system hangs or fails to function, it will also reset according to the time interval so that your system will continue to operate.

Debug <Enter>

- o 370,87 <Enter>

- o 370,87 <Enter>

- o 370,07 <Enter>

- o 371,08 <Enter>

- o 370,f2 <Enter>

- o 371,XY <Enter>

"XY" is the Watchdog Time count value for the "00h to "FFh" range wherein the time can be set from 0 sec. to 255 sec.
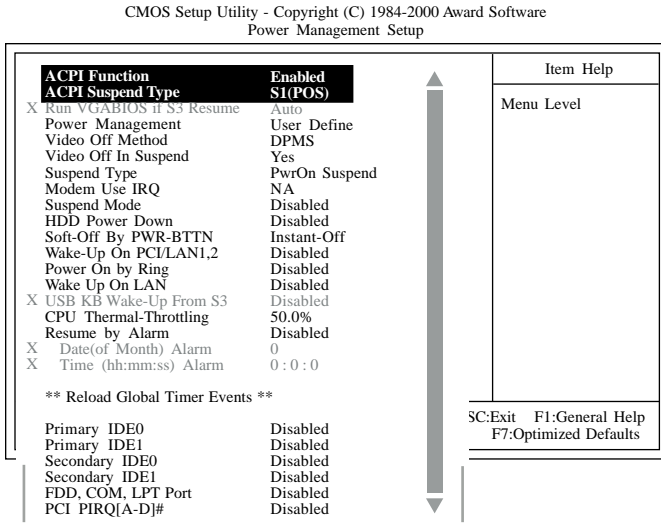
To use the Watchdog function, you must also set the "Watchdog Function" field in the Integrated Peripherals submenu of the Award BIOS utility to Enabled.

Appendix B - Using the Suspend to RAM Function

B.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)".

```
            CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          Power  Management  Setup
  ┌─────────────────────────────────────────────────────┬───────────────────────┐
  │                                                  ▲    │      Item  Help       │
  │ ACPI Function                  Enabled           │    ├───────────────────────┤
  │ ACPI Suspend Type              S1(POS)           │    │ Menu Level            │
  │ X Run VGABIOS if S3 Resume     Auto              │    │                       │
  │ Power  Management              User Define       │    │                       │
  │ Video Off Method               DPMS              │    │                       │
  │ Video Off In Suspend           Yes               │    │                       │
  │ Suspend Type                   PwrOn Suspend     │    │                       │
  │ Modem Use IRQ                  N A               │    │                       │
  │ Suspend Mode                   Disabled          │    │                       │
  │ HDD Power Down                 Disabled          │    │                       │
  │ Soft-Off By PWR-BTTN           Instant-Off       │    │                       │
  │ Wake-Up On PCI/LAN1,2          Disabled          │    │                       │
  │ Power On by Ring               Disabled          │    │                       │
  │ Wake Up On LAN                 Disabled          │    │                       │
  │ X USB KB Wake-Up From S3       Disabled          │    │                       │
  │ CPU  Thermal-Throttling        50.0%             │    │                       │
  │ Resume by Alarm                Disabled          │    │                       │
  │ X    Date(of Month) Alarm      0                 │    │                       │
  │ X    Time (hh:mm:ss) Alarm     0 : 0 : 0         │    │                       │
  │                                                  │    ├───────────────────────┤
  │   ** Reload Global Timer Events **               │    │ SC:Exit   F1:General Help │
  │                                                  │    │    F7:Optimized Defaults  │
  │   Primary  IDE0                Disabled          │    │                       │
  │   Primary  IDE1                Disabled          │    │                       │
  │   Secondary  IDE0              Disabled          │    │                       │
  │   Secondary  IDE1              Disabled          │    │                       │
  │   FDD, COM, LPT Port           Disabled          │    │                       │
  │   PCI  PIRQ[A-D]#              Disabled          ▼    │                       │
  └─────────────────────────────────────────────────────┴───────────────────────┘
```

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

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.

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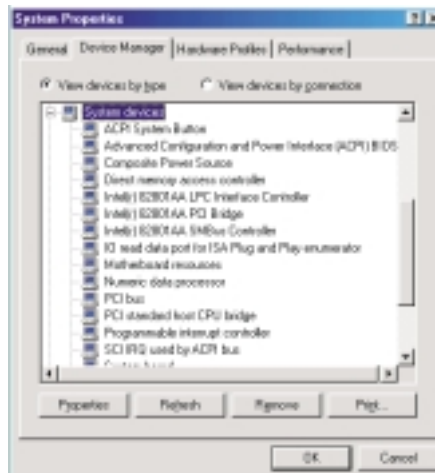
8. Double-click the System icon. In the System Properties dialog box, click the Performance tab.

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

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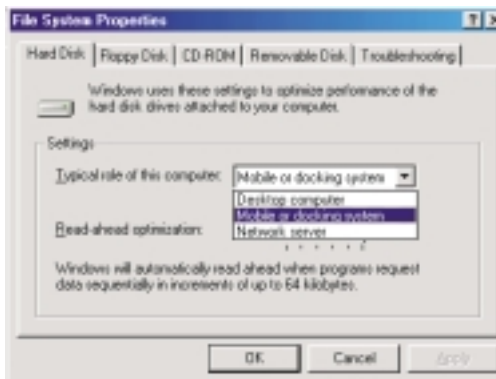
10. Repeat step 7 to open the Control Panel dialog box. Double-click the Power Management icon.

11. Click the Advanced tab. In the "When I press the power button on my computer" field, select "Standby".
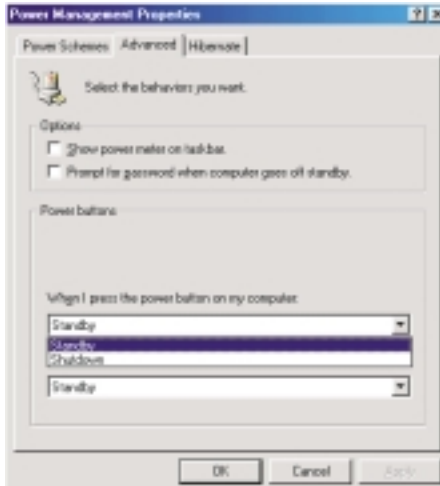
12. After completing the steps above and you want to power-off the computer, you do not need to go through the process of closing files, applications and operating system. You can power-off the computer at once by pressing the power button or selecting "Standby" when you shut down Windows**®** 98.

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. However, the power button will not function if a keyboard password has been set in the "KB Power On Password" field of the Integrated Peripherals submenu. You must type the password to power-on the computer.

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.
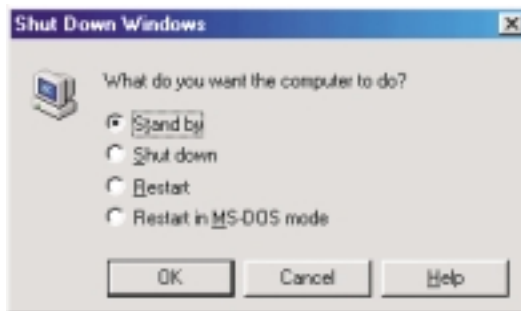
Important:

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), 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 C - System Error Message

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

C.1 POST Beep

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

C.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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix D - Troubleshooting

D.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.