CM33-EC
CM33-SC

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.

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Chapter 1 - Introduction

1.1 Features and Specifications

1.1.1 Features

Chipset

- VIA® 8601A/82C686B (PLE133) - CM33-EC
- VIA® 8601A/82C686A (PLE133) - CM33-SC

Processor

The system board is equipped with Socket 370. It is also equipped with a switching voltage regulator that automatically detects 1.30V to 2.05V.

- Pentium® III FCPGA 133MHz FSB (533EB-1GHz) or 100MHz FSB (500E-850E) processor
- Celeron™ 66MHz FSB: FCPGA (566MHz-766MHz) or PPGA (300A-533MHz) processor
- VIA CyrixIII processor

System Memory

- Up to 1GB using unbuffered PC SDRAM DIMM
- Two 168-pin DIMM sockets
- Uses x64 PC SDRAM, 3.3V
  - PC-100 SDRAM DIMM for 100/66MHz FSB processors
  - PC-133 SDRAM DIMM for 133/100MHz FSB processors

DIMMs	Memory Size	DIMMs	Memory Size
2MBx64	16MB	16MBx64	128MB
4MBx64	32MB	32MBx64	256MB
8MBx64	64MB	64MBx64	512MB

Expansion Slots

The system board is equipped with 3 dedicated PCI slots, 1 ISA slot and 1 AMR slot. AMR (Audio/Modem Riser) is an interface designed for installing an audio riser card, modem riser card or audio/modem riser card that is compliant to the AMR specification.

Onboard Graphics Features

- Integrated rCADE3D 2D/3D/Video accelerator
  - Shares 8MB of the system memory
  - Optimized Shared Memory Architecture (SMA)
  - High quality DVD video playback
- 3D rendering features
  - 32-bit true color rendering
  - MPEG-2 video textures
- 2D hardware acceleration features
- Motion video architecture
- Software drivers
  - Windows® 98/98SE/ME/2000
  - Windows NT® 4.0

Onboard Audio Features

- Supports Microsoft® DirectSound / DirectSound 3D
- AC'97 supported with full duplex, independent sample rate converter for audio recording and playback

ATX Double Deck Ports (PC 99 color-coded connectors)

- Two USB ports
- 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
- One game/MIDI port
- Three audio jacks: line-out, line-in and mic-in

Connectors

- One connector for two additional external USB ports
- One 9-pin connector for one external serial port
- One connector for IrDA interface
- 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 and chassis fan connectors
- One CD-in internal audio connector

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 (CM33-EC)
- Supports ATA/33 and ATA/66 hard drives (CM33-SC)
- PIO Mode 3 and Mode 4 Enhanced IDE (data transfer rate up to 16.6MB/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. It supports peripheral devices that meet the HPSIR and ASKIR standard.

USB Ports

The system board supports 4 USB ports. Two onboard USB ports are located at the ATX double deck ports of the board. The J2 connector on the system board allows you to connect the optional 3rd and 4th USB ports. These optional USB ports, which are mounted on a card-edge bracket, will be provided as an option. USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

BIOS

- Award BIOS, Windows® 95/98/2000/ME Plug and Play compatible
- Supports SCSI sequential boot-up
- Flash EPROM for easy BIOS upgrades
- Supports DMI 2.0 function
- 2Mbit flash memory

Desktop Management Interface (DMI)

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

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 VCORE/3.3V/5V/12V/2.5V voltages and failure alarm
- Monitors CPU/chassis fan speed and failure alarm
- Read back capability that displays temperature, voltage and fan speed

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

1.1.3 Intelligence

Dual Function Power Button

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

Wake-On-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 through an internal or external modem. Refer to "Wake-On-Ring Connector" in chapter 2 and "Resume On LAN/Ring" 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 a minimum of ≥720mA.

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

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 "Resume On LAN/Ring" in the Power Management Setup section in chapter 3 for more information.

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

ACPI STR

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

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98/2000/ME 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.*

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 with a serial port
- ☑ 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
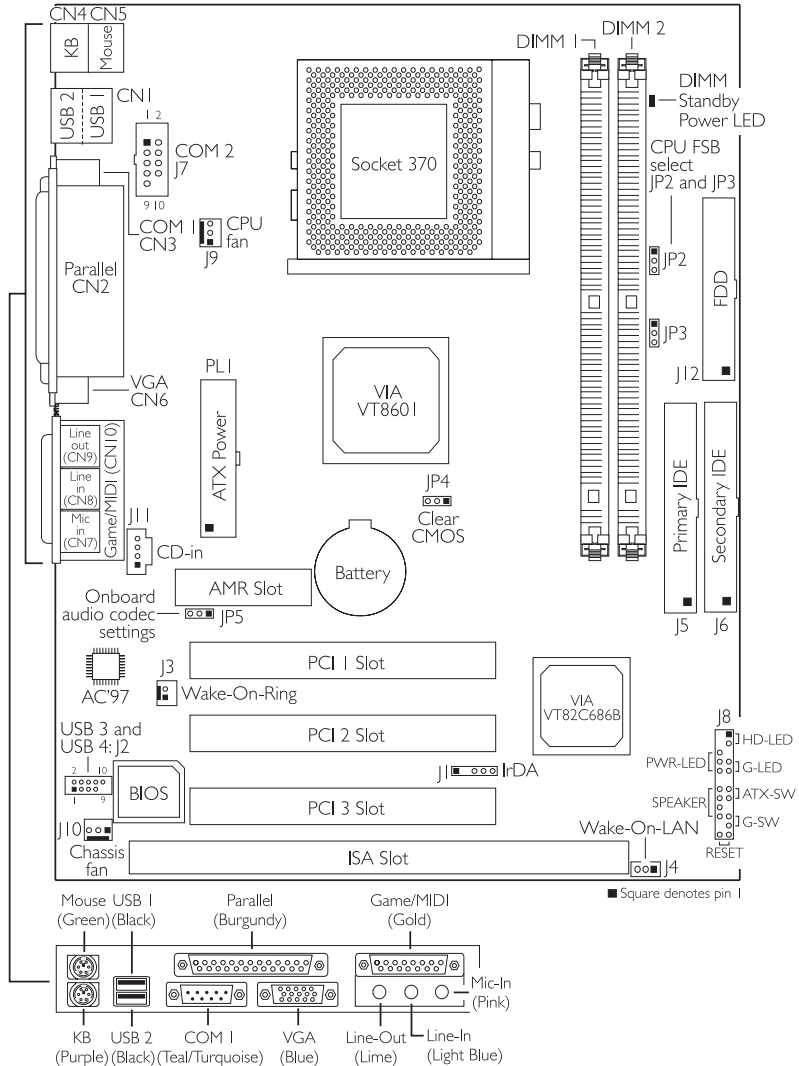
CM33-EC
(VT8601 and VT82C686B)

CM33-SC
(VT8601 and VT82C686A)
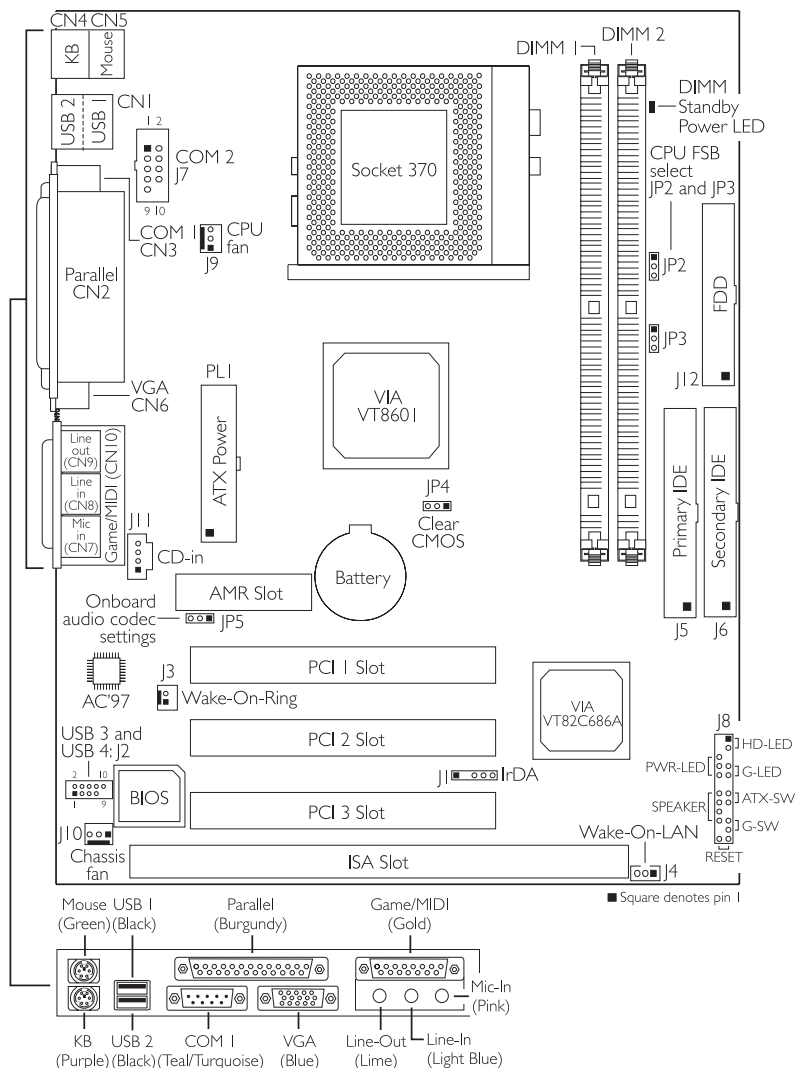
> Warning:
> *Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an 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
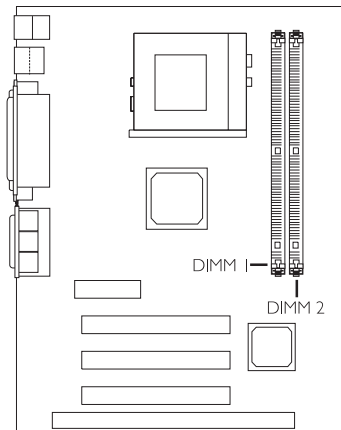
The system board is equipped with two 168-pin DIMM (Dual In-line Memory Module) sockets that support PC SDRAM DIMM. PC SDRAM (Synchronous Dynamic Random Access Memory) uses a fast memory interface technology that includes using the clock on the chip to synchronize with the CPU clock so that the timing of the memory chips and the timing of the CPU are synchronized. This saves time during transmission of data, subsequently increasing system performance.

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

2.2.1 Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.
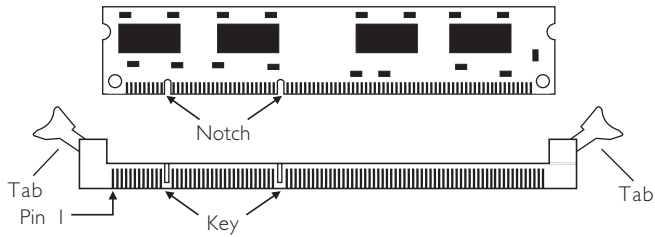
1. Pull the "tabs" which are at the ends of the socket to the side.

2. Position the DIMM above the socket with the "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 Selecting the CPU's Front Side Bus
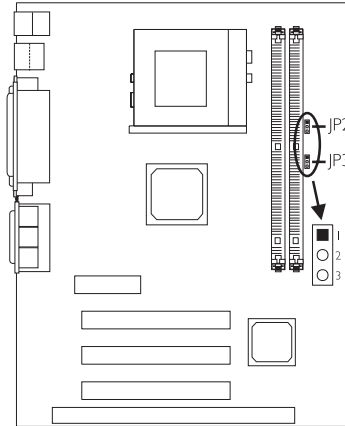
	JP2	JP3
Auto*	1-2 On	1-2 On
66MHz	2-3 On	2-3 On
100MHz	All Off	2-3 On
133MHz	All Off	All Off

"*" denotes default setting
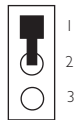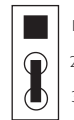
1-2 On   2-3 On

CPU Front Side Bus Select - Jumpers JP2 and JP3

The default setting of jumpers JP2 and JP3 is Auto - the system will automatically run according to the FSB of the processor.

Warning:
Some processors, when overclocked, may result to the processor's or system's instability and are 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.

2.4 Jumper Settings for Clearing CMOS Data

1-2 On: Normal
(default)

2-3 On:
Clear CMOS Data
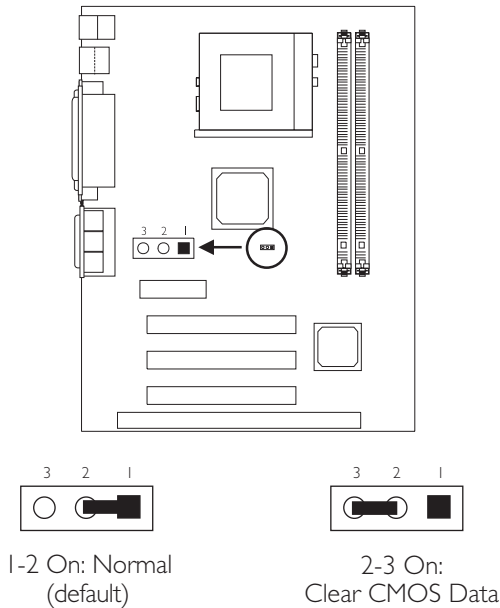
Clear CMOS Data - Jumper JP4

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 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 and unplug the power cord.

2. Set JP4 pins 2 and 3 to On. Wait for a few seconds and set JP4 back to its default setting, pins 1 and 2 On.

3. Plug the power cord and power-on the system.

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

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

5. Select the "Frequency/Voltage Control" submenu and press <Enter>.

6. Set the "CPU Host Clock (CPU/PCI)" field to its default setting or an appropriate bus clock. Refer to "CPU Host Clock (CPU/PCI)" in 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>.

2.5 Jumper Settings for the Onboard Audio Codec
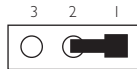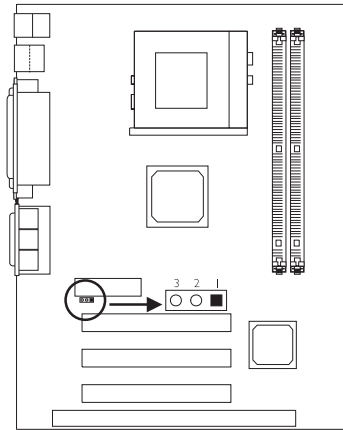
1-2 On: Enable the
Onboard Audio Codec
(default)
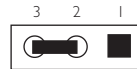
2-3 On: Disable the
Onboard Audio Codec

Onboard Audio Codec Settings - Jumper JP5

The default setting is 1-2 On, the onboard audio codec enabled. If you are not using the onboard audio codec, set this jumper to 2-3 On - Disabled.

2.6 Ports and Connectors

2.6.1 Serial Ports

COM 1
Serial Port

COM 2
(J7)
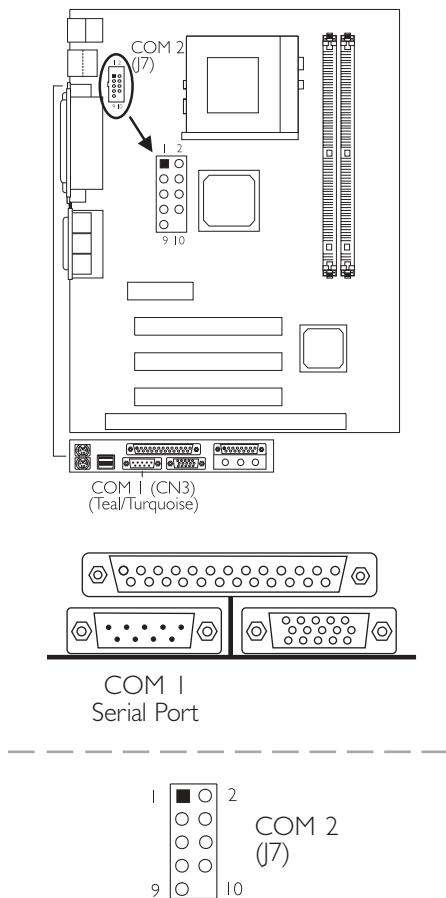
The built-in serial ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices. You can set the serial ports' I/O address in the Integrated Peripherals submenu of the BIOS.

Connecting the Serial Ports

The system board is equipped with an onboard serial port (CN3 - Teal/Turquoise) for COM 1 primary serial port located at the ATX double deck ports of the board. It is also equipped with a 9-pin connector at location J7 for COM 2 secondary serial port.

One card-edge bracket mounted with a serial port cable is provided with the system board. If you want to use the secondary serial port, connect the serial port cable to connector J7. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of connector J7. Mount the card-edge bracket to the system chassis.

2.6.2 PS/2 Mouse and PS/2 Keyboard Ports

CN4

CN5

PS/2 Mouse

PS/2 Keyboard

Mouse
(Green)

KB
(Purple)
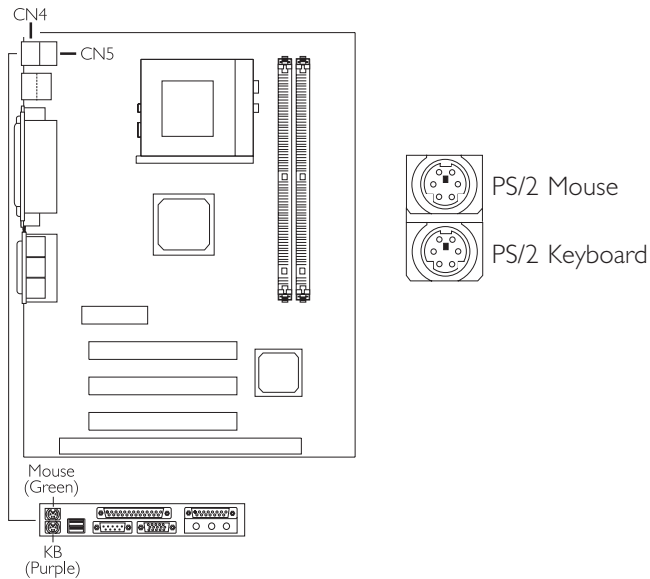
The system board is equipped with an onboard PS/2 mouse (CN5 - Green) and PS/2 keyboard (CN4 - Purple) ports - located at the ATX double deck ports. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

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

2.6.3 Parallel Port
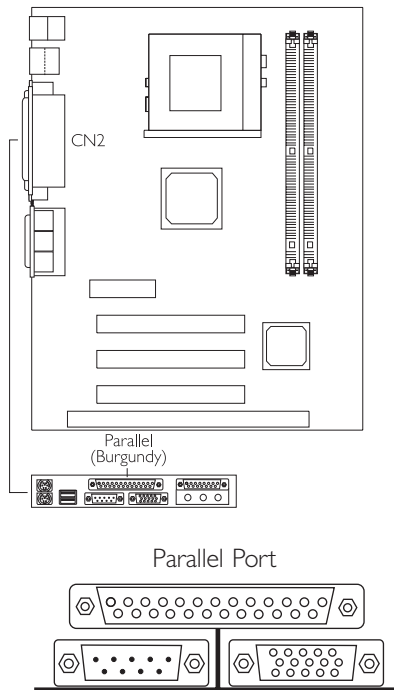
Parallel Port

The system board has a standard parallel port (CN2 - Burgundy) located at the ATX double deck ports of the board for interfacing your PC to a parallel printer. It supports Normal, ECP and EPP modes. You can set the port's mode in the Integrated Peripherals submenu of the BIOS.

Setting	Function
Normal	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.

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2.6.4 Floppy Disk Drive Connector
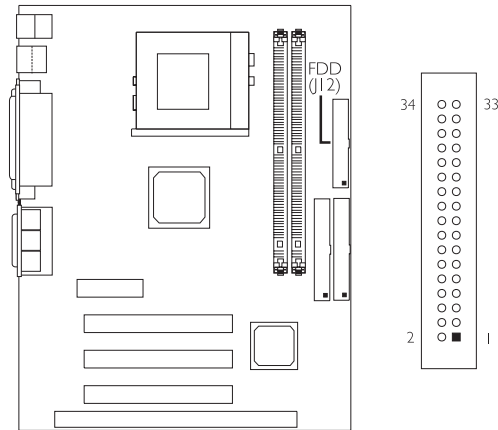
The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header. You may 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 (J12) on the system board. The colored edge of the ribbon should be aligned with pin 1 of J12.

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.

2.6.5 IDE Disk Drive Connector

Primary IDE (J5)

Secondary IDE (J6)

40 39

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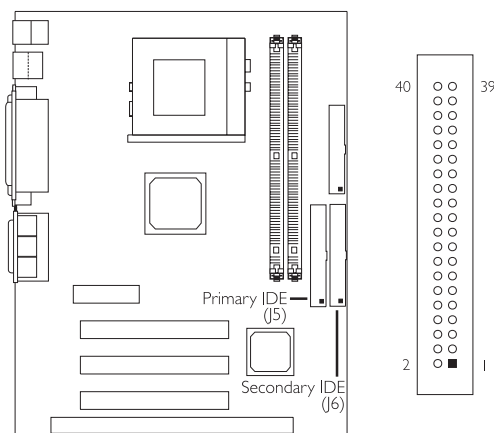
The system board is equipped with two shrouded PCI IDE headers that will interface four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, each shrouded PCI IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the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

Connecting the IDE Disk Drive Cable

1. If you are connecting two IDE disk drives, install the 40-pin connector of the IDE cable into the primary shrouded IDE header (J5). 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 (J6).

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.

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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 CM33-EC system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 and ATA/100 hard drives while CM33-SC supports Enhanced IDE or ATA-2, ATA/33 and ATA/66 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

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

2.6.6 Universal Serial Bus Ports

USB 1

USB 2
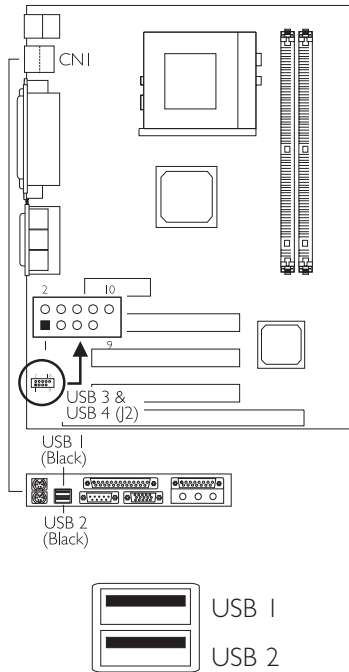
USB 4

USB 3

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

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. 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.

Two onboard USB ports (CN1 - Black) are located at the ATX double deck ports of the board. The J2 connector on the system board allows you to connect the optional 3rd and 4th USB ports. These optional USB ports, which are mounted on a card-edge bracket, will be provided as an option. If you wish to use the optional 3rd and 4th USB ports, install the card-edge bracket to the system chassis then insert the connector that is attached to the USB port cables to J2. The USB ports' cable connector can be inserted only if pin 1 of the cable is aligned with pin 1 of J2.

2.6.7 VGA Port
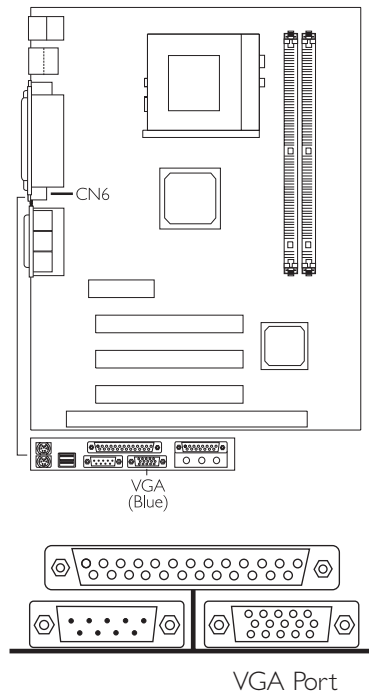
VGA Port

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 (CN6 - Blue) located at the ATX double deck ports of the board. 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.

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2.6.8 IrDA Connector
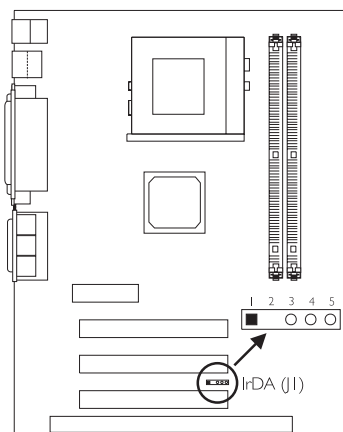
Pin	Function
1	VCC
2	N. C.
3	IRRX
4	Ground
5	IRTX

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 one meter.

Connect your IrDA cable to connector J1 on the system board. Set "UART 2 Mode" 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.

2.6.9 CPU Fan Connector
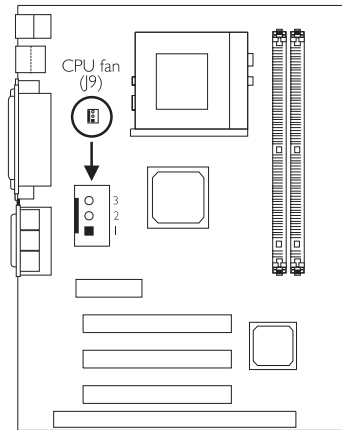
Pin	Function
1	Sense
2	+12V
3	Ground

The CPU must be kept cool by using a fan with heatsink. Connect the CPU fan to the 3-pin fan connector at location J9 on the system board. The system is capable of monitoring the speed of the CPU fan.

2.6.10 Chassis Fan Connector
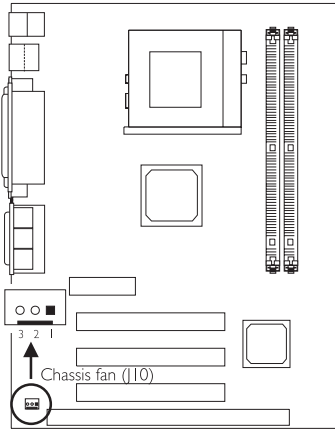
Chassis fan (J10)

Pin	Function
1	Sense
2	+12V
3	Ground

If you are installing a chassis fan in the system unit, connect the fan's connector to location J10 on the system board. The fan will provide adequate airflow throughout the chassis to prevent overheating the processor. The system is capable of monitoring the speed of the chassis fan.

2.6.11 Game/MIDI Port
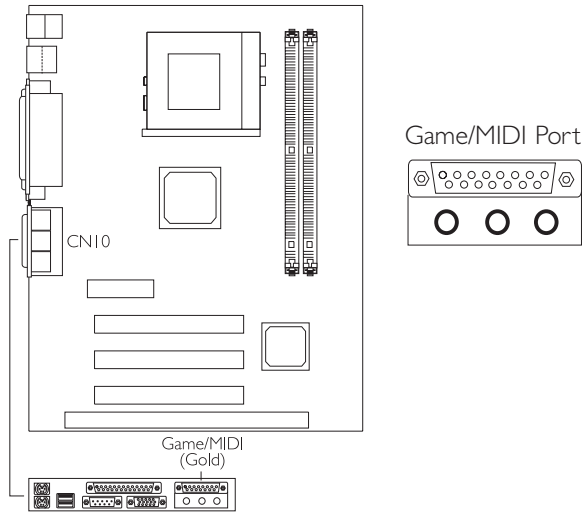
Game/MIDI Port

The Game/MIDI port is identical to that of a standard PC game adapter or game I/O port. Connect an analog joystick to the 15-pin D-sub connector (CN10 - Gold) located at the ATX double deck ports of the system board. This port works well with any application that is compatible with the standard PC joystick.

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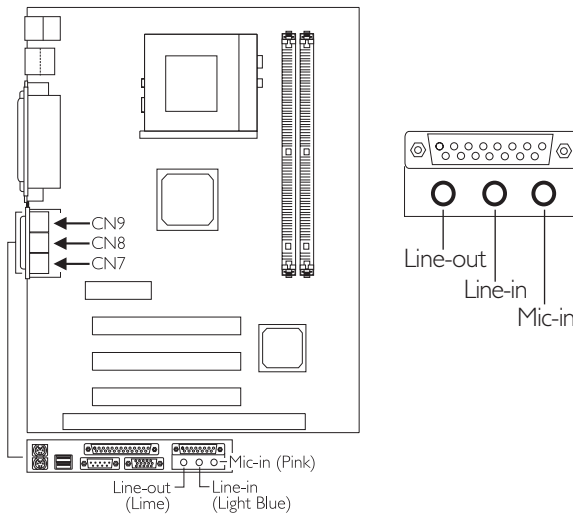
The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

Line-out Jack (Lime)

This jack is used to connect external amplifier speakers.

Line-in Jack (Light Blue)

This jack can be connected to 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.

2.6.13 CD-in Internal Audio Connector
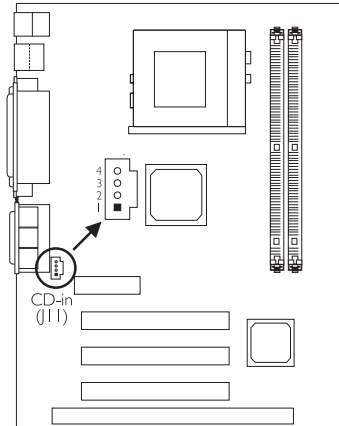
Pin	Function
1	Left audio channel
2	Ground
3	Ground
4	Right audio channel

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

2.6.14 Wake-On-LAN Connector
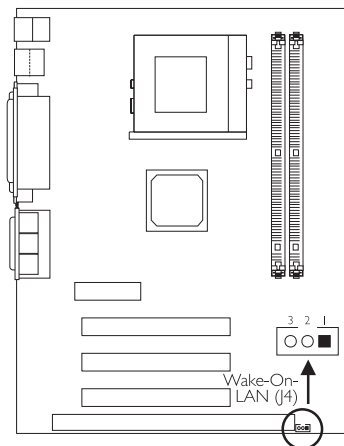
Wake-On-LAN (J4)

Pin	Function
1	+5VSB
2	Ground
3	WOL

The Wake-On-LAN connector is used to connect to a LAN card that has the same connector. This function 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 "Resume on LAN/Ring" 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 J4 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 a minimum of ≥720mA.

2.6.15 Wake-On-Ring Connector
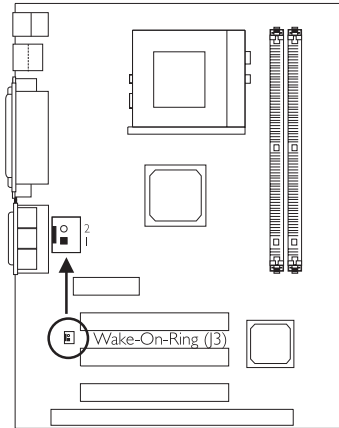
Pin	Function
1	Ground
2	RI#

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 through 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 J3 on the system board. You must also enable "Resume on LAN/Ring" 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.

2.6.16 DIMM Standby Power LED

DIMM
Standby
Power LED
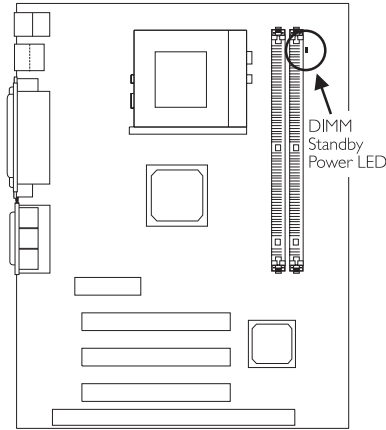
DIMM Standby Power LED

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.

> Important:
> *Lighted LED serves 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.*

2.6.17 Power Connector
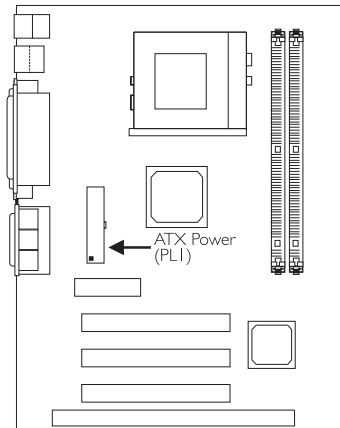
ATX Power
(PL1)

The pin assignment of the ATX power connector is shown below.
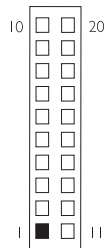
Pin	Function	Pin	Function
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PW-OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

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

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2.6.18 Front Panel LEDs and Switches
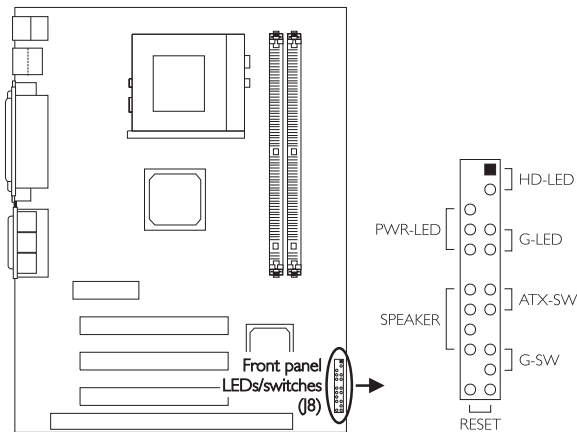
HD-LED: Primary/Secondary IDE LED
This LED will light when the hard drive is being accessed.

G-LED: Green LED
This LED will light when the system's power is on. It will blink 4 times in every second when the system is in the S1 (POS - Power On Suspend) state. It will not light when the system is in the S3 (STR - Suspend To RAM) 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 PWRBTN" in the Power Management Setup (chapter 3).

G-SW: Green Switch
This switch will allow your system to enter the Suspend mode.

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

SPEAKER: Speaker Connector
This connects to the speaker installed in the system chassis.

PWR-LED: Power/Standby LED

This LED will light when the system's power is on. It will blink 4 times in every second 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.

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)	1 2	HDD LED Power HDD
	3	N. C.
G-LED (Green LED)	4 5	Green LED Power Ground
	6	N. C.
ATX-SW (ATX power switch)	7 8	PWRBT+ PWRBT-
	9	N. C.
G-SW (Green switch)	10 11	SMI Ground
RESET (Reset switch)	12 13	H/W Reset Ground
	14	N. C.
SPEAKER (Speaker connector)	15 16 17 18	Speaker Data N. C. Ground Speaker Power
	19	N. C.
PWR-LED (Power/Standby LED)	20 21 22 23 24	LED Power (+) N. C. LED Power (-) or Standby Signal N. C. N. C.

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, Dec 21 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 Errors	
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>.

IDE HDD Auto Detection

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

IDE Primary/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".

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.

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.

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

The value displayed in this field is 8MB less than the actual total memory because 8MB has been shared as the frame buffer size.

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 L1 Cache              Enabled          Menu Level
      CPU L2 Cache              Enabled
      CPU L2 Cache ECC Checking Enabled          Allows you to choose
      Quick Power On Self Test  Enabled          the VIRUS warning
      First Boot Device         Floppy           feature for IDE Hard
      Second Boot Device        HDD-0            Disk boot sector
      Third Boot Device         LS120            protection. If this
      Boot Other Device         Enabled          function is enabled and
      Swap Floppy Drive         Disabled         someone attempt to
      Boot Up Floppy Seek       Disabled         write data into this
      Boot Up NumLock Status    Off              area, BIOS will show a
      Security Option           Setup            warning message on
      OS Select For DRAM > 64MB Non-OS2          screen and alarm beep




    ↑↓→← 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.

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® 95/98/2000 or the operating system may not install nor work.

CPU L1 Cache and CPU L2 Cache

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

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.

Quick Power On Self Test

This field speeds up Power On Self Test (POST) after you power on the system. When Enabled, the BIOS will shorten or skip some check items during POST.

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

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

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.

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.

OS Select for DRAM > 64MB

This field allows you to access the memory that is over 64MB in OS/2. The options are: Non-OS2 and OS2.

3.1.3 Advanced Chipset Features

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

   Bank 0/1 DRAM Timing      SDRAM 8/10ns            Item Help
   Bank 2/3 DRAM Timing      SDRAM 8/10ns
   SDRAM Cycle Length        3                   Menu Level
   DRAM Clock                Auto
   System BIOS Cacheable     Disabled
   Video BIOS Cacheable      Disabled
   Frame Buffer Size         8M
   AGP Aperture Size         64M
   OnChip USB                Enabled
   USB Keyboard Support      Disabled
   OnChip Sound              Auto
   OnChip Modem              Auto
   PCI Delay Transaction     Enabled




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

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

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

Bank 0/1 DRAM Timing and Bank 2/3 DRAM Timing

These fields are used to set the timing of the DRAMs installed on the system board. The options are SDRAM 8/10ns, Normal, Medium, Fast and Turbo. Selecting Turbo will reduce the CAS access time by one clock tick.

SDRAM Cycle Length

This field is used to set the clock cycle for the CAS latency.

DRAM Clock

This field allows you to set the DRAM clock to 100MHz or 133MHz. The default is Auto.

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

When enabled, it allows the video RAM to be cacheable thus providing better video performance. If your graphics card does not support this function, leave this field in its default setting - Disabled.

Frame Buffer Size

The frame buffer size is 8M bytes.

AGP 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, which is 64M.

OnChip USB

This field is used to enable or disable the onboard USB controller supported by the chipset. If you are using a USB peripheral device, make sure this field is 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.

OnChip Sound

Auto   Select this option when using the onboard audio, primary or secondary audio riser card, or audio/modem riser card.

Disabled Select this option when using a PCI sound card.

OnChip Modem

Auto   Select this option when using a primary or secondary modem riser card, or audio/modem riser card.

Disabled Select this option when using a PCI modem card.

PCI Delay 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.

3.1.4 Integrated Peripherals

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

		Item Help
OnChip Primary IDE	Enabled	
OnChip Secondary 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	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
X IR Function Duplex	Half	
X TX,RX Inverting Enable	No, Yes	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	ECP+EPP	
ECP Mode Use DMA	3	
Parallel Port EPP Type	EPP1.7	ve ESC:Exit F1:General Help
Game Port (200-207H)	Enabled	:s F7:Optimized Defaults

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.

OnChip Primary IDE and OnChip Secondary 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.

Init Display First

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

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

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.

Onboard FDD 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 2 Mode

The system board supports IrDA function for wireless connectivity between your computer and peripheral devices. You may not use IrDA (J1) and the COM 2 serial port (J7) at the same time. If you are using the COM 2 serial port, make sure this field is set to Standard.

To use the IrDA function, follow the steps below.

1. Connect your IrDA cable to connector J1 on the system board.

2. Set the "UART 2 Mode" field to the type of IrDA standard supported by your IrDA peripheral/device (HPSIR 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 "IR Function Duplex" and "TX,RX Inverting Enable" fields appropriately.

IR Function Duplex

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

TX,RX Inverting Enable

The options are No, Yes; Yes, No; Yes, Yes; No, No.

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.

Onboard Parallel Mode

The options are Normal, 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.

Normal

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.

ECP Mode Use DMA

This is used to select a DMA channel for the parallel port. The options are 1 and 3.

Parallel Port EPP Type

The options are EPP1.9 and EPP1.7.

Game Port (200-207H)

The field is used to enable or disable the game port address.

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)                     ├─────────────────────┤
 │  Power  Management          User Define                 │  Menu Level         │
 │  HDD Power Down             Disable                      │                     │
 │  Doze  Mode                 Disable                      │                     │
 │  Suspend Mode               Disable                      │                     │
 │  Video Off Option           Suspend -> Off              │                     │
 │  Video Off Method           V/H SYNC+Blank              │                     │
 │  Soft-Off By PWRBTN         Instant-off                 │                     │
 │  Wake Up by VGA             Off                         │                     │
 │  Wake Up by LPT & COM       LPT/COM                     │                     │
 │  Wake Up by HDD & FDD       On                          │                     │
 │  Wake Up by PCI Master      Off                         │                     │
 │  Resume on PCI Event        Disable                     │                     │
 │  Resume on LAN/Ring         Disable                     │                     │
 │  Resume on Alarm            Disable                     │                     │
 │ X Date (of Month)           0                           │                     │
 │ X Resume Time (hh:mm:ss)    0  0  0                      │                     │
 │ ▶ IRQs Activity Monitoring  Press Enter                 │                     │
 │                                                         │                     │
 ├───────────────────────────────────────────────────────┴─────────────────────┤
 │ ↑↓→← Move   Enter:Select   +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
 │            F5:Previous Values      F6:Fail-Safe Defaults    F7:Optimized Defaults│
 └──────────────────────────────────────────────────────────────────────────────┘
```

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

ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98/2000/ME supports this function. When enabled, the system will ignore the settings in "Power Management". 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.

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 "Doze Mode" and "Suspend Mode" fields are activated.

Min Saving Minimum power saving time for Doze and Suspend mode = 1 hr.
Max Saving Maximum power saving time for Doze and Suspend mode = 10 sec.
User Define Allows you to set the power saving time in the "Doze Mode" and "Suspend Mode" fields.

HDD Power Down

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

Doze Mode

This is selectable only when the Power Management field is set to User Define. When the system enters the Doze mode according to the power saving time selected, the CPU clock will run at a slower speed (1/2 of full speed) while all other devices still operate at full speed.

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.

Video Off Option

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

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

Soft-Off by PWRBTN

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

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

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

Wake Up by VGA

When set to On, the system will respond and wake up to any VGA activity.

Wake Up by LPT & COM

Select the port you would like the system to respond and wake up when an event occurs on that port.

Wake Up by HDD & FDD

When set to On, the system will respond and wake up to any hard drive or floppy drive activity.

Wake Up by PCI Master

When set to On, the system will respond and wake up to any PCI or bus master activity.

Resume on PCI Event

Enabled   Access to a PCI card such as a modem or LAN card 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.

Resume On LAN/Ring

This field supports two functions.

• When enabled, the system will power-on to respond to calls coming through an external or internal modem. Refer to "Wake-On-Ring Connector" in chapter 2 for more information.

• When enabled, the LAN card in the system will allow the network to power-on 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. Your LAN card must support the remote wake up function. Refer to "Wake-On-LAN Connector" in chapter 2 for more information.

Resume On 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)" and "Resume Time (hh:mm:ss)" fields. However, if the system is being accessed by incoming calls or the network prior to the date and time set in these fields, the system will give priority to the incoming calls or network.

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

Date (of Month)

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

Resume Time (hh:mm:ss)

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

IRQs Activity Monitoring

Move the cursor to this field and press <Enter>.

Primary INTR
When set to On, the system will respond and wake up to an IRQ activity that has been detected.

IRQ3 to IRQ15
When enabled, access to the specified IRQ 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 IRQ.

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       │
 │   Reset Configuration Data      Disabled              ├─────────────────────┤
 │                                                       │  Menu Level         │
 │   Resources Controlled By       Auto(ESCD)            │                     │
 │ X IRQ Resources                 Press Enter           │  Default is Disabled.│
 │ X DMA Resources                 Press Enter           │  Select Enabled to  │
 │                                                       │  reset Extended System│
 │   PCI/VGA Palette Snoop          Disabled             │  Configuration Data │
 │   Assign IRQ For VGA             Enabled              │  (ESCD) when you exit│
 │   Assign IRQ For USB             Enabled              │  Setup if you have  │
 │                                                       │  installed a new add-on│
 │                                                       │  and the system     │
 │                                                       │  reconfiguration has│
 │                                                       │  caused such a serious│
 │                                                       │  conflict that the OS│
 │                                                       │  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.

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(ESCD)   The system will automatically detect the settings for you.

Manual   Choose the specific IRQ and DMA resources in the "IRQ Resources" and "DMA Resources" fields respectively.

IRQ Resources

Move the cursor to this field and press <Enter>. The "IRQ-3" to "IRQ-15" fields will appear. Set each system interrupt to either Legacy ISA or PCI/ISA PnP.

PCI/ISA PnP   For devices compliant with the PCI bus architecture.

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

DMA Resources

Move the cursor to this field and press <Enter>. The "DMA-0" to "DMA-7" fields will appear. Set each DMA address to either Legacy ISA or PCI/ISA PnP.

PCI/ISA PnP   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.

Assign IRQ for VGA

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

> **Note:**
> *When Disabled, a "Yellow" mark will appear in Windows® 95's Device Manager.*

Assign IRQ for USB

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

> **Note:**
> *When Disabled, a "Yellow" mark will appear in Windows® 95's Device Manager.*

3.1.7 PC Health Status

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

		Item Help
Current CPU Temp.	37C/98F	
Current System Temp.	27C/80F	Menu Level
Current CPU Fan Speed	5698 RPM	
Current Chassis Fan Speed	0 RPM	
Vcore	2.06 V	
2.5V	2.52 V	
3.3V	3.31 V	
5V	5.05 V	
12V	12.03 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.

Current CPU Temp., Current System Temp., Current CPU Fan Speed and Current Chassis Fan Speed

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

Vcore

This field shows the voltage of the processor.

2.5V, 3.3V, 5V and 12V

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 VIA Hardware Monitor utility. This utility is included in the CD that came with the system board. Refer to the "VIA Hardware Monitor" section in chapter 4 of this manual for more information.

3.1.8 Frequency/Voltage Control

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

```
┌─────────────────────────────────────────────────┬──────────────────────────┐
│  Spread Spectrum          Disabled               │      Item Help           │
│  CPU Host Clock (CPU/PCI)  Default               ├──────────────────────────┤
│                                                  │   Menu Level             │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
├──────────────────────────────────────────────────────────────────────────────┤
│  ↑↓→←  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.

Spread Spectrum

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

CPU Host Clock (CPU/PCI)

This field provides several options for selecting the external system bus clock of the processor. When selecting the external bus clock, 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:
Selecting an external bus clock other than 66MHz, 100MHz or 133MHz may result to the processor's or system's instability and are not guaranteed to provide better system performance.

If you selected an option other than "Default" and is unable to boot up the system, there are 2 methods of going back to its default setting.

Method 1:   Clear the CMOS data by setting jumper JP4 pins 2 and 3 to On. All fields in the BIOS Setup will automatically be set to their default settings.

Method 2:   Press the <Insert> key and power button simultaneously, then release the power button first. Keep-on pressing the <Insert> key until the power-on screen appears. This will allow the system to boot according to the FSB of the processor. Now press the <Del> key to enter the main menu of the BIOS. Select "Frequency/ Voltage Control" and set the "CPU Host Clock (CPU/ PCI)" field to "Default" or an appropriate clock frequency.

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

3.1.9 Load Fail-Safe Defaults

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

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

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

3.1.10 Load Optimized Defaults

The "Load Optimized Defaults" option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>. The message below will appear.

Load Optimized Defaults (Y/N)? N

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

3.1.11 Set Supervisor Password

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

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>. The message below will appear.

Enter Password:

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

Confirm Password:

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

3.1.12 Set User Password

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

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied. To set, confirm, verify, disable or delete a user's password, follow the procedures described in the section "Set Supervisor Password".

3.1.13 Save & Exit Setup

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

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

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

3.1.14 Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>. The message below will appear:

Quit Without Saving (Y/N)? N

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

Chapter 4 - Supported Softwares

4.1 Desktop Management Interface (DMI)

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

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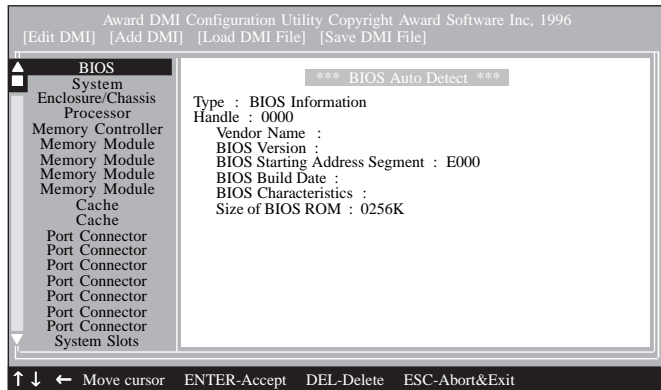
4.1.1 Running the DMI Utility

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

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

1. Boot up from a system diskette without the AUTOEXEC.BAT and CONFIG.SYS files,

2. "REM" HIMEM.SYS in the CONFIG.SYS, or

3. Press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

4.1.2 Using the DMI Utility

```
         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 VIA Hardware Monitor

The system board comes with the VIA Hardware Monitor utility contained in the provided CD. It is capable of monitoring the system's hardware conditions such as temperature, voltage and fan speed. 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® 95, Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000 or Windows NT® 4.0 operating system.

To install the utility, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click the "VIA Hardware Monitor" button to install the utility. Refer to its "readme" file for instructions on using the utility.

4.3 VIA® Service Pack

The CD in the system board package also comes with the VIA® Service Pack. The service pack includes the following drivers.

• Bus Master PCI IDE Driver
• AGP VxD Driver
• VIA Chipset Functions' Registry
• VIA PCI IRQ Miniport Driver

To install the drivers, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click the "VIA Service Pack" button. For installation instructions or information, click the "Read Me" button in the autorun screen.

VIA® Service Pack Installation Notes

The "AGP VxD Driver" and "VIA Chipset Functions' Registry" drivers in the "VIA Service Pack" are supported in Windows® 95, Windows® 98, Windows® 98 SE, Windows® ME and Windows® 2000.

You must first install VIA® Service Pack prior to installing any other drivers. However, this may not be the case for some AGP cards. Please read carefully the following information.

Important:
The VGA driver that came with some AGP cards is already bundled with the AGP VxD driver. Since the version of the bundled VxD driver may be older than the one provided in the CD, installing the bundled VxD driver may cause problems. If you are using this type of card, we recommend that you install first the AGP card's VGA driver before installing the VIA Service Pack.

To install the VIA Service pack, please follow the steps below.

1. Insert the CD that came with the system board package into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear.

2. Click "VIA Service Pack".

3. The "Welcome" screen will appear. Click "Next". Please read the "VIA Service Pack readme" carefully before proceeding to step 4.

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

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

4.4 Audio Drivers and Software Application

The CD in the system board package also includes audio drivers and audio playback software for Windows® 95, Windows® 98, Windows® 98 SE, Windows® ME, Windows NT® 4.0 and Windows® 2000 operating systems. For installation instructions or information about their corresponding "readme", click the "Read Me" button in the autorun screen. The autorun screen normally appears after the CD is inserted into a CD-ROM drive.

1. Insert the CD that came with the system board package into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear.

2. Click "VIA PCI Audio Driver".

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

4. Restart the system.

4.5 Graphics Drivers

1. Insert the CD that came with the system board package into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear.

2. Click "VIA VGA Driver".

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

4. Restart the system.

4.6 Microsoft DirectX 7.0 Driver

1. Insert the CD that came with the system board package into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear.

2. Click "Microsoft DirectX 7.0 Driver".

3. Click "Yes" to continue.

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

5. Restart the system.

4.7 Drivers and Utilities Installation Notes

1. "Autorun" ONLY supports the Windows® 95, Windows® 98, Windows® 98 SE, Windows® ME, Windows® 2000 and Windows NT® 4.0 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 "Autorun".

2. Please go to DFI's web site at "http://www.dfi.com/support/download1.asp" for the latest version of the drivers or software applications.

3. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please refer to the readme files, if available, for the latest information.

A.1   Using the Suspend to RAM Function

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
Power Management	User Define	
HDD Power Down	Disable	
Doze Mode	Disable	
Suspend Mode	Disable	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
Soft-Off By PWRBTN	Instant-off	
Wake Up by VGA	Off	
Wake Up by LPT & COM	LPT/COM	
Wake Up by HDD & FDD	On	
Wake Up by PCI Master	Off	
Resume on PCI Event	Disable	
Resume on LAN/Ring	Disable	
Resume on Alarm	Disable	
X Date (of Month)	0	
X Resume Time (hh:mm:ss)	0 0 0	
▶ IRQs Activity Monitoring	Press Enter	

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

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

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® 98/2000/ME 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® 98/2000/ME, you need to upgrade the system in order to support ACPI. Please contact Microsoft for upgrade information.

7. Boot Windows® 98/2000/ME. In the Windows® 98/2000/ME 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.


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® 98/2000/ ME.

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

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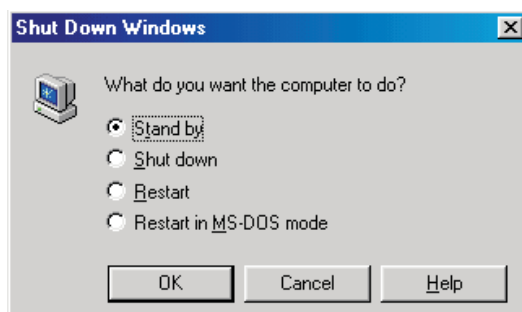
Appendix B - System Error Message

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

B.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.

B.2 Error Messages

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix C - Troubleshooting

C.1 Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

Troubleshooting ••

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.

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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.