

# **M6VCT**

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## **Federal Communications Commission (F.C.C) Statement**

- This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- Accessories: This device has been tested and found to comply with the limits of a Class B digital device, the accessories associated with this equipment are as follows:

1. Shielded serial cable. (Can be obtained from multiple retail outlets)
2. Shielded printer cable. (Can be obtained from multiple retail outlets)
3. Shielded video cable. (Can be obtained from multiple retail outlets)
4. Shielded power cord. (Provided by manufacturer)

These accessories are required to ensure compliance with FCC Rules. It is the responsibility of the user to provide and use these accessories properly.

- This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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, you are encouraged to try to correct the interference by one or more of the following measures:

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

- Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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- This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Cet appareil numérique n'émet pas de bruits radioélectriques dépassant les limites appliqués aux appareils numériques de Class B prescrits dans le règlement du brouillage radioélectrique edict par le ministere Des Communications du Canada.

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## **Introduction**

### **System Overview**

Thanks for buying this product! This manual was written to help you start using this product as quickly and smoothly as possible. Inside you will find adequate explanations to solve most problems. In order for this reference material to be of greatest use, refer to the “expanded table of contents” to find relevant topics.

This board incorporates the all new VIA694X/T, VIA VT82C686B serial chipset, ISA, AGP and PCI IDE into one board that provides a total PC solution. The motherboard, a Celeron™ / Pentium®!!! / Tualatin™, processor based PC / ATX system, supports 128kbyte or 256kbyte or 512kbyte cache on CPU, PCI Local Bus to support upgrades to your system performance. On-Board Sound Subsystem to support high 3D sound quality the AMR Slot to support the solution of high performance, low cost modem. It is ideal for multi-tasking and fully supports MS-DOS, Windows 3x, Windows NT, Windows 2000, Windows ME, Novell, Windows 9x, UNIX, SCO UNIX and LINUX etc. This manual explains how to install the motherboard for operation.

# 1 Motherboard Description

## 1.1 Features

### 1.1.1 Hardware

#### CPU

- The Celeron™ processor (PPGA) and the Pentium®!!! / Tualatin™ Micro-Processor provides the new generation power for high-end workstations and servers.
- Provides Socket 370 .

#### Speed

- Running at 66/100 or 133MHz Front Side Bus frequency.
- Supports up to 1.2 GHz CPU core speeds.
- Supports 33MHz PCI Bus speed.

#### DRAM Memory

- Supports three 8/16/32/64/128/256/512MB DIMM modules.
- Supports synchronous DRAM (3.3V).
- Supports a maximum memory size of 1.5GB with SDRAM.
- 133MHz Bus frequency.

#### Green Function

- Supports power management operation via BIOS.
- Power down timer from 1 min to 1 hour.
- Wake On LAN connector.

**BUS Slots**

- Provide one (2X/4X)AGP slot and one/two 16-bit ISA Bus slots.
- Four / Five 32-bit PCI bus master slots.
- PCI V2.2 compliant.

**PCI Enhanced IDE Built-in onboard**

- Supports 4 IDE hard disk drives.
- Supports Mode 4, bus master mode, high performance hard disk drives.
- Supports Ultra DMA33/66/100, bus master mode.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Supports LBA mode.
- Supports booting from LS-120 "SuperDisk" or iomega<sup>™</sup> ZIP disk.

**Super I/O Built-in onboard**

- Support one multi-mode Parallel Port.
  - (1) Standard & Bidirection Parallel Port (SPP).
  - (2) Enhanced Parallel Port (EPP).
  - (3) Extended Capabilities Port (ECP).
- Supports two serial ports, 16550 UART with 16 byte FIFO.
- UART data rates up to 1.5 Mbaud.
- Supports one Infrared transmission (IR) port.
- Supports PS/2 Mouse.
- Supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy disk drives.

**Direct Sound Ready AC97 Digital Audio Controller**

- Single chip audio CODEC with high S/N ratio (>90dB).
- 18-bit ADC and DAC resolution.
- *Compliant with AC'97 2.2 specification.*
- *Mee performance requirements for audio on PC2001 systems.*
- 18-bit stereo full-duplex CODEC with independent and variable sampling rate.



- 4 analog line-level stereo input with 5-bit volume control : LINE\_IN,CD.
- Mono output with 5-bit volume control.
- Stereo output with 5-bit volume control.
- Power management.
- 3D Stereo Enhancement.
- *Line output with 50Mw/20ohm driving capability (ALC2001A).*
- External Amplifier power down capability.

**Power Management**

- Supports both ACPI (Advanced and Configuration and Power Interface) and legacy (APM) power management.
- ACPI v1.0 Compliant.
- APM v1.2 Compliant.
- CPU clock throttling and clock stop control for complete ACPI C0 to C3 state support.
- PCI bus clock run, Power Management Enable (PME) control, and PCI/CPU clock generator stop control.
- Supports multiple system suspend types: power-on suspends with flexible CPU/PCI bus reset options, and suspend to disk (soft-off), all with hardware automatic wake-up.
- Multiple suspend power plane controls and suspend status indicators.
- One idle timer, one peripheral timer and one general purpose timer, plus 24/32-bit ACPI compliant timer.
- Normal, doze, sleep, suspend, and conserve modes.
- Global and local device power control.
- System event monitoring with two event classes.
- Primary and secondary interrupt differentiation for individual channels.
- Dedicated input pins for power and sleep buttons, external modem ring indicator, and notebook lid open/close for system wake-up.
- Multiple internal and external SMI sources for flexible power management models.
- One programmable chip select and one microcontroller chip select.
- Enhanced integrated real time clock (RTC) with date alarm, month alarm, and century field.

- Thermal alarm on either external or any combination of two internal temperature sensing circuits.
- I/O pad leakage control.

**Universal Serial Bus**

- USB v.1.1 and Intel Universal HCI v.1.1 compatible.
- Eighteen level (doublewords) data FIFO with full scatter and gather capability.
- Root hub and four function ports.
- Intrgrated physical layer transceivers with optional over-current detection status on USB inputs.
- Keyboard and mouse support.

**Platform**

- ATX Form Factor.

**Dimension**

- 19.1 cm X 30.6 cm (W x L).

**Full Featured Accerated Graphics Port (AGP) Controller**

- Synchronous and pseudo-synchronous with the CPU bus with optimal skew control.
- AGP v2.0 compliant.
- Supports SideBand Addressing (SBA) mode (non-multiplexed address / data).
- Supports 266 MHZ 4x mode for AD and SBA signaling.
- Pipelined split-transaction long-burst transfers up to 1GB /sec.
- Eight level read request queue.
- Four level posted-write request queue.
- Thirty-two level (quadworks) read data FIFO (256 bytes).
- Sixteen level (quadworks) write data FIFO (128 bytes).
- Intelligent request reordering for maximum AGP bus utilization.
- Suppots Flush/Fence commands.
- Graphics Address Relocation Table (GART).
  - (1)One level TLB structure.
  - (2)Sixteen entry fully associative page table.

(3)LRU replacement scheme.

(4)Independent GART lookup control for host /AGP /PCI master accesses.

– Windows 95 OSR-2 VXD and integrated Windows 98 / NT2000 /WINNT miniport driver support.

### **1.1.2 BIOS**

#### **BIOS**

- AWARD legal & user-friendly BIOS.
- Supports PnP functions.

### **1.1.3 Software**

#### **Operating Systems**

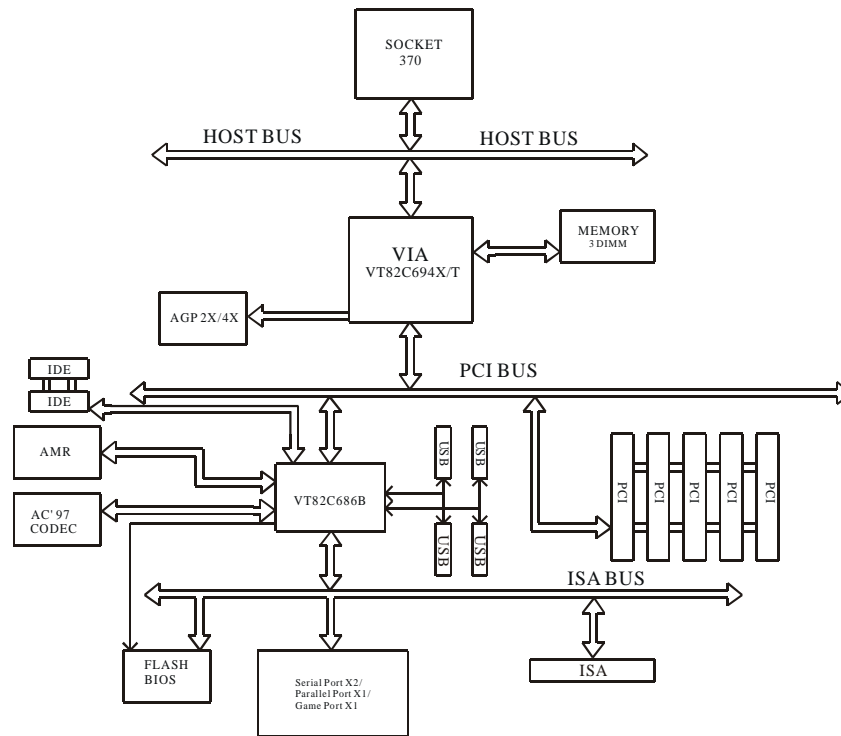
– Offers the highest performance for Windows NT, Windows 2000, Windows 31 / 95 / 98 / ME, Novell, UNIX, SCO UNIT, LINUX and others.

### **1.1.4 Accessories**

- HDD Cable.
- FDD Cable.
- USB2 Cable (Optional).
- CD for IDE / VGA Chip Driver, BIOS flash writer utility, Audio Driver.

## 1.2 Motherboard Installation

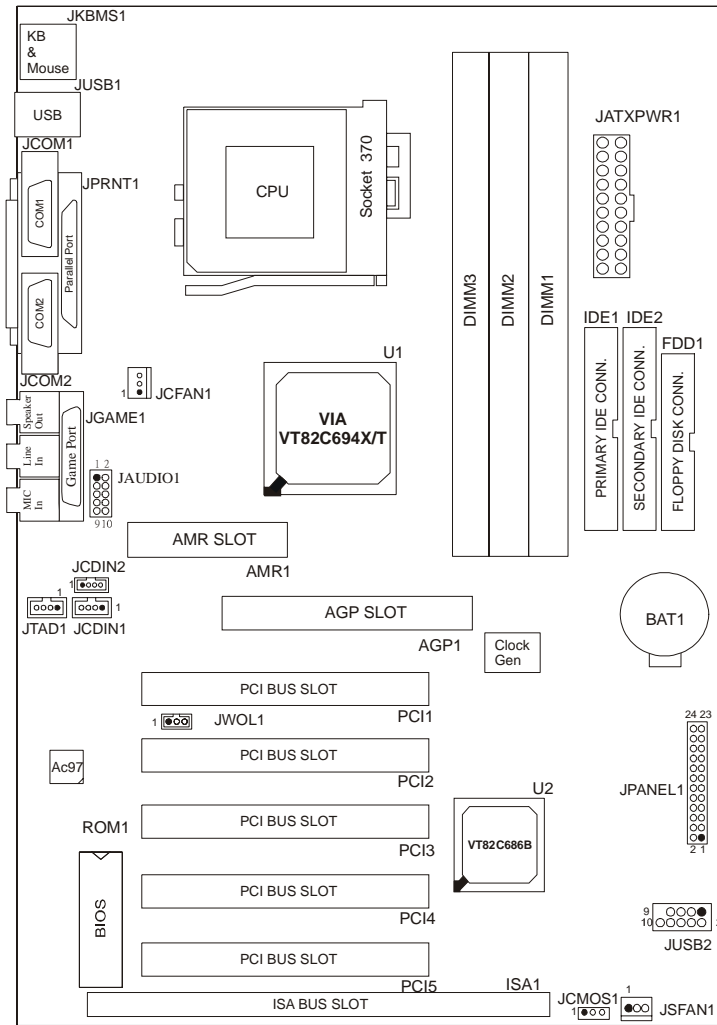
### 1.2.1 System Block Diagram



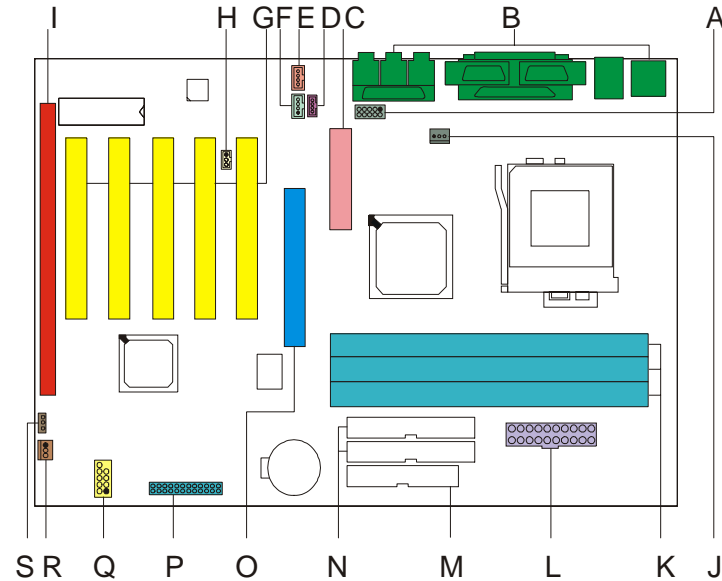
### M6VCT

ATX  
 SUPPORTS 3 DIMMS  
 SUPPORTS 1 4X AGP, 5 PCI, 1 AMR, 1 ISA  
 SUPPORTS FRONT USB \* 2  
 SUPPORTS STR FUNCTION

### 1.2.2 Layout of Motherboard Model No.M6VCT



## 1.2.3 Quick Reference

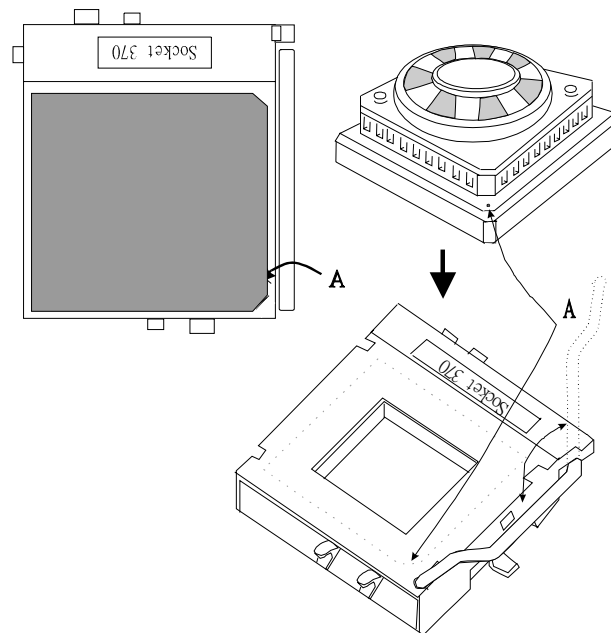


- |                                    |                                    |
|------------------------------------|------------------------------------|
| A. Front Audio Header (JAUDIO1)    | J. CPU Fan Header (JCFAN1)         |
| B. Back panel I/O Connectors       | K. DIMMs (DIMM1-3)                 |
| C. AMR BUS Slot (AMR1)             | L. ATX Power Connector (JATXPWR1)  |
| D. CD Audio-In Header (JCDIN2)     | M. Floppy Disk Connector (FDD1)    |
| E. Telephony Audio Header (*JTAD1) | N. IDE Ports (IDE1/2)              |
| F. CD Audio-In Header (JCDIN1)     | O. AGP BUS Slot (AGP1)             |
| G. PCI BUS Slots (PCI1-5)          | P. Front Panel Connector (JPANEL1) |
| H. Wake-On-LAN Header (JWOL1)      | Q. Front USB Header (JUSB2)        |
| I. ISA BUS Slot (ISA1)             | R. System Fan Header (JSFAN1)      |
|                                    | S. Clear CMOS Function (JCMOS1)    |

Note: The "\*" mark represent the function is optional.

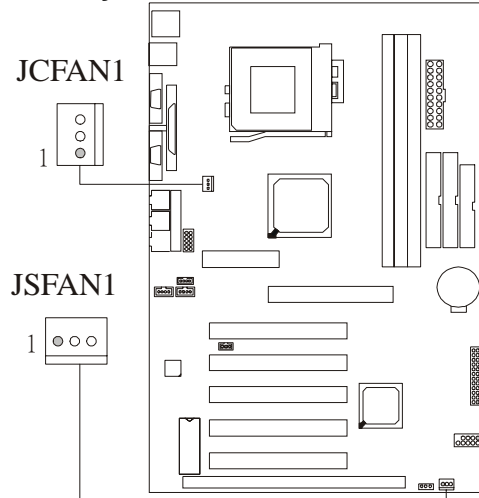
## 1.3 CPU Installation

### 1.3.1 CPU Installation Procedure: Socket 370



1. Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.
2. Locate Pin A in the socket and look for the white dot or cut edge in the CPU. Match Pin A with the white dot/cut edge then insert the CPU.
3. Press the lever down to complete the installation.

### 1.3.2 CPU & System FAN



#### 1.3.2.1 CPU FAN Header: JCFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

#### 1.3.2.2 System Fan Header: JSFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense



## 1.4 RAM Module Installation

### 1.4.1 DIMM

DRAM Access Time : 3.3V Unbuffered SDRAM PC66, PC100 & PC133 Type required.

DRAM Type : 8MB/16MB/32MB/64MB/128MB/256MB DIMM Module (168pin)

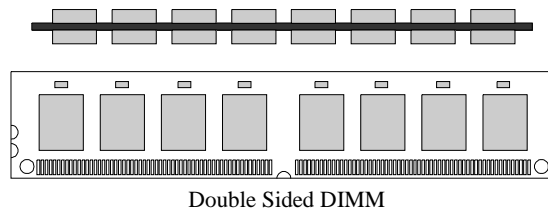
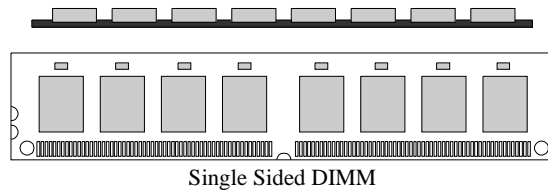
Total Memory Size (MB)	Bank 0 DIMM1	Bank 1 DIMM2	Bank 2 DIMM3
8 M	8M x 1 pc	----	----
16 M	16M x 1 pc	----	----
32 M	32M x 1 pc	----	----
64 M	64M x 1 pc	----	----
128 M	128M x 1 pc	----	----
256 M	256M x 1 pc	----	----
512 M	512M x 1 pc		
16 M	8M x 1 pc	8M x 1 pc	----
32 M	16M x 1 pc	16M x 1 pc	----
64 M	32M x 1 pc	32M x 1 pc	----
128 M	64M x 1 pc	64M x 1 pc	----
256 M	128M x 1 pc	128M x 1 pc	----
512 M	256M x 1 pc	256M x 1 pc	----
1024 M	512M x 1 pc	512M x 1 pc	----
24 M	8M x 1 pc	8M x 1 pc	8M x 1 pc
40 M	16M x 1 pc	16M x 1 pc	8M x 1 pc
72 M	32M x 1 pc	32M x 1 pc	8M x 1 pc
136 M	64M x 1 pc	64M x 1 pc	8M x 1 pc
264 M	128M x 1 pc	128M x 1 pc	8M x 1 pc
520 M	256M x 1 pc	256M x 1 pc	8M x 1 pc
1032 M	512M x 1 pc	512M x 1 pc	8M x 1 pc
32 M	8M x 1 pc	8M x 1 pc	16M x 1 pc
48 M	16M x 1 pc	16M x 1 pc	16M x 1 pc
80 M	32M x 1 pc	32M x 1 pc	16M x 1 pc
144 M	64M x 1 pc	64M x 1 pc	16M x 1 pc
272 M	128M x 1 pc	128M x 1 pc	16M x 1 pc
528 M	256M x 1 pc	256M x 1 pc	16M x 1 pc
1040 M	512M x 1 pc	512M x 1 pc	16M x 1 pc
48 M	8M x 1 pc	8M x 1 pc	32M x 1 pc
64 M	16M x 1 pc	16M x 1 pc	32M x 1 pc
96 M	32M x 1 pc	32M x 1 pc	32M x 1 pc
160 M	64M x 1 pc	64M x 1 pc	32M x 1 pc
288 M	128M x 1 pc	128M x 1 pc	32M x 1 pc
544 M	256M x 1 pc	256M x 1 pc	32M x 1 pc
1056 M	512M x 1 pc	512M x 1 pc	32M x 1 pc

Total Memory Size (MB)	Bank 0 DIMM1	Bank 1 DIMM2	Bank 2 DIMM3
80 M	8M x 1 pc	8M x 1 pc	64M x 1 pc
96 M	16M x 1 pc	16M x 1 pc	64M x 1 pc
128 M	32M x 1 pc	32M x 1 pc	64M x 1 pc
192 M	64M x 1 pc	64M x 1 pc	64M x 1 pc
320 M	128M x 1 pc	128M x 1 pc	64M x 1 pc
576 M	256M x 1 pc	256M x 1 pc	64M x 1 pc
1080 M	512M x 1 pc	512M x 1 pc	64M x 1 pc
144 M	8M x 1 pc	8M x 1 pc	128M x 1 pc
160 M	16M x 1 pc	16M x 1 pc	128M x 1 pc
192 M	32M x 1 pc	32M x 1 pc	128M x 1 pc
256 M	64M x 1 pc	64M x 1 pc	128M x 1 pc
384 M	128M x 1 pc	128M x 1 pc	128M x 1 pc
640 M	256M x 1 pc	256M x 1 pc	128M x 1 pc
1152 M	512M x 1 pc	512M x 1 pc	128M x 1 pc
272 M	8M x 1 pc	8M x 1 pc	256M x 1 pc
288 M	16M x 1 pc	16M x 1 pc	256M x 1 pc
320 M	32M x 1 pc	32M x 1 pc	256M x 1 pc
384 M	64M x 1 pc	64M x 1 pc	256M x 1 pc
512 M	128M x 1 pc	128M x 1 pc	256M x 1 pc
768 M	256M x 1 pc	256M x 1 pc	256M x 1 pc
1280 M	512M x 1 pc	512M x 1 pc	256M x 1 pc
528 M	8M x 1 pc	8M x 1 pc	512M x 1 pc
544 M	16M x 1 pc	16M x 1 pc	512M x 1 pc
576 M	32M x 1 pc	32M x 1 pc	512M x 1 pc
640 M	64M x 1 pc	64M x 1 pc	512M x 1 pc
768 M	128M x 1 pc	128M x 1 pc	512M x 1 pc
1024 M	256M x 1 pc	256M x 1 pc	512M x 1 pc
1536 M	512M x 1 pc	512M x 1 pc	512M x 1 pc

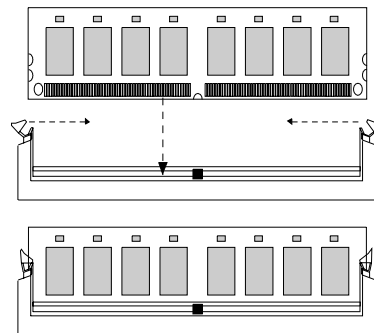
*\*The list shown above for DRAM configuration is only for reference.*

**Note:** Don't stuff or remove the DIMM memory, if the Power LED is lighting or twinkling.

### 1.4.2 How to install a DIMM Module

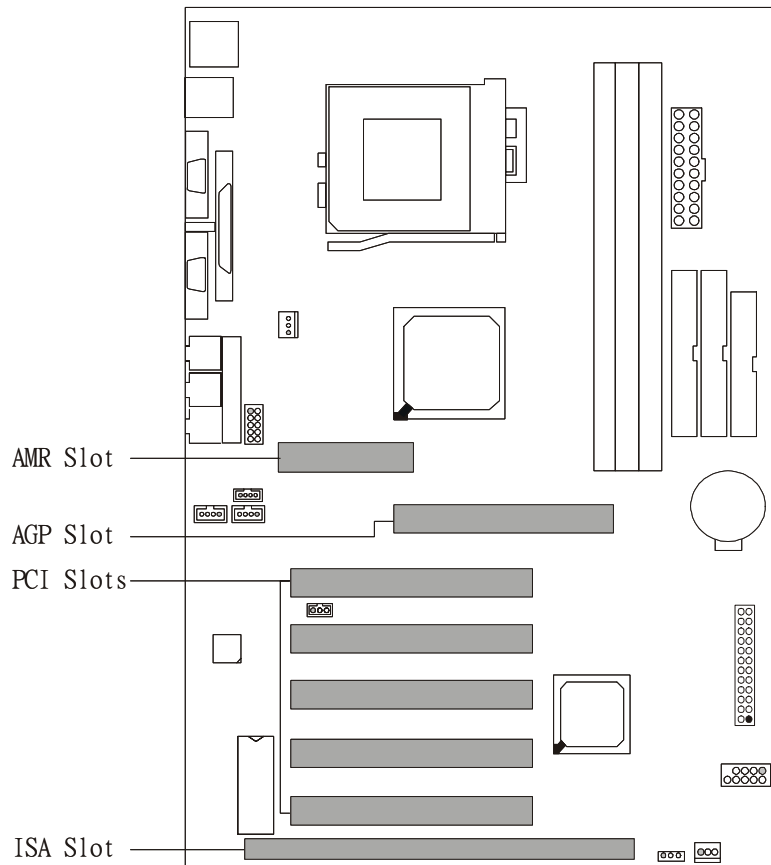


1. The DIMM socket has a “Plastic Safety Tab” and the DIMM memory module has an asymmetrical notch”, so the DIMM memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle then push down vertically so that it will fit into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



### 1.5 Slots

The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



### **1.5.1 AGP (Accelerated Graphics Port) Slot**

Unlike the mouse ports, keyboard ports and printer ports this motherboard does not have built in video facilities and therefore requires a video card for one of the expansion slots. Your monitor will attach directly to that video card. This motherboard supports video cards for PCI and ISA slots but is also equipped with an Accelerated Graphics Port (AGP PRO). An AGP card will take advantage of AGP technology for improved video efficiency and performance, especially with 3D graphics. An AGP compatible card will fit into the AGP (AGP PRO) slot provided by the motherboard.

### **1.5.2 AMR (Audio Modem Riser) Slot**

The AMR specification is an open Industry Standard Architecture and that defines a hardware scalable riser card interface, which supports audio and modem only.

### **1.5.3 ISA (Industry Standard Architecture) Slot**

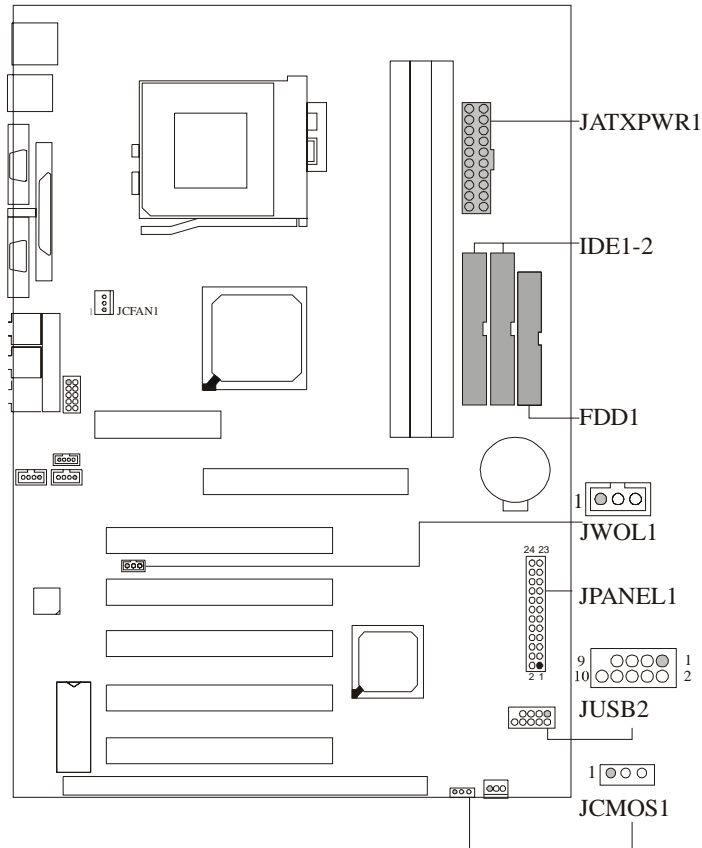
The motherboard is equipped with one standard ISA slot. ISA stands for Industry Standard Architecture and was designed as a bus standard for expansion cards in the early 90's for PC XT/AT machines. This motherboard retains backward compatibility with this older and slower bus architecture.

### **1.5.4 PCI (Peripheral Component Interconnect) Slots**

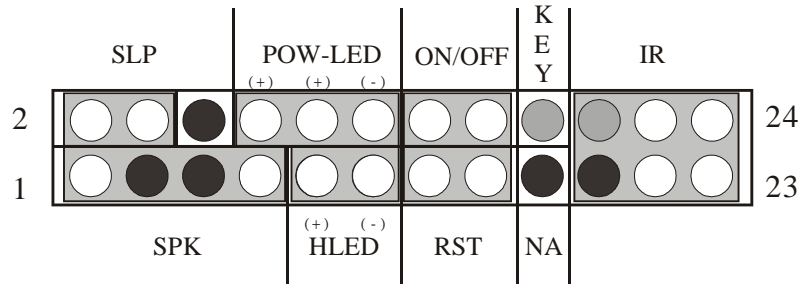
This motherboard is equipped with 5 standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which has, for the most part, supplanted the older ISA bus standard. This PCI slot is designated as 32 bit.

## 1.6 Connectors, Headers & Jumpers

The connectors, headers and jumpers introduced below provide you lots of capabilities such as power supply, front panel signal revelation, IDE hard disk connection, floppy disk connection, Wake On LAN function and USB connection. Noticeably, a jumper has two or more pins that can be covered by a plastic jumper cap, allowing you to select different system options.



### 1.6.1 Front Panel Connector: JPANEL1



Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	+5V	Speaker Connector	2	Sleep Control	Sleep Button
3	NA		4	Ground	
5	NA		6	NA	NA
7	Speaker		8	Power LED (+)	POWER LED
9	HDD LED (+)	10	Power LED (+)		
11	HDD LED (-)	12	Power LED (-)		
13	Ground	Reset Button	14	Power Button	Power-on Button
15	Reset Control		16	Ground	
17	NA	IrDA Connector	18	KEY	IrDA Connector
19	NA		20	KEY	
21	+5V		22	Ground	
23	IRTX		24	IRRX	

#### SPK (Speaker Connector)

An offboard speaker can be installed on the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power On

Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

**RST (Reset Button)**

This connector can be attached to a momentary SPST switch. This switch is usually open and when closed will cause the motherboard to reset and run the POST (Power On Self Test).

**POW-LED (Power LED Connector)**

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

**HLED (Hard Drive LED Connector)**

This connector can be attached to an LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

**IR (Infrared Connector)**

This connector is used to attach to an infrared sensing device. After the IrDA interface is configured, connectionless data transfer to and from portable devices such as laptops, PDAs is possible.

**SLP (Sleep/Green Button)**

This connector is used to conserve energy by powering down the monitor and the hard disk when not in use. To configure this option, you need to connect a button from the front panel to this connector. Depressing the button will power down the monitor and hard drives until the system is invoked by any keyboard activity, mouse activity, modem activity or when the sleep button is depressed again. APM (Advanced Power Management) must be enabled in the system BIOS and the APM driver must be loaded.

**PWR (Power Button)**

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal debounce circuitry on the system board). At least two seconds must pass before the power supply will recognize another on/off signal.



### 1.6.2 ATX 20-pin Power Connector: JATXPWR1

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported on this motherboard. This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector is inserted on the board.

PIN	Assignment	PIN	Assignment
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	5V_SB	19	5V
10	12V	20	5V

### 1.6.3 Hard Disk Connectors: IDE1/IDE2

The motherboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA / 33, Ultra DMA / 66, Ultra DMA / 100 functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, a CD-ROM, a 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. These connectors support the IDE hard disk cable provided.

- IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive on IDE1 to Slave mode by setting the jumper accordingly.

- IDE2 (Secondary IDE Connector)

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.



**1.6.4 Floppy Disk Connector: FDD1**

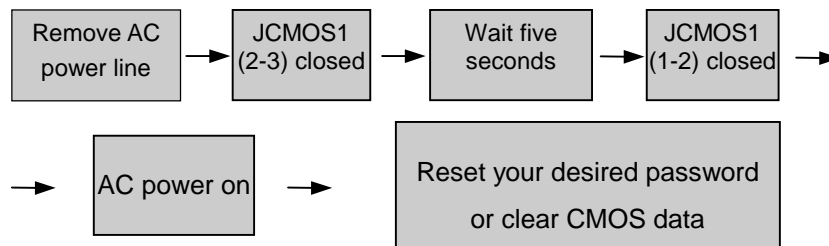
The motherboard provides a standard floppy disk connector (FDC) that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.

**1.6.5 Wake On LAN Header: JWOL1**

<b>Pin No.</b>	<b>Assignment</b>
<b>1</b>	5V SB
<b>2</b>	Ground
<b>3</b>	Wake up

### 1.6.6 Clear CMOS Jumper: JCMOS1

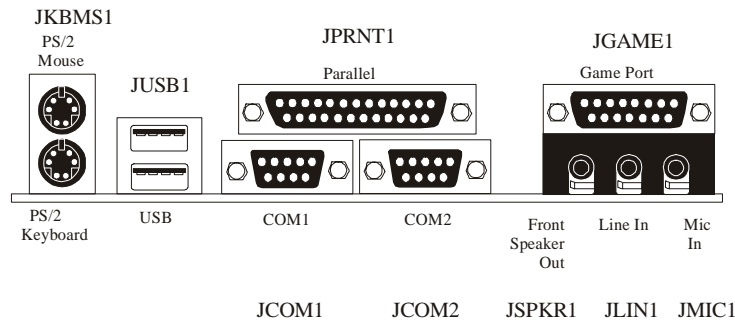
JCMOS1		Assignment
1		Normal Operation (default)
1		Clear CMOS Data



### 1.6.7 Front USB Header: JUSB2

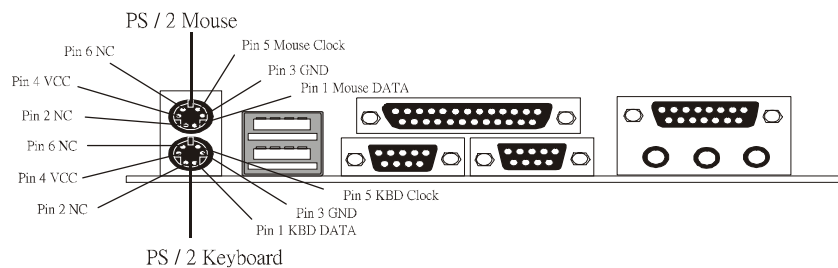
Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	USB1 Data (-)	4	USB2 Data (-)
5	USB1 Data (+)	6	USB2 Data (+)
7	Ground	8	Ground
9	KEY	10	NA

## 1.7 Peripheral Port Connectors



### 1.7.1 PS/2 Mouse / Keyboard Connector: JKBMS1

The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector. The connector location and pin definition are shown below:

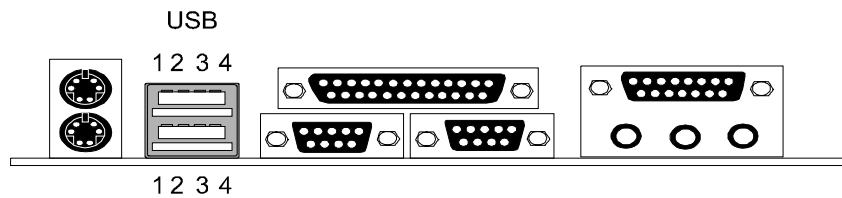


**PS/2 Mouse / Keyboard Connectors**

Pin	Assignment
1	Data
2	No connect
3	Ground
4	+5 V (fused)
5	Clock
6	No connect

**1.7.2 USB Connector: JUSB1**

The motherboard provides a **OHCI (Open Host Controller Interface) Universal Serial Bus Roots** for attaching USB devices such as: keyboard, mouse and other USB devices. You can plug the USB devices directly



into this connector.

**Stacked USB Connectors**

Pin	Assignment
1	+5 V (fused)
2	USBP0- [USBP1-]
3	USBP0+ [USBP1+]
4	Ground

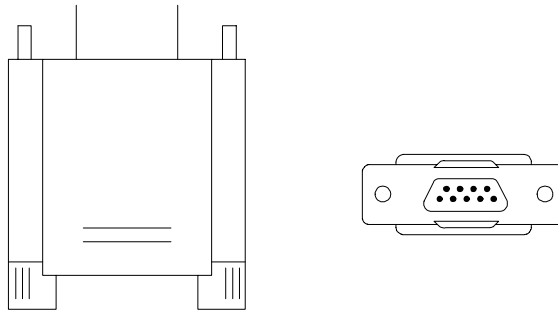
Signal names in brackets ([ ]) are for USB Port 1.

### **1.7.3 Serial and Parallel Interface Ports**

This system comes equipped with two serial ports and one parallel port. Both types of interface ports will be explained in this chapter.

#### **1.7.3.1 The Serial Interface: COM1/COM2**

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer with another computer system. If you wish to transfer the contents of your hard disk to another system it can be accomplished by using each machine's serial port.



The serial ports on this system have two 9-pin connectors. Some older computer systems and peripherals used to be equipped with only one 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

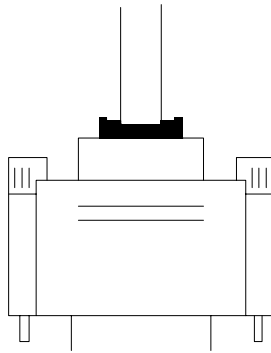
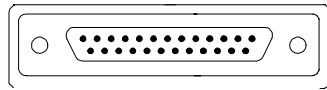
**1.7.3.2 Connectivity**

The serial ports can be used in many ways, and it may be necessary to become familiar with the pinout diagram. The following chart gives you the function of each pin on the 9-pin connector and some of the 25-pin connector. This information can be used when configuring certain software programs to work with the serial ports.

<b>Signal</b>	<b>Name</b>	<b>DB9 PIN</b>	<b>DB25 PIN</b>
DCD	Data Carrier Detect	1	8
RX	Receive Data	2	3
TX	Transmit Data	3	2
DTR	Data Terminal Ready	4	20
GND	Signal Ground	5	7
DSR	Data Set Ready	6	6
RTS	Request to Send	7	4
CTS	Clear to Send	8	5
RI	Ring Indicator	9	22

### 1.7.3.3 Parallel Interface Port: JPRNT1

Unlike the serial ports, parallel interface port has been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB25 connector (see picture below). The pin-out for the parallel port are shown in the table below.

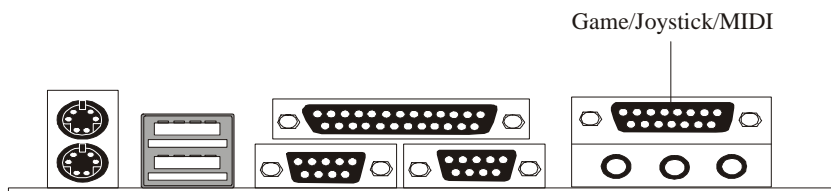


Signal	Pin
-Strobe	1
Data 0	2
Data 1	3
Data 2	4
Data 3	5
Data 4	6
Data 5	7
Data 6	8
Data 7	9
-Ack	10
Busy	11
Paper Empty	12
+Select	13
-Auto FDXT	14
-Error	15
-Init	16
-SLCTN	17
Ground	18
Ground	19
Ground	20
Ground	21
Ground	22
Ground	23
Ground	24
Ground	25



### 1.7.4 Game (Joystick) Port Connector: JGAME1

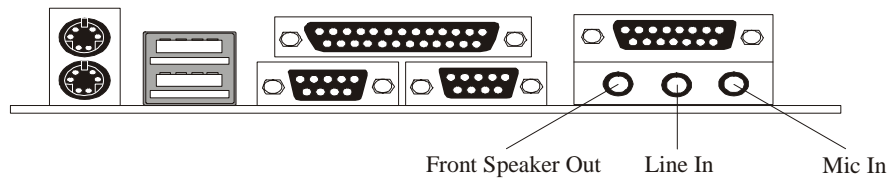
This connector allows you to connect a joystick or game pad for playing computer games. Also, you may play or edit professional music by connecting MIDI devices.



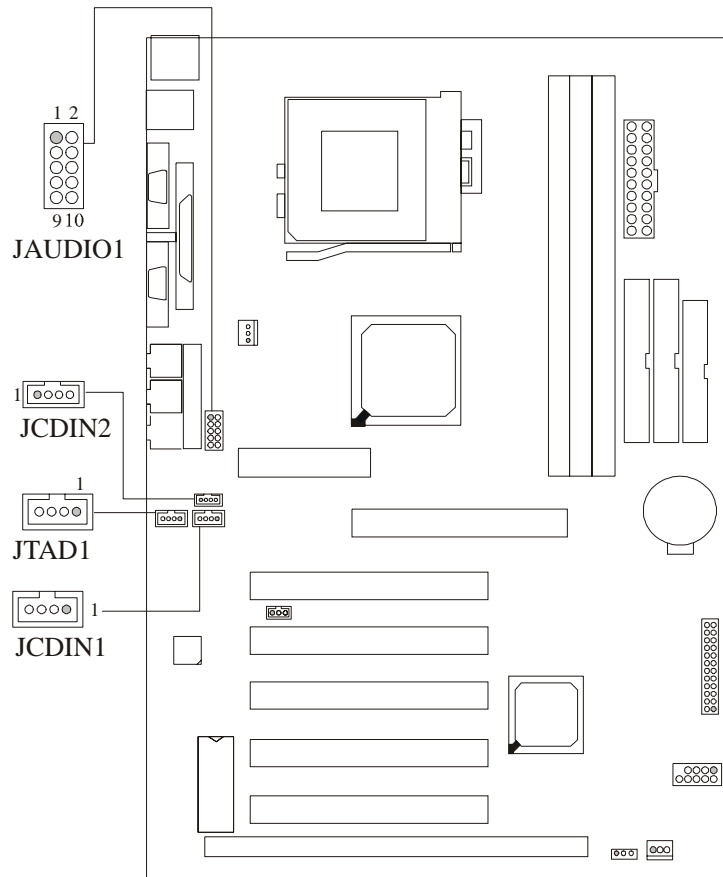
### 1.7.5 Audio (MIDI) Port Connectors

**Front Speaker Out** is used to connect speakers or headphones for audio output.

**Line In** can be connected to the external CD player, Tape player or other audio devices for audio input. **Mic In** is used to connect a microphone, which allows you to input sounds and voices.



### 1.7.6 Audio Subsystem



**1.7.6.1 CD-ROM Audio-In Header: JCDIN1**

Pin No.	Assignment
1	Right Channel Input
2	Ground
3	Ground
4	Left Channel Input

**1.7.6.2 CD-ROM Audio-In Header: JCDIN2**

Pin No.	Assignment
1	Left Channel Input
2	Ground
3	Right Channel Input
4	Ground

**1.7.6.3 Front Audio Header: JAUDIO1**

Pin No.	Assignment	Pin No.	Assignment
1	Mic In	2	Ground
3	Mic Power	4	Audio Power
5	RT Line Out	6	RT Line Out
7	Reserved	8	Key
9	LFT Line Out	10	LFT Line Out

**1.7.6.4 Telephony Audio Header: JTAD1 (Optional)**

<b>Pin No.</b>	<b>Assignment</b>
1	PHONE_IN
2	Ground
3	Ground
4	MONO_OUT

## **2. BIOS Setup**

### **Introduction**

This manual discussed Award™ Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then store in battery-backed RAM so that it retains the Setup information when the power is turned off.

The Award BIOS™ installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel processors in a standard IBM-AT compatible input/output system. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports.

Adding important has customized the Award BIOS™, but nonstandard, features such as virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this manual is intended to guide you through the process of configuring your system using Setup.

### **Plug and Play Support**

These AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD (Extended System Configuration Data) write is supported.

### **EPA Green PC Support**

This AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

### **APM Support**

These AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this AWARD BIOS.

### PCI Bus Support

This AWARD BIOS also supports Version 2.1 of the Intel PCI (Peripheral Component Interconnect) local bus specification. Please see the Intel technical documentation for additional information.

### DRAM Support

SDRAM (Synchronous DRAM) are supported.

### Supported CPUs

This AWARD BIOS support single Intel CPU.

### Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

## 2.1 Main Menu

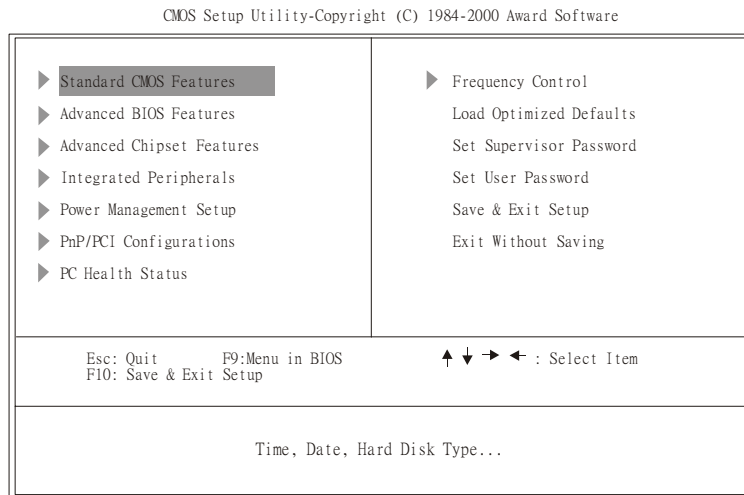
Once you enter Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

**!! WARNING !!**

The information about BIOS defaults on manual (**Figure 1,2,3,4,5,6,7,8,9**) is just for reference, please refer to the BIOS installed on board, for update information.

■ **Figure 1. Main Menu**

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



**Standard CMOS Features**

This setup page includes all the items in a standard compatible BIOS.

**Advanced BIOS Features**

This setup page includes all the items of BIOS special enhanced features.

**Advanced Chipset Features**

This setup page includes all the items of chipset special features.

**Integrated Peripherals**

This section page includes all the items of IDE hard drive and Programmed Input/Output features.

**Power Management Setup**

This setup page includes all the items of power management features.

**PnP/PCI Configurations**

This setup page includes IRQ Setting by user define or default.

**PC Health Status**

This setup page is the System auto detect Temperature, voltage, fan speed.

**Frequency Control**

This setup page includes the CPU Host frequency control.

**Load Optimized Defaults**

These settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the BIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

**Set Supervisor Password**

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.



**Set User Password**

You can specify both a User and a Supervisor password. When you select either password option, you are prompted for a 1-6-character password. Enter the password and then retype the password when prompted.

**Save & Exit Setup**

Save CMOS value changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all CMOS value changes and exit setup.

## 2.2 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

■ **Figure 2. Standard CMOS Setup**

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

Date (mm:dd:yy)	Thu, <b>Aug</b> 6 2001	Item Help
Time (hh:mm:ss)	11 : 37 : 30	Menu Level ▶
▶ IDE Primary Master	Press Enter None	
▶ IDE Primary Slave	Press Enter None	Change the day, month, year and century
▶ IDE Secondary Master	Press Enter None	
▶ IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	XXXX	
Extended Memory	XXXX	
Total Memory	XXXX	

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

**Main Menu Selections**

This table shows the selections that you can make on the Main Menu.

<b>Item</b>	<b>Options</b>	<b>Description</b>
Date	MM DD YYYY	Set the system date. Note That the 'Day' automatically changes when you set the date.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

<b>Item</b>	<b>Options</b>	<b>Description</b>
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Display the total memory available in the system.

## 2.3 Advanced BIOS Features

■ **Figure 3. Advanced BIOS Setup**

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

Virus Warning	<b>Disabled</b>	▲ ▼	Item Help
CPU Internal Cache	Enabled		Menu Level ▶
External Cache	Enabled		Allows you to choose the VIRUS warning feature for IDE Hard disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU L2 Cache ECC Checking	Enabled		
Processor Number Feature	Disabled		
Quick Power On Self Test	Enabled		
First Boot Device	Floppy		
Second Boot Device	HDD-0		
Third Boot Device	CDROM		
Boot Other Dvice	Enabled		
Swap Floppy Drive	Disabled		
Boot Up Numlock Status	On		
Gate A20 Option	Fast		
Security Option	Setup		
OS Select For DRAM > 64 MB	Non-OS2		
Report No FDD For WIN 95	No		
Video BIOS Shadow	Enabled		
C8000-CBFFF Shadow	Disabled		
CC000-CFFFF Shadow	Disabled		
D0000-D3FFF Shadow	Disabled		
D4000-D7FFF Shadow	Disabled		
D8000-DBFFF Shadow	Disabled		
DC000-DFFFF Shadow	Disabled		

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

**Virus Warning**

This option allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep.

<b>Disabled</b> (default)	No warning message appears when anything attempts to access the boot sector or hard disk partition table.
Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

**CPU Internal Cache**

These two categories speed up memory access. However, it depends on CPU/chipset design.

<b>Enabled</b> (default)	Enable cache
Disabled	Disable cache

**External Cache**

These fields allow you to Enable or Disable the CPU's "Level 2" secondary cache. Caching allows better performance.

<b>Enabled</b> (default)	Enable cache
Disabled	Disable cache

**CPU L2 Cache ECC Checking**

This item allows you to enable/disable CPU L2 Cache ECC checking.

**The Choices:** **Enabled** (default), Disabled.

**Processor Number Feature**

The Intel CPU processor serial number control option.

**The Choices:** **Disabled** (default), Enabled.

**Quick Power On Self Test**

This category speeds up Power on Self-Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

<b>Enabled</b> (default)	Enable quick POST
Disabled	Normal POST

**First /Second/Third/Other Boot Device**

These BIOS attempts to load the operating system from the devices in the sequence selected in these items.

**The Choices:** Floppy, LS/ZIP, HDD-0, SCSI, HDD-1, HDD-2, HDD-3, LAN, Disabled, CDROM, Enabled.

**Swap Floppy Drive**

If the system has two floppy drives, you can swap the logical drive name assignments.

**The Choices:** Enabled, **Disabled** (default).

**Boot Up NumLock Status**

Select power on state for NumLock.

<b>On</b> (default)	Numpad is number keys.
Off	Numpad is arrow keys.

**Gate A20 Option**

Select if chipset or keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20.
<b>Fast</b> (default)	Lets chipset control GateA20.

**Security Option**

Select whether the password is required every time the system boots or only when you enter setup.

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

<b>Setup</b> (default)	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.
------------------------	--

**Note:** To disable security, select *PASSWORD SETTING* at Main Menu and then you will be asked to enter password. Do not type anything and just

*press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.*

**OS Selection for DRAM > 64MB**

Select the operating system that is running with greater than 64MB of RAM on the system.

**The Choices:** Non-OS2 (default), OS2.

**Report No FDD For WIN 98**

Whether report no FDD for Win 98 or not.

**The Choices:** Yes, No (default).

**Video BIOS Shadow**

Determines whether video BIOS will be copied to RAM for faster execution.

<b>Enabled</b> (default)	Optional ROM is enabled.
Disabled	Optional ROM is disabled.

**C8000 - CFFFF Shadow / D0000 - DFFFF Shadow**

Determines whether the optional ROM will be copied to RAM for faster execution.

Enabled	Optional ROM is shadowed.
<b>Disabled</b> (default)	Optional ROM is not shadowed.

**Note:** For C8000 - DFFFF option - ROM on PCI BIOS, BIOS will automatically enable the shadow RAM. User does not have to select the item.



## 2.4 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional PCI bus. It must be stated that these items should never need to be altered. 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 that data was being lost while using your system.

### ■ Figure 4. Advanced Chipset Setup

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

DRAM Timing By SPD	Enabled	Item Help
<b>X</b> DRAM Clock	<b>Host CLK</b>	
AGP Aperture Size	64M	Menu Level
AGP-4X Mode	Enabled	▶
AGP Driving Control	Auto	
<b>X</b> AGP Driving Value	EC	
OnChip USB	Enabled	
OnChip USB2	Enabled	
USB Keyboard Support	Disabled	
OnChip Sound	Auto	
OnChip Modem	Auto	
Memory ECC Check	Disabled	

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

### DRAM Timing By SPD

This item determines DRAM clock/timing follow SPD or not.

**The Choices:** Enabled (default), Disabled.

**DRAM Clock**

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

**The Choices:** Auto, **Host CLK** (default), HCLK-33M, HCLK+33M.

**AGP Aperture Size**

This field let you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

**The Choices:** **64M** (default), 32M, 16M, 8M, 4M, 128M, 256M.

**AGP-4X Mode**

If an insufficient number of cycles is allowed for RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

**The Choices:** **Enabled** (default), Disabled.

**AGP Driving Control**

The option determines the AGP Output Buffer Drive Strength.

**The Choices:** **Auto** (default), Manual.

**AGP Driving Value**

The option determines the AGP Output Buffer Drive Strength.

**The Choice:** **EC** (default).

**OnChip USB/USB2**

This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

**The Choices:** **Enabled** (default), Disabled.

**USB Keyboard Support**

Select Enabled if your system contains an Universal Serial Bus (USB) controller and you have an USB keyboard.

**The Choices:** Disabled (default), Enabled.

**OnChip Sound**

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**The Choices:** Auto (default), Disabled.

**OnChip Modem**

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**The Choices:** Auto (default), Disabled.

**Memory ECC Check**


You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

**The Choices:** Disabled (default), Enabled.

## 2.5 Integrated Peripherals

■ **Figure 5. Integrated Peripherals**

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

On-Chip IDE Channel 0	Enabled		Item Help	
On-Chip IDE Channel 1	Enabled			
IDE Prefetch Mode	Enabled			
Primary Master	PIO		Auto	Menu Level ►
Primary Slave	PIO		Auto	
Secondary Master	PIO		Auto	
Secondary Slave	PIO		Auto	
Primary Master	UDMA		Auto	
Primary Slave	UDMA		Auto	
Secondary Master	UDMA		Auto	
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			Hi,LO	
Onboard Parallel Port			378/IRQ7	
Onboard Parallel Mode			Normal	
X ECP Mode Use DMA			3	
X Parallel Port EPP Type			EPP1.9	
Onboard Legacy Audio			Enabled	
Sound Blaster			Disabled	
SB I/O Base Address			220H	
SB IRQ Select			IRQ 5	
SB DMA Select			DMA 1	
MPU-401		Disabled		
MPU-401 I/O Address		330-333H		
Game Port (200-207H)		Enabled		

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

**On-Chip IDE Channel 0**

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

**The Choices:** Enabled (default), Disabled

**On-Chip IDE Channel 1**

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

**The Choices:** Enabled (default), Disabled

**IDE Prefetch Mode**

The onboard IDE drive interfaces supports IDE prefetching for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching.

**The Choices:** Enabled (default), Disabled.

**Primary / Secondary Master / Slave PIO**

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

**The Choices:** Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

**Primary / Secondary Master / Slave UDMA**

Ultra DMA /33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA drive (Windows 95 OSR2 or a third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

**The Choices:** Auto (default), Disabled.

**Init Display First**

This item allows you decide to active whether PCI Slot or on-chip VGA first.

**The Choices:** PCI Slot (default), AGP.

**IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

**The Choices:** Enabled (default), Disabled.

**Onboard FDD Controller**

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board while you using it. If install and FDD or the system has no floppy drive, select Disabled in this field.

**The Choices:** Enabled (default), Disabled.

**Onboard Serial Port 1/Port 2**

Select an address and corresponding interrupt for the first and second serial ports.

**The Choices:** (3F8/IRQ4), (2F8/IRQ3), (3E8/ IRQ4), (2E8 / IRQ3) ,  
Auto (default), Disabled.

**UART 2 Mode**

This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

**The Choices:** Standard (default), HPSIR,ASKIR.

**IR Function Duplex**

This item allows you to decide to active IR transmission delay.

**The Choice:** Half (default).

**Tx, Rx inverting enable**

This item allows you to determine the active of Rx, Tx.

**The Choice:** Hi, Lo (default) .

**Onboard Parallel Port**

This item allows you to determine access onboard parallel port controller with which I/O Address.

**The Choices:** 378/IRQ7 (default), 278/IRQ5, Disabled, 3BC/IRQ7.

**Parallel Port Mode**

Select an operating mode for the onboard parallel (printer) port. Normal EPP (Extend Parallel Port) ECP (Extend Capabilities Port) ECP +EPP PC AT parallel port Bidirectional Port Fast, buffered port Fast, buffered, Bidirectional Port. Select Normal unless you are certain your hardware and software both support EPP or ECP mode.

**The Choices:** Normal (default), ECP, ECP/EPP,EPP.

**ECP Mode Use DMA**

Select a DMA Channel for the port.

**The Choice:** 3 (default).

**Parallel Port EPP type**

Select a DMA Channel for the port.

**The Choices:** EPP1.9 (default), EPP1.7.

**Onboard Legacy Audio**

Select an operating mode for the second serial port:

**The choices:** Enabled (default), Disabled.

**Sound Blaster**

Hardware SoundBlaster Pro for Windows DOS box and real-mode DOS legacy compatibility.

**SB I/O Base Address**

Change the SoundBlaster Pro Base I/O Address settings.

**SB IRQ Select**

Change the SoundBlaster Pro interrupt signal.

**SB DMA Select**

Change the SoundBlaster Pro direct memory access setting.

**MPU-401**

Enable or Disable MPU-401 option.

**MPU-401 I/O Address**

Change the SoundBlaster Pro MPU-401 I/O address.

**Game Port (200-207H)**

Change the joystick connects port address.



## 2.6 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

■ **Figure 6. Power Management Setup**

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

Power Management	Press Enter	Item Help
ACPI Suspend Type	<b>S1 (POS)</b>	
PM Control by APM	Yes	
Video Off Option	Suspend -> Off	Menu Level
Video Off Method	V/H SYNC+Blank	▶
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	Off	
HDD Power Down	Disabled	
Doze Mode	Disabled	
Suspend Mode	Disabled	
PowerOn by PCI Card	Disabled	
Wake Up On LAN/Ring	Disabled	
RTC Alarm Resume	Disabled	
X Date (of Month)	0	
X Resume Time (hh:mm:ss)	0	

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

**Power Management Option**

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

- 1.HDD Power Down.
- 2.Doze Mode.
- 3.Suspend Mode.

**Power Management**

There are four options of Power Management, three of which have fixed mode settings.

**The Choices:****Min. Power Saving**

Minimum power management.  
Doze Mode = 1 hr.  
Standby Mode = 1 hr  
Suspend Mode = 1 hr.  
HDD Power Down = 15 min

**Max. Power Saving**

Maximum power management only available for sl CPU's.  
Doze Mode = 1 min  
Standby Mode = 1 min.  
Suspend Mode = 1 min.  
HDD Power Down = 1 min.

**User Defined (default)**

Allows you to set each mode individually.  
When not disabled, each of the ranges are from 1 min. to 1 hr.  
except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

**ACPI Suspend Type**

The item allows you to select the suspend type under ACPI operating system.

<b>S1 (POS)</b> (default)	Power on Suspend
<b>S3 (STR)</b>	Suspend to RAM

**PM Control by APM****The Choices:**

No	System BIOS will ignore APM when power Management is on.
Yes (default)	System Bios will wait for APM's prompt before it enters any PM mode.

**Video Off Option**

This determines the manner in which the monitor is blanked.

<b>Suspend</b> —> <b>Off</b> (default)	During Suspend mode, the monitor will be turned off.
All Modes —> Off	During All modes, the monitor will be turned off.
Always On	During Always mode, the monitor will be turned on.

**Video Off Method**

This determines the manner in which the monitor is blanked.

<b>V/H SYNC+Blank</b> (default)	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
DPMS Support	Initial display power management signaling.
Blank Screen	This option only writes blanks to the video buffer.

**MODEM Use IRQ**

This determines the IRQ in which the MODEM can use.

**The Choices:** 3 (default), 4, 5, 7, 9, 10, 11, NA.

**Soft-Off by PWRBTN**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung”.

**The Choices:** Delay 4 Sec, **Instant-Off** (default).

**State After Power Failure**

This field determines the action the system will automatically take when power is restored to a system that had lost power previously without any subsequent manual intervention. There are 3 sources that provide current to the CMOS area that retains these Power-On instructions; the motherboard battery (3V), the Power Supply (5VSB), and the Power Supply (3.3V). While AC is not supplying power, the motherboard uses the motherboard battery (3V). If AC power is supplied and the Power Supply is not turned on, 5VSB from the Power Supply is used. When the Power Supply is eventually turned on 3.3V from the Power Supply will be used.

There are 3 options: “Auto”, “On”, “Off”.

“Auto”	Means to maintain the last status of the CMOS when AC power is lost.
“On”	Means always set CMOS to the “On” status when AC power is lost
“Off” (default)	Means always set CMOS to the “Off” status when AC power is lost.

For example: If set to “Auto” and AC power is lost when system is live, then after AC power is restored, the system will automatically power on. If AC power is lost when system is not live, system will remain powered off.

**HDD Power Down**

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

**Disabled** (default)

1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min,  
10Min, 11Min, 12Min, 13Min, 14Min, 15Min.

**Doze Mode / Suspend Mode**

The **Doze Mode**, and **Suspend Mode** fields set the Period of time after which each of these modes activate. At *Max Saving*, these modes activate sequentially (in the given order) after one minute; at *Min Saving* after one hour.

**Disabled** (default)

1Min, 2Min, 4Min, 6Min, 8Min, 10Min, 20Min, 30Min, 40Min, 1Hour.

**PowerOn by PCI Card**

When you select Enabled, a PME signal from PCI card returns the system to Full ON state.

**The Choices:** **Disabled** (default), Enabled.

**Wake Up On LAN/Ring**

When you select Enabled, a PME signal from PCI card returns the system to Full On state.

**The Choice:** Enabled, **Disabled** (default).

**RTC Alarm Resume**

When “Enabled”, you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

**Disabled** (default).

**Date (of Month) /Time (hh:mm:ss)**

You could set the date (of month) and timer (hh:mm:ss), any event occurring at will awaken a system witch has been powered down.

## 2.7 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

### ■ Figure 7. PnP/PCI Configurations

CMOS Setup Utility-Copyright (C ) 1984-2000 Award Software  
PnP/PCI Configurations

PNP OS Installed	<b>NO</b>	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	Menu Level ▶
X IRQ Resources	Press Enter	
X DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	

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

**PNP OS Installed**

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating systems, like Windows™95. When set to NO, BIOS will initialize all the PnP cards. Therefore for non-PnP operating system (DOS, Netware™), this option must set to “NO”.

**Reset Configuration Data**

The system BIOS supports the PnP feature so the system needs to record which resource is assigned and proceeds resources from conflict. Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved at the system BIOS.

If Disabled (default) is chosen, the system's ESCD will update only when the new configuration varies from the last one.

If Enabled is chosen, the system is forced to update ESCDs and then is automatically set to the “Disabled” mode.

IRQ-3	assigned to: PCI / ISA PnP
IRQ-4	assigned to: PCI / ISA PnP
IRQ-5	assigned to: PCI / ISA PnP
IRQ-7	assigned to: PCI / ISA PnP
IRQ-9	assigned to: PCI / ISA PnP
IRQ-10	assigned to: PCI / ISA PnP
IRQ-11	assigned to: PCI / ISA PnP
IRQ-12	assigned to: PCI / ISA PnP
IRQ-14	assigned to: PCI / ISA PnP
IRQ-15	assigned to: PCI / ISA PnP
DMA-0	assigned to: PCI / ISA PnP
DMA-1	assigned to: PCI / ISA PnP
DMA-3	assigned to: PCI / ISA PnP
DMA-5	assigned to: PCI / ISA PnP
DMA-6	assigned to: PCI / ISA PnP
DMA-7	assigned to: PCI / ISA PnP

The above settings will be shown on the screen only if “Manual” is chosen for the Resources Controlled By function.

Legacy is the term, which signifies that a resource is assigned to the ISA Bus and



provides for non-PnP ISA add-on cards. PCI / ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.

**The Choices:** Disabled (default), Enabled.

**Resources Controlled By**

By Choosing “Auto” the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral.

By Choosing “Manual”, the user will need to assign IRQ & DMA for add-on cards. Be sure that there are no IRQ/DMA and I/O port conflicts.

**The Choices:** Auto (ESCD) (default), Manual.

**IRQ Resources**

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

**DMA Resources**

When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DMA channel.

**PCI / VGA Palette Snoop**

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

<b>Disabled</b> (default)	Disables the function.
Enabled	Enables the function.

**Assign IRQ For VGA**

Lets the user choose which IRQ to assign for the VGA.

**The Choices:** **Enabled** (default), Disabled.

**Assign IRQ For USB**

Lets the user choose which IRQ to assign for USB.

**The Choices:** **Enabled** (default), Disabled.

## 2.8 PC Health Status

### ■ Figure 8. Frequency/Voltage Control

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

Show H/W Monitor in POST	3sec	Item Help
Current CPU Temp.		
CPU FAN Speed		
System FAN Speed		Menu Level ▶
Vcore		
+2.5V		
+3.3V		
+5.0V		
+12.0V		

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

#### Show H/W Monitor in Post

If your computer contains a monitoring system, it will show PC health status during POST stage. The item offers several delay times to select the one you want.

**3 sec** (default).

#### Current CPU Temp.

This field displays the current temperature of the CPU.

#### CPU FAN Speed

These fields display the current speed of up to CPU and System fans, if your computer contains a monitoring system.

**System FAN Speed**

These fields display the current speed of up to CPU and System fans, if your computer contains a monitoring system.

**Current Vcore, +2.5V, +3.3V, +5.0V, +12.0V**

Detects System Voltage automatically.

## 2.9 Frequency Control

### ■ Figure 9. Frequency / Clock Control

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

CPU Vcore Select	<b>Default</b>	Item Help
CPU Host/PCI/Clock	66	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

#### CPU Vcore Select

This item allows you to select CPU's Vcore.

#### CPU Host / PCI Clock

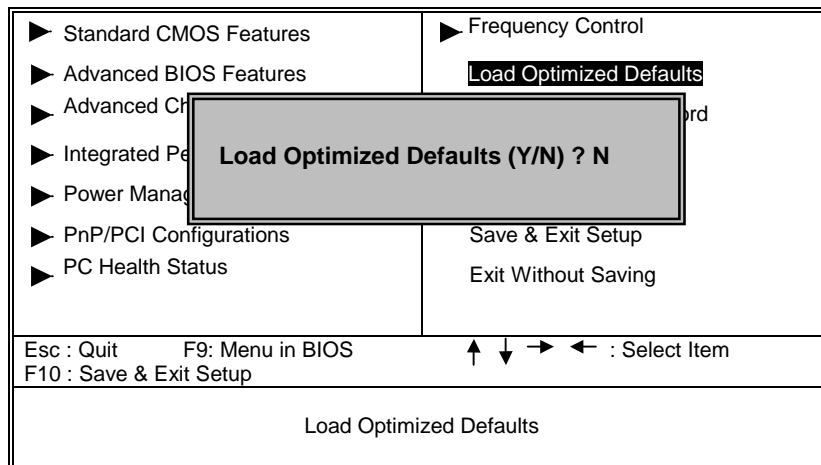
This item allows you to select CPU Host / PCI Clock.

## 2.10 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

■ **Figure 9. Load Optimized Defaults**

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

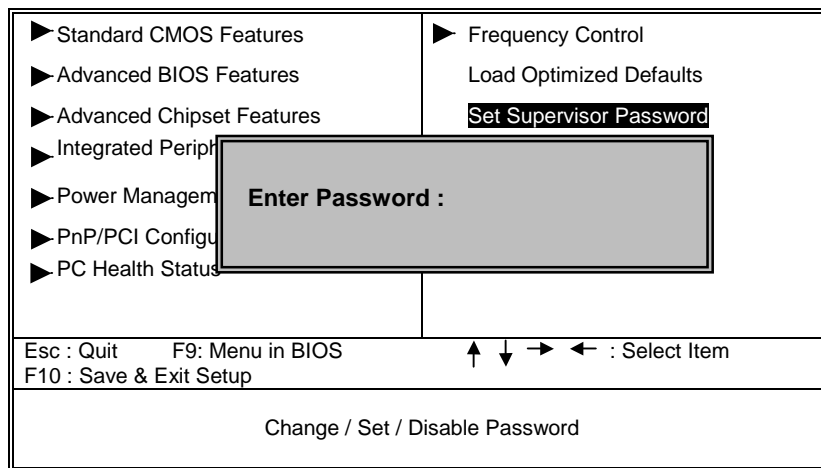


Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

## 2.11 Set Supervisor/User Password

### ■ Figure 10. Set Supervisor/User Password

CMOS Setup Utility-Copyright (C ) 1984-1999 Award Software



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

#### ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password you type now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password. To disable password, just press <Enter> when you are prompted to enter password. A message will confirm that you wish to disable the password. Once the password is disabled, the system will boot and you can enter setup freely.

**PASSWORD DISABLED**

If you select “System” at the Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select “Setup” at Security Option of BIOS Feature Setup Menu, you will be prompted only when you try to enter Setup.



## 2.12 Save & Exit Setup

### ■ Figure 11. Save & Exit Setup

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

▶ Standard CMOS Features	▶ Frequency Control
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Periph	
▶ Power Manage	
▶ PnP/PCI Config	
▶ PC Health Status	

**SAVE to CMOS and Exit (Y/N) ? Y**

Esc : Quit    F9: Menu in BIOS    ↑ ↓ → ← : Select Item  
F10 : Save & Exit Setup

Save Data to CMOS

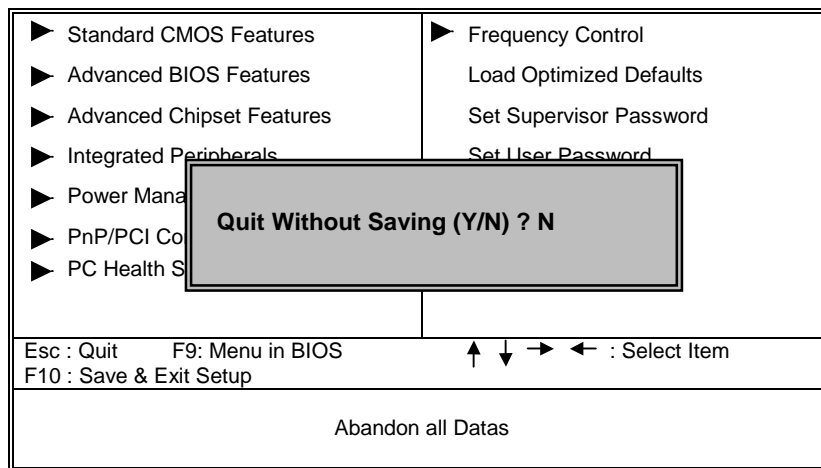
Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS RAM.

Type "N" will return to Setup Utility.

## 2.13 Exit Without Saving

### ■ Figure 12. Exit Without Saving

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



Type "Y" will quit the Setup Utility without saving to RTC CMOS RAM.  
Type "N" will return to Setup Utility.

### 3. Trouble Shooting

#### **PROBLEM**

No power inputs to the system at all. Power light does not illuminate, fan inside power supply does not turn on. Indicator light on keyboard does not turn on.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Power cable is unplugged.	Visually inspect power cable.	Make sure power cable is securely plugged in.
Defective power cable.	Visually inspect the cable; try another cable.	Replace cable.
Power supply failure.	Power cable and wall socket are OK, but system is still dead.	Contact technical support.
Faulty wall outlet; circuit Breaker or fuse blown.	Plug in device known to work in socket and test.	Use different socket, repair outlet, reset circuit breaker or replace fuse.

#### **PROBLEM**

System is inoperative. Keyboard lights are on, power indicator lights are lit, hard drive is spinning.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Memory DIMM is partially dislodged from the slot on the motherboard.	Turn off computer. Take cover off system unit. Check the DIMM to ensure it is securely seated in the slot.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

**PROBLEM**

System does not boot from hard disk drive, can be booted from CD-ROM drive.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Connector between hard drive and system board unplugged.	When attempting to run the FDISK utility you get a message, INVALID DRIVE SPECIFICATION.	Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup.
Damaged hard disk or disk controller.	Format hard disk; if unable to do so the hard disk may be defective.	Contact technical support.
Hard disk directory or FAT is scrambled.	Run the FDISK program, format the hard drive. Copy data that was backed up onto hard drive.	Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.

**PROBLEM**

System only boots from CD-ROM. Hard disk can be read and applications can be used but booting from hard disk is impossible.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Hard disk boot program has been destroyed.	A number of causes could be behind this.	Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

**PROBLEM**

Error message reading "SECTOR NOT FOUND" or other error messages not allowing certain data to be retrieved.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
A number of causes could be behind this.	Use a file-by-file backup instead of an image backup to backup the hard disk.	Back up any salvageable data. Then, low-level format, partition, and high-level format the hard drive. Re-install all saved data when completed.

**PROBLEM**

Screen message says "Invalid Configuration" or "CMOS Failure."

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Incorrect information entered into the configuration (setup) program.	Check the configuration program. Replace any incorrect information.	Review system's equipment . Make sure correct information is in setup.

**PROBLEM**

Screen is blank.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
No power to monitor.		Check the power connectors to monitor and to system. Make sure monitor is connected to display card.
Monitor not connected to computer.		See instructions above.

**PROBLEM**

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Memory problem.		Reboot computer. Reinstall memory, make sure that all memory modules are installed in correct sockets.
Computer virus.		Use anti-virus programs to detect and clean viruses.

**PROBLEM**

Screen goes blank periodically.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Screen saver is enabled.		Disable screen saver.

**PROBLEM**

Keyboard failure.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Keyboard is disconnected.		Reconnect keyboard. Check keys again, if no improvement replace keyboard.

**PROBLEM**

No display on screen.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Faulty Monitor.		If possible, connect monitor to another system. If no color replace monitor.
CMOS incorrectly set up.		Call technical support.

**PROBLEM**

C: drive failure.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Hard drive cable not connected properly.		Check hard drive cable.

**PROBLEM**

Cannot boot system after installing second hard drive.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Master/slave jumpers not set correctly.		Set master/slave jumpers correctly.
Hard drives not compatible / different manufacturers.		Run SETUP program and select correct drive types. Call drive manufacturers for compatibility with other drives.

**PROBLEM**

Missing operating system on hard drive.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
CMOS setup has been changed.		Run setup and select correct drive type.

**PROBLEM**

Certain keys do not function.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Keys jammed or defective.		Replace keyboard.

**PROBLEM**

Keyboard is locked, no keys function.

<b>PROBABLE CAUSE</b>	<b>DIAGNOSIS</b>	<b>SOLUTION</b>
Keyboard is locked.		Unlock keyboard.



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