

AK76-SN

Rev. A+ System Board User's Manual

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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.

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.

Table of Contents

Chapter 1 - Introduction

1.1	Features and Specifications.....	6
1.2	Package Checklist.....	11

Chapter 2 - Hardware Installation

2.1	System Board Layout	12
2.2	System Memory.....	13
2.3	Selecting the CPU Frequency Ratio.....	15
2.4	Selecting the CPU Core Voltage.....	16
2.5	Jumper Settings for Selecting the CPU's Front Side Bus.....	17
2.6	Jumper Settings for Clearing CMOS Data.....	18
2.7	Ports and Connectors.....	20

Chapter 3 - Award BIOS Setup Utility

3.1	The Basic Input/Output System.....	38
3.1.1	Standard CMOS Features.....	39
3.1.2	Advanced BIOS Features.....	42
3.1.3	Advanced Chipset Features	46
3.1.4	Integrated Peripherals.....	50
3.1.5	Power Management Setup.....	54
3.1.6	PnP/PCI Configurations.....	59
3.1.7	PC Health Status.....	62
3.1.8	Frequency/Voltage Control.....	63
3.1.9	Load Fail-Safe Defaults.....	64
3.1.10	Load Optimized Defaults.....	64
3.1.11	Set Supervisor Password.....	65
3.1.12	Set User Password.....	65
3.1.13	Save & Exit Setup.....	66
3.1.14	Exit Without Saving.....	66

Chapter 4 - Supported Softwares

4.1 Desktop Management Interface.....	67
4.2 Drivers and Utilities.....	70

Appendix A - System Error Messages

A.1 POST Beep.....	71
A.2 Error Messages.....	71

Appendix B - Troubleshooting

B.1 Troubleshooting Checklist.....	73
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Chapter I - Introduction

I.1 Features and Specifications

I.1.1 Features

Chipset

- AMD® 761 and VIA® VT82C686B

Processor

The system board is equipped with Socket A for 462-pin PGA processor. It is also equipped with a switching voltage regulator that automatically detects 1.100V to 1.850V (0.025V per step).

- AMD Athlon™ (Thunderbird) / Duron™ 500MHz and faster processor
- 200MHz/266MHz processor interface speed (DDR)
- Auto detect processor voltage
- Clock multiplier from 5.0 to 12.5
- Supports VID/FID Override

System Memory

- Two 184-pin DDR DIMM sockets
- Uses 64Mbit, 128Mbit, 256Mbit and 512Mbit technology
 - Supports up to 2GB using 2.5V unbuffered DDR-200/DDR-266 SDRAM DIMM
 - Supports up to 4GB using 2.5V registered DDR-200/DDR-266 SDRAM DIMM
- L2 cache memory
 - Duron™ processor: built-in 64KB Level 2 pipelined burst cache
 - Athlon™ (Thunderbird) processor: built-in 256KB Level 2 pipelined burst cache
- ECC supported (uses x72 DDR SDRAM DIMM)

Expansion Slots

The system board is equipped with 1 universal AGP slot. AGP is an interface designed to support high performance 3D graphics cards. It utilizes a dedicated pipeline to access system memory for texturing, z-buffering and alpha blending. The universal AGP slot supports AGP 2x with up to 533MB/sec. bandwidth and AGP 4x with up to 1066MB/sec. bandwidth for 3D graphics applications. AGP in this system board will deliver faster and better graphics to your PC.

The system board is also equipped with 6 dedicated PCI slots that comply to PCI Local Bus Specification rev. 2.2.

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

- Two USB ports
- Two NSI 6C550A-compatible DB-9 serial ports
- One SPP/ECP/EPP DB-25 parallel port
- One mini-DIN-6 PS/2 mouse port
- One mini-DIN-6 PS/2 keyboard port

Connectors

- One connector for 2 additional external USB ports
- 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
- Connectors for CPU fan 1, CPU fan 2, chassis fan 1, chassis fan 2 and chip fan

PCI Bus Master IDE Controller

- Two PCI IDE interfaces support up to four IDE devices
- Supports ATA/33, ATA/66 and ATA/100 hard drives
- PIO Mode 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 or 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 J6 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

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
- Monitors 2.5V/3.3V/5V/12V/VCORE voltages
- Monitors the fan speed of CPU fan 1 and chassis fan 1
- Read back capability that displays temperature, voltage and fan speed

Refer to the “PC Health Status” section in chapter 3 for more information.

1.1.3 Intelligence

Over Voltage

The Over Voltage function allows you to manually adjust to a higher core voltage that is supplied to the CPU. Although this function is supported, we do not recommend that you use a higher voltage because unstable current may be supplied to the system board causing damage. Refer to “Selecting the CPU Core Voltage” in chapter 2 for more information.

CPU Overclocking

The CPU Overclocking function allows you to adjust the CPU's bus clock in 1MHz increment. However, overclocking may result to the processor's or system's instability and are not guaranteed to provide better system performance. Refer to “CPU Clock” in the Frequency/Voltage Control section in chapter 3 for more information.

Dual Function Power Button

Depending on the setting in the “Soft-Off By PBTN” 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 “RI Resume” 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 $\geq 720\text{mA}$.

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 “RI Resume” 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 $\geq 720\text{mA}$.

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 “RTC Resume” in the Power Management Setup section in chapter 3 for more information.

AC Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually, let the system power-on automatically or return to the state where you left off before power failure occurs. Refer to “PWRON After PWR-Fail” in the Power Management Setup section in chapter 3 for more information.

ACPI

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management.

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

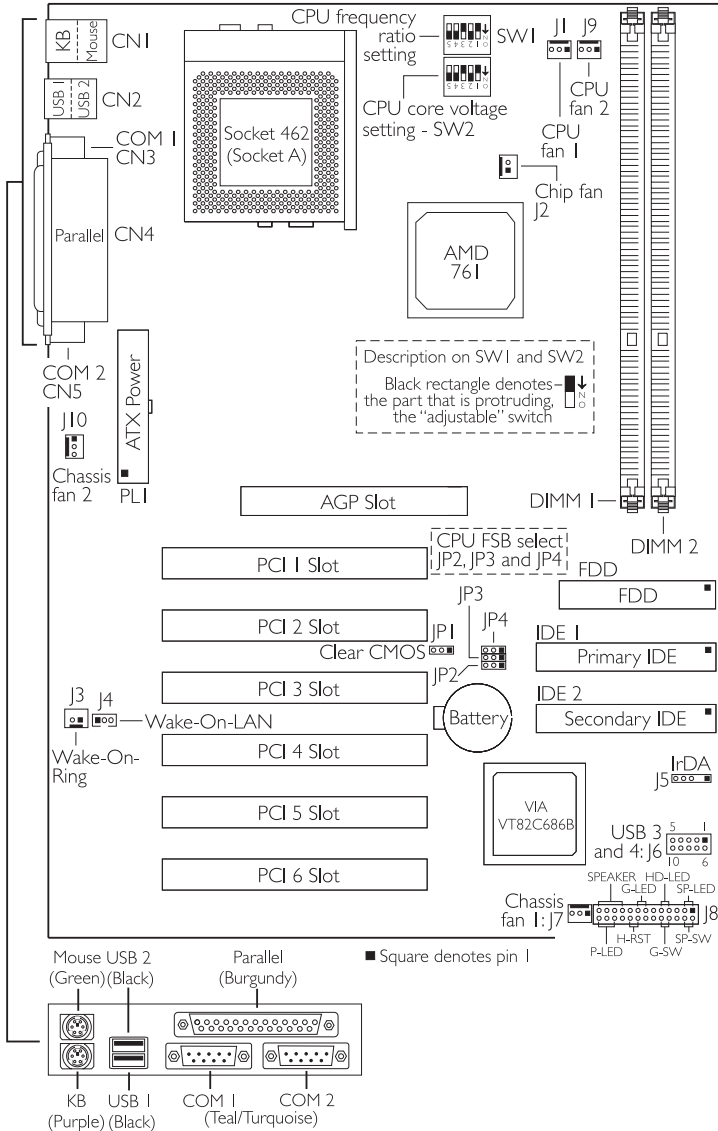
The system board package contains the following items:

- The system board
- A user's manual
- One IDE cable for ATA/33, ATA/66 or ATA/100 IDE drives
- One 34-pin floppy disk drive cable
- One card-edge bracket with 2 USB ports (optional)
- One “Main Board Utility” CD

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

Chapter 2 - Hardware Installation

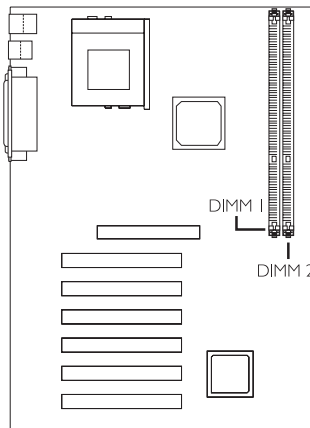
2.1 System Board Layout



**Warning:**

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

2.2 System Memory

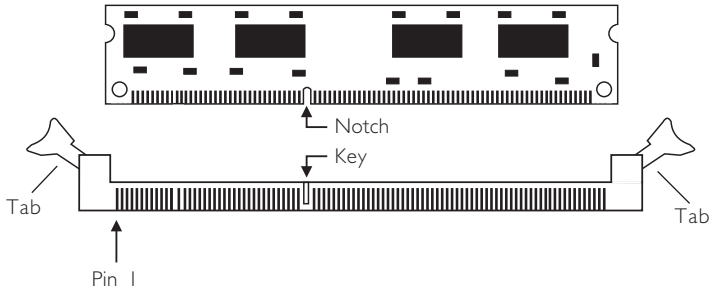


The system board is equipped with two 184-pin DDR DIMM (Dual In-line Memory Module) sockets that support unbuffered or registered DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock.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

The system board also supports the ECC (Error Checking and Correction) function. To use this function, you must install DIMM that supports parity. 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.



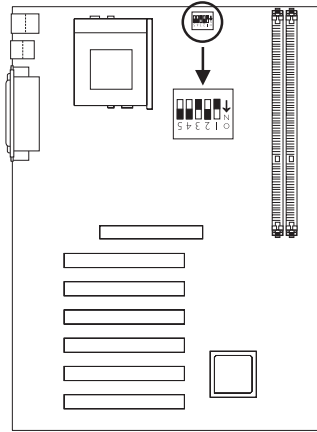
1. Pull the “tabs” which are at the ends of the socket to the side.
2. Position the DIMM above the socket with the “notches” in the module aligned with the “keys” on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

2.3 Selecting the CPU Frequency Ratio

Black rectangle denotes the part that is protruding, the "adjustable" switch



SWI's default setting.



Ratio	1	2	3	4	Ratio	1	2	3	4
5x	On	On	Off	On	9x	On	On	Off	Off
5.5x	Off	On	Off	On	9.5x	Off	On	Off	Off
6x	On	Off	Off	On	10x	On	Off	Off	Off
6.5x	Off	Off	Off	On	10.5x	Off	Off	Off	Off
7x	On	On	On	Off	11x	On	On	On	On
7.5x	Off	On	On	Off	11.5x	Off	On	On	On
8x	On	Off	On	Off	12x	On	Off	On	On
8.5x	Off	Off	On	Off	12.5x	Off	Off	On	On

SWI: Pin 5

- On: Auto - the system will run according to the CPU's default ratio. Settings on pins 1 to 4 will have no effect.
- Off: Manual - use pins 1, 2, 3 and 4 to select the desired ratio.

CPU Frequency Ratio Select - SWI

The table above shows the available frequency ratios and their corresponding DIP switch setting. Make sure SWI is set correctly before applying power; otherwise you will not be able to power-on the system.

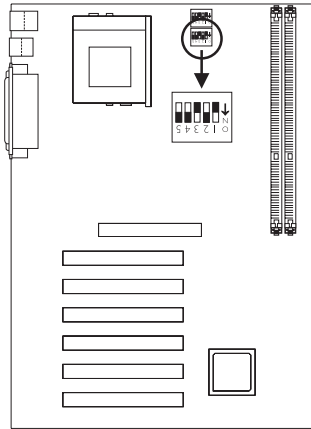
Set pin 5 to On if you wish to use the CPU's default ratio. The settings on pins 1 to 4 will have no effect. If you wish to manually select the CPU's ratio, set pin 5 to Off then refer to the table for the appropriate settings.

2.4 Selecting the CPU Core Voltage

Black rectangle denotes the part that is protruding, the “adjustable” switch



SW2's default setting.



Voltage	1	2	3	4	Voltage	1	2	3	4
1.475V	Off	Off	Off	Off	1.675V	Off	Off	Off	On
1.500V	On	Off	Off	Off	1.700V	On	Off	Off	On
1.525V	Off	On	Off	Off	1.725V	Off	On	Off	On
1.550V	On	On	Off	Off	1.750V	On	On	Off	On
1.575V	Off	Off	On	Off	1.775V	Off	Off	On	On
1.600V	On	Off	On	Off	1.800V	On	Off	On	On
1.625V	Off	On	On	Off	1.825V	Off	On	On	On
1.650V	On	On	On	Off	1.850V	On	On	On	On

SW2: Pin 5

Off: Auto - the system will run according to the CPU's default core voltage. Settings on pins 1 to 4 will have no effect.

On: Manual - use pins 1, 2, 3 and 4 to select the desired core voltage.

CPU Core Voltage Select - SW2

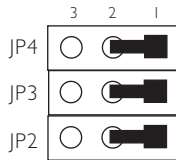
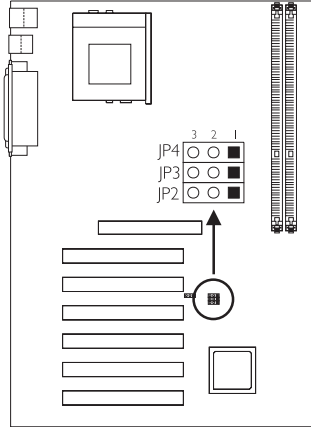
SW2 allows you to manually adjust the core voltage that is supplied to the CPU. If you wish to use the CPU's default core voltage, set pin 5 to Off. The CPU's Vcore will be generated according to the CPU VID configuration. Settings on pins 1 to 4 will have no effect. If you wish to manually select the CPU's core voltage, set pin 5 to On then refer to the table for the appropriate settings.



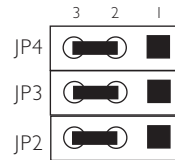
Important:

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

2.5 Jumper Settings for Selecting the CPU's Front Side Bus



1-2 On:
133MHz
(266MHz DDR) CPU

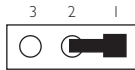
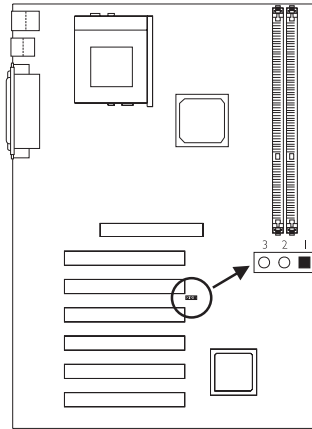


2-3 On:
100MHz
(200MHz DDR) CPU
(default)

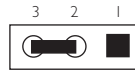
CPU Front Side Bus Select - Jumpers JP2, JP3 and JP4

Set these jumpers according to the front side bus of the CPU installed on the system board.

2.6 Jumper Settings for Clearing CMOS Data



1-2 On:
Clear CMOS Data



2-3 On: Normal
(default)

Clear CMOS Data - Jumper JPI

If you encounter the following,

- CMOS data becomes corrupted.*
- You forgot the supervisor or user password.*
- You are unable to boot-up the computer system because the CPU's external system bus clock was incorrectly set in the BIOS.*

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

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

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

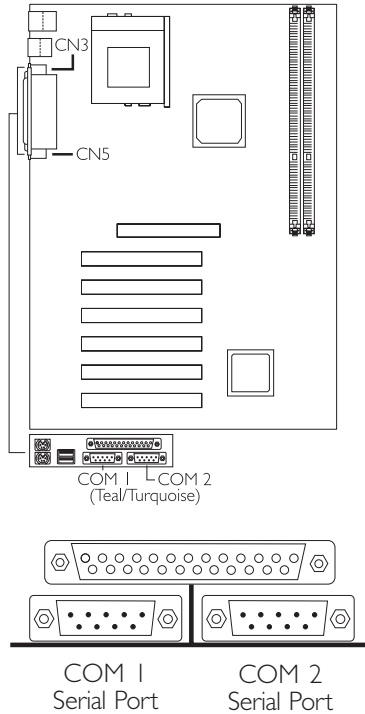
3. Plug the power cord and power-on the system.

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

4. After powering-on the system, press to enter the main menu of the BIOS.
5. Select the Frequency/Voltage Control submenu and press <Enter>.
6. Set the "CPU Clock" field to its default setting or an appropriate bus clock. Refer to the Frequency/Voltage Control section in chapter 3 for more information.
7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.
8. Type <Y> and press <Enter>.

2.7 Ports and Connectors

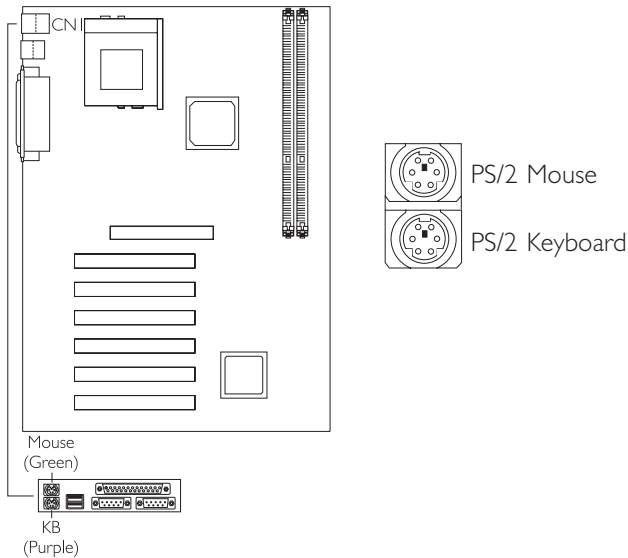
2.7.1 Serial Ports



The system board is equipped with onboard serial ports (COM 1: CN3 and COM 2: CN5) - both in Teal/Turquoise color located at the ATX double deck ports of the board.

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

2.7.2 PS/2 Mouse and PS/2 Keyboard Ports



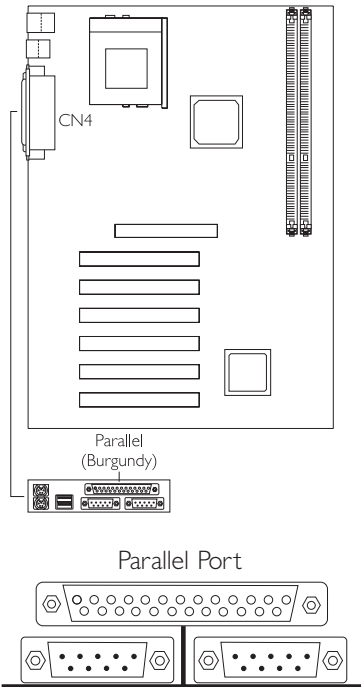
The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN1 of the ATX double deck ports of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.



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.

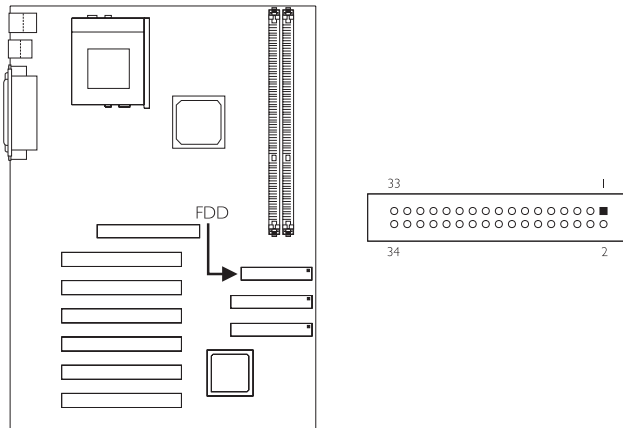
2.7.3 Parallel Port



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

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

2.7.4 Floppy Disk Drive Connector

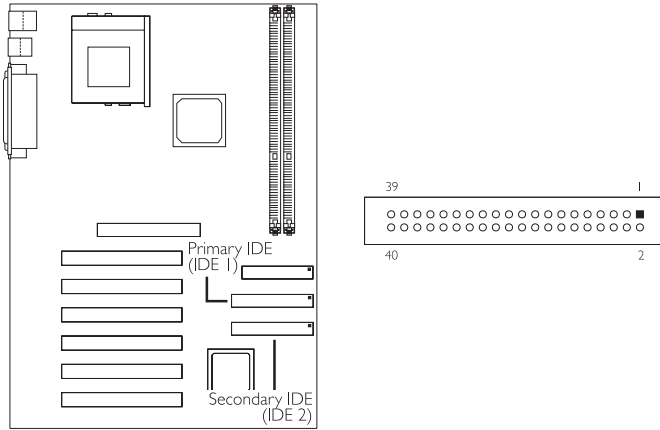


The system board is equipped with a shrouded floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the shrouded floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if 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 (FDD) on the system board. The colored edge of the ribbon should be aligned with pin 1 of FDD.
2. Install the other 34-pin header connector(s) into the disk drive(s). Align the colored edge of the daisy chained ribbon cable with pin 1 of the drive edge connector(s). The end-most connector should be attached to the drive you want to designate as Drive A.

2.7.5 IDE Disk Drive Connector



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

Connecting the IDE Disk Drive Cable

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

**Note:**

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

Adding a Second IDE Disk Drive

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

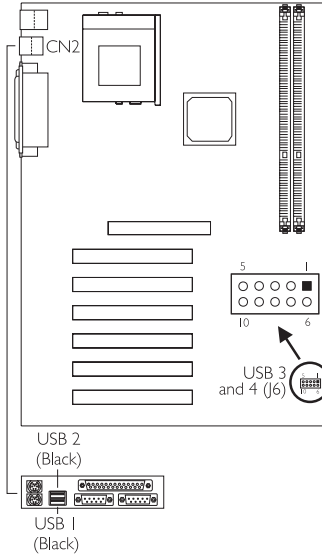
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 or ATA/100 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the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



Important:

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.

2.7.6 Universal Serial Bus Ports

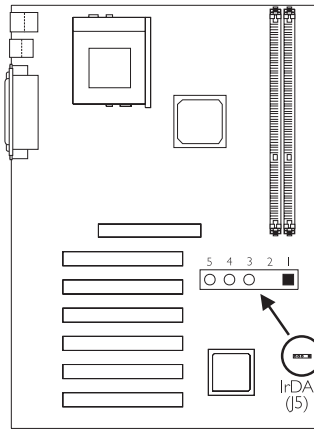


Pin	Function	Pin	Function
1	VCC	6	Ground
2	-Data	7	Ground
3	+Data	8	+Data
4	Ground	9	-Data
5	Ground	10	VCC

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 (CN2 - Black) are located at the ATX double deck ports of the board. The J6 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 J6. The USB ports' cable connector can be inserted only if pin 1 of the cable is aligned with pin 1 of J6.

2.7.7 IrDA Connector



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

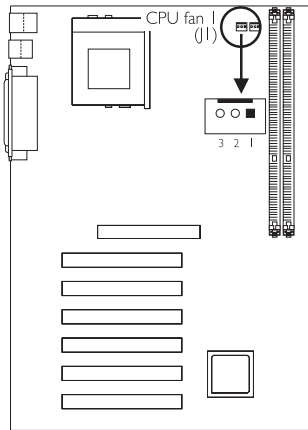
The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices. The IRDA (Infrared Data Association) specification supports data transfers of 115K baud at a distance of 1 meter.

Connect your IrDA cable to connector J5 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.

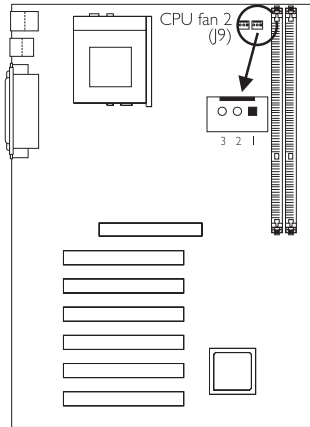
2.7.8 CPU Fan 1 Connector



Pin	Function
1	Ground
2	+12V
3	Sense

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

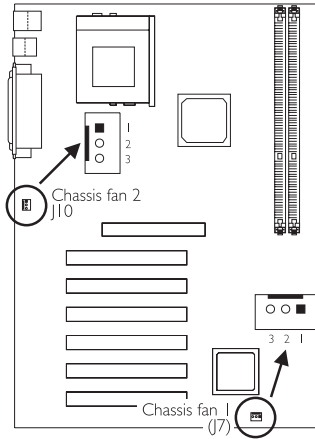
2.7.9 CPU Fan 2 Connector



Pin	Function
1	Ground
2	+12V
3	N. C.

If you are installing a second CPU fan in the system unit, connect the fan's connector to location J9 (red connector) on the system board. The system is not capable of monitoring the speed of the fan that is connected to the CPU fan 2 connector.

2.7.10 Chassis Fan 1 and Chassis Fan 2 Connectors



Chassis Fan 1

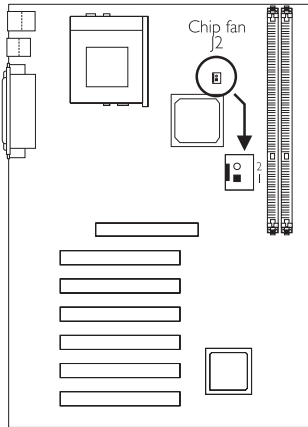
Pin	Function
1	Ground
2	+12V
3	Sense

Chassis Fan 2

Pin	Function
1	Ground
2	+12V
3	N. C.

The system board is equipped with two chassis fan connectors. Installing chassis fans will provide adequate airflow throughout the chassis to prevent overheating the CPU. The system is capable of monitoring the speed of the chassis fan 1 connector (white connector) only.

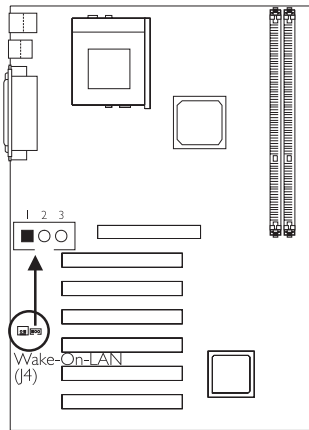
2.7.1.1 Chip Fan Connector



Pin	Function
1	+12V
2	Ground

The AMD 761 chip must be kept cool by using a fan with heatsink. Connect the fan's connector to location J2 on the system board.

2.7.12 Wake-On-LAN Connector



Pin	Function
1	+5VSB
2	Ground
3	WOL

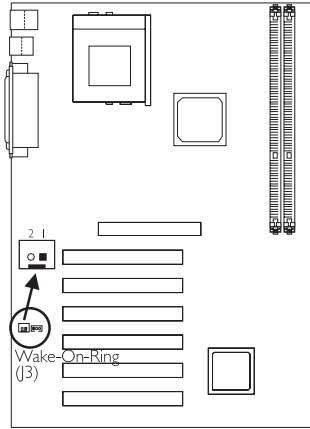
The system board supports the Wake-On-LAN function. This function will allow the network to remotely power-on a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

To use the Wake-On-LAN function, you must enable the “RI Resume” field in the Power Management Setup of the BIOS. Your LAN card package should include a cable. Connect one end of the cable to the wakeup header on the card and the other end to location 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 $\geq 720\text{mA}$.

2.7.13 Wake-On-Ring Connector



Pin	Function
1	Ground
2	WOM

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.

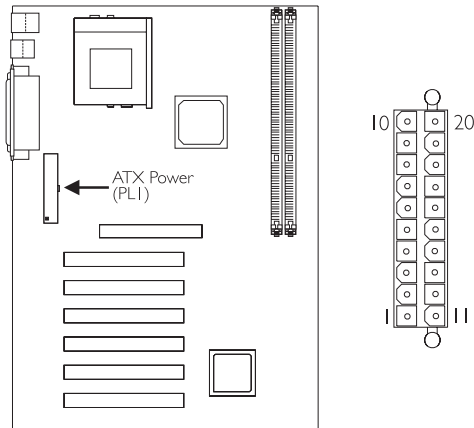
To use this function, connect one end of the cable (that came with the card) to the card's wake-on-ring connector and the other end to location J3 on the system board. You must also enable the "RI Resume" field in the Power Management Setup of the BIOS.

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 $\geq 720\text{mA}$.

2.7.14 Power Connector



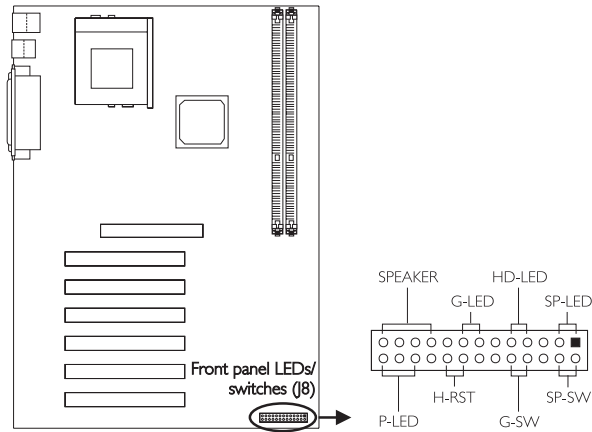
The pin assignment of the ATX power connector is shown below.

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-OOK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

**Important:**

The system board requires a minimum of 250W power supply.

2.7.15 Front Panel LEDs and Switches

**SP-LED - ATX 5VSB Standby LED**

This LED will light when the 5VSB power is active.

HD-LED: Primary/Secondary IDE LED

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

G-LED: Green LED

This LED will blink every second when the system is in the Suspend mode.

SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

SP-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 PBTN” in the Power Management Setup (Chapter 3).

G-SW: Green Switch

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

H-RST: 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.

P-LED: Power/Standby LED

When the system's power is on, this LED will light. When the system is in the Suspend mode, it will not light.

**Note:**

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

	Pin	Pin Assignment
SP-LED (ATX 5VSB Standby LED)	1	5VSB
	2	Ground
	3	N. C.
HD-LED (Primary/Secondary IDE LED)	4	Ground
	5	HDD LED Signal
	6	N. C.
G-LED (Green LED)	7	Green Signal
	8	Green LED Power
	9	N. C.
SPEAKER (Speaker connector)	10	Speaker Signal
	11	N. C.
	12	Ground
	13	Speaker Power
SP-SW (ATX power switch)	14	PWRBT Signal
	15	Ground
	16	N. C.
G-SW (Green switch)	17	SMI Signal
	18	Ground
	19	N. C.
H-RST (Reset switch)	20	N. C.
	21	H/W Reset
	22	Ground
P-LED Power/Standby LED	23	N. C.
	24	LED Power
	25	N.C.
	26	Ground

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:

Press DEL to enter setup

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

When you press , 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

Date (mm:dd:yy)	Tue, Dec 5 2000	Item Help
Time (hh:mm:ss)	4 : 35 : 5	
▶ IDE Primary Master	Press Enter None	Menu Level
▶ 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	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".

Access Mode

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

Capacity

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

Drive A and Drive B

These fields identify the types of floppy disk drives installed.

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

Video

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

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

- 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, But Keyboard.

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

Base Memory

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

Extended Memory

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

Total Memory

Displays the total memory available in the system.

3.1.2 Advanced BIOS Features

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

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

		Item Help
Virus Warning	Disabled	Menu Level 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 Internal Cache	Enabled	
External Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Typeomatic Rate Setting	Disabled	
X Typeomatic Rate (Chars/Sec)	6	
X Typeomatic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
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	

ve ESC:Exit F1:General Help
 is F7:Optimized Defaults

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

Virus Warning

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

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

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this

field. Also, disable this field if you are installing or running certain operating systems like Windows® 95/98 or the operating system may not install nor work.

CPU Internal Cache and External Cache

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

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. The options are: Floppy, LS/ZIP, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, LAN and Disabled. Set "Boot Other Device" to Enabled if you wish to boot from another device.

Swap Floppy Drive

If the system has two floppy drives, choose Enabled to assign physical drive B to logical drive A and vice versa.

Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

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.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When Enabled, "Typematic Rate" and "Typematic Delay" can be selected.

Typematic Rate (Chars/Sec)

This field allows you to select the rate at which character repeats when you hold down a key.

Typematic Delay (Msec)

This field allows you to select the delay before keystrokes begin to repeat.

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.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. Video Shadow will increase the video speed. Note that some graphics boards require that this option be disabled. The default value is Enabled.

Enabled Video shadow is enabled.

Disabled Video shadow is disabled.

C8000-CBFFF Shadow to DC000-DFFFF Shadow

These fields determine whether option ROMs will be copied to RAM.

Enabled Optional shadow is enabled.

Disabled Optional shadow is disabled.

3.1.3 Advanced Chipset Features

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

System BIOS Cacheable	Enabled	Item Help	
Video RAM Cacheable	Enabled		
Memory Hole At 15M-16M	Disabled		
AGP Aperture Size (MB)	128		
AGP Secondary Lat Timer	20h		
AGP Fast Write	Enabled		
AGP Data Transfer Mode	4x		
AGP Always Compensate	Disabled		
SDRAM ECC Setting	Disabled		
Super Bypass Mode	Disabled		
SDRAM Timing setting by	Auto		
X SDRAM PH Limit	1 Cycle		
X SDRAM Idle Limit	0 Cycle		
X SDRAM Trc Timing Value	3 Cycle		
X SDRAM Trp Timing Value	1 Cycle		
X SDRAM Tras Timing Value	2 Cycle		
X SDRAM CAS Latency	2.5 Cycle		
X SDRAM Trcd Timing Value	2 Cycle		
↑↓→← 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.

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 RAM Cacheable

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

Memory Hole At 15M-16M

In order to improve system performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When enabled, the CPU assumes the 15-16MB memory range is allocated to the hidden ISA address range instead of the actual system DRAM. When disabled, the CPU assumes the 15-16MB address range actually contains DRAM memory. If more than 16MB of system memory is installed, this field must be disabled to provide contiguous system memory.

AGP Aperture Size (MB)

This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. The options are: 32MB, 64MB, 128MB and 256MB. Leave this field in its default setting, which is 128MB.

AGP Secondary Lat Timer

The options are: 00h, 20h, 40h, 60h, 80h, C0h and FFh.

AGP Fast Write

This function is supported only if this field is set to Enabled.

AGP Data Transfer Mode

This field is used to select the AGP mode of the AGP card installed on the system board. The default setting is "4x".

AGP Always Compensate

The options are Enabled and Disabled.

SDRAM ECC Setting

The ECC (Error Checking and Correction) function is supported only when using a x72 (72-bit) DDR SDRAM DIMM. If you are using a x64 (64-bit) DDR SDRAM DIMM, set this field to Disabled.

<i>Disabled</i>	Uses x64 PC SDRAM DIMM.
<i>Enabled</i>	This option allows the system to recover from memory failure. It detects single-bit and multiple-bit errors, then automatically corrects single-bit error.

Super Bypass Mode

The default is “Disabled”. When Enabled, the chip allows low-latency accesses to memory. However, memory incompatibility may occur. If the system becomes unstable after enabling this function, set this field to Disabled.

SDRAM Timing setting by

SDRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layout or slower memory. When this field is set to “Auto”, the system will automatically set the SDRAM timing. If you leave this field in its default setting - “Manual”, the following fields can be configured.

SDRAM PH Limit

This field is used to specify the number of consecutive page-hit requests allowed before choosing a non-page-hit request.

SDRAM Idle Limit

This field is used to specify the number of idle cycles before precharging an idle bank.

SDRAM Trc Timing Value

This field is used to specify the minimum time from activate to activate in the same bank.

SDRAM Trp Timing Value

This field is used to specify the delay time from precharge command to activate command.

SDRAM Tras Timing Value

This field is used to specify the minimum bank active time (time from active to precharge in the same bank).

SDRAM CAS Latency

This field is used to specify the DRAM CAS latency.

SDRAM Trcd Timing Value

This field is used to specify the delay from the time a bank is activated to the time that a read or write command is accepted.

3.1.4 Integrated Peripherals

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

OnChip IDE Channel0	Enabled	↑ ↓	Item Help
OnChip IDE Channel1	Enabled		Menu Level
IDE Prefetch Mode	Enabled		
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		
OnChip USB1	Enabled		
OnChip USB2	Enabled		
USB Keyboard Support	Disabled		
USB Mouse Support	Disabled		
IDE HDD Block Mode	Enabled		
Onboard FDD Controller	Enabled		
Onboard Serial Port 1	3F8/IRQ4		
Onboard Serial Port 2	2F8/IRQ3		
UART 2 Mode	Standard		
X IR Function Duplex	Half		
X TX,RX Inverting Enable	No, Yes		
Onboard Parallel Port	378/IRQ7		
Parallel Port Mode	SPP		
ECP Mode Use DMA	3		
Parallel Port EPP Type	EPP1.9		

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 IDE Channel0 and OnChip IDE Channel1

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 Prefetch Mode

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

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.
- 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 categories 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 AGP or PCI first when the system boots.

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

OnChip USB1

Enable this field to use the USB 1 and USB 2 ports.

OnChip USB2

Enable this field to use the USB 3 and USB 4 ports.

USB Keyboard Support

This field is configurable only if the "OnChip USB1" is enabled. By default, USB Keyboard Support is Disabled. However, if you are using a USB keyboard under DOS, make sure to enable this function.

USB Mouse Support

This field can be configured only if the "OnChip USB1" is enabled.

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

When setting to "Auto", the system will automatically specify an I/O address and IRQ for the serial port 1 and serial port 2. You can manually configure the serial ports by selecting 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 or Disabled.

UART 2 Mode

The system board supports IrDA function for wireless connectivity between your computer and peripheral devices. You may not use IrDA (J5) and the COM 2 (CN5) serial port 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 J5 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

This field allows you to configure the Parallel port. The options are: 378/IRQ7, 3BC/IRQ7, 278/IRQ5 and Disabled.

Parallel Port 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.

If you selected EPP, the “Parallel Port EPP Type” field is configurable. If you selected ECP, the “ECP Mode Use DMA” field is configurable. If you selected ECP+EPP, both “Parallel Port EPP Type” and “ECP Mode Use DMA” are configurable.

ECP Mode Use DMA

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

Parallel Port EPP Type

The options are EPP1.9 and EPP1.7. Default setting: EPP1.7.

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

		Item Help
ACPI Function	Enabled	Menu Level
Power Management	User Define	
Video Off Method	DPMS Support	
Standby Mode	Disabled	
HDD Power Down	Disabled	
HDD Down In Suspend	Disabled	
Soft-Off By PBTN	Instant-Off	
PWRON After PWR-Fail	Off	
Wake-Up by PCI Card (PME)	Disabled	
USB Resume	Disabled	
RI Resume	Disabled	
Modem Use IRQ	3	
RTC Resume	Disabled	
X Date(of Month) Alarm	0 0 0	
X Time (hh:mm:ss) Alarm	0 0 0	
► IRQ Wakeup Events	Press Enter	
VGA	Off	
LPT & COM	LPT/COM	
HDD & FDD	On	
PCI Master	Off	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

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

ACPI Function

By default, the ACPI function is enabled. This function should be enabled only in operating systems that support ACPI.

Power Management

This category allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the “Standby Mode” and “HDD Power Down” are activated.

Min Saving

Minimum power management. Standby Mode = 1 hour, and HDD Power Down = 15 Min.

- Max Saving* Maximum power management. Standby Mode = 30 Sec, and HDD Pown Down = 1 Min.
- User Define* When selected, the "Standby Mode" and "HDD Power Down" fields can be set.

Video Off Method

This determines the manner in which the monitor is blanked.

- VIH 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.

Standby Mode

This is selectable only when the Power Management field is set to User Define. When the system enters the Standby mode according to the power saving time selected, video will be shut off while all other devices still operate at full speed.

HDD Power Down

This is user configurable only when the Power Management category is set to User Define. After the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active. The set time ranges from 1 Min to 15 Min or you can disable this field.

HDD Down In Suspend

The default setting is Disabled. When enabled, the hard drive will be powered off once the system enters the Suspend mode.

Soft-Off by PBTN

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

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

PWRON After PWR-Fail

- Off* When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.
- On* When power returns after an AC power failure, the system will automatically power-on.
- Former-Sts* When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

Wake-Up by PCI Card (PME)

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

USB Resume

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

RI Resume

Set this field to Enabled to use the Wake-On-Ring or Wake-On-LAN function. The Wake-On-Ring function allows your system to power-on to respond to calls coming through an external or internal modem. Refer to “Wake-On-Ring Connector” in the chapter 2 for more information.

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

Modem USE IRQ

This field allows you to select an IRQ for your modem. The options are: 3, 4, 5, 7, 9, 10, 11 and NA.

RTC Resume

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

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

Date (of Month) Alarm

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

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

Time (hh:mm:ss) Alarm

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

IRQ Wakeup Events

Move the cursor to this field and press <Enter>. The "IRQ3" to "IRQ15" fields will appear. 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.

VGA

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

LPT & COM

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

HDD & FDD

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

PCI Master

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

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

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	Menu Level Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
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		

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

PNP OS Installed

The default setting is "No"; the BIOS will detect the Plug and Play devices for some compatible resources.

Reset Configuration Data

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

Disabled The BIOS will not reset the configuration data.

Resources Controlled By

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

- Auto* The system will automatically detect the settings for you.
- Manual* This setting makes the "IRQ Resources" and "DMA Resources" fields selectable. In the fields, assign each system interrupt its proper type.

IRQ Resources (IRQ3/4/5/7/9/10/11/12/14/15) and DMA Resources (DMA0/1/3/5/6/7)

These fields are used to set each system interrupt to either Legacy ISA or PCI/ISA PnP.

- PCI/ISA PnP* For devices compliant with the Plug and Play standard whether designed for PCI or ISA 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 field 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 USB devices and an ISA slot requires an IRQ, set this field to Disabled. The IRQ previously occupied by the USB device will be available for the ISA slot.



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.	31°C/ 87°F	Menu Level
Current System Temp.	31°C/ 87°F	
Current CPUFAN1 Speed	0 RPM	
Current Chassis Fan Speed	0 RPM	
Vcore	2.06 V	
2.5V	2.51 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 CPUFAN1 Speed and Current Chassis Fan Speed

These fields show the current temperature of the CPU, internal temperature of the system, the current speed of CPU fan 1 and the current speed of the chassis fan 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.

3.1.8 Frequency/Voltage Control

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

Auto Detect DIMM/PCI Clk	Enabled	Item Help
Spread Spectrum	Disabled	Menu Level
CPU Clock	100	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

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

Auto Detect DIMM/PCI Clk

When enabled, the system will automatically detect the speed of the DIMMs installed on the system board.

Spread Spectrum

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

CPU Clock

This field provides several options for selecting the external system bus clock of the CPU. The available options allow you to adjust the CPU's bus clock in 1MHz increment. The default setting is "100".

If you selected an option other than the default setting and is unable to boot up the system, clear the CMOS data by setting JPI to 1-2 On. All fields in the BIOS Setup will automatically be set to their default settings.



Important:

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

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 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 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.

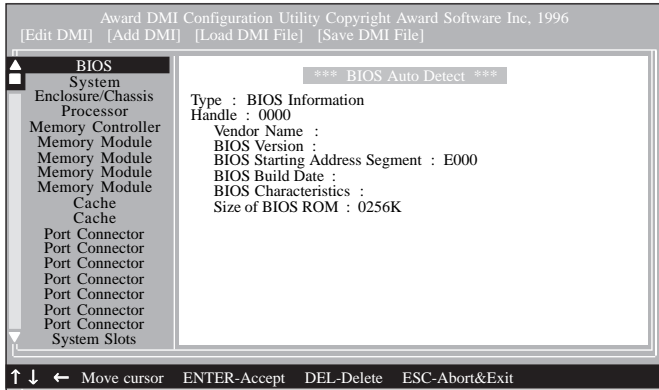
4.1.1 Running the DMI Utility

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



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

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

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

Edit DMI

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

Add DMI

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

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

Load DMI File

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

Press [Enter] to select DMI file for load

Press <Enter>.

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

Do you want to execute? (Y/N)

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

Save DMI File

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

Press [Enter] to select DMI file for save

Press <Enter>.

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

4.2 Drivers and Utilities

1. The CD included in the system board package contains drivers and utilities. To install, insert the CD into a CD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click the "Read Me" button for instructions on installing the supported drivers and utilities.
2. "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".
3. 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.
4. All steps or procedures to install software drivers are subject to change without notice as the softwares are occasionally updated. Please refer to the readme files, if available, for the latest information.

Appendix A - 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.

A.1 POST Beep

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

A.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 B - Troubleshooting

B.1 Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

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

Parallel Port

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

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

Serial Port

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

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

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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