

Mainboard MS-6191

User manual

MS-6191

Version 1.0

Manual Rev: 1.0
Release Date: October 1999

Mainboard MS-6191



FCC-B Radio Frequency Interference Statement

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 commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

**VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER
AU RESEAU.**



Mainboard MS-6191

Edition

October 1999

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CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

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Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. **DO NOT COVER THE OPENINGS.**
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before Inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
 - The power cord or plug is damaged
 - Liquid has penetrated into the equipment
 - The equipment has been exposed to moisture
 - The equipment has not work well or you can not get it work according to User's Manual.
 - The equipment has dropped and damaged
 - If the equipment has obvious sign of breakage
12. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60⁰ C (140⁰F), IT MAY DAMAGE THE EQUIPMENT.**

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Chapter 1

INTRODUCTION

The Micro ATX IR2 mainboard is a high-performance personal computer mainboard based on the AMD Athlon® processor. This mainboard provides onboard Creative® ES1373 PCI technology in audio. The AMD Athlon® processor is the newest microprocessor in the AMD K86™ family of microprocessors.

The mainboard uses the highly integrated AMD® 751 system controller and AMD 756 peripheral controller. The AMD-751 system controller features: the S2k system interface supports a 100Mhz clock and double-data rate (DDR) transfers, the 33MHz 32-bit bus interface supports up to three masters, the 66MHz AGP 1.0 compliant interface supports 2x data transfer mode, and High Speed memory designed to support a 100MHz SDRAM (PC-100-compatible-DIMM) with serial presence detect (PSD). The AMD-756 peripheral bus controllers feature an integrated ISA bus controller, an enhanced IDE controller with Ultra DMA-66 support, and a keyboard/mouse controller.

THE MS-6191 ATX IR2 mainboard is one of our system board to implement the AMD-750 chipset (AMD-751 and AMD-756), which supports a single Slot A for AMD Athlon® processor.

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1.1 Mainboard Features

CPU

- Slot A for AMD® Athlon™ processor.
- Support 500MHz, 550MHz, 600MHz, or higher processor

Chipset

- AMD® Irongate™ chipset. (Northbridge)
 - 200MHz EV6 System Interface speed
 - 100MHz SDRAM
 - 1x/2x AGp
 - Status - Silicon currently in bring-up
- AMD® 756™ (Viper) chipset. (Southbridge)
 - OHCI USB
 - APIC
 - ACPI Power Management

Front Side Bus (FSB)

- 100MHz clock is supported.

Main Memory

- Supports two memory banks using two 168-pin unbuffered DIMM sockets.
- Supports a maximum memory size of 512MB for SDRAM.
- Supports 3.3v PC100 SDRAM DIMM.

Slots

- One AGP (Accelerated Graphics Port) slot.
 - AGP specification compliant
 - AGP 66/133MHz 3.3v device support
- Three 32-bit Master PCI Bus slots.
- Supports 3.3v/5v PCI bus Interface.
- PCI 2.2 Compliant

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On-Board IDE

- An IDE controller on the AMD® 756™ Viper chipset provides IDE HDD/CD-ROM with PIO and Ultra DMA/66 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals

- On-Board Peripherals include:
 - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
 - 2 serial ports (COMA + COMB)
 - 1 parallel port supports SPP/EPP/ECP mode
 - 4 USB ports
 - 1 IrDA connector for SIR.

BIOS

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

Dimension

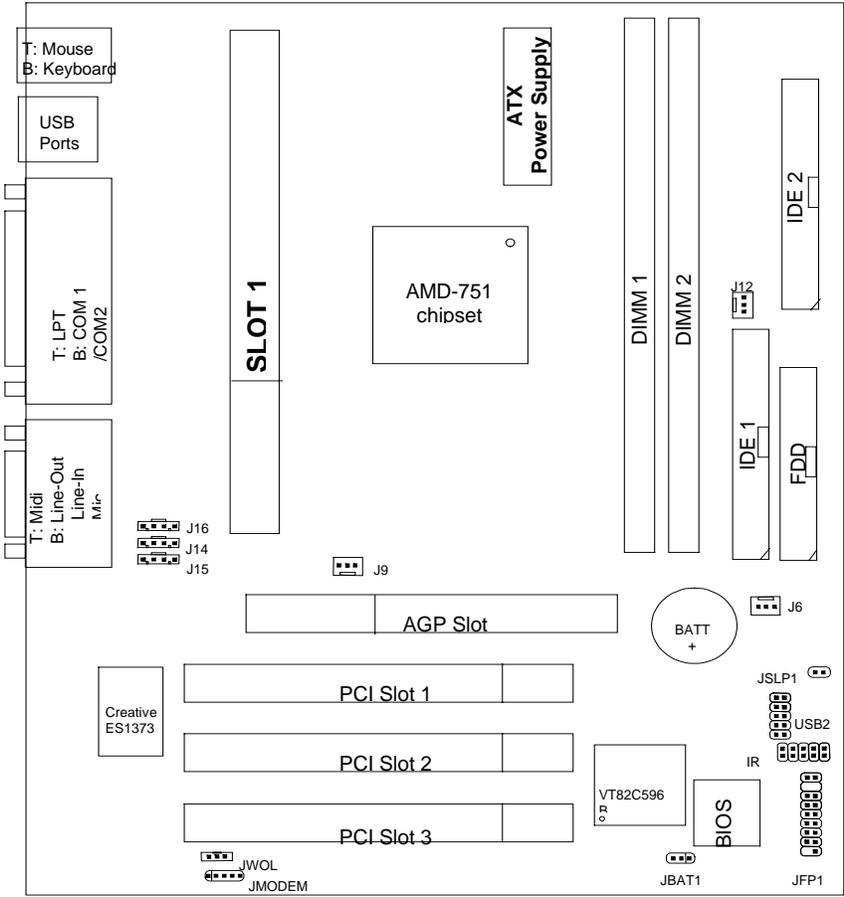
- Micro ATX Form Factor

Mounting

- 6 mounting holes.

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1.2 Mainboard Layout



MS-6191 MICRO ATX IR2 Mainboard

Chapter 2

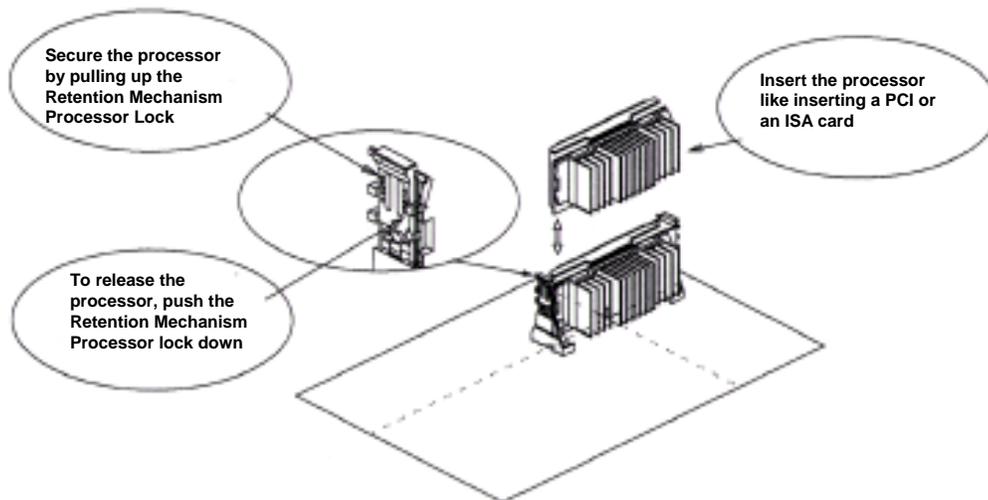
HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

2.1-1 CPU Installation Procedures

Step 1: Install the Retention Mechanism.

Attach the Retention Mechanism to the Mainboard. Push the Plastic lock to secure the Retention Mechanism into the mainboard.



Step 2: Install the Processor.

Insert the Processor like inserting a PCI or an ISA card.

Step 3: Lock the Processor.

Lock the processor by pulling up the Retention Mechanism processor lock shown above.

Note: The Retention Mechanism processor lock can only lock S.E.C.C. 2 and S.E.P.P. processor.

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2.1-2 CPU Core Speed Derivation Procedure

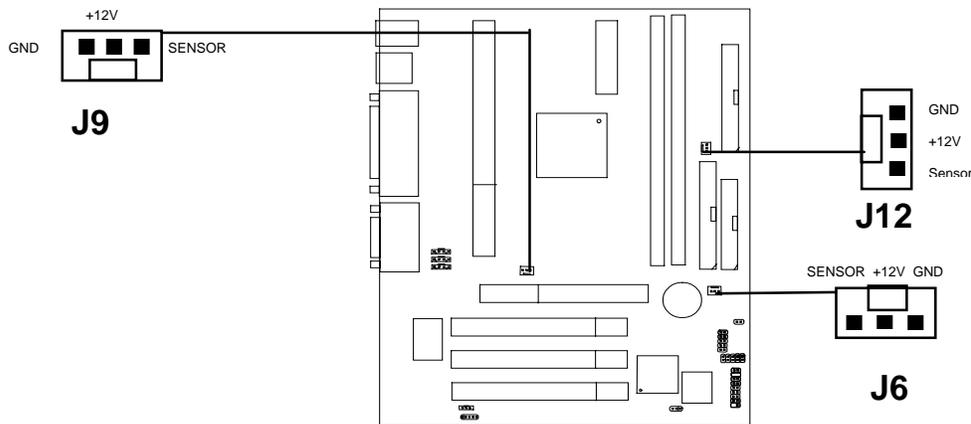
The Mainboard can auto-detect the processor speed. Just insert the AMD Athlon processor into Slot A.

If	<u>CPU Clock</u>	=	100MHz
	<u>Core/Bus ratio</u>	=	5
then	<u>CPU core speed</u>	=	<u>Host Clock</u> x <u>Core/Bus ratio</u>
		=	100MHz x 5
		=	500MHz

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2.1-4 Fan Power Connectors: J9, J12, and J6

These connectors support system-cooling fan with +12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is ground and should be connected to GND.



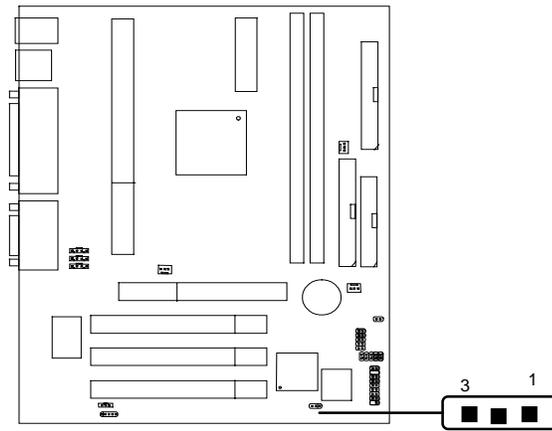
- J12** : Power Supply Fan
- J9** : Processor Fan
- J6** : System(Chassis) Fan

Note: 1. Always consult vendor for proper CPU cooling fan.

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2.2 Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 1-2 pins of JBAT1 to store the CMOS data.



JBAT1



Keep Data



Clear Data

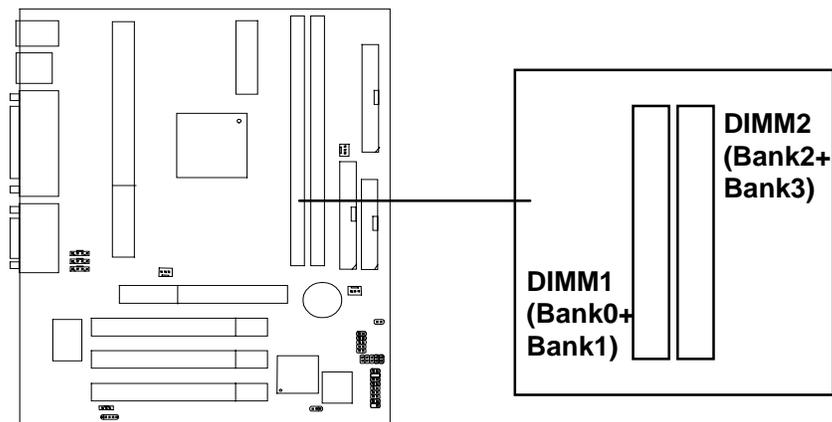
Note: You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.

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2.3 Memory Installation

2.3-1 Memory Bank Configuration

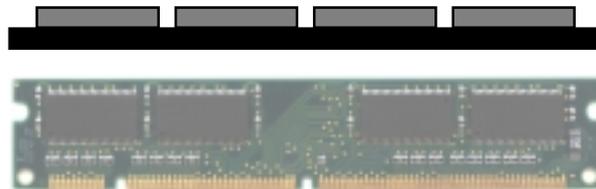
The mainboard supports a maximum memory size of 768MB for SDRAM: It provides two 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 256 Mbytes DIMM memory module.



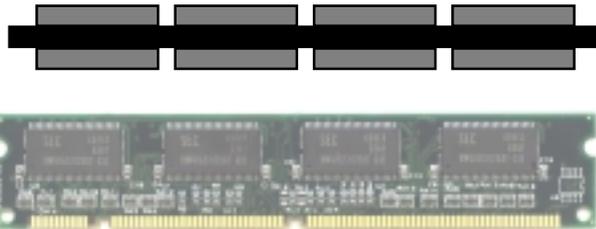
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2.3-2 Memory Installation Procedures

A. How to install a DIMM Module

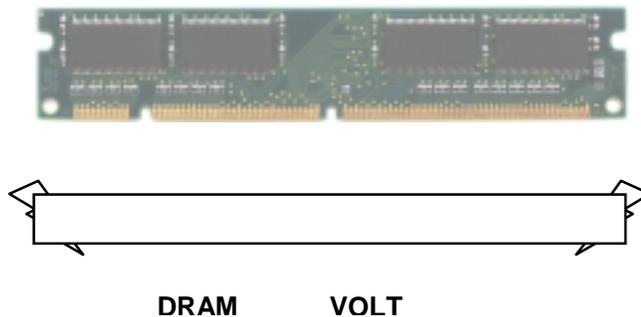


Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has a two Notch Key “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.



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3. The plastic clip at the side of the DIMM slot will automatically close.

2.3-3 Memory Population Rules

1. Supports only PC100 SDRAM DIMM.
2. To operate properly, at least one 168-pin DIMM module must be installed.
3. This mainboard supports Table Free memory, so memory can be installed on DIMM1 or DIMM 2 in any order.
4. Supports 3.3 volt DIMM.
5. The DRAM addressing and the size supported by the mainboard is shown below:

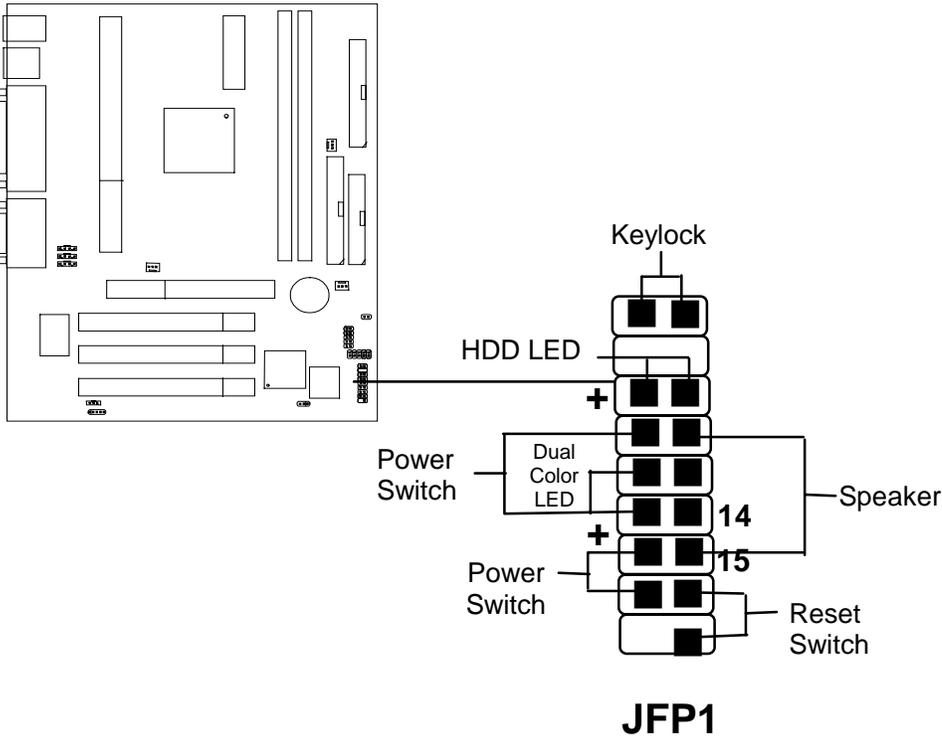
Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB / DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	2Mx32	ASYM	12	8	16MB	32MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB

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2.4 Case Connector: JFP1

The Power Switch, Reset Switch, Power LED, Speaker, Keylock and HDD LED are all connected to the JFP1 connector block.



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2.4-1 Power Switch

Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

2.4-2 Reset Switch

Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

2.4-3 Power LED

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin. There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED(ACPI request).

- a. 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit when the system is on.
- b. 2 pin dual color LED connect to pin 5 & 6.

GREEN Color: Indicate the system is full on mode.

ORANGE Color: Indicate the system is in suspend mode.

2.4-4 Speaker

Speaker from the system case is connected to this pin.

If on-board Buzzer is available:

Short pin 14-15: On-board Buzzer Enabled.

Open pin 14-15: On-board Buzzer Disabled.

2.4-5 HDD LED

HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

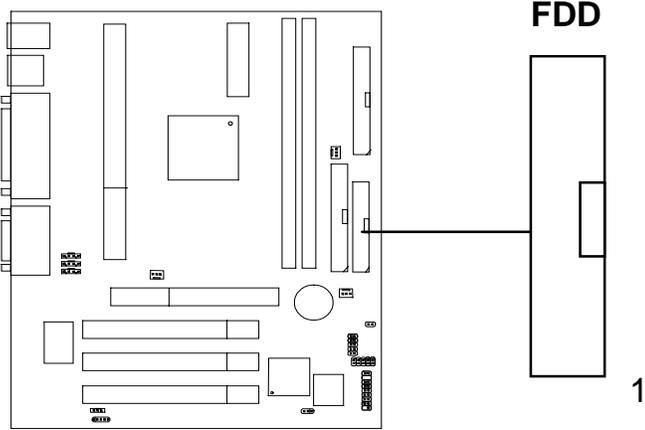
2.4-6 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

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2.5 Floppy Disk Connector: FDD

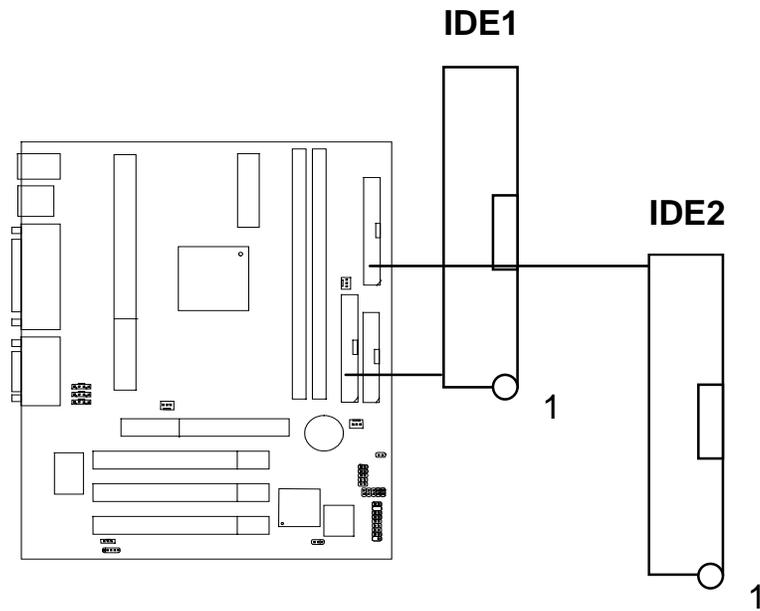
The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



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2.6 Hard Disk Connectors: IDE1 & IDE2

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

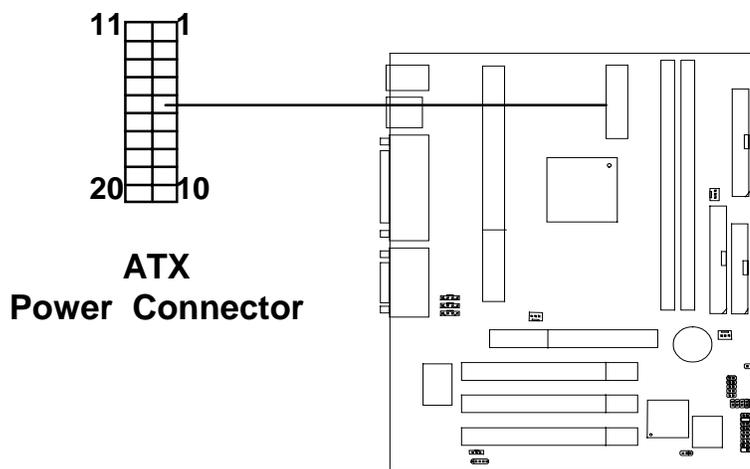


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2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: JPWR1

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 by this mainboard. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.



PIN DEFINITION

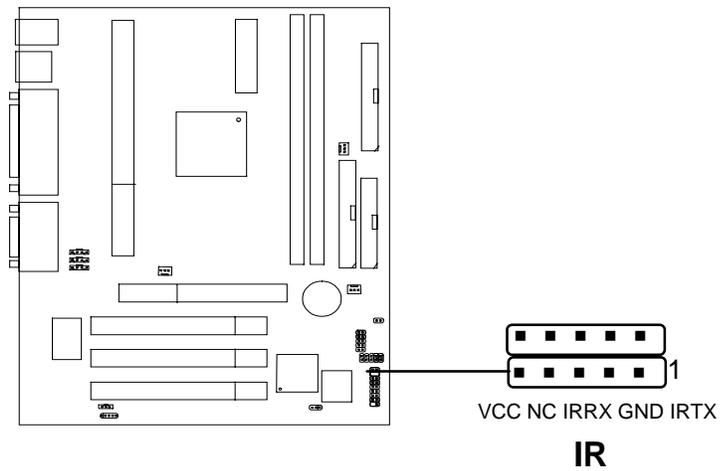
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

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Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

2.8 IrDA Infrared Module Connector: IR

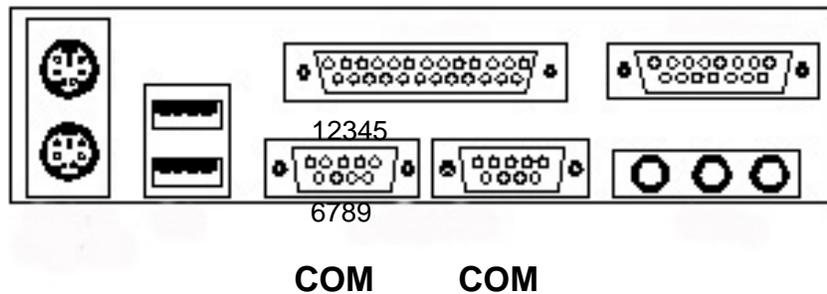
The mainboard provides one 5-pin infrared (IR) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



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2.9 Serial Port Connectors: COM 1 and COM 2

The mainboard has two 9-pin male DIN connectors for serial port COM 1 and COM 2. These ports are 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.



Serial Port (9-pin male)

PIN DEFINITION

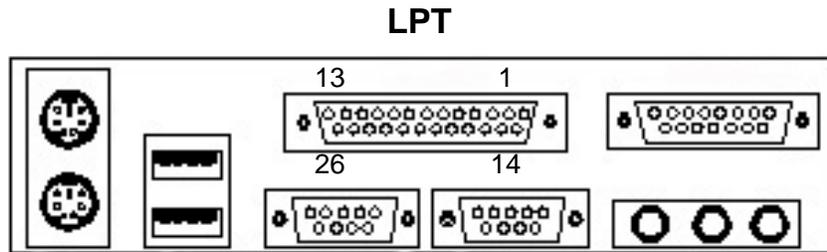
PIN	SIGNAL
1	DCD (Data carry Detect)
2	SIN (Serial In or Receive Data)
3	SOUT (Serial Out or Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request to Send)
8	CTS (Clear to Send)
9	RI (Ring Indicate)

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2.10 Parallel Port Connector: LPT1

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP). See connector and pin definition below:

Parallel Port (25-pin Female)



PIN DEFINITION

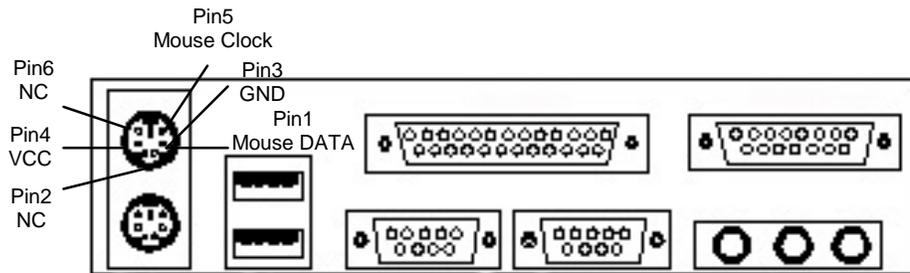
PIN	SIGNAL	PIN	SIGNAL
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND

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12	PE	25	GND
13	SELECT		

2.11 Mouse Connector: JKBMS1

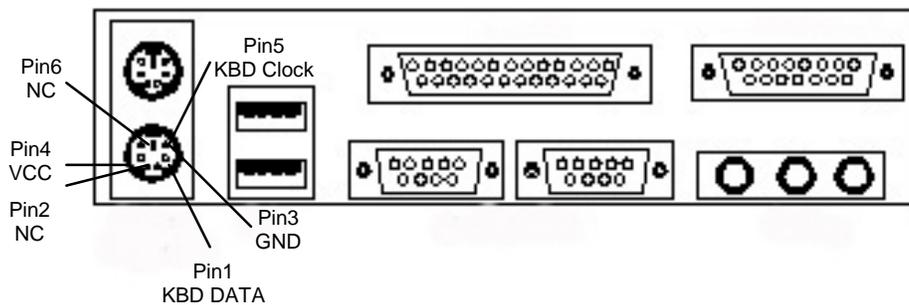
The mainboard provides a standard PS/2[®] mouse mini DIN connector for attaching a PS/2[®] mouse. You can plug a PS/2[®] mouse directly into this connector. The connector location and pin definition are shown below:



PS/2 Mouse (6-pin Female)

2.12 Keyboard Connector: JKBMS1

The mainboard provides a standard PS/2[®] keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.

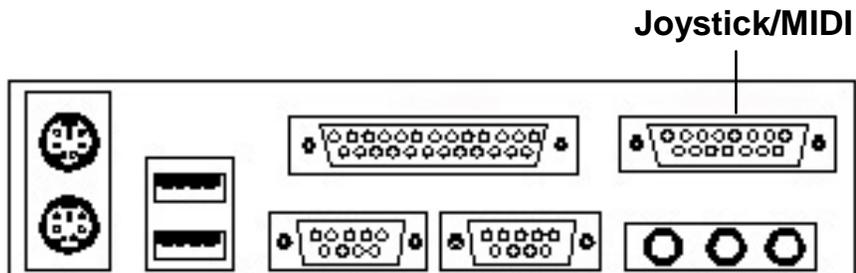


PS/2 Keyboard (6-pin Female)

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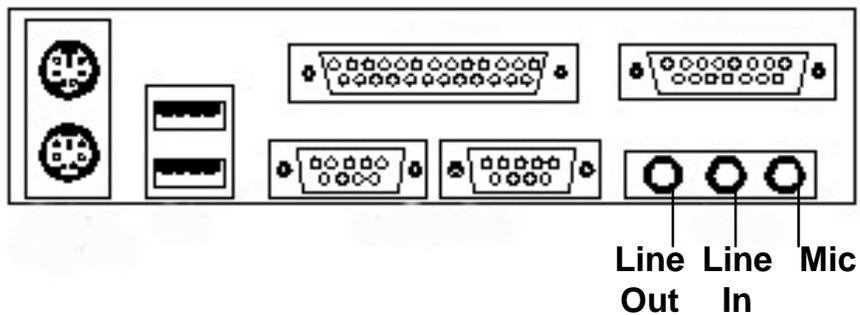
2.13 Joystick/Midi Connectors

You can connect joystick or game pads to this connector.



2.14 Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphones.

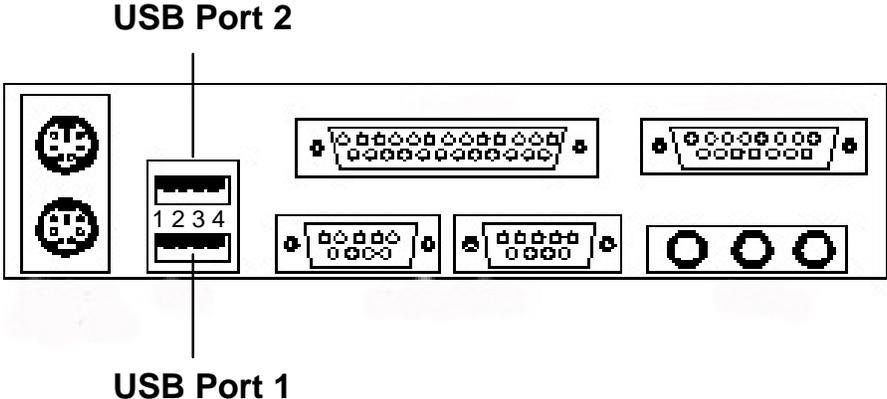


1/8" Stereo Audio Connectors

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2.15 USB Connectors

The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.

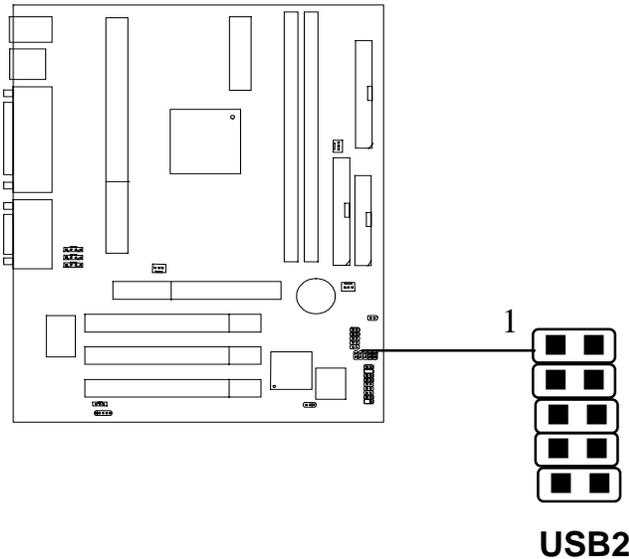


PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0

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2.16 USB Front Connector

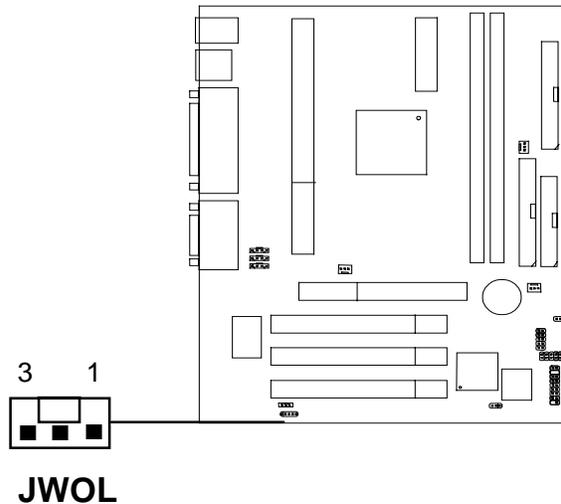
The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for Front Panel.



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2.17 Wake-Up on LAN Connector: JWOL

The JWOL connector is for use with LAN add-on cards that supports Wake Up on LAN function. To use this function, you need to set the “Wake-Up on Lan” to enable at the BIOS Power Management Setup.



PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

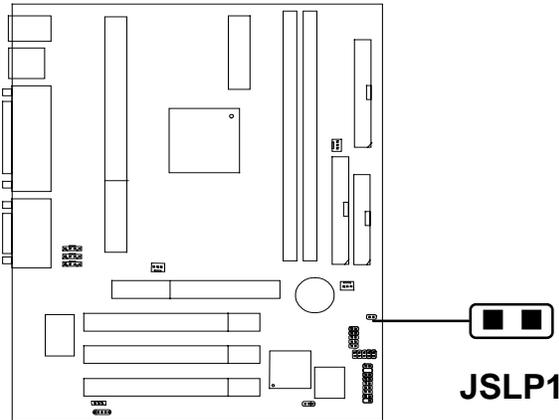
Note: LAN wake-up signal is active "high".

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (750 ma power supply with 5V Stand-by)

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2.18 Power Saving Switch Connector: JSLP1

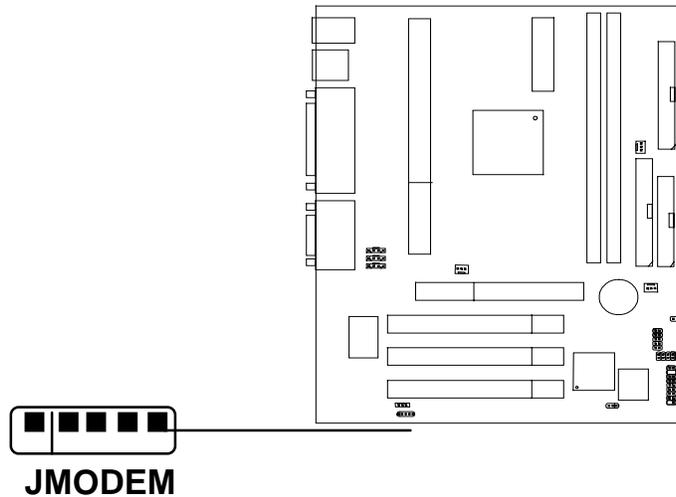
Attach a power saving switch to JSLP1. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.



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2.19 Modem Wake Up Connector: JMODEM

The JMODEM connector is for use with Modem add-on card that supports the Modem Wake Up function. To use this function, you need to set the “Modem Ring Resume” to enable at the BIOS Power Management Setup.



PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

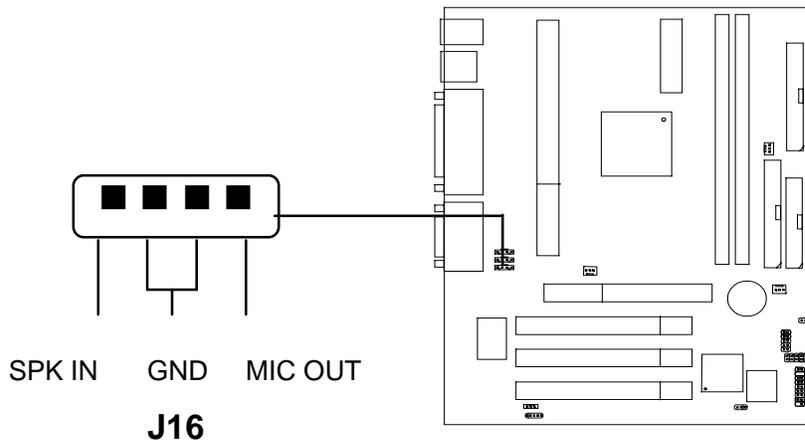
Note: Modem wake-up signal is active "low".

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Note: To be able to use this function, you need a power supply that provide enough power for this feature. (750 ma power supply with 5V Stand-by)

2.20 Modem-In: J16

The connector is for Modem with internal voice connector.

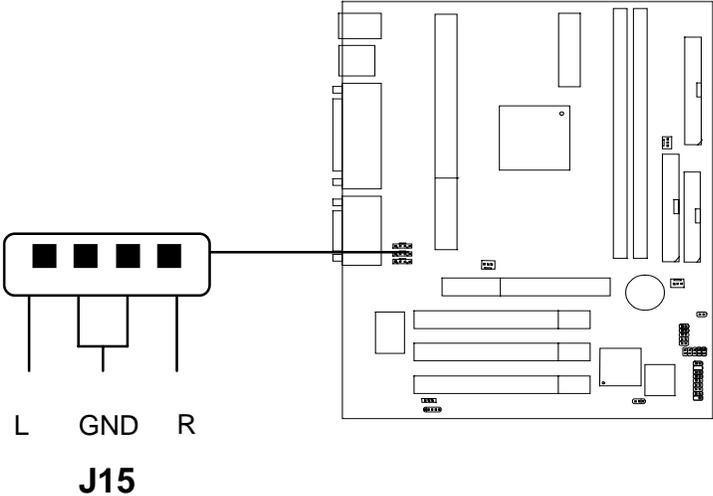


SPK_IN is connected to the Modem Speaker Out connector.
MIC_OUT is connected to the Modem Microphone In connector.

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2.21 AUX Line In Connector: J15

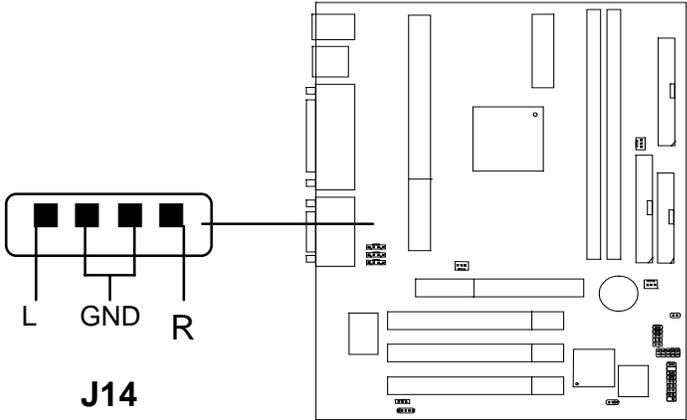
This connector is used for DVD Add on Card with Line In connector.



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2.22 CD-In Modem Connector: J14

This connector is for CD-ROM voice connector.



Chapter 3

AWARD® BIOS SETUP

Award® BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM), so that it retains the Setup information when the power is turned off.

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3.1 Entering Setup

Power on the computer and press immediately to allow you to enter Setup. The other way to enter Setup is to power on the computer. When the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS <CTRL-ALT-ESC>
OR KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC>
OR TO ENTER SETUP

3.2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <F1> or <Esc>.

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3.3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

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

STANDARD CMOS FEATURES	LOAD FAIL-SAFE DEFAULTS
ADVANCED BIOS FEATURES	LOAD OPTIMIZED DEFAULTS
ADVANCED CHIPSET FEATURES	SET SUPERVISOR PASSWORD
INTEGRATED PERIPHERALS	SET USER PASSWORD
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PnP/PCI CONFIGURATIONS	EXIT WITHOUT SAVING
Esc: Quit	↑ ↓ → ←: Select Item
F10: Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type ...	

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 Award® special enhanced features.

Advanced Chipset Features

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

Integrated Peripherals

Change, set or disable onboard I/O, IRQ, and DMA assignment.

Power Management Setup

This category determines the power consumption for system after setting the specified items. Default value is Disable.

PNP/PCI Configuration Setup

This category specifies the IRQ level for PCI and ISA devices.

Load Fail-Safe/Optimized Defaults

Chipset defaults indicates the values required by the system for the maximum performance.

Set Supervisor /User Password

Change, set or disable password. This function allows the user access to the system and setup or just setup.

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Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

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3.4 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.

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

Date(mm:dd:yy): Time(hh:mm:ss):	Fri, Nov 19,1999 00:00:00	Item Help
IDE Primary Master IDE Primary Slave IDE Secondary Master IDE Secondary Slave	Press Enter 2557MB Press Enter None Press Enter None Press Enter None	Menu Level >
Drive A Drive B	1.44M, 3.5in. None	
Video Halt On	EGA/VGA All Errors	
Based Memory Extended Memory Total Memory	640K 64512K 65536K	

Date

The date format is <day><month> <date> <year>.

- Day** Day of the week, from Sun to Sat, determined by BIOS. Read-only.
- Month** The month from Jan. through Dec.
- Date** The date from 1 to 31 can be keyed by numeric function keys.
- Year** The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

**PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave**

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

- If the controller of HDD interface is SCSI, the selection shall be "None".
- If the controller of HDD interface is CD-ROM, the selection shall be "None".

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Access Mode	The settings are Auto, Normal, Large,LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precom
Landing Zone	landing zone
Sector	number of sectors

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3.5 Advanced BIOS Features

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

		Item Help
Virus Warning	Disabled	Menu Level
CPU Internal Cache	Enabled	
External Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	CDROM	
Third Boot Device	HDD-0	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Numlock Status	Disabled	
Gate A20 Option	Off	
Typematic Rate Setting	Fast	
Typematic Rate(Chars/Sec)	Disabled	
Typematic Delay (Msec)	6	
Security Option	250	
OS Select for DRAM>64MB	Setup	
Video BIOS Shadow	Non-OS2	
C8000-CBFFF Shadow	Enabled	
CC000-CFFFF Shadow	Disabled	
D0000-D3FFF Shadow	Disabled	
D4000-D7FFF Shadow	Disabled	
D8000-DBFFF Shadow	Disabled	
DC000-DFFFF Shadow	Disabled	

Virus Warning

During and after the system boots up, any attempt to write to the boot sector or partition of the hard disk drive will halt the system and the following error message will appear. For the meantime, you can run an anti-virus program to locate the problem. The settings are Enabled or Disabled.

Disabled No warning message to appear 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.

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CPU Internal Cache

The default value is Enabled.

Enabled (default) Enable cache

Disabled Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the level 2 cache memory.

Quick Power On Self Test

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

Enabled Enable quick POST

Disabled (default) Normal POST

First/Second/Third/Boot Other Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

Swap Floppy Drive

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine if 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

The default value is On.

On Keypad is numeric keys.

Off(default) Keypad is arrow keys.

Gate A20 Option

Normal The A20 signal is controlled by keyboard controller or chipset hardware.

Fast(default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are: 250, 500, 750, 1000.

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Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

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

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

OS Selection for DRAM > 64MB

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution. Video shadow will increase the video performance.

Enabled (default) Video shadow is enabled

Disabled Video shadow is disabled

C8000 - CFFFF Shadow/E8000 - EFFFF Shadow

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

Enabled Optional shadow is enabled

Disabled (default) Optional shadow is disabled

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

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3.6 Advanced Chipset Features

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Choose the “Advanced Chipset Features” from the Main Menu and the following screen will appear.

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Advanced Chipset Features

		Item Help
System BIOS Cacheable	Disabled	Menu Level >
Video RAM Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
AGP Aperture Size (MB)	128	
AGP ISA Aliasing	Enabled	
K7 CLK CTL Select	Optimal	
SDRAM ECC Setting	Disabled	
SDRAM Timing setting by	Auto	
SDRAM PH Limit	32 Cycle	
SDRAM Idle Limit	8 Cycle	
SDRAM Trc Timing Value	8 Cycle	
SDRAM Trp Timing Value	3 Cycle	
SDRAM Tras Timing Value	5 Cycle	
SDRAM CAS Latency	3 Cycle	
SDRAM Trcd Timing Value	2 Cycle	

Note: Change these settings only if you are familiar with the chipset.

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System BIOS Cacheable

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 settings are: Enabled and Disabled.

Video RAM Cacheable

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

Memory Hole At 15M-16M

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 settings are: Enabled and Disabled.

AGP Aperture Size (MB)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

AGP ISA Aliasing

This item allows you to enable or disable the AGP ISA aliasing.

K7 CLK_CTL Select

During *Optimal*, this item will auto-detect the processor clock generator. During *None*, the processor clock will always be set to 100MHz.

SDRAM ECC Setting

During *Enabled*, the system will be able to use Memory with ECC. During *Disabled*, the system will not be able to use memory with ECC.

SDRAM Timing Setting By

During *Auto*, this item will auto-detect the SDRAM Timing. During *Disabled*, this item will not be able to detect the SDRAM timing.

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SDRAM PH Limit

This item specifies the number of consecutive Page-Hit requests to allow before choosing a non Page-Hit request. The settings are: 1/4/32/64 cycles.

SDRAM Idle Limit

This item specify the number of idel cycles to wait before precharging an idle bank. The settings are: 1/8/32/64 cycles.

SDRAM Trc Timing Value

This item specify the minimum time to activate the same bank. The settings are: 3/4/5/6/7/8 cycles or reserved.

SDRAM Trp Timing Value

This item specify the delay from precharge command to activate command. The settings are 3/2/1 cycles

SDRAM Tras Timing Value

This item specify the minimum bank active time. The settings are: 2/3/4/5/6/7 cycles or reserved.

SDRAM CAS latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2/3 cycles.

SDRAM Trcd Timing Value

This item specify the delay from activation of a bank to the time that a read or write command is accepted. The settings are: 1/2/3/4 cycles.

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3.7 Integrated Peripherals

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

IDE Read/Write Prefetch	Disabled	Item Help
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	Menu Level >
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	
On-Chip Primary PCI IDE	Enabled	
On-Chip Secondary PCI IDE	Enabled	
USB Host Controller	Enabled	
USB Keyboard Support	Enabled	
Init Display First	AGP Slot	
Onboard Audio Device	Enabled	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
Onboard IR Controller	Disabled	
IR Address Select	2E8H	
IR Mode	IrDA	
IR Transmission delay	Enabled	
IR IRQ Select	IRQ10	
IR Mode Use DMA	Disable	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	EPP	
ECP Mode Use DMA	3	
EPP Mode Select	EPP1.7	

IDE Read/Write Prefetch

During Enabled, the IDE Read/Write prefetch buffer will be used to store data for faster performance.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four 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 settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE 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 driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

USB Host Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. The settings are: Enabled, Disabled.

USB Keyboard Support

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Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

Init Display First

This item allows you to decide to activate whether PCI Slot or AGP first. The settings are: PCI Slot, AGP

Onboard Audio Device

Select Enabled if your system has a onboard Audio controller installed on the system board and you wish to use it. If you install add-on Audio card on the system, select Disabled in this field. The settings are: Enabled and Disabled.

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 read/writes per sector the drive can support. The settings are: Enabled, Disabled.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

Onboard IR Controller

This item allows you to Enabled or Disabled the onboard IR(Infrared) controller.

IR Address Select

This item allows you to select which address the IR will occupy.

IR Mode

This item allows you to select the IR mode.

IR Transmission Delay

This item allows you to Enabled or Disabled the IR transmitting delay.

IR IRQ Select

This item allows you to select which IRQ the IR will occupy.

IR Mode Use DMA

This item allows you to Enabled or Disabled the IR using DMA mode.

Onboard Parallel Port

Disabled

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

Disable

3BCH/IRQ7	Line Printer port 0
278H/IRQ5	Line Printer port 2
378H/IRQ7	Line Printer port 1

Onboard Parallel Mode

SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP : Extended Capability Port

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To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the EPP modes simultaneously, choose “EPP.” By choosing “ECP”, the onboard parallel port will operate in ECP mode only. Choosing “ECP + EPP” will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: “ECP Mode Use DMA” At this time, the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: “EPP Mode Select.” At this time either EPP 1.7 spec. or EPP 1.9 spec. Can be chosen.

Power Status LED

This item determines which state the Power LED will use. The settings are Blinking, Dual color, and Single color. During blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual Color, the power LED will change its color. Choose the single color and the power LED will always remain lit.

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3.8 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.

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

ACPI Function	Enabled	Item Help
Power Management	User Define	
Video Off Method	DPMS Support	Menu Level >
Suspend Type	PwrOn Suspend	
Standby Mode	Disabled	
HDD Power Down	Disabled	
HDD Down In Suspend	Disabled	
Soft-Off by BTN	Instant-Off	
PWRON after PWR-fail	Former-Sts	
RI Resume/WOL	3	
Modem Use IRQ	3	
RTC Resume	Disabled	
Date (of Month) Alarm 0		
Date (hh:mm:ss) Alarm 0		
Primary IDE 0	Enabled	
Primary IDE 1	Enabled	
Secondary IDE 0	Enabled	
Secondary IDE 1	Enabled	
Parallel Port	Disabled	
Serial Port	Disabled	
IRQ3 (COM 2)	Disabled	
IRQ4 (COM 1)	Disabled	
IRQ5 (LPT 2)	Disabled	
IRQ6 (Floppy Disk)	Disabled	
IRQ7 (LPT 1)	Disabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Reserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Disabled	
IRQ13 (Coprocessor)	Disabled	
IRQ14 (Hard Disk)	Disabled	
IRQ15 (Reserved)	Disabled	

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The settings are: Enabled and Disabled.

Power Management

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

1. Suspend Mode
2. HDD Power Down

There are three selections for Power Management, two of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management — Suspend Mode = 1 min., and 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.

Video Off Method

This determines the manner in which the monitor is blanked.

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

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Suspend Type

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

Standby Mode

When enabled and after the set time of system inactivity, all devices except will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour, and Disabled.

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.

The settings are: 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

HDD Down In Suspend

When enabled, the hard disk drive will be powered down with the other device during suspend mode.

The settings are: Enabled and Disabled.

Soft-Off by PWRBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

PWRON After PWR-Fail

The settings are power ON/OFF or Former-Sts. During power ON, after every AC/Power Loss, the system will be turned on. During Former-Sts, after every AC/Power Loss, whatever the system status, it will be the same when the AC power returns. During Off, after every AC/Power Loss, the system will be shutdown.

RI Resume/WOL

To use this function, you need a LAN add-on card which support power on functions. It should also support the wake-up on LAN jumper (JWOL).

Enabled	Wake up on LAN supported.
Disabled	Wake up on LAN not supported.

Modem Use IRQ

This determines the IRQ in which the MODEM can use. The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

RTC Resume

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled*, even when the system is in a power down mode.

Primary IDE 0

Primary IDE 1

Secondary IDE 0

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Secondary IDE 1

Parallel Port

Serial Port

IRQ3 (COM 2)

IRQ4 (COM 1)

IRQ5 (LPT 2)

IRQ6 (Floppy Disk)

IRQ7 (LPT 1)

IRQ8 (RTC Alarm)

IRQ9 (IRQ2 Redir)

IRQ10 (Reserved)

IRQ11 (Reserved)

IRQ12 (PS/2 Mouse)

IRQ13 (Coprocessor)

IRQ14 (Hard Disk)

IRQ15 (Reserved)

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3.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, 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.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software
PnP/PCI Configuration Setup

PnP OS Installed	Yes	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Auto(ESD)	Menu Level >
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”). The settings are: Auto(ESCD), Manual.

IRQ Resources

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

Memory Resources

This sub menu can let you control the memory resource.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled, Disabled.

3.10 Load Fail-Safe/Optimized Defaults

Load Fail-Safe Defaults

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

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

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

Load Optimized Defaults

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

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

3.11 Set Supervisor/User Password

You can set either supervisor or user password, or both of them. The differences are:

Supervisor password : can enter and change the options of the setup menus.

User password : Can only enter but do not have the right to change the options of the setup menus. 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 in length, and press <Enter>. The password typed 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 a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

Chapter 4

CREATIVE® AUDIO DRIVER

1. Overview

The Creative® ES1373 digital controller provides the next generation of audio performance to the PC market.

1.1 Features

- SoundScape WaveTable Synthesizer.
- Full DOS Game Compatibility.
- PCI Bus Master for fast DMA.
- Fully Compliant with PC97 Power Management Specification.

1.2 System Requirements

This section describes system requirements for the Audio Driver installation and Usage.

Computer	AMD®Athlon® processor or higher
Operating system	DOS 5.0 or higher, Windows® 95/98, Windows® NT 3.51 or 4.0, or OS/2®
CD-ROM	Double Speed or Higher
Chipset	Creative® ES1373

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2. Creative Audio Driver

2. Audio Driver Setup & Usage Procedures

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for VGA driver and sound driver. Just click the button for automatic installation for audio driver.

2.1 Windows® 95/98/NT

If you start Windows® 95/98/NT, this will automatically detect this hardware onboard “PCI Multimedia Audio Device” and “Gameport Joystick”. You need to click “Next”, then “Finish”. Do not click on the “Cancel”. The driver need these ID.

2.1-1 Audio Driver Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on “ Creative AudioPCI” icon.

Step 4: This will copy the audio drivers into the hard drive.

Step 5: A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.