

# MSI

MICRO-STAR INTERNATIONAL

## **MS-6585 ATX Mainboard**



### **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.

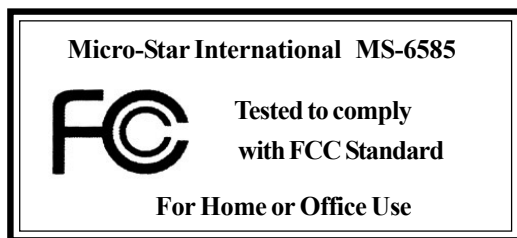
#### **Notice 1**

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.**



## **Edition**

Mar. 2002

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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 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.**



**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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# *Getting Started*

Thank you for purchasing MS-6585 v2.X ATX mainboard. The MS-6585 is based on **SiS648** and **SiS963** chipsets for optimal system efficiency. Designed to fit the advanced Intel® Pentium® 4 processors in the 478 pin package, the MS-6585 delivers a high performance and professional desktop platform solution.



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## Mainboard Specifications

### CPU

- Socket 478 for P4 processors (Willimate 478 and Northwood 478) with 400/533 MHz (100/133MHz QDIR).
- Core frequency from 1.3 GHz to 2.8 GHz and up.

### Chipset

- SiS®648 (839 pin BGA)
  - Supports Intel® Pentium® 4 processors with data transfer rate up to 533 MHz.
  - Supports 64-bit high performance DDR333/DDR266 memory controller.
  - Supports AGP 8X/4X interface at 0.8v or 4x at 1.5v with fast write transaction.
  - Supports bi-directional 16-bit data bus with 1GHz bandwidth MuTIOL.
- SiS®963 (371 pin BGA)
  - Integrated Direct Sound AC97 audio.
  - Dual channel Ultra DMA 33/66/100/133 master mode EIDE controller.
  - ACPI & PC2001 compliant enhanced power management.
  - Integrated USB 2.0 controller.

### Main Memory

- Supports six memory banks using three 184-pin DDR DIMMs.
- Supports up to 3GB memory size without ECC (Error-Checking & Correcting Code).
- Supports DDR333/DDR266 SDRAM.

### Slots

- One 4x/8x AGP (Accelerated Graphics Port) slot.
- Six 32-bit master PCI bus slots (support 3.3v/5v PCI bus interface).
- One CNR (Communication Network Riser) slot.

### On-Board IDE

- An IDE controller on the SiS®963 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 133/100/66/33 operation modes.
- Can connect up to four IDE devices.

### **On-Board Peripherals**

➤ On-Board Peripherals include:

- 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
- 2 serial ports (COM A + COM B)
- 1 parallel port supports SPP/EPP/ECP mode
- 1 IrDA connector for SIR/ASKIR/HPSIR
- 1 RJ-45 LAN jack
- 1 audio/game port
- 1 S-Bracket pin header
- 6 USB 2.0 ports (Rear \* 4/ Front \* 2)

### **Audio**

- AC'97 link controller integrated in SiS® 963.
- RealTek ALC650 6-channel audio.
  - Compliance with AC97 v2.2 Spec.
  - Meets PC2001 audio performance requirement.
  - Can support SPDIF Out via S-Bracket only.

### **LAN**

- RealTek RTL8101LLAN controller.

### **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.

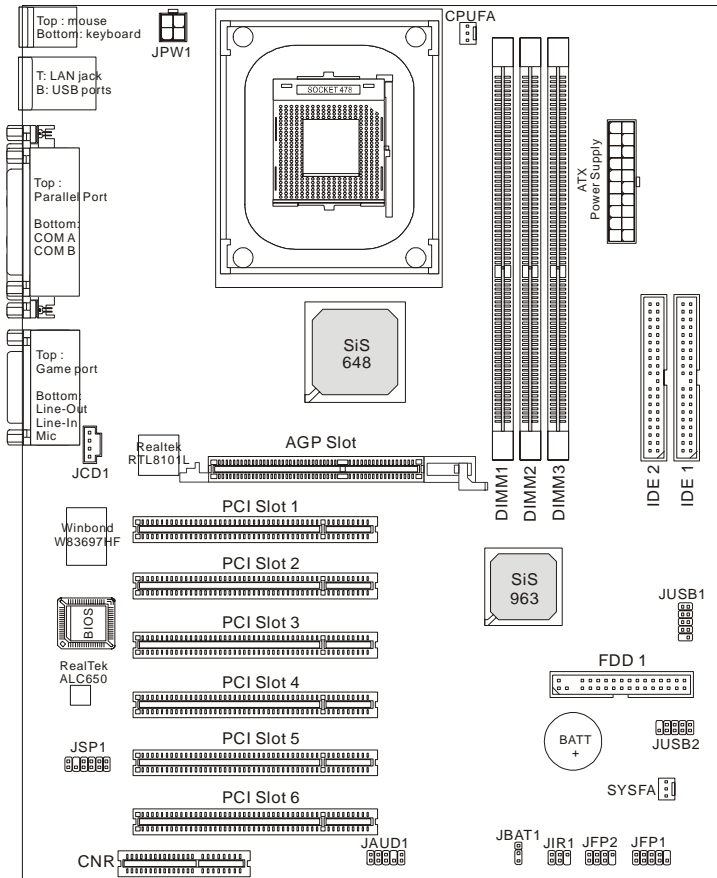
### **Dimension**

- ATX Form Factor: 30.5cm x 24.5cm.

### **Mounting**

- 9 mounting holes.

# Mainboard Layout

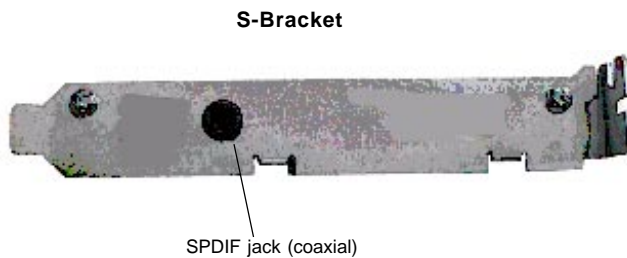


**MS-6585 v2.X ATX Mainboard**

## **S-Bracket (Optional)**

S-Bracket is a bracket which provides a SPDIF jack (Sony & Philips Digital Interface) for digital audio transmission.

The S-Bracket offers a SPDIF connector for coaxial connection.



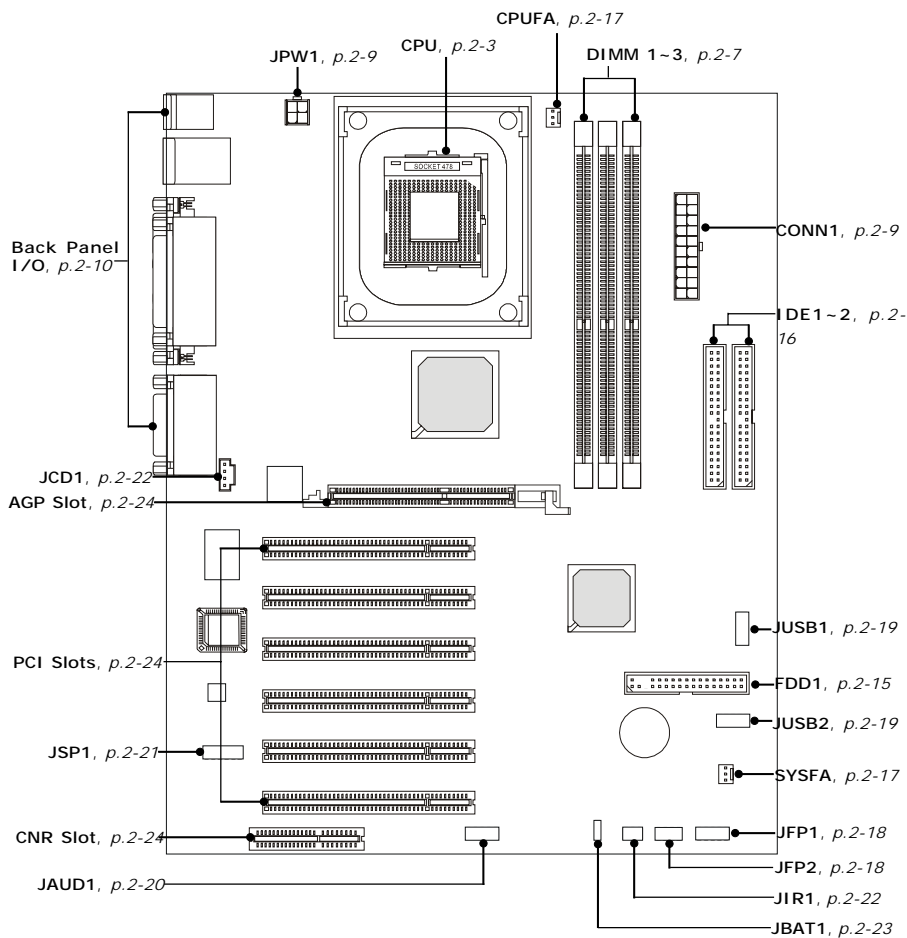
# 2

## *Hardware Setup*

This chapter tells you how to install the CPU, memory modules, and expansion cards, as well as how to setup the jumpers on the mainboard. Also, it provides the instructions on connecting the peripheral devices, such the mouse, keyboard, etc.

While doing the installation, be careful in holding the components and follow the installation procedures.

# Quick Components Guide



## Central Processing Unit: CPU

The mainboard supports Intel® P4 Northwood processor in the 478 pin package. The mainboard uses a CPU socket called PGA478 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not find the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

### CPU Core Speed Derivation Procedure

<b>If</b>	CPU Clock	=	100MHz
	Core/Bus ratio	=	14
<b>then</b>	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 14
		=	1.4GHz



#### MSI Reminds You...

##### **Overheating**

*Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.*

##### **Replacing the CPU**

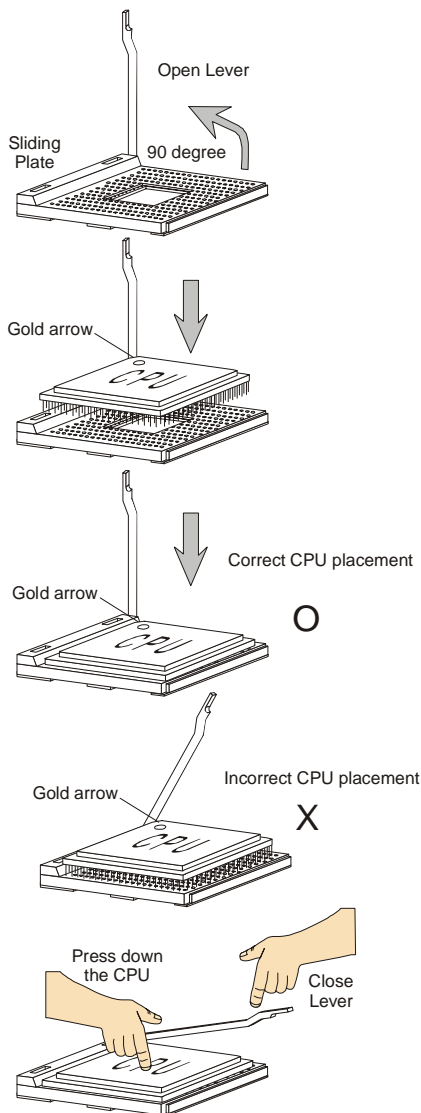
*While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from grounded outlet first to ensure the safety of CPU.*

##### **Overclocking**

*This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. **We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

## CPU Installation Procedures for Socket 478

1. Please turn off the power and unplug the power cord before installing the CPU.
2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
3. Look for the gold arrow. The gold arrow should point towards the lever pivot. The CPU can only fit in the correct orientation.
4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.
5. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



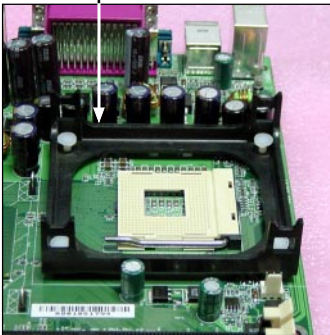


## Installing the CPU Fan

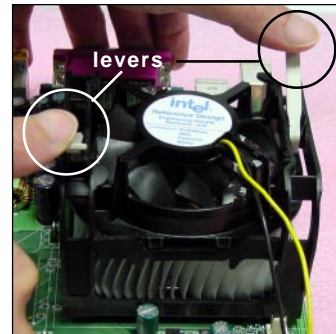
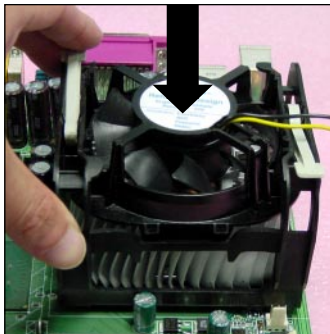
As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly important. To dissipate heat, you need to attach the CPU cooling fan and heatsink on top of the CPU. Follow the instructions below to install the Heatsink/Fan:

1. Locate the CPU and its retention mechanism on the motherboard.
2. Position the heatsink onto the retention mechanism.

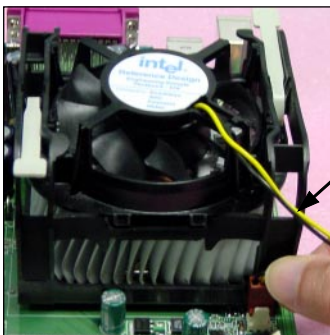
retention mechanism



3. Mount the fan on top of the heatsink. Press down the fan until its four clips get wedged in the holes of the retention mechanism.
4. Press the two levers down to fasten the fan. Each lever can be pressed down in only ONE direction.



5. Connect the fan power cable from the mounted fan to the 3-pin fan power connector on the board.



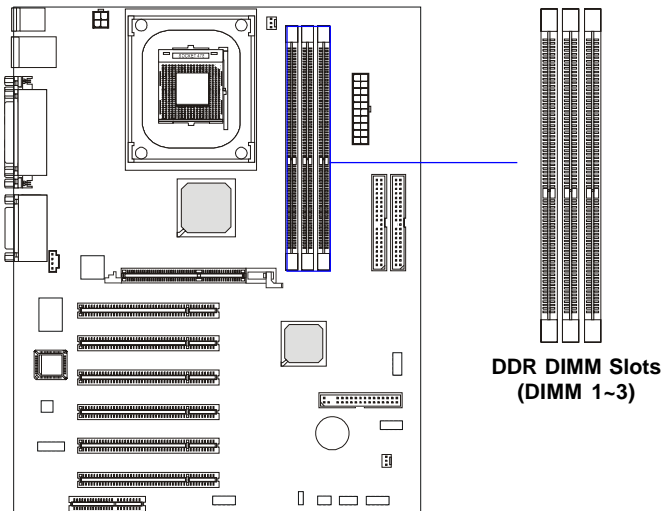
fan power cable



## **NOTES**

## Memory

The mainboard provides 3 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports the memory size up to 3GB. You can install PC2700/DDR333 or PC2100/DDR266 modules on the DDR DIMM slots (DIMM 1~3). To operate properly, at least one DIMM module must be installed.



### Introduction to DDR SDRAM

DDR (Double Data Rate) SDRAM is similar to conventional SDRAM, but doubles the rate by transferring data twice per cycle. It uses 2.5 volts as opposed to 3.3 volts used in SDR SDRAM, and requires 184-pin DIMM modules rather than 168-pin DIMM modules used by SDR SDRAM. High memory bandwidth makes DDR an ideal solution for high performance PC, workstations and servers.

## DIMM Module Combination

Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs.

Memory modules can be installed in any combination as follows:

Slot	Memory Module	Total Memory
DIMM 1	S/D	64MB~1GB
DIMM 2	S/D	64MB~1GB
DIMM 3	S/D	64MB~1GB
Maximum System Memory Supported		64MB~3GB

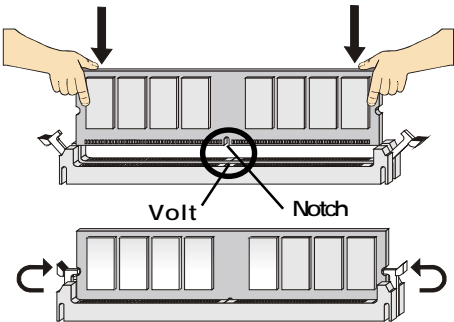
**S: Single Side**

**D: Double Side**

You can only install two PC2700/ DDR333 double side module.

## Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.
3. The plastic clip at each side of the DIMM slot will automatically close.



### MSI Reminds You...

*You can barely see the golden finger if the module is properly inserted in the socket.*

## Power Supply

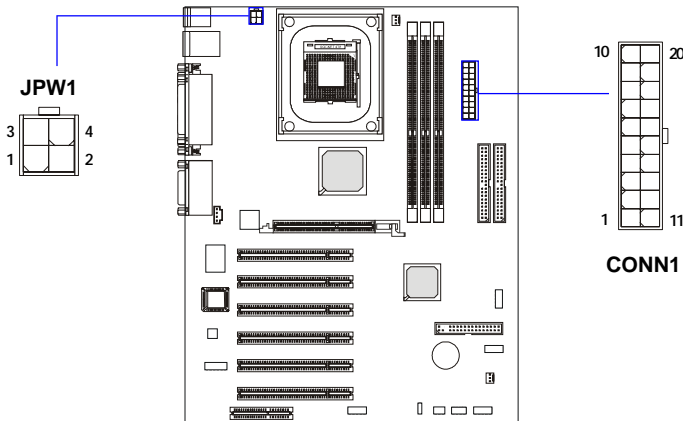
The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

### ATX 20-Pin Power Connector: CONN1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

### ATX 12V Power Connector: JPW1

This 12V power connector is used to provide power to the CPU.



**JPW1 Pin Definition**

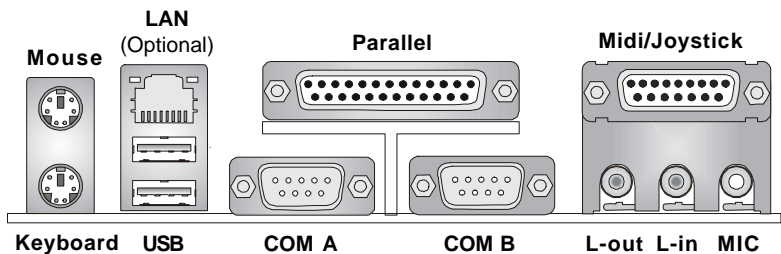
PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

**CONN1 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

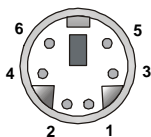
# Back Panel

The back panel provides the following connectors:



## Mouse Connector

The mainboard provides a standard PS/2<sup>®</sup> mouse mini DIN connector for attaching a PS/2<sup>®</sup> mouse. You can plug a PS/2<sup>®</sup> mouse directly into this connector. The connector location and pin assignments are as follows:



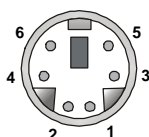
PS/2 Mouse (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

## Keyboard Connector

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



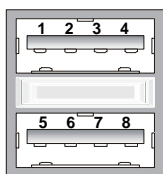
**PS/2 Keyboard (6-pin Female)**

**Pin Definition**

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

## USB Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.



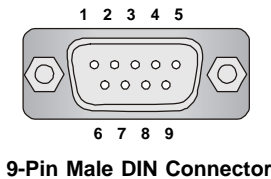
**USB Ports**

**USB Port Description**

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

## Serial Port Connectors: COM A & COM B

The mainboard offers two 9-pin male DIN connectors as serial port COM A & COM B. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connectors.

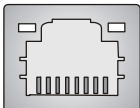


Pin Definition

PIN	SIGNAL	DESCRIPTION
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	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

## RJ-45 LAN Jack

The mainboard provides one standard RJ-45 jack for connection to Local Area Network (LAN). You can connect a network cable to the LAN jack.



RJ-45 LAN Jack

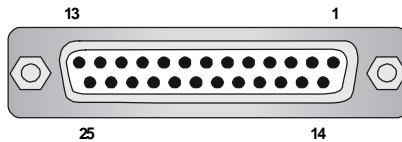
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	TDP	Transmit Differential Pair
2	TDN	Transmit Differential Pair
3	RDP	Receive Differential Pair
4	NC	Not Used
5	NC	Not Used
6	RDN	Receive Differential Pair
7	NC	Not Used
8	NC	Not Used



## Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



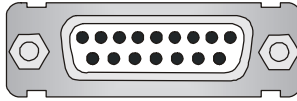
**Pin Definition**

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

---

## Joystick/Midi Connector

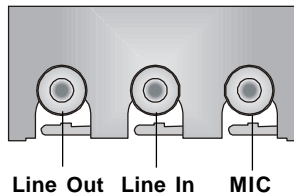
You can connect a joystick or game pad to this connector.



## Audio Port Connectors

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

### 1/8" Stereo Audio Connectors



### MSI Reminds You...

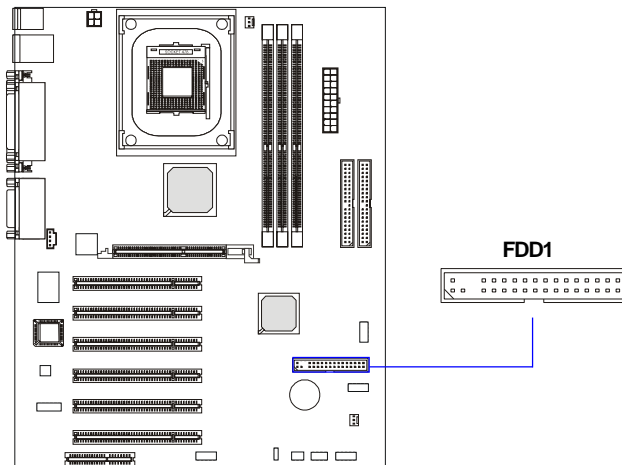
*For advanced audio application, RealTek ALC650 audio chip is provided to offer support for **6-channel audio operation** and can turn rear audio connectors from 2-channel to 4-/6-channel audio. For more information on **6-channel audio operation**, please refer to Appendix. Using 4- or 6-Channel Audio Function.*

## Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, modem, LAN, USB Ports, IR module and CPU/System/Power Supply FAN.

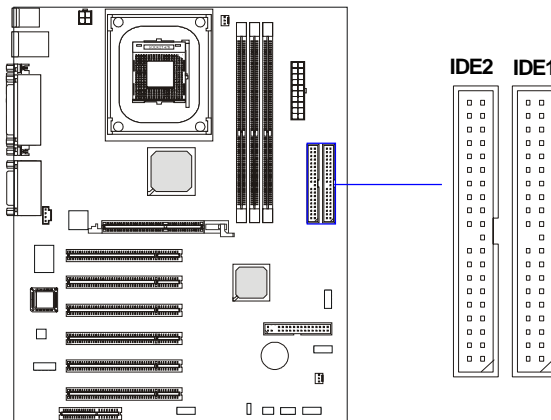
### Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



## Hard Disk Connectors: IDE1/IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.



### IDE1 (Primary IDE Connector)

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

### IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

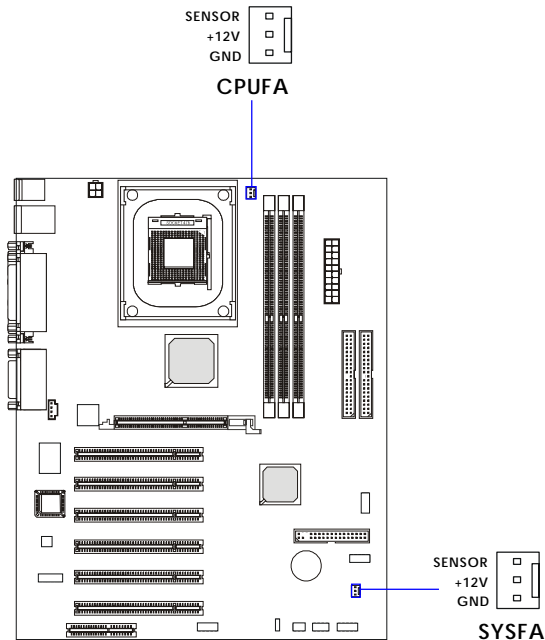


#### **MSI Reminds You...**

*If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*

## Fan Power Connectors: CPUFA/SYSFA

The CPUFA (processor fan) & SYSFA (system fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, 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. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

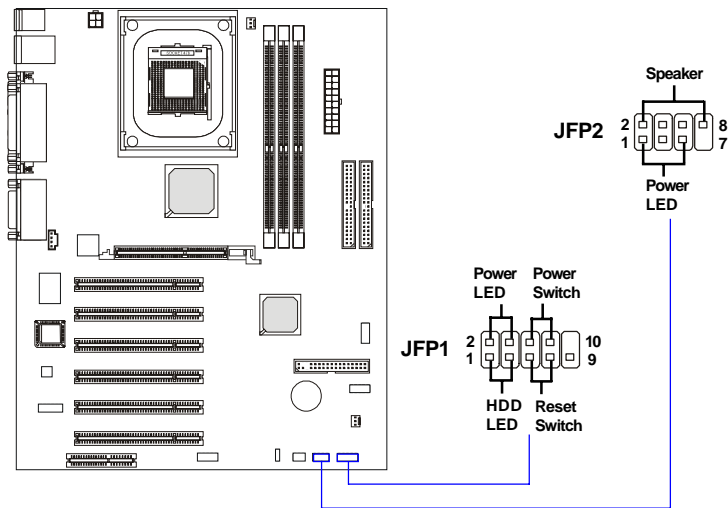


**MSI Reminds You...**

*Always consult the vendors for proper CPU cooling fan.*

# Front Panel Connectors: JFP1/JFP2

The mainboard provides two front panel connectors for electrical connection to the front panel switches and LEDs. JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



JFP1 Pin Definition

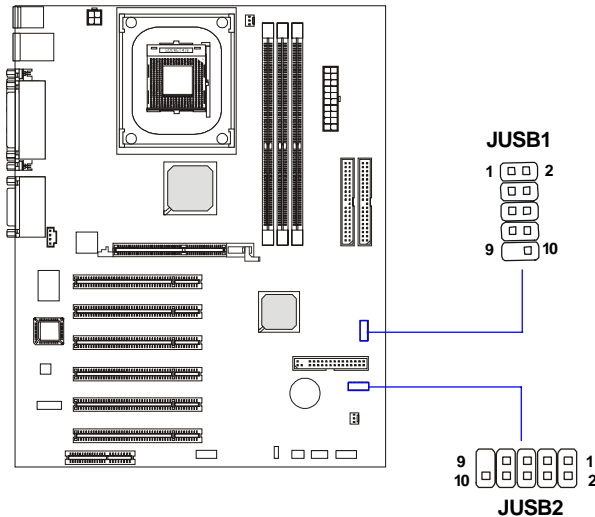
PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	BUZ-
7	NC	8	SPK+

## Front USB Connectors: JUSB1/JUSB2

The mainboard provides two USB 2.0 pin headers *JUSB1* & *JUSB2* (optional USB 2.0 bracket available) that are compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD, digital cameras, MP3 players, printers, modems and the like.**

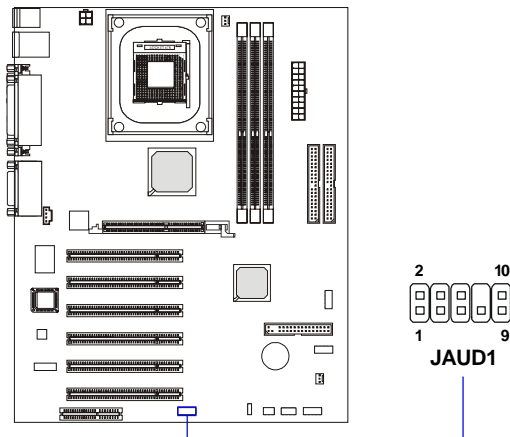


**JUSB1/2 Pin Definition**

PIN	SIGNAL	PIN	SIGNAL
1	USBPWR	2	USBPWR
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	GND	8	GND
9	NC	10	USBOC

# Front Panel Audio Connector: JAUD1

The JAUD1 front panel audio connector allows you to connect to the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



Pin Definition

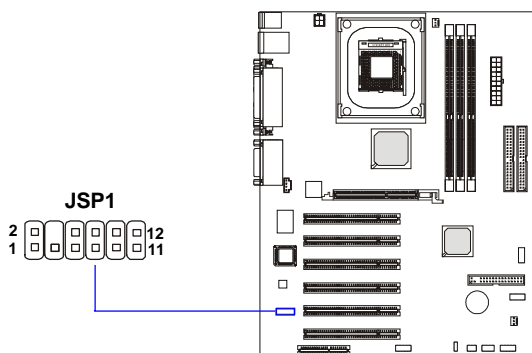
PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	HP_ON	Reserved for future use to control headphone amplifier
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel



## S-Bracket Connector: JSP1

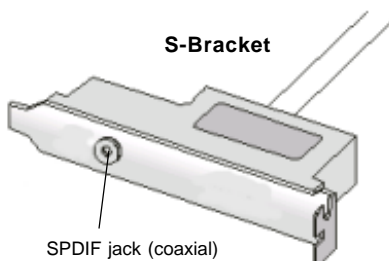
The connector allows you to connect a S-Bracket for Sony & Philips Digital Interface (SPDIF). The S-Bracket offers a SPDIF jack for digital audio transmission (for coaxial connection).

The SPDIF jack supports *SPDIF output* only. For more information on the S-Bracket, refer to *Appendix. Using 4- or 6-Channel Audio Function*.



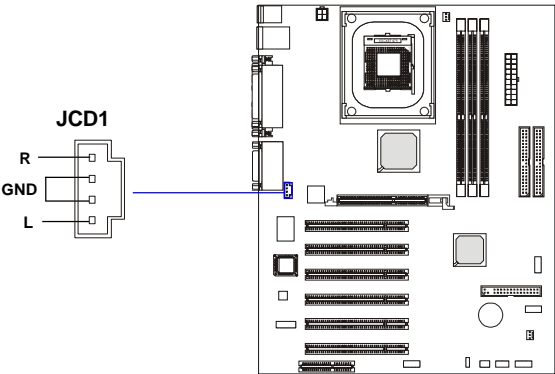
Pin Definition

PIN	SIGNAL	DESCRIPTION	PIN	SIGNAL	DESCRIPTION
1	VCC5	VCC 5V	2	VDD3	VDD 3.3V
3	SPDFO	S/PDIF output	4	(No Pin)	Key
5	GND	Ground	6	SPDFI	S/PDIF input
7	LFE-OUT	Audio bass output	8	SOUT-R	Audio right surrounding output
9	CET-OUT	Audio center output	10	SOUT-L	Audio left surrounding output
11	GND	Ground	12	GND	Ground



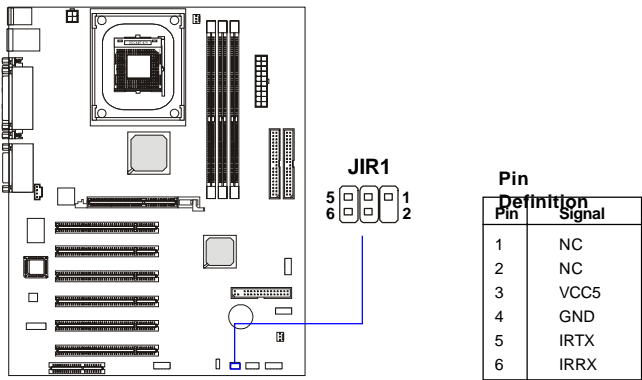
# CD-In Connector: JCD1

This connector is for connection to CD-ROM audio.



# IrDA Infrared Module Header: JIR1

The connector allows you to connect to IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function. The JIR1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

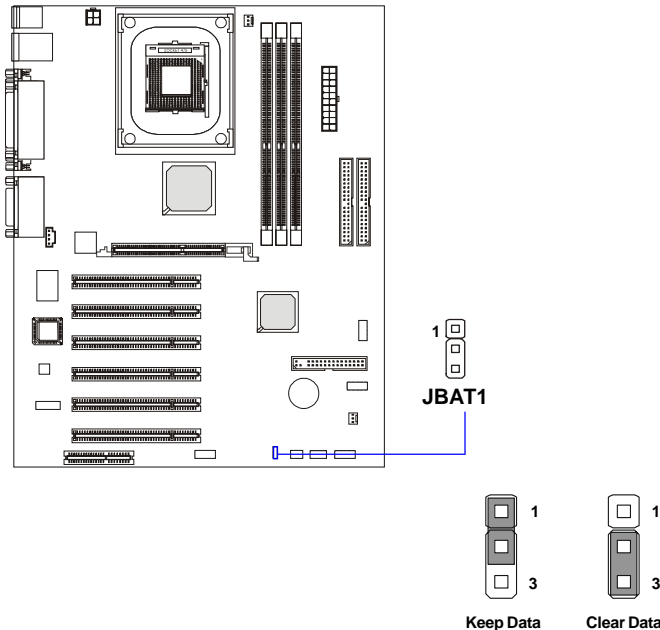


## Jumpers

The motherboard provides the following jumpers for you to set the computer's function. This section will explain how to change your motherboard's function through the use of jumpers.

### Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



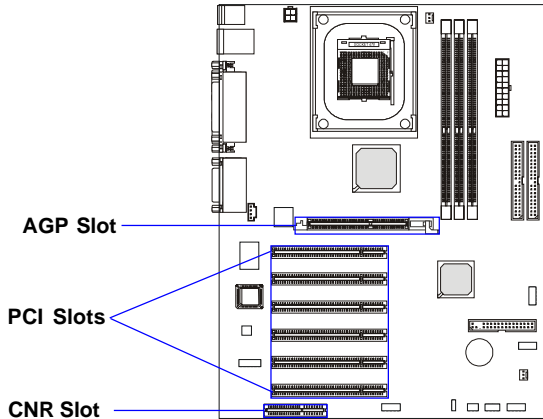
#### MSI Reminds You...

*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.*

---

## Slots

The motherboard provides one AGP slot, six 32-bit Master PCI bus slots, and one CNR slot.



### AGP (Accelerated Graphics Port) Slot

The AGP Pro slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory.

### PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

### CNR (Communication Network Riser) Slot

The CNR slot allows you to insert the CNR expansion cards. CNR is a specially designed network, audio, or modem riser card for ATX family motherboards. Its main processing is done through software and controlled by the motherboard's chipset.

## **PCI Interrupt Request Routing**

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT C#	INT D#	INT A#	INT B#
PCI Slot 2	INT A#	INT B#	INT C#	INT D#
PCI Slot 3	INT B#	INT C#	INT D#	INT A#
PCI Slot 4	INT C#	INT D#	INT A#	INT B#
PCI Slot 5	INT D#	INT A#	INT B#	INT C#
PCI Slot 6	INT B#	INT C#	INT D#	INT D#



## ***BIOS Setup***

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use. You may need to run the Setup program when:

- ◆ An error message appears on the screen during the system booting up, and requests you to run SETUP.
- ◆ You want to change the default settings for customized features.

---

## Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

DEL:Setup    F11:Boot Menu    F12:Network boot    TAB:Logo

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

## Selecting the First Boot Device

You are allowed to select the 1st boot device without entering the BIOS setup utility by pressing <F11>. When the same message as listed above appears on the screen, press <F11> to trigger the boot menu.

The POST messages might pass by too quickly for you to respond in time. If so, restart the system and press <F11> after around 2 or 3 seconds to activate the boot menu similar to the following.

Select First Boot Device		
Floppy	: 1st Floppy	
IDE-0	: IBM-DTLA-307038	
CDROM	: ATAPI CD-ROM DRIVE 40X M	
[Up/Dn] Select	[RETURN] Boot	[ESC] cancel

The boot menu will list all the bootable devices. Select the one you want to boot from by using arrow keys and then pressing <Enter>. The system will boot from the selected device. The selection will not make changes to the settings in the BIOS setup utility, so next time when you power on the system, it will still use the original first boot device to boot up.

## Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jump to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F7>	Load Optimal Defaults
<F10>	Save all the CMOS changes and exit

## Getting Help

After entering the Setup utility, the first screen you see is the Main Menu.

### Main Menu

The main menu displays the setup categories the BIOS supplies. You can use the arrow keys ( ↑↓ ) to select the item. The on-line description for the selected setup category is displayed at the bottom of the screen.

### Default Settings

The preset Optimal Defaults of the BIOS setup program provide optimal performance settings for all devices and the system.



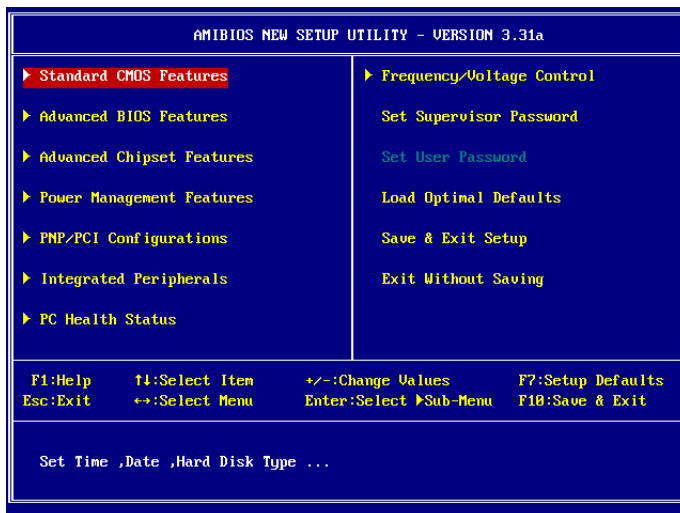
#### MSI Reminds You...

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.



## The Main Menu

Once you enter AMIBIOS NEW SETUP UTILITY, the Main Menu will appear on the screen. The Main Menu displays eleven configurable functions and two exit choices. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.



### Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

### Advanced BIOS Features

Use this menu to setup the items of AMI® special enhanced features.

### Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

### Power Management Features

Use this menu to specify your settings for power management.

**PNP/PCI Configurations**

This entry appears if your system supports PnP/PCI.

**Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

**PC Health Status**

This entry shows the status of your CPU, fan, warning for overall system status.

**Frequency/Voltage Control**

Use this menu to specify your settings for frequency/voltage control.

**Set Supervisor Password**

Use this menu to set Supervisor Password.

**Set User Password**

Use this menu to set User Password.

**Load Optimal Defaults**

Use this menu to load the factory default settings for optimal system performance.

**Save & Exit Setup**

Save changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all changes and exit setup.

## Standard CMOS Features

The items inside STANDARD CMOS SETUP menu are divided into 9 categories. Each category includes none, one or more setup items. Use the arrow keys to highlight the item you want to modify and use the <PgUp> or <PgDn> keys to switch to the value you prefer.

Standard CMOS Features		[ Setup Help ]
System Time	14:42:15	Time is 24 hour format  Hour: 00 - 23 Minute: 00 - 59 Second: 00 - 59  (1:30AM = 01:30:00, 1:30PM = 13:30:00)
System Date	Aug 08 2002 Thu	
▶ Primary IDE Master		
▶ Primary IDE Slave		
▶ Secondary IDE Master		
▶ Secondary IDE Slave		
Floppy Drive A	1.44 MB 3½	
Floppy Drive B	Not Installed	

F1:Help	F4:Select Item	+/-:Change Values	F7:Setup Defaults
Esc:Previous Menu		Enter:Select ▶Sub-Menu	F6:Hi-Performance

### System Time

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

### System Date

This allows you to set the system to the date that you want (usually the current date). The format is <day><month> <date> <year>.

**month** The month from Jan. through Dec.

**date** The date from 1 to 31 can be keyed by numeric function keys.

**year** The year can be adjusted by users.

**day** Day of the week, from Sun to Sat, determined by BIOS. Read only.

### **Primary/Secondary IDE Master/Slave**

Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection.

Type	Select how to define the HDD parameters
Cylinders	Enter cylinder number
Heads	Enter head number
Write Precompensation	Enter write precomp cylinder
Sectors	Enter sector number
Maximum Capacity	Read the maximal HDD capacity
LBA Mode	Select <i>Auto</i> for a hard disk > 512 MB under Windows and DOS, or <i>Disabled</i> under Netware and UNIX
Block Mode	Select <i>Auto</i> to enhance the hard disk performance
Fast Programmed I/O Modes	Select <i>Auto</i> to enhance hard disk performance by optimizing the hard disk timing
32 Bit Transfer Mode	Enable 32 bit to maximize the IDE hard disk data transfer rate

### **Floppy Drive A:/B:**

This item allows you to set the type of floppy drives installed. Available options: *Not Installed*, *1.2 MB 5¼*, *720 KB 3½*, *1.44 MB 3½* and *2.88 MB 3½*.

## Advanced BIOS Features

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a	
Advanced BIOS Features	[ Setup Help ]
Quick Boot	Enabled
Full Screen Logo Show	Enabled
Anti-Virus Warning	Disabled
► Boot Device Priority	
Try Other Boot Devices	Yes
S.M.A.R.T. for Hard Disks	Disabled
BootUp Num-Lock	On
Floppy Drive Seek	Disabled
Password Check	Setup
Boot To OS/2	Yes
Internal Cache	WriteBack
External Cache	WriteBack
APIC Select	Enable
MPS Revision	1.4
F1:Help    f1:Select Item    +/-:Change Values    F7:Setup Defaults Esc:Previous Menu    Enter:Select    ►Sub-Menu    F6:Hi-Performance	

### Quick Boot

Setting the item to *Enabled* allows the system to boot within 5 seconds since it will skip some check items. Available options: *Enabled*, *Disabled*.

### Full Screen Logo Show

This item enables you to show the company logo on the bootup screen. Settings are:

- Enabled*      Shows a still image (logo) on the full screen at boot.
- Disabled*     Shows the POST messages at boot.

### Anti-Virus Warning

The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. When *Enabled*, BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted. Setting options: *Disabled* and *Enabled*.

### Boot Device Priority: 1st/2nd/3rd

The items allow you to set the sequence of boot devices where AMIBIOS

attempts to load the operating system. The settings are:

<i>IDE-0</i>	The system will boot from the first HDD.
<i>IDE-1</i>	The system will boot from the second HDD.
<i>IDE-2</i>	The system will boot from the third HDD.
<i>IDE-3</i>	The system will boot from the fourth HDD.
<i>Floppy</i>	The system will boot from floppy drive.
<i>ARMD-FDD</i>	The system will boot from any ARMD device, such as LS-120 or ZIP drive, that functions as a floppy drive.
<i>ARMD-HDD</i>	The system will boot from ARMD device, such as MO or ZIP drive, that functions as hard disk drive.
<i>CDROM</i>	The system will boot from the CD-ROM.
<i>Legacy SCSI</i>	The system will boot from the SCSI.
<i>Legacy NETWO</i>	The system will boot from the Network drive.
<i>BBS-0</i>	The system will boot from the first BBS (BIOS Boot Specification) compliant device.
<i>BBS-1</i>	The system will boot from the second BBS (BIOS Boot Specification) compliant device.
<i>BBS-2</i>	The system will boot from the third BBS (BIOS Boot Specification) compliant device.
<i>BBS-3</i>	The system will boot from the fourth BBS (BIOS Boot Specification) compliant device.
<i>USB FDD</i>	The system will boot from USB-interfaced floppy drive.
<i>USB CDROM</i>	The system will boot from the USB-interfaced CD-ROM.
<i>USB HDD</i>	The system will boot from the USB-interfaced HDD.
<i>USB RMD-FDD</i>	The system will boot from any USB-interfaced ARMD device, such as LS-120 or ZIP drive, that functions as a floppy drive.
<i>USB RMD-HDD</i>	The system will boot from USB-interfaced ARMD device, such as MO or ZIP drive, that functions as hard disk drive.
<i>Disabled</i>	Disable this sequence.



**MSI Reminds You...**

*Available settings for “1st/2nd/3rd Boot Device” vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting “Floppy” does not show up.*

---

### Try Other Boot Devices

Setting the option to *Yes* allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

### S.M.A.R.T. for Hard Disks

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline. Settings: *Enabled, Disabled*.

### BootUp Num-Lock

This item is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow end users to use the arrow keys on the numeric keypad. Setting options: *On, Off*.

### Floppy Drive Seek

This setting causes the BIOS to search for floppy disk drives at boot time. When enabled, the BIOS will activate the floppy disk drives during the boot process: the drive activity light will come on and the head will move back and forth once. First A: will be done and then B: if it exists. Setting options: *Disabled, Enabled*.

### Password Check

This specifies the type of AMIBIOS password protection that is implemented. Setting options are described below.

Option	Description
Setup	The password prompt appears only when end users try to run Setup.
Always	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

### Boot To OS/2

This allows you to run the OS/2® operating system with DRAM larger than 64MB. When you choose *No*, you cannot run the OS/2® operating system with DRAM larger than 64MB. But it is possible if you choose *Yes*.

**Internal Cache/External Cache**

Cache memory is additional memory that is much faster than conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. The setting controls the internal cache (also known as L1 or level 1 cache) or the external cache (also known as L2 or level 2 cache). Setting options: *Disabled*, *WriteBack*, *Write Thru*. *WriteBack* & *WriteThru* refer to the cache's write policy, which determines how it handles writes to memory locations that are currently being held in cache. The *WriteBack* cachelpolicy will produce the best performance.

**APIC Select**

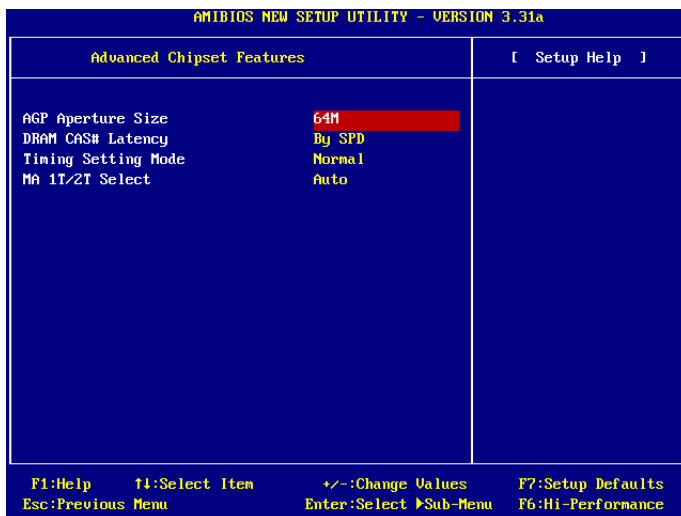
This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Settings: *Enabled*, *Disabled*.

**MPS Revision**

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: *1.4*, *1.1*.



## Advanced Chipset Features



### MSI Reminds You...

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

### AGP Aperture Size

The field selects the size of the Accelerated Graphics Port (AGP) aperture. 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. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB and 256MB.

### DRAM CAS# Latency

The field controls the CAS latency, which determines the timing delay before SDRAM starts a read command after receiving it. Setting options: *By SPD*, 3T, 2.5T, 2T. 2T increases system performance while 2.5T provides more stable system performance. Setting to *By SPD* enables DRAM CAS# Latency automatically to be determined by BIOS based on the configurations of the SPD (Serial Presence Detect) EEPROM on the DRAM module.

**Timing Setting Mode**

The DRAM 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 layouts or slower memory. Setting options: *Safe, Normal, Fast, Turbo, Ultra*.

**MA 1T/2T Select**

This setting controls the SDRAM command rate. Setting to *Auto* allows the the SDRAM command rate to be determined by the BIOS. Selecting *MA 1T/MA 2T* makes SDRAM signal controller run at 1T/2T rate. 1T is faster than 2T. Setting options: *Auto, MA 2T, MA 1T*.

## Power Management Features

Power Management Features		[ Setup Help ]
Power Button Function	Power Off	
IPCA Function	Enabled	
Sleep State	S3/STR	
Initialize VGA BIOS By S3	Disabled	
Power/Sleep LED	Blinking	
Power Management	Enabled	
Suspend Time Out	Disabled	
Hard Disk Time Out	Disabled	
After AC Power Lost	Last State	
► Set Wake Up Events ...		

F1:Help    F4:Select Item    +/-:Change Values    F7:Setup Defaults  
Esc:Previous Menu    Enter:Select ►Sub-Menu    F6:Hi-Performance



### MSI Reminds You...

*S3-related functions described in this section are available only when your BIOS supports S3 sleep mode.*

### Power Button Function

This feature sets the function of the power button. Settings are:

- Power Off*    The power button functions as normal power off button.
- Suspend*    When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

### IPCA Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select *Enabled*. Available options: *Disabled*, *Enabled*.

### Sleep State

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1(POS) or S3(STR) fashion through the setting of this field. Options are:

- |               |  |
|---------------|--|
| <i>S1/POS</i> | The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.   |
| <i>S3/STR</i> | The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a “wake up” event occurs. |

### Initialize VGA BIOS By S3

Selecting *Enabled* allows BIOS to call VGA BIOS to initialize the VGA card when system wakes up (resumes) from S3 sleep state. The system resume time is shortened when you disable the function, but system will need an AGP driver to initialize the VGA card. Therefore, if the AGP driver of the card does not support the initialization feature, the display may work abnormally or not function after resuming from S3.

### Power/Sleep LED

This item configures how the system uses power LED on the case to indicate the sleep/suspend state. Available options are:

- |                   |  |
|-------------------|--|
| <i>Blinking</i>   | The power LED blinks to indicate the sleep/suspend state.            |
| <i>Dual Color</i> | The power LED changes its color to indicate the sleep/suspend state. |

### Power Management

Setting to *Enabled* will activate an Advanced Power Management (APM) device to enhance Max Saving mode and stop CPU internal clock. Settings: *Disabled*, *Enabled*.

### Suspend Time Out

After the selected period of system inactivity, all devices except the CPU shut off. Settings: *Disabled*, *1 min*, *2 min*, *3 min*, *4 min*, *5 min*, *10 min*, *15 min*, *20*

min, 30 min.

### Hard Disk Time Out

If hard disk activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active. Setting options: *Disabled, 1 min, 2 min, 5 min, 10 min, 15 min.*

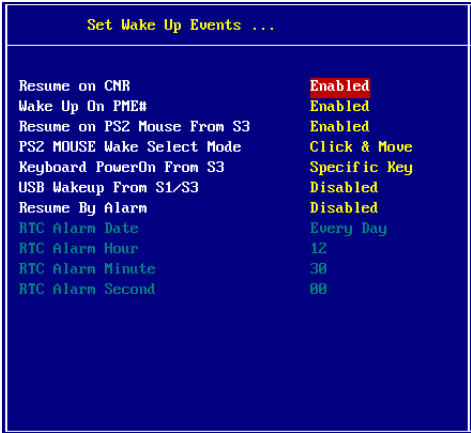
### After AC Power Lost

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

- Power Off*      Leaves the computer in the power off state.
- Power On*       Reboots the computer.
- Last State*     Restores the system to the previous status before power failure or interrupt occurred.

### Set WakeUp Events

Press <Enter> and the following sub-menu appears.



### Resume On CNR, Wake Up On PME#, Resume On PS2 Mouse From S3

These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected. Settings: *Enabled, Disabled.*



*Note: For “Resume On PS2 Mouse From S3” function, you need to DOUBLE click the mouse to power on the system if the function is enabled.*

### **PS2 Mouse Wake Select Mode**

This item specifies the PS2 mouse wake-up mode. Setting options: *Click & Move, Click.*

### **Keyboard Power On From S3**

The item specifies how the system will be awakened from power saving mode when input signal of the keyboard is detected. If set to *Specific Key*, <Ctrl+Alt+BackSpace> is the only one Power On event. If set to *Password*, please press <Enter> to input password and its maximum password is 5 character. Setting options: *Disabled, Any Key, Specific Key, Password.*

### **USB Wakeup From S1/S3**

This item allows the activity of the USB device to wake up the system from S1 & S3 sleep state. Settings: *Enabled, Disabled.*

### **Resume By Alarm**

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the soft off (S5) state. Settings: *Enabled, Disabled.*

### **RTC Alarm Date/Hour/Minute/Second**

If *Resume By Alarm* is set to *Enabled*, the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields. Available settings for each item are:

Alarm Date	01 ~ 31, Every Day
Alarm Hour	00 ~ 23
Alarm Minute	00 ~ 59
Alarm Second	00 ~ 59



### **MSI Reminds You...**

*If you have changed this setting, you must let the system boot up until it enters the operating system, before this function will work.*

## PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Peripheral Component Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its 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.

PNP/PCI Configurations		[ Setup Help ]
Plug and Play Aware O/S	Yes	
Primary Graphics Adapter	AGP	
Allocate IRQ to PCI VGA	Yes	
PCI IDE BusMaster	Enabled	
PCI Slot1/5 IRQ Priority	Auto	
PCI Slot2/6 IRQ Priority	Auto	
PCI Slot3 IRQ Priority	Auto	
PCI Slot4 IRQ Priority	Auto	
► Set IRQs to PCI or ISA		
► Set DMAs to PnP or ISA		
F1:Help    F4:Select Item    +/-:Change Values    F7:Setup Defaults		Esc:Previous Menu    Enter:Select ►Sub-Menu    F6:Hi-Performance

### Plug and Play Aware O/S

When set to *Yes*, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 98, 2000 or ME. When set to *No*, BIOS will initialize all the PnP cards. Select *Yes* if the operating system is Plug & Play.

### Primary Graphics Adaptor

This setting specifies which VGA card is your primary graphics adapter. Setting options: *PCI*, *AGP*.

**Allocate IRQ to PCI VGA**

Set to *Yes* allows BIOS to assign an IRQ to PCI VGA card. Choose *No* if you want to release the IRQ.

**PCI IDE BusMaster**

Set this option to *Enabled* to specify that the IDE controller on the PCI local bus has bus mastering capability. Settings options: *Disabled*, *Enabled*.

**PCI Slot 1/5 IRQ, PCI Slot 2/6 IRQ, PCI Slot 3 IRQ, PCI Slot 4 IRQ**

These items specify the IRQ line for each PCI slot. Setting options: 3, 4, 5, 7, 9, 10, 11, *Auto*. Selecting *Auto* allows BIOS to automatically determine the IRQ line for each PCI slot.

**Set IRQs to PCI or ISA**

Press <Enter> to enter the sub-menu and the following screen appears:

Set IRQs to PCI or ISA	
IRQ3	PCI/PnP
IRQ4	PCI/PnP
IRQ5	PCI/PnP
IRQ7	PCI/PnP
IRQ9	PCI/PnP
IRQ10	PCI/PnP
IRQ11	PCI/PnP
IRQ14	PCI/PnP
IRQ15	PCI/PnP

**IRQ 3/4/5/7/9/10/11/14/15**

These items specify the bus where the specified IRQ line is used.

The settings determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an *ISA/EISA* setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as *PCI/PnP*. If all IRQs are set to *ISA/EISA*, and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices. available settings: *ISA/EISA* and *PCI/PnP*.



---

## Set DMAs to PnP or ISA

Press <Enter> to enter the sub-menu and the following screen appears:

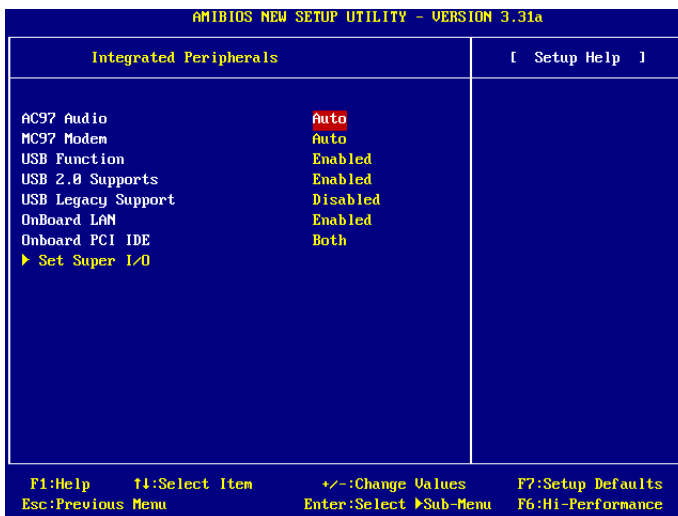
Set DMAs to PnP or ISA	
DMA Channel 0	PnP
DMA Channel 1	PnP
DMA Channel 3	PnP
DMA Channel 5	PnP
DMA Channel 6	PnP
DMA Channel 7	PnP

### DMA Channel 0/1/3/5/6/7

These items specify the bus that the system DMA (Direct Memory Access) channel is used.

The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA by assigning an *ISA/EISA* setting to it.

## Integrated Peripherals



### AC'97 Audio

This item is used to enable or disable the onboard AC'97 (Audio Codec'97) feature. Selecting *Auto* allows the mainboard to detect whether an audio device is used. If an audio device is detected, the onboard AC'97 controller will be enabled; if not, the controller is disabled. Disable the function if you want to use other controller cards to connect an audio device. Settings: *Disabled* and *Auto*.

### MC'97 Modem

This item is used to enable or disable the onboard MC'97 (Modem Codec'97) feature. Selecting *Auto* allows the mainboard to detect whether a modem is used. If a modem is detected, the onboard MC'97 controller will be enabled; if not, the controller is disabled. Disable the controller if you want to use other controller cards to connect modems. Settings: *Auto* and *Disabled*.

### USB Function

This setting is used to enable/disable the onboard USB controllers. Settings: *Enabled*, *Disabled*.

### USB 2.0 Support

This item determines whether the high-speed USB 2.0 data transmission interface will be supported. Setting options: *Enabled, Disabled*.

### USB Legacy Support

This item is used to enable or disable the USB KB/ MOUSE/ FDD legacy supports. Settings: *Enabled, Disabled*.

### OnBoard LAN

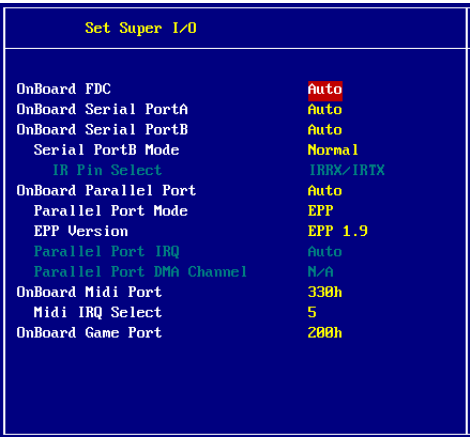
This item is used to enable or disable the onboard LAN controllers. Settings: *Enabled, Disabled*.

### OnBoard PCI IDE

This setting controls the onboard PCI IDE controllers. Setting options: *Disabled, Primary, Secondary, Both*.

### Set Super I/O

Press <Enter> to enter the sub-menu and the following screen appears:



### OnBoard FDC

The item is used to enable or disable the onboard Floppy controller. Select *Enabled* when you have installed a floppy disk drive and want to use it. Options: *Auto, Enabled, Disabled*.

**OnBoard Serial Port A/B**

The items specify the base I/O port address and IRQ for the onboard Serial Port A / Serial Port B. Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings: *Disabled, 3F8/COM1, 2F8/COM2, 3E8/COM3, 2E8/COM4, Auto*.

**Serial PortB Mode**

This item sets the operation mode for Serial Port 2. Settings: *Normal, 1.6 uS, 3/16 Baud* and *ASKIR* (the last three operation modes are setting options for IR function).

**IR Pin Select**

Set to *IRRX/IRTX* when using an internal IR module connected to the IR connector. Set to *SINB/SOUTB*. when connecting an IR adapter to COM 2.

**OnBoard Parallel Port**

These items specify the base I/O port addresses of the onboard parallel port. Selecting *Auto* allows AMIBIOS to automatically determine the correct base I/O port address. Settings: *Auto, 378h, 278h and Disabled*.

**Parallel Port Mode**

This item specifies the operation mode for the onboard parallel port: *ECP, Normal, Bi-Dir or EPP*.

**EPP Version**

The item specifies the EPP version used by the parallel port if the port is set to *EPP* mode. Settings: *EPPI.7 and EPPI.9*.

**Parallel Port IRQ**

When *Parallel Port* is set to *Auto*, the item shows *Auto* indicating that BIOS determines the IRQ for the parallel port automatically. Settings: *5, 7*.

**Parallel Port DMA Channel**

This feature needs to be configured only when *Parallel Port Mode* is set to the *ECP* mode. When Parallel Port is set to *Auto*, the field will show *Auto* indicating that BIOS automatically determines the DMA channel for the parallel port. Available options: *0, 1, 3*.

---

**OnBoard Midi Port**

The field specifies the base I/O port address for the onboard Midi Port.

**Midi IRQ Select**

The item is used to select the IRQ line for onboard Midi port.

**OnBoard Game Port**

This item is used to specify the address for the onboard game port.

## PC Health Status

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.

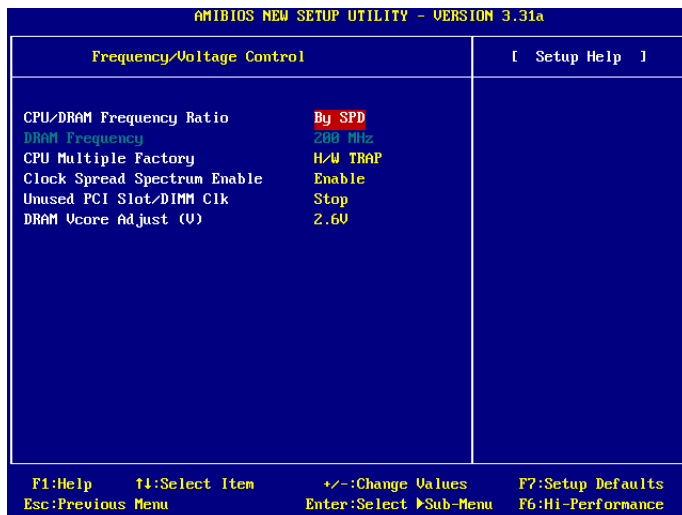
AMIBIOS NEW SETUP UTILITY - VERSION 3.31a		
PC Health Status		[ Setup Help ]
Vcore	1.664 V	
+3.3V	3.392 V	
+5.0V	5.053 V	
+12V	11.876 V	
-12V	-11.836 V	
-5.0V	-5.229 V	
Battery Voltage	3.368 V	
SYSTEM Fan Speed	0 RPM	
CPU FAN Speed	0 RPM	
SYSTEM Temperature	45°C/113°F	
CPU Temperature	37°C/98°F	
F1:Help    F1:Select Item    +/-:Change Values    F7:Setup Defaults		
Esc:Previous Menu    Enter:Select    ▶Sub-Menu    F6:Hi-Performance		

**Vcore, +3.3V, +5.0V, +12V, -12V, -5.0V, Battery Voltage, System/CPU Fan Speed, System/CPU Temperature**

These items display the current status of all of the monitored hardware devices/components such as system voltages, temperatures and fan speeds.

## Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.



### CPU/DRAM Frequency Ratio

This setting controls the ratio of CPU FSB Clock & DRAM Frequency to enable the CPU & DRAM to run at different frequency combinations. Please note that the setting options vary according to the CPU FSB Clock preset.

### DRAM Frequency

This setting shows the current frequency of the installed DDR DRAM.

### CPU Multiple Factory

This item allows users to select the CPU multiplier value. The default value of this item is *Locked*.

### Clock Spread Spectrum Enable

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the

spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at *Disabled* for optimal system stability and performance. But if you are plagued by EMI, setting to *Enabled* for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clockspeed which may just cause your overclocked processor to lock up.

**Unused PCI Slot/DIMM Clk**

This setting enables you to stop or activate the unused PCI slot & DIMM clock. Setting options: *Stop, Action*.

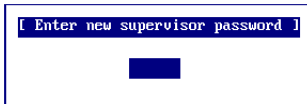
**DRAM Vcore Adjust (V)**

Adjusting the DDR voltage can increase the DDR speed. Any changes made to this setting may cause a stability issue, so ***changing the DDR voltage for long-term purpose is NOT recommended.***



## Set Supervisor/User Password

When you select this function, a message as below will appear on the screen:



Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, 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 have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the PASSWORD CHECK option of the ADVANCED BIOS FEATURES menu. If the PASSWORD CHECK option is set to *Always*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when you try to enter Setup.



### MSI Reminds You...

#### **About Supervisor Password & User Password:**

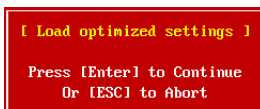
*Supervisor password:* Can enter and change the settings of the setup menu.

*User password:* Can only enter but do not have the right to change the settings of the setup menu.

## **Load Optimal Defaults**

The Optimal Defaults are the values set by the mainboard manufacturer for optimized & stable system performance.

When you select *Load Optimal Defaults*, a message as below appears:

A screenshot of a BIOS screen with a red background and yellow text. The text is enclosed in a red rectangular border. The text reads: "[ Load optimized settings ]" on the first line, "Press [Enter] to Continue" on the second line, and "Or [ESC] to Abort" on the third line.

[ Load optimized settings ]  
Press [Enter] to Continue  
Or [ESC] to Abort

Pressing 'Enter' loads the default BIOS values that enable the best system performance.

## ***Appendix: Using 4- or 6-Channel Audio Function***

The motherboard is equipped with Realtek ALC650 chip, which provides support for 6-channel audio output, including 2 Front, 2 Rear, 1 Center and 1 Subwoofer channel. ALC650 allows the board to attach 4 or 6 speakers for better surround sound effect. The section will tell you how to install and use 4-/6-channel audio function on the board.

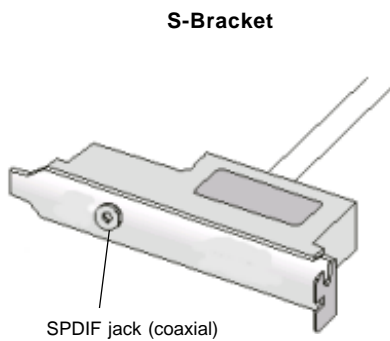
### **TOPICS**

<i>Digital Audio Output (SPDIF)</i>	<i>A-2</i>
<i>Using the Back Panel</i>	<i>A-3</i>
<i>Testing the Connected Speakers</i>	<i>A-7</i>
<i>Playing KaraOK</i>	<i>A-9</i>

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### ■ Digital Audio Output

When any Multi-Channel Audio Function mode is selected, you may connect your speakers to the Coaxial SPDIF phonejack on the S-Bracket to experience digital surround sound effect.




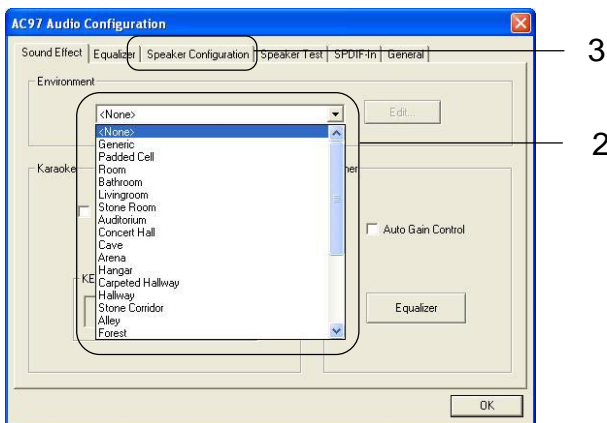
## Using the Back Panel only

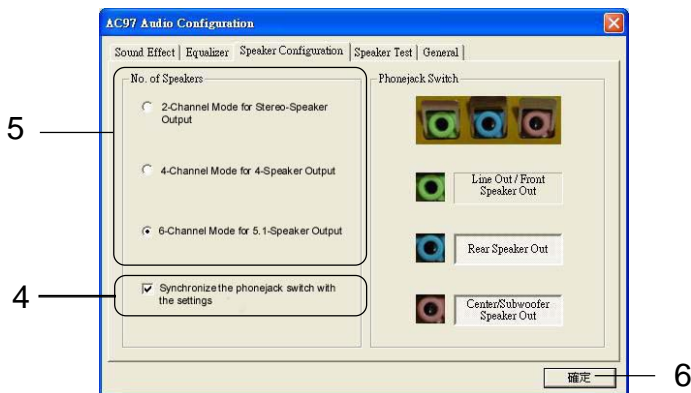
In addition to a default 2-channel analog audio output function, the audio connectors on the Back Panel also provide 4- or 6-channel analog audio output function if a proper setting is made in the software utility.

Read the following steps to have the Multi-Channel Audio Function properly set in the software utility, and have your speakers correctly connected to the Back Panel.

### Configuration in the Software Utility

1. Click the audio icon  from the window tray at the lower-right corner of the screen.
2. Select a desired surround sound effect from the “Environment” drop-down menu.
3. Click the **Speaker Configuration** tab.
4. Select **Synchronize the phonejack switch with the settings**.
5. Select a desired multi-channel operation from **No. of Speakers**.
  - a. 2-Channel Mode for Stereo-Speaker Output
  - b. 4-Channel Mode for 4-Speaker Output
  - c. 6-Channels Mode for 5.1-Speaker Output
6. Click **OK** to close this window.





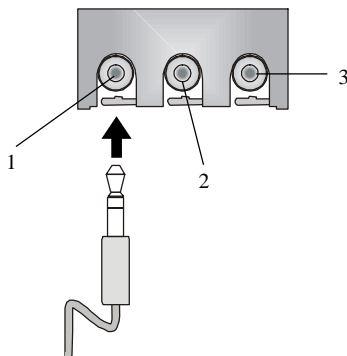
## Connecting the Speakers

When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phonejacks in accordance with the setting in software utility.

### ■ 2-Channel Mode for Stereo-Speaker Output

Refer to the following diagram and caption for the function of each phonejack on the back panel when 2-Channel Mode is selected.

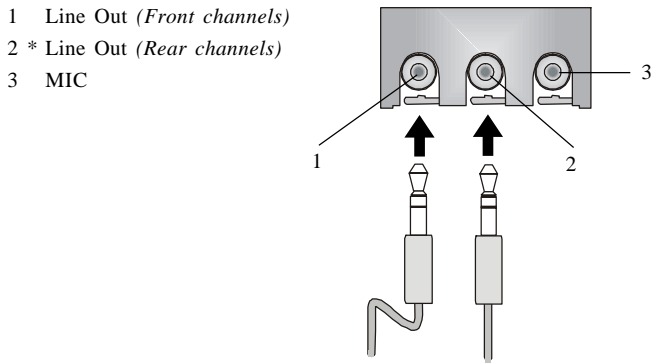
- 1 Line Out (*Front channels*)
- 2 Line In
- 3 MIC



■ **4-Channel Mode for 4-Speaker Output**

The audio jacks on the back panel always provide 2-channel analog audio output function, however these audio jacks can be transformed to 4- or 6- channel analog audio jacks by selecting the corresponding multi-channel operation from **No. of Speakers**.

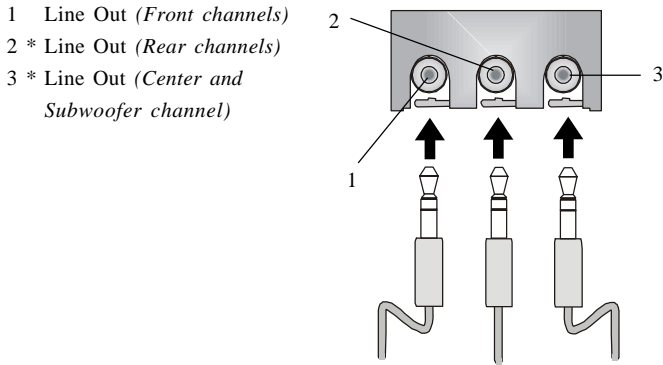
Refer to the following diagram and caption for the function of each jack on the back panel when 4-Channel Mode is selected.



\* Line In function is converted to Line Out function when 4-Channel Mode for 4-Speaker Output is selected.

## ■ 6-Channel Mode for 6-Speaker Output

Refer to the following diagram and caption for the function of each jack on the back panel when 6-Channel Mode is selected.



\* Both Line In and MIC function are converted to Line Out function when 4-Channel Mode for 6-Speaker Output is selected.



### **MSI Reminds You...**


*If the Center and Subwoofer speaker exchange their audio channels when you play video or music on the computer, a converter may be required to exchange center and subwoofer audio signals. You can purchase the converter from a speaker store.*

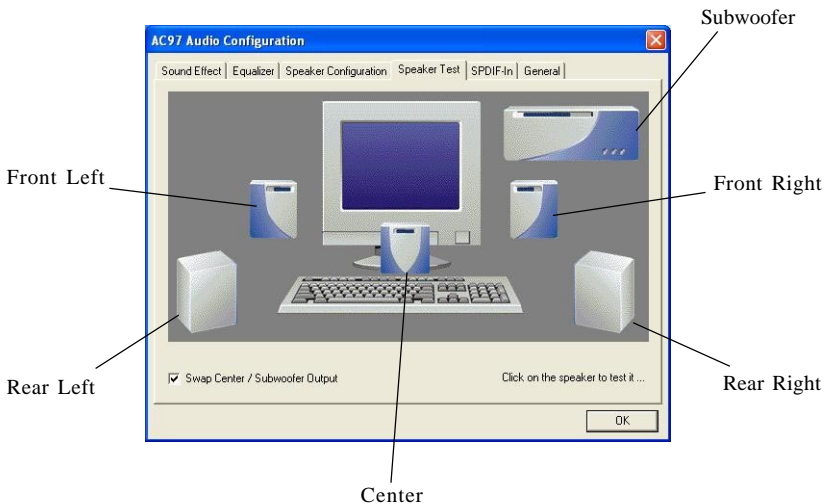


## Testing the Connected Speakers

To ensure that 4- or 6-channel audio operation works properly, you may need to test each connected speaker to make sure every speaker work properly. If any speaker fails to sound, then check whether the cable is inserted firmly to the connector or replace the bad speakers with good ones.

### Testing Each Speaker

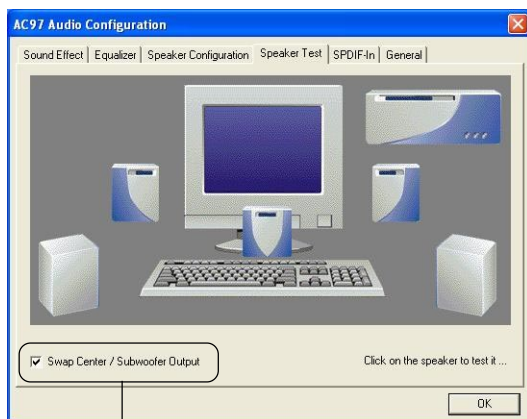
1. Click the audio icon  from the window tray at the lower-right corner of the screen.
2. Click the **Speaker Test** tab.
3. The following window appears. Select the speaker which you want to test by clicking it.



#### MSI Reminds You...

6 speakers appear on the “Speaker Test” window only when you select “6-Channel Mode” in the “No. of Speakers” column. If you select “4-Channel Mode”, only 4 speakers appear on the window.

4. While you are testing the speakers in 6-Channel Mode, if the sound coming from the center speaker and subwoofer is swapped, you should select **Swap Center/Subwoofer Output** to readjust these two channels.




Select this function

## Playing KaraOK

The KaraOK function will automatically remove human voice (lyrics) and leave melody for you to sing the song. Note that this function applies only for 2-channel audio operation.

### Playing KaraOK

1. Click the audio icon  from the window tray at the lower-right corner of the screen.
2. In the Sound Effect tab, select **Voice Cancellation** under “KaraOK.”
3. Click **OK** to close this window.

