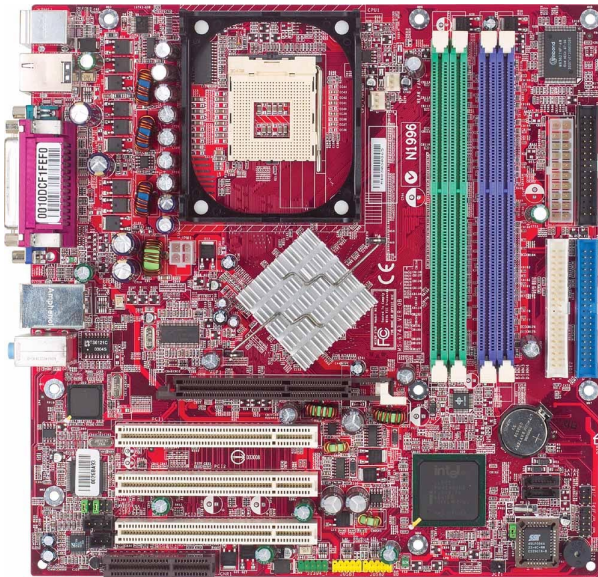




865GM2 / 865PEM2

MS-6743 (v1.X) Micro ATX Mainboard



Version 1.1
G52-M6743X4

Manual Rev: 1.1
Release Date: May 2003



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.

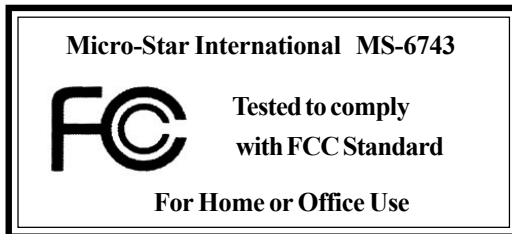
Notice 1

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.



Copyright Notice

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Revision History

Revision	Revision History	Date
V1.0	First release for PCB 1.x	April 2003
V1.1	Add 1394 connector BIOS, add CPU Smart Fan Temperature and CPU Fan Tolerance Value	May 2003

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.
 - 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 the MS-6743 v1.X M-ATX mainboard. The MS-6743 is based on **Intel® Springdale-G/PE** & **Intel® ICH5** chipsets for optimal system efficiency. Designed to fit the advanced **Intel® Pentium 4** processor in the 478-pin package, MS-6743 delivers a high performance and professional desktop platform solution.

Mainboard Specifications

CPU

- Supports Socket 478 for Intel® Pentium 4 (Socket 478) processor
- Supports 533MHz or 800MHz FSB
- Supports 3.06GHz or higher speed P4 processor

Chipsets

- Intel® Springdale-865G/865PE chipset
 - Supports AGP 8x/4x at 0.8V (AGP 3.0) or 4x at 1.5V (not supports 3.3V)
 - Integrated graphic controller (865G only)
 - Supports 133/166/200MHz memory FSB
 - Supports 400/533/800MHz Intel NetBurst micro-architecture bus.
- Intel® ICH5 chipset (421 mBGA)
 - AC'97 2.3 interface
 - 8 USB 2.0/1.1 ports
 - 2 channel Ultra ATA/100 Bus Master IDE controller
 - SMBus 2.0 support
 - 2 serial ATA Host Controllers
 - Integrated LAN controller

Main Memory

- Supports four 64-bit wide DDR data channels
- Available bandwidth up to 3.2GB/s (DDR 400) for single-channel mode and 8.4 GB/s (DDR 400) for dual-channel mode
- Supports 128Mb, 256Mb or 512Mb DDR technologies
- Supports only x8, x16 DDR devices with 4-bank

Slots

- One AGP supports 8x/4x at 0.8V (AGP 3.0) or 4x at 1.5V (not support 3.3V)
- Three PCI 2.2 32-bit Master PCI Bus slots.
- Supports 3.3v/5v PCI bus Interface.
- One CNR slot

On-Board IDE

- An IDE controller on the ICH5 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA66/100/133 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 2.88 Mbytes.
 - 1 serial port, 1 VGA port (865G) or 2 serial ports (865PE)
 - 1 parallel port supports SPP/EPP/ECP mode
 - 8 USB 2.0/1.1 ports (Rear * 4 / Front * 4)
 - 1 Line-In/Line-Out/Mic
 - 1 RJ45 connector (Optional)
 - 2 1394 ports (Rear*1 / Front*1) (Optional)

Audio

- ▶ AC97 link controller integrated in ICH5
- ▶ 6 channels software audio codec C-Media 9739A
 - Compliant with AC97 v2.2 spec.
 - Meet PC2001 audio performance requirement
 - Can support SPDIF Out via bracket only

On-Board LAN

- ▶ Intel 82562EZ
 - Integrated 10/100 Ethernet MAC and PHY in one chip
 - Supports 10Mb/s and 100Mb/s auto-negotiation operation
 - Compliant with PCI v2.2, and LAN on Motherboard (LOM) standard

On-Board 1394

- ▶ NECPD72874

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.

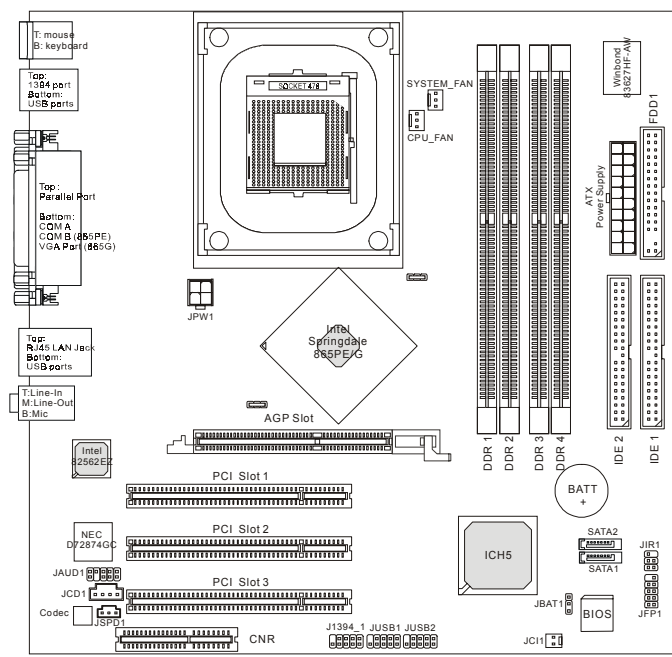
Dimension

- ▶ M-ATX Form Factor: 24.5 cm (L) x 24.5 cm (W)

Mounting

- ▶ 6 mounting holes

Mainboard Layout



MS-6743 v1.X M-ATX Mainboard

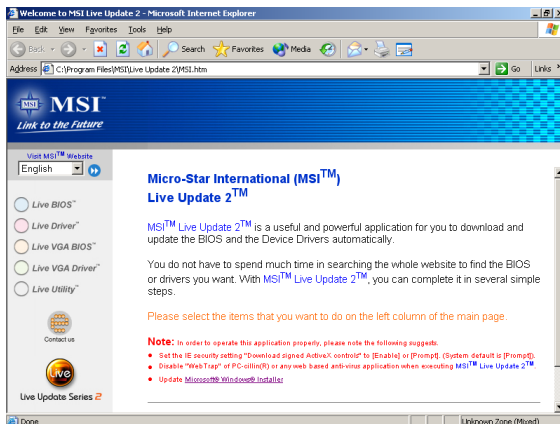
MSI Special Features

Live BIOS™/Live Driver™

The Live BIOS™/Live Driver™ is a tool used to detect and update your BIOS/drivers online so that you don't need to search for the correct BIOS/driver version throughout the Web site. To use the function, you need to install the "MSI Live Update 2" application. After installation, the "MSI Live Update 2" icon (as shown on the right) will appear on the screen.



Double click the "MSI Live Update 2" icon, and the following screen will appear:



Five buttons are placed on the leftmost pane of the screen. Click the desired button to start the update process.


- **Live BIOS** – Updates the BIOS online.
- **Live Driver** – Updates the drivers online.
- **Live VGA BIOS** – Updates the VGA BIOS online.
- **Live VGA Driver** – Updates the VGA driver online.
- **Live Utility** – Updates the utilities online.

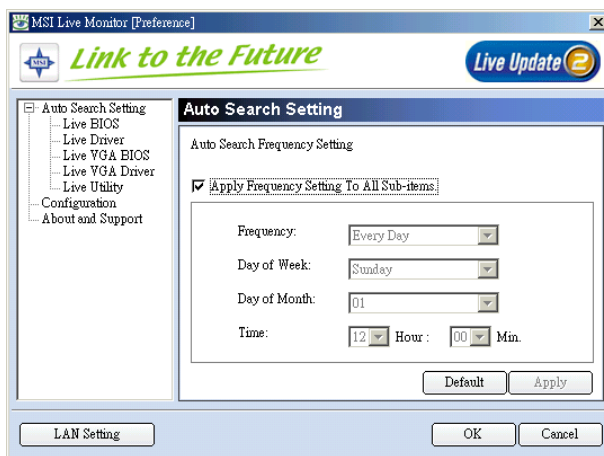
If the product you purchased does not support any of the functions listed above, a "sorry" message is displayed. For more information on the update instructions, insert the companion CD and refer to the "Live Update Guide" under the "Manual" Tab.

Live Monitor™

The Live Monitor™ is a tool used to schedule the search for the latest BIOS/drivers version on the MSI Web site. To use the function, you need to install the “MSI Live Update 2” application. After installation, the “MSI Live Monitor” icon (as shown on the right) will appear on the screen. Double click this icon to run the application.



Double click the “MSI Live Monitor” icon  at the lower-right corner of the taskbar, and the following dialog box will appear. You can specify how often the system will automatically search for the BIOS/drivers version, or change the LAN settings right from the dialog box.



You can right-click the MSI Live Monitor icon  to perform the functions listed below:

- **Auto Search** – Searches for the BIOS/drivers version you need immediately.
- **View Last Result** – Allows you to view the last search result if there is any.
- **Preference** – Configures the Search function, including the Search schedule.
- **Exit** – Exits the Live Monitor™ application.
- **FAQ** – Provides a link to a database which contents various possible questions about MSI's products for users to inquire.

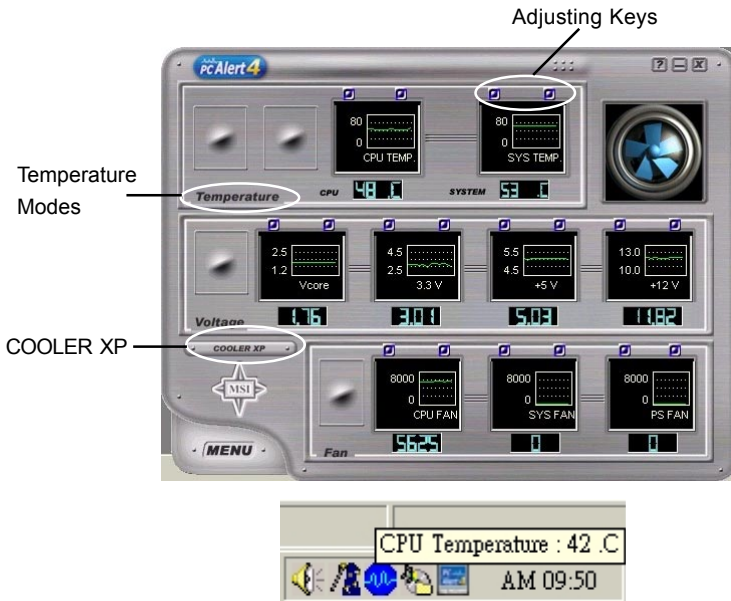
PC Alert™ 4

The PC Alert™ 4 is a utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

- ✦ monitor CPU & system temperatures
- ✦ monitor fan speeds
- ✦ monitor system voltages

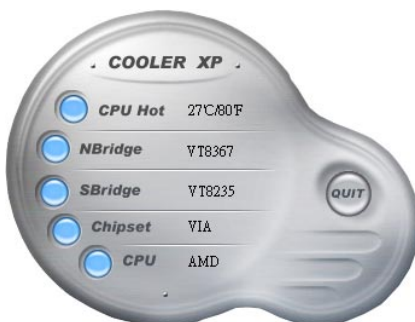


If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown until the condition returns to the normal status.



Users can use the Adjusting Keys to change the minimum and maximum threshold of each item for the system to send out a warning message. Click *Temperature* to select the temperature modes of either Fahrenheit (°F) or Celsius (°C). The PC Alert™ 4 icon on the Status Area will show the current CPU temperature.

To better protect the CPU from overheating, a new feature, **COOLER XP**, has been added to decrease the temperature of AMD Athlon™ XP CPU. To do so, simply click **COOLER XP** and the screen will show the **Cute** skin (as shown below) with information about the CPU and chipset. Right-click the mouse to select the skin you want to switch to.



Cute



MSI Reminds You...

- 1. The new feature **COOLER XP** will work only if your mainboard supports AMD Athlon™ XP CPU.*
- 2. Items shown on PC Alert 4 vary depending on your system's status.*
- 3. Whenever the minimum or maximum threshold of each item has been changed, please close the PC Alert 4 program for the new settings to take effect.*

2

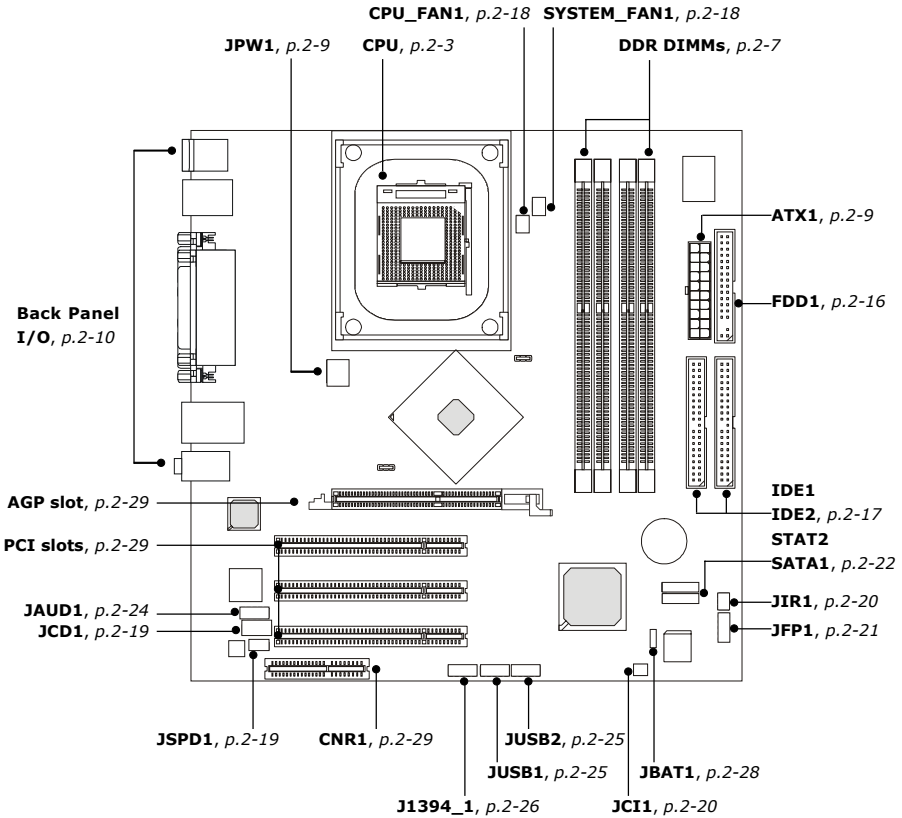


Hardware Setup

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 as 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® Pentium® 4/Celeron Northwood/Prescott 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

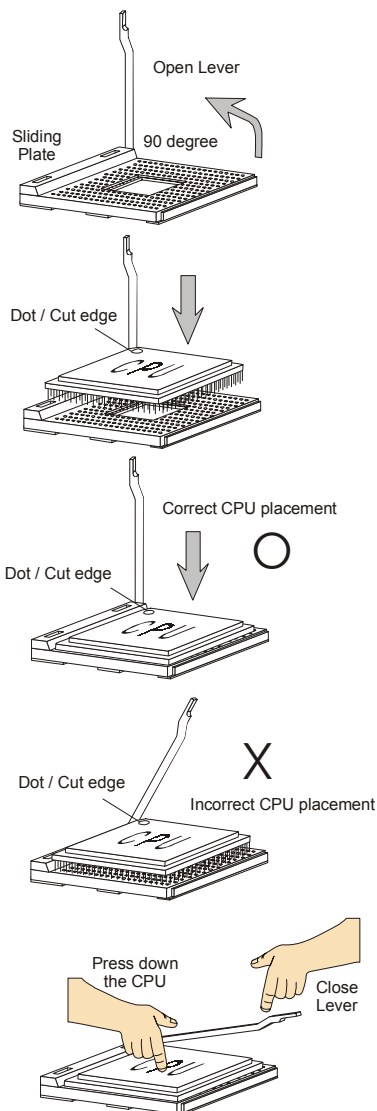
CPU Clock multiplied by **Core/Bus ratio** equals the CPU core speed.

For example:

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

CPU Installation Procedures for Socket 478

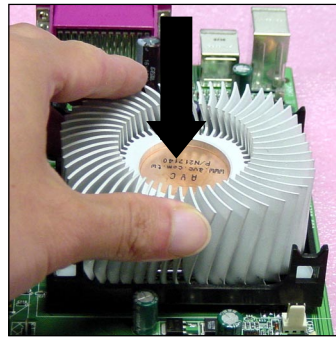
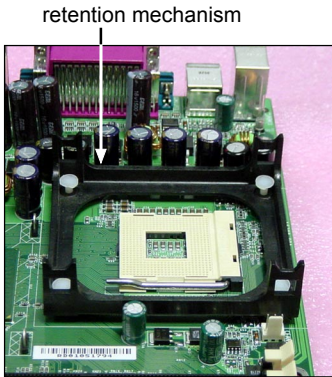
1. Please turn off the power and unplug the power cord before installing the CPU.
2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
3. Look for the cut edge. The cut edge should point towards the lever pivot. The CPU can only fit in the correct orientation.
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.



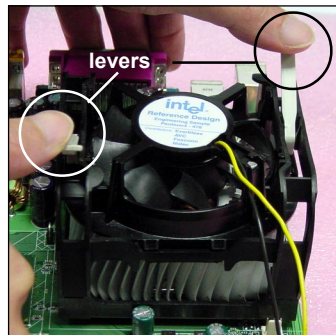
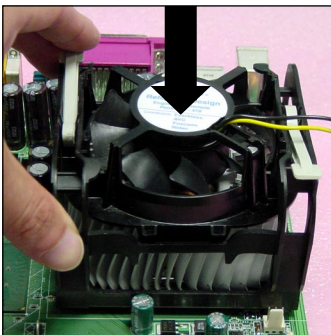
Installing the CPU Fan

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:

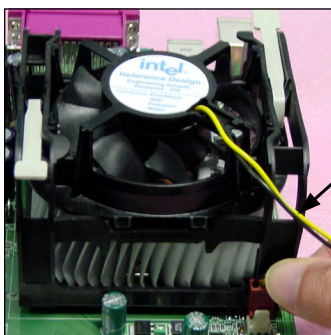
1. Locate the CPU and its retention mechanism on the motherboard.
2. Position the heatsink onto the retention mechanism.



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



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

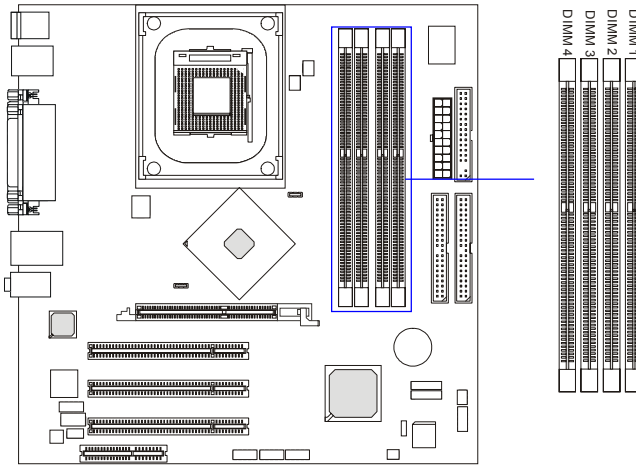
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from grounded outlet first to ensure the safety of CPU.

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.***

Memory

The mainboard provides 2 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports the memory size up to 2GB. You can install DDR400/DDR333/DDR266 modules on the DDR DIMM slots (DDR 1~2).



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:

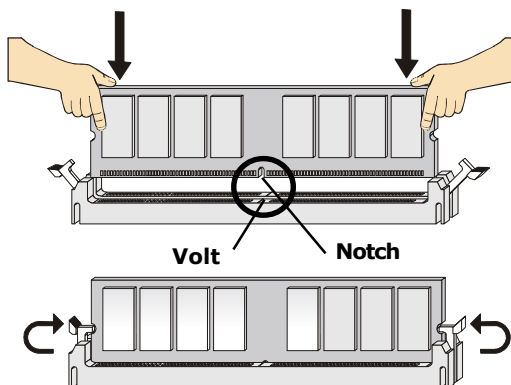
Slot	Memory Module	Total Memory
DIMM 1 (Bank 0 & 1)	S/D	64MB~1GB
DIMM 2 (Bank 2 & 3)	S/D	64MB~1GB
Maximum System Memory Supported		64MB~2GB

S: Single Side

D: Double Side

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

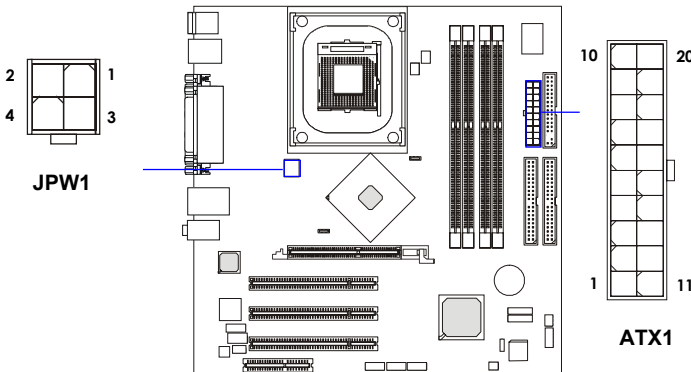
The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: ATX1

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.



ATX1 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

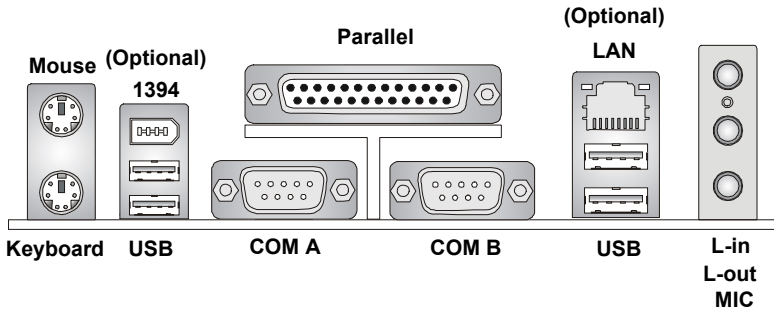
JPW1 Pin Definition

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

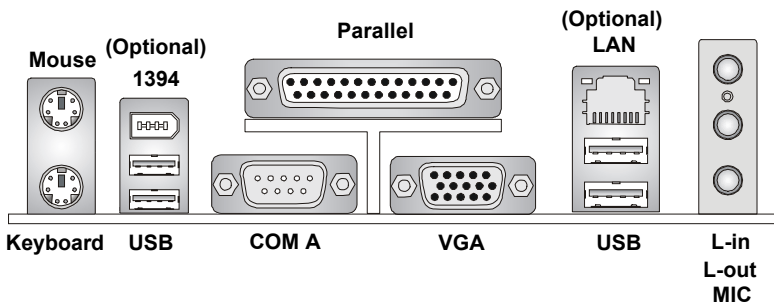
Back Panel

The back panel provides the following connectors:

For Springdale-PE

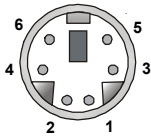


For Springdale-G



Mouse Connector

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 assignments are as follows:



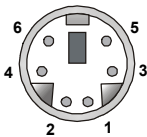
PS/2 Mouse (6-pin Female)

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.



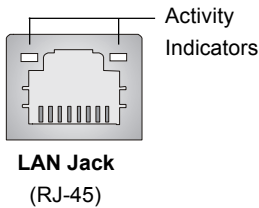
PS/2 Keyboard (6-pin Female)

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

RJ-45 LAN Jack (Optional)

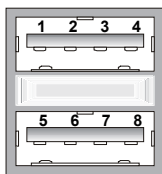
The mainboard provides a RJ-45 connector that allows your computer to be connected to a network environment.



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

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.



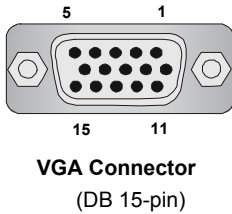
USB Ports

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

VGA Connector

The mainboard provides a DB 15-pin female connector to connect a VGA monitor.

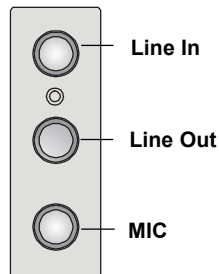


Pin	Signal Description
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	N/C
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

Audio Port Connectors

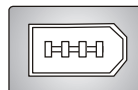
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **MIC-In** is a connector for microphones.

1/8" Stereo Audio Connectors



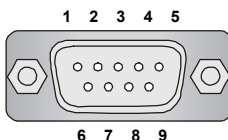
IEEE1394 Port (Optional)

The mainboard provides one standard IEEE1394 port. The standard IEEE1394 port connects to IEEE1394 devices without external power. The IEEE1394 high-speed serial bus complements USB by providing enhanced PC connectivity for a wide range of devices, including consumer electronics audio/video (A/V) appliances, storage peripherals, other PCs, and portable devices.



Serial Port Connectors: COM A/B

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



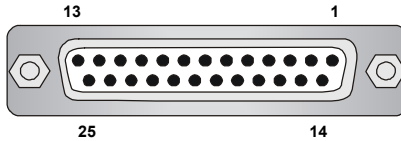
**9-Pin Male DIN Connector
COM A /B**

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

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

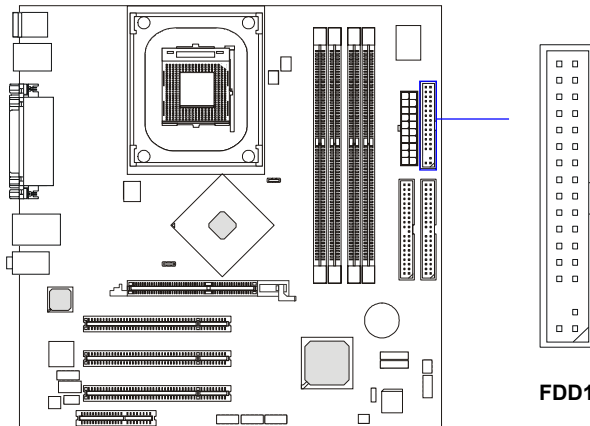
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select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

Connectors

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

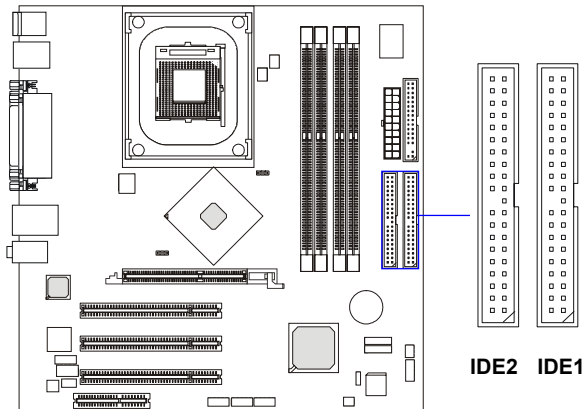
Floppy Disk Drive Connector: FDD1

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 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices.



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.

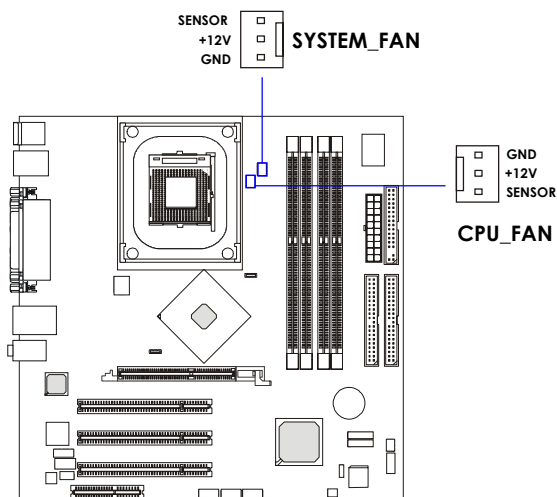


MSI Reminds You...

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: CPU_FAN/SYSTEM_FAN

The CPU_FAN (processor fan), SYSTEM_FAN1 (system fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire with 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...

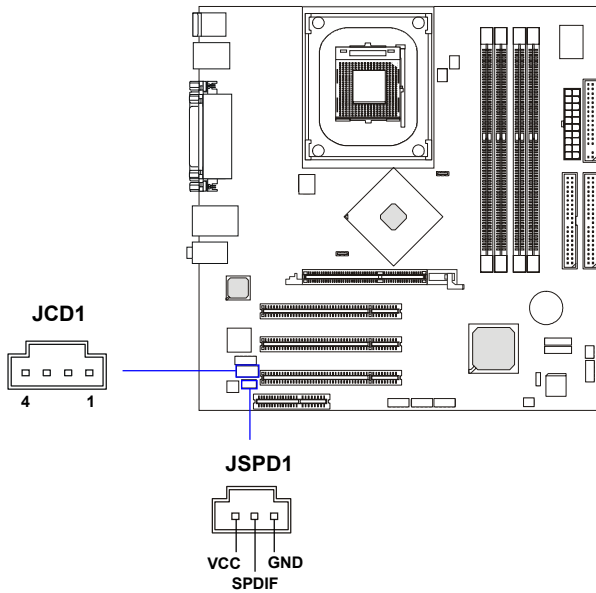
Always consult the vendors for proper CPU cooling fan.

CD-In Connector: JCD1

The connector is for CD-ROM audio connector.

SPDIF-Out Connector: JSPD1 (Optional)

This connector is used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



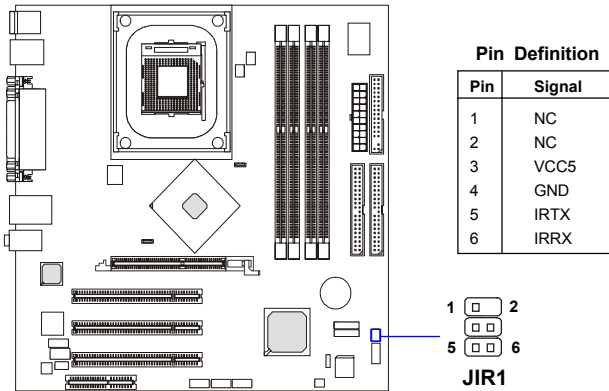
Connected to JSPD1



SPDIF Bracket (Optional)

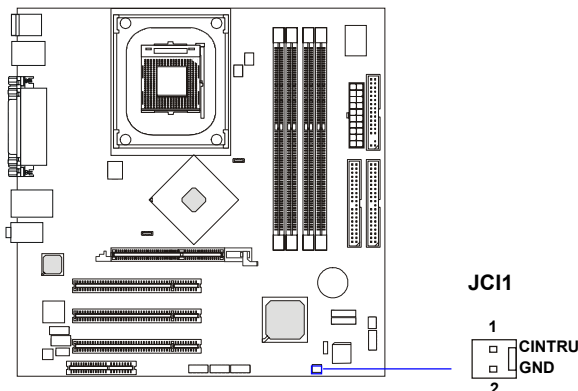
IrDA Infrared Module Header: JIR1 (865PE only)

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



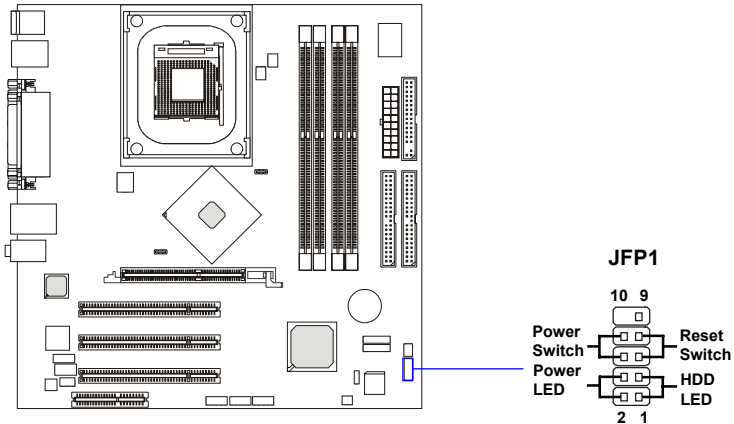
Chassis Intrusion Switch Connector: JCI1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short connected. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record. JCI1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



Front Panel Connector: JFP1

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.

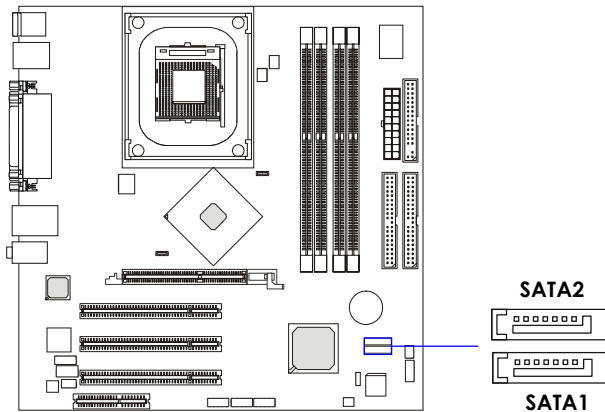


JFP1 Pin Definition

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.

Serial ATA Connectors: SATA1 / SATA2

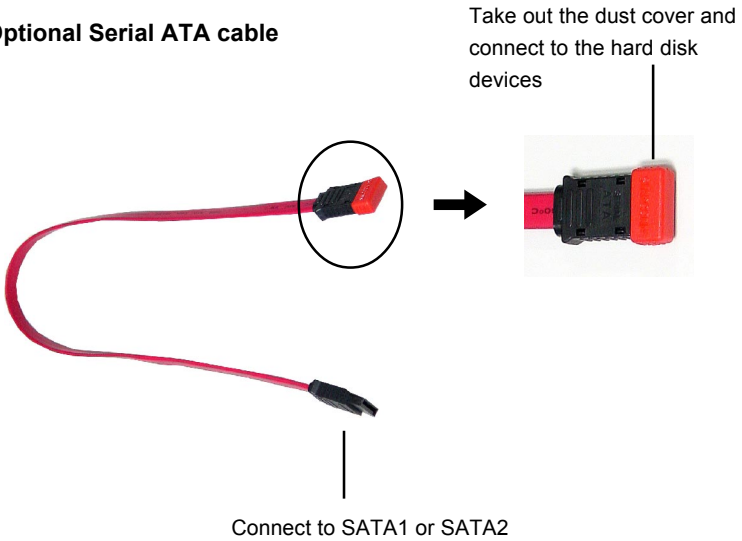
The mainboard has dual high-speed Serial ATA interface connectors, SATA1 & SATA2. Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device. Please refer to *Serial ATA Raid* manual for detail software installation procedure.



SATA1 & SATA2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Optional Serial ATA cable

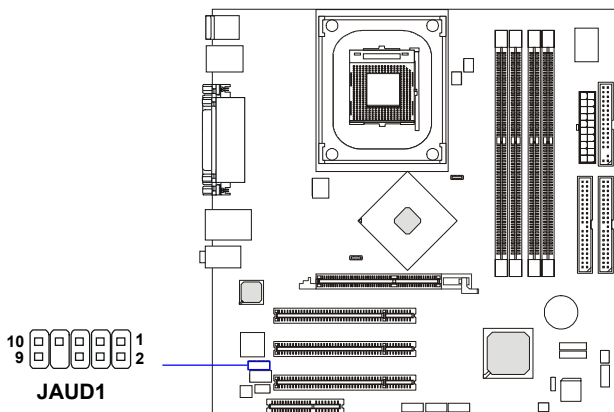


MSI Reminds You...

Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

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.



JAUD1 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



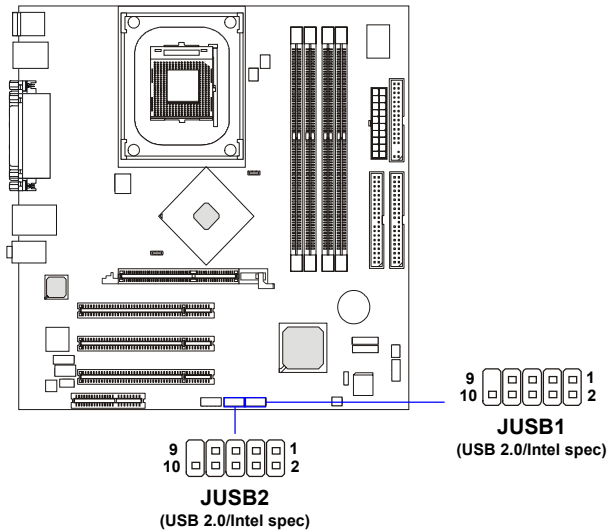
MSI Reminds You...

If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



Front USB Connectors: JUSB1 / JUSB2

The mainboard provides one USB 2.0 pin header JUSB1 that is 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.**

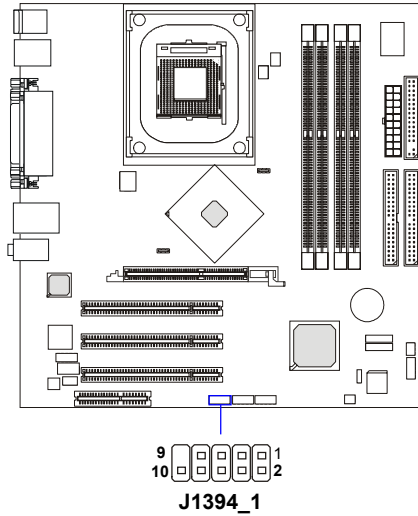


JUSB1/2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key	10	USBOC

IEEE 1394 Connector: J1394_1

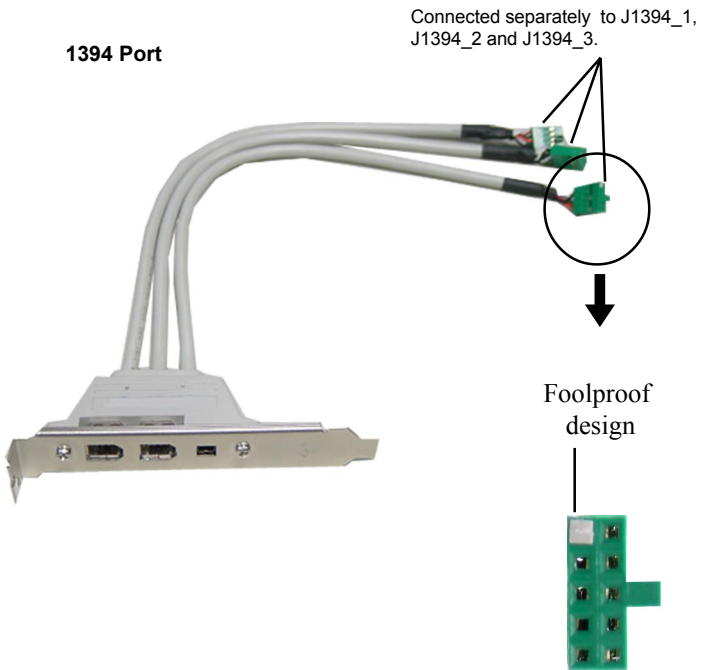
The mainboard provides three 1394 pin headers that allow you to connect optional IEEE 1394 ports.



J1394_1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	TPA+	2	TPA-
3	Ground	4	Ground
5	TPB+	6	TPB-
7	Cable power	8	Cable power
9	Key (no pin)	10	Ground

How to attach the IEEE 1394 Port:

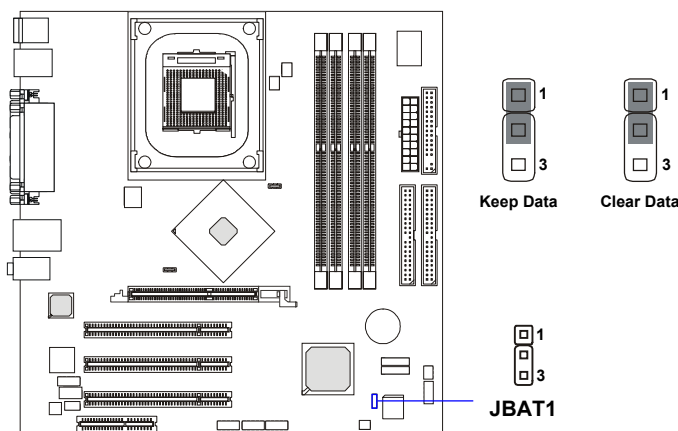


Jumpers

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. That battery has long life time for at least 5 years. 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:

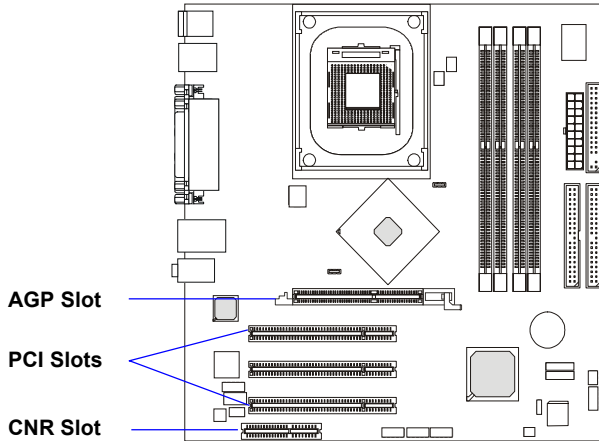


MSI Reminds You...

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 and three 32-bit PCI bus slots.



AGP (Accelerated Graphics Port) Slot

The AGP 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. The mainboard supports one AGP 8x slot.

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 specifically designed for audio or modem riser cards for ATX family motherboards. Its main processing is done through software and controlled by the motherboard's chipset.

PCI Interrupt Request Routing

The IRQ, abbreviation 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 G#	INT H#	INT E#	INT F#
PCI Slot 2	INT F#	INT B#	INT H#	INT E#
PCI Slot 3	INT E#	INT E#	INT G#	INT H#

3



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 key to enter Setup.

Press DEL to enter SETUP

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.

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>	Jumps 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
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the control keys ($\uparrow\downarrow$) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu containing additional options can be launched from this field. You can use control keys ($\uparrow\downarrow$) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press <Esc >.

```

▶ IDE Channel 0 Master
▶ IDE Channel 0 Slave
▶ IDE Channel 1 Master
▶ IDE Channel 1 Slave
▶ IDE Channel 2 Master
▶ IDE Channel 3 Master

```

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

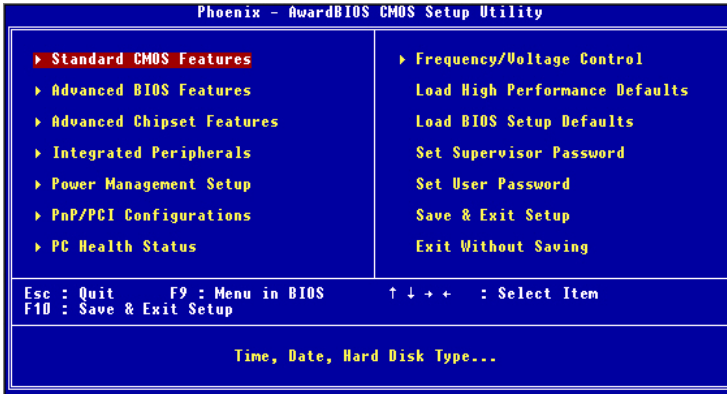


MSI Reminds You...

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

Advanced Chipset Features

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

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Frequency/Voltage Control

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

Load High Performance Defaults

Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

Load BIOS Setup Defaults

Use this menu to load factory default settings into the BIOS for stable system performance operations.

Set Supervisor Password

Use this menu to set Supervisor Password.

Set User Password

Use this menu to set User Password.

Save & Exit Setup

Save changes to CMOS and exit setup.

Exit Without Saving

Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 11 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.



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>.

- 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 can be adjusted by users.

Time

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

IDE Channel 0/1 Master/Slave

IDE Channel 2/3 Master

Press PgUp/<+> or PgDn/<-> to select Manual, None or 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.

Access Mode	The settings are CHS, LBA, Large, Auto.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.



MSI Reminds You...

IDE Channel 2/3 Master only available when the following two conditions come into existence at the same time:

- ▶ *BIOS version after 2.0*
- ▶ *On-Chip Serial ATA is set to **Auto** (please refer Integrated Peripherals/OnChip IDE Device/On-Chip Serial ATA for details.)*

*When BIOS version 1.0 is installed, **IDE Channel 0/1 Master/Slave** support maximum 4 IDE devices, including two Serial ATA devices. In different words, if two Serial ATA devices is installed, there will be only two IDE Channel left to support two IDE devices.*

Drive A:/B:

This item allows you to set the type of floppy drives installed. Available options: *None, 360K, 5.25 in., 1.2M, 5.25 in., 720K, 3.5 in., 1.44M, 3.5 in., 2.88M, 3.5 in.*

Video

The setting controls the type of video adapter used for the primary monitor of the system. Available options: *EGA/VGA , CGA 40, CGA 80, MONO.*

Halt On

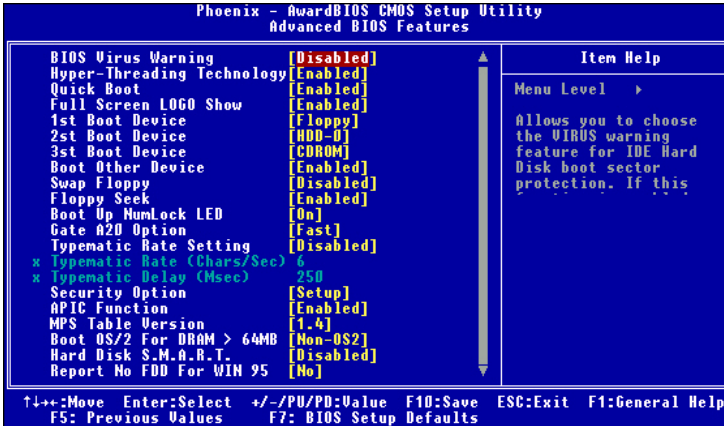
The setting determines whether the system will stop if an error is detected at boot. Available options are:

<i>All Errors</i>	The system stops when any error is detected.
<i>No Errors</i>	The system doesn't stop for any detected error.
<i>All, But Keyboard</i>	The system doesn't stop for a keyboard error.
<i>All, But Diskette</i>	The system doesn't stop for a disk error.
<i>All, But Disk/Key</i>	The system doesn't stop for either a disk or a keyboard error.

**CPU Type/BIOS Version/System Memory/Total Memory/
Video Memory (865G only)**

These items show the CPU type, BIOS version and memory status of your system (read only).

Advanced BIOS Features



BIOS Virus Warning

The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on screen and beep. Settings: *Disabled* and *Enabled*.

Hyper-Threading Technology

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Settings: *Enabled*, *Disabled*.

Quick Boot

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

Full Screen LOGO Show

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

<i>Enabled</i>	Shows a still image (logo) on the full screen at boot.
<i>Disabled</i>	Shows the POST messages at boot.



MSI Reminds You...

Enabling the functionality of Hyper-Threading Technology for your computer system requires ALL of the following platform Components:

- *CPU: An Intel® Pentium® 4 Processor with HT Technology;*
- *Chipset: An Intel® Chipset that supports HT Technology;*
- *BIOS: A BIOS that supports HT Technology and has it enabled;*
- and*
- *OS: An operating system that supports HT Technology.*

*For more information on Hyper-threading Technology, go to:
www.intel.com/info/hyperthreading*

1st/2nd/3rd Boot Device

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. The settings are:

- Floppy* The system will boot from floppy drive.
- LS120* The system will boot from LS-120 drive.
- HDD-0* The system will boot from the first HDD.
- SCSI* The system will boot from the SCSI.
- CDROM* The system will boot from the CD-ROM.
- HDD-1* The system will boot from the second HDD.
- HDD-2* The system will boot from the third HDD.
- HDD-3* The system will boot from the fourth HDD.
- ZIP100* The system will boot from ATAPI ZIP drive.
- USB-FDD* The system will boot from USB-interfaced floppy drive.
- USB-ZIP* The system will boot from any USB-interfaced ATAPI ZIP drive
- USB-CDROM* The system will boot from the USB-interfaced CD-ROM.
- USB-HDD* The system will boot from the USB-interfaced HDD.
- LAN* The system will boot from the Network drive.
- Disabled* 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.

Boot Other Device

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

Swap Floppy Drive

Setting to *Enabled* will swap floppy drives A: and B:.

Boot Up NumLock LED

This setting 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 users to use the arrow keys on the numeric keypad. Setting options: *On, Off*.

Gate A20 Option

This item is to set the Gate A20 status. A20 refers to the first 64KB of extended memory. When the default value *Fast* is selected, the Gate A20 is controlled by Port92 or chipset specific method resulting in faster system performance. When *Normal* is selected, A20 is controlled by a keyboard controller or chipset hardware.

Typematic Rate Setting

This item is used to enable or disable the typematic rate setting including Typematic Rate & Typematic Delay.

Typematic Rate (Chars/Sec)

After *Typematic Rate Setting* is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated. Settings: *6, 8, 10, 12, 15, 20, 24* and *30*.

Typematic Delay (Msec)

This item allows you to select the delay between when the key was first pressed and when the acceleration begins. Settings: *250, 500, 750* and *1000*.

Security Option

This specifies the type of BIOS password protection that is implemented. Settings are described below:

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

APIC Function

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

MPS Table Version

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*.

Boot OS/2 Select For DRAM > 64MB

This allows you to run the OS/2® operating system with DRAM greater than 64MB. Setting options: *Non-OS2*, *OS2*.

Hard Disk S.M.A.R.T.

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* and *Disabled*.

Report No FDD for WIN 95

For compatibility with Windows 95 logo certification, select *Yes* to release IRQ6 when the system contains no floppy drive. When this setting is set to *Yes*, users have to select *Disabled* for the Onboard FDC Controller in the Integrated Peripherals menu. Setting options: *No*, *Yes*.

Advanced Chipset Features



MSI Reminds You...

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

DRAM Timing Selectable

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to *By SPD* enables DRAM timings to be determined by BIOS based on the configurations on the SPD. Selecting *Manual* allows users to configure the DRAM timings manually.

CAS Latency Time

This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: 2, 2.5, 3 (clocks). 2 (clocks) increases the system performance the most while 3 (clocks) provides the most stable performance.

Active to Precharge Delay

The field specifies the idle cycles before precharging an idle bank. Settings: 8, 7, 6, 5 (clocks).

DRAM RAS# to CAS# Delay

This field allows you to set the number of cycles for a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from

or refreshed. Fast speed offers faster performance while slow speed offers more stable performance. Settings: 4, 3, 2 (clocks).

DRAM RAS# Precharge

This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Available settings: 4, 3, 2 (clocks).

Memory Frequency For

Use this item to configure the clock frequency of the installed DRAMs. Setting options: *Auto*, *DDR266*, *DDR333*, *DDR320*, *DDR400*.

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. Setting options: *Enabled*, *Disabled*.

Video BIOS Cacheable

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result. Setting options: *Disabled*, *Enabled*.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA peripherals. This memory must be mapped into the memory space below 16MB. When this area is reserved, it cannot be cached. Settings: *Enabled*, *Disabled*.

Delay Prior to Thermal

When the CPU temperature reaches a factory preset level, a thermal monitoring mechanism will be enabled following the appropriate timing delay specified in this field. With the thermal monitoring enabled, clock modulation controlled by the processor's internal thermal sensor is also activated to keep the processor within allowable temperature limit. Setting options: *4 Min*, *8 Min*, *16 Min*, *32 Min*.

AGP Aperture Size (MB)

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to 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 256 MB*.

Init Display First

This item specifies which VGA card is your primary graphics adapter. Settings: *PCI Slot, Onboard/AGP*.

****On-Chip VGA Setting** (Available only for 845G)**

On-Chip VGA

This setting determines whether the system RAM can be allocated to on-chip video controller for video purposes. When setting to Enabled, up to 128MB system RAM will be allocated to on-chip video controller. Settings: *Disabled, Enabled*.

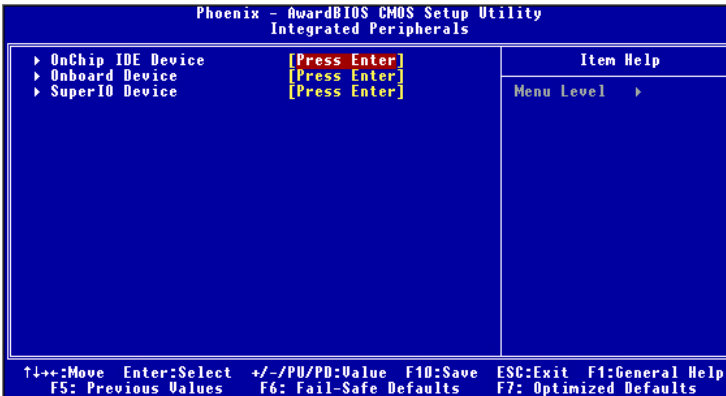
On-Chip Frame Buffer Size

Frame Buffer is the video memory that stores data for video display (frame). This field is used to determine the memory size for Frame Buffer. Larger frame buffer size increases video performance. Settings: *1M, 4M, 8M, 16M, 32MB*.

Boot Display

Use this field to select the type of device you want to use as the display(s) of the system. Settings: *Auto, CRT, TV, EFP*. The option EFP refers to the LCD display .

Integrated Peripherals



OnChip IDE Device

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



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/write per sector the drive can support. Setting options: *Disabled, Enabled*.

IDE DMA Transfer Support

This item is used to enable or disable the DMA transfer function of the IDE Hard Drive. The settings are: *Enabled, Disabled*.

On-Chip Primary/Secondary PCI IDE

The integrated peripherals controller contains an IDE interface with support for two IDE channels. Choose *Enabled* to activate each channel separately. Setting options: *Disabled, Enabled*.

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*.

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, Ultra DMA/66 and Ultra DMA/100 select Auto to enable BIOS support. The settings are: *Auto, Disabled*.

****On-Chip Serial ATA Setting****

On-Chip Serial ATA

This setting is used to specify the SATA controller. Settings: *Disable, Auto, Legacy Mode, Native Mode*. If [*Legacy Mode*] is selected, PATA and SATA will be combined. If [*Native Mode*] is selected, PATA and SATA will both be enabled. If [*Auto*] is selected, PATA and SATA will be arranged by BIOS, and you will be able to see the IDE Device status listed in **Standard COMS Features**.

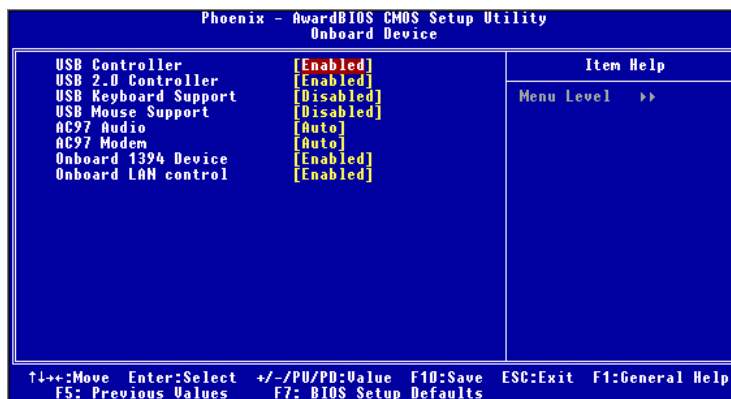
Serial ATA Port 0/1 Mode

Select a compatible mode for Port 1 and Port 2 from Award setting to the chipset settings:

1. *Primary Master*
Compatible Mode with Serial ATA Port 1 set to Primary Master.
2. *Primary Slave*
Compatible Mode with Serial ATA Port 1 set to Primary Slave.
3. *Secondary Master*
Compatible Mode with Serial ATA Port 1 set to Secondary Master.
4. *Secondary Slave*
Compatible Mode with Serial ATA Port 1 set to Secondary Slave.
5. *Primary Master*
Compatible Mode with only Serial ATA Enabled and Port 1 set to Primary Master.
6. *Secondary Master*
Compatible Mode with only Serial ATA Enabled and Port 1 set to Secondary Master.
7. *SATA1 Master*
Enhance Mode with Port 1 set to Native Mode Master.
8. *SATA2 Master*
Enhance Mode with Port 2 set to Native Mode Master.

Onboard Device

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



USB Controller

This setting is used to enable/disable the onboard USB controller. Setting options: *Disabled, Enabled*.

USB 2.0 Controller

Set to *Enabled* if you need to use any USB 2.0 device in the operating system that does not support or have any USB 2.0 driver installed, such as DOS and SCO Unix. Setting options: *Disabled, Enabled*.

USB Keyboard/Mouse Support

Select *Enabled* if you need to use a keyboard/mouse in the operating system. Setting options: *Enabled, Disabled*.

AC97 Audio

Auto allows the motherboard's BIOS to detect whether you're using any audio device. If so, the onboard audio controller will be enabled. If not, the onboard audio controller will be disabled. If you want to use different controller cards to connect audio connectors, set the field to *Disabled*. Setting options: *Disabled, Auto*.

AC97 Modem

Auto allows the mainboard to detect whether a modem is used. If a modem is detected, the onboard AC'97 modem controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect a modem. Settings: *Auto, Disabled*.

Onboard 1394 Device

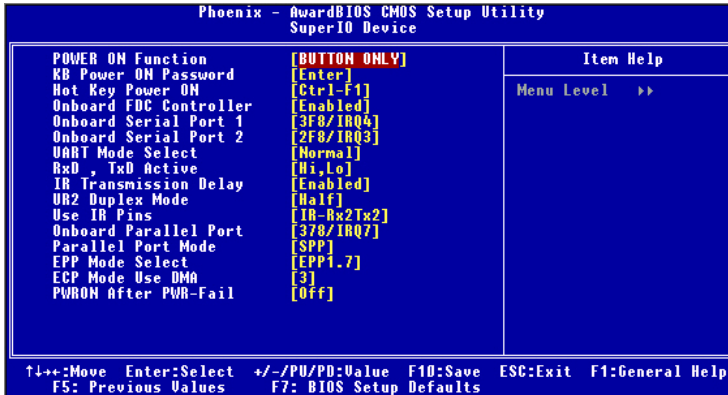
This setting controls the onboard 1394 device. Setting options: *Disabled, Enabled*.

Onboard LAN Control

This setting controls the onboard LAN controller. Setting options: *Disabled, Enabled*.

Onboard Super IO Device

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



POWER ON Function

This controls how the PS/2 mouse or keyboard can power on the system. Settings: *Password*, *Hot KEY*, *Mouse Left*, *Mouse Left*, *Mouse Right*, *any KEY*, *BUTTON ONLY*, *Keyboard 98*.

KB Power ON Password

If POWER ON Function is set to *Password*, then you can set a password in the field for the PS/2 keyboard to power on the system.

Hot Key Power ON

If POWER ON Function is set to *Hot KEY*, you can assign a hot key combination in the field for the PS/2 keyboard to power on the system. Settings: *Ctrl-F1 through Ctrl-F12*.

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/Onboard Serial Port 2 (865PE only)

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*.

UART Mode Select

This setting allows you to specify the operation mode for serial port 2. Setting options: *IrDA*, *ASKIR*, *Normal*.

<i>Normal</i>	RS-232C Serial Port
<i>IrDA</i>	IrDA-compliant Serial Infrared Port
<i>ASKIR</i>	Amplitude Shift Keyed Infrared Port

RxD, TxD Active

This setting controls the receiving and transmitting speed of the IR peripheral in use. Setting options: *Hi/Hi*, *Hi/Lo*, *Lo/Hi*, *Lo/Lo*.

IR Transmission Delay

This setting determines whether the IR transmission rate will be delayed while converting to receiving mode. Setting options: *Disabled*, *Enabled*.

UR2 Duplex Mode

This setting controls the operating mode of IR transmission/reception. Setting options: *Full*, *Half*. Under Full Duplex mode, synchronous, bi-directional transmission/reception is allowed. Under Half Duplex mode, only asynchronous, bi-directional transmission/reception is allowed.

Use IR Pins

Please consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals. Setting options: *RxD2/TxD2*, *IR-Rx2Tx2*.

Onboard Parallel Port

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:

<i>Disabled</i>	
<i>3BC/IRQ7</i>	Line Printer port 0
<i>278/IRQ5</i>	Line Printer port 2
<i>378/IRQ7</i>	Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port

EPP : Enhanced Parallel Port

ECP : Extended Capability Port

ECP + EPP: Extended Capability Port + Enhanced Parallel Port

SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the EPP mode 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.

EPP Mode Select

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.

ECP Mode Use DMA

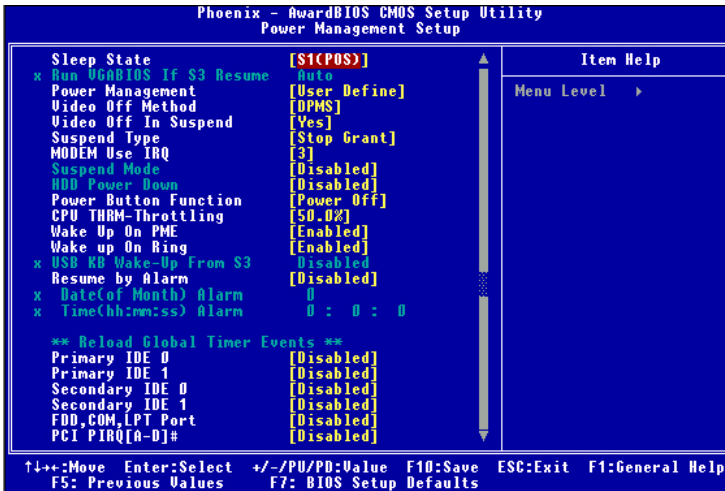
The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: “ECP Mode Use DMA.” At this time, the user can choose between DMA channel 3 or 1.

PWRON After PWR-fail

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

- | | |
|-------------------|---|
| <i>Off</i> | Leaves the computer in the power off state. |
| <i>On</i> | Leaves the computer in the power on state. |
| <i>Former-sts</i> | Restores the system to the status before power failure or interrupt occurred. |

Power Management Setup



MSI Reminds You...

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

Sleep State

This item specifies the power saving modes for ACPI function. Options are:

- S1/POS** 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.
- S3/STR** 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.

Run VGABIOS if S3 Resume

When *ACPI Suspend Mode* is set to S3 or S1&S3, users can select the options in this field. Selecting [Yes] allows BIOS to call VGABIOS 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. Options: *Auto, Yes, No*.

Power Management

This item is used to select the degree (or type) of power saving and is related to these modes: *Suspend Mode* and *HDD Power Down*. There are three options for power management:

- Min Saving* Minimum Power Management. Suspend Mode=1 Hour
- Max Saving* Maximum Power Management. Suspend Mode=1 Min
- User Define* Allows end users to configure each mode separately.

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* Initial display power management signaling.

Video Off In Suspend

This option enables the monitor to be turned off during the suspend mode. Settings: *Yes, No*.

Suspend Type

This item allows you to select the suspend type for system power management. Settings: *Stop Grant, PwrOn Suspend*.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use. Activity of the selected IRQ always awakens the system. Settings: *3, 4, 5, 7, 9, 10, 11, NA*.

Suspend Mode

If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings: *Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, 1 Hour.*

HDD Power Down

If HDD 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. Settings: *Disabled, 1 through 15 Min.*

Power Button Function

This feature allows users to configure the Power Button function. Settings are:

<i>Power Off</i>	The power button functions as a normal power-on/-off button.
<i>Suspend</i>	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.

CPU THRM-Throttling

The item allows you to specify the CPU speed (at percentage) to which it will slow down when the CPU reaches the predetermined overheat temperature. Settings range from 12.5% to 87.5% at 12.5% increment.

Wake-Up On PME, Power On Ring

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. Options: *Enabled, Disabled.*



MSI Reminds You...

You need to install a modem card supporting power on function for "Wake Up On Ring" function.

USB KB Wake-Up from S3

This setting allows you to enter "Any Key" (max. 8 numbers) to wake up the system from S3 state. Settings are: *Hot Key* and *Disabled.*

Resume By Alarm

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

Date(of Month) Alarm

The field specifies the date for *Resume By RTC Alarm*. Settings: 0~31.

Time(hh:mm:ss) Alarm

The field specifies the time for *Resume By RTC Alarm*. Format is <hour><minute><second>.



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.

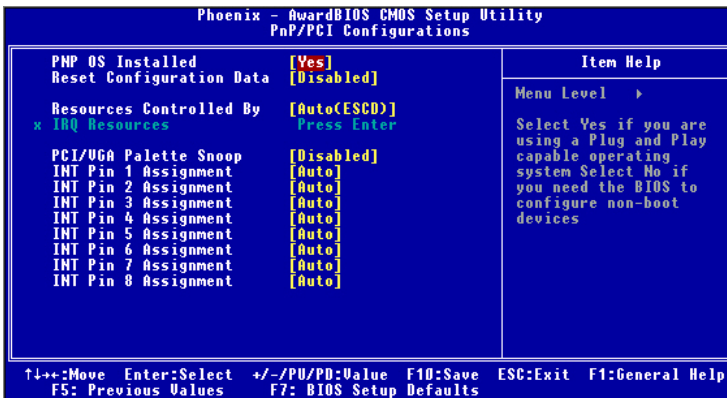
****Reload Global Timer Events****

Primary/Secondary IDE 0/1, FDD, COM, LPT Port, PCI PIRQ [A-D] #

The global timer is the hardware timer that counts down to the power saving modes. If the monitoring of the listed hardware peripherals or components is enabled, the activity of the specified peripherals or components will awaken the system or reload the original count of global timer when they are accessed.

PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or **P**eripheral **C**omponent **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 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 OS Installed

When set to [Yes], BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows 98. When set to [No], BIOS will initialize all the PnP cards. So, select [Yes] if your operating system is Plug & Play aware.

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

The items are adjustable only when *Resources Controlled By* is set to *Manual*. Press <Enter> and you will enter the sub-menu of the items. IRQ Resources list IRQ 3/4/5/7/9/10/11/12/14/15 for users to set each IRQ a type depending on the type of device using the IRQ. Settings are:

<i>PCI Device</i>	For Plug & Play compatible devices designed for PCI bus architecture.
<i>Reserved</i>	The IRQ will be reserved for further request.

PCI/VGA Palette Snoop

When set to *Enabled*, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and one ISA) and the:

VGA Palette Snoop Bit Setting	Action
<i>Disabled</i>	Data read or written by the CPU is only directed to the PCI VGA device's palette registers.
<i>Enabled</i>	Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.

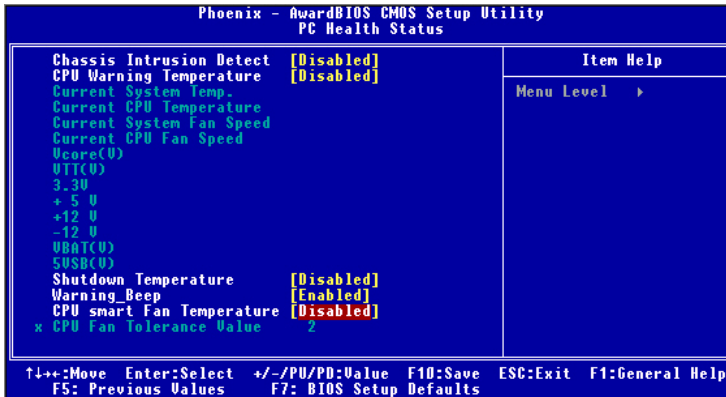
The setting must be set to *Enabled* if any ISA bus adapter in the system requires VGA palette snooping.

INT Pin 1~8 Assignment

The items allow you to assign an IRQ line to INT Pin #1~8 separately. Selecting *Auto* allows BIOS to determine the appropriate IRQ for each INT pin. Options: *Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15*.

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.



Chassis Intrusion Detect

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to *Reset*. The setting of the field will automatically return to *Enabled* later. Setting options: *Enabled*, *Reset*, *Disabled*.

Current System Temp, Current CPU Temperature, Current CPU Fan Speed, Current System Fan Speed, Vcore(V), VTT(V), 3.3V, +5V, +12V, -12V, -5V, VBAT(V), 5VSB(V)

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

Shutdown Temperature

If the CPU temperature reaches the limit preset in this setting, the system will shutdown automatically. Setting options: *60 -140* , *65 -149* , *70 -158* , *75 -167* and *Disabled*.

Warning Beep

The item controls whether the system beeps when any warning such as system overheating problem or chassis intrusion event occurs. Settings: *Enabled* and *Disabled*.

CPU Smart Fan Temperature

Select a temperature setting here, and if the temperature of the CPU climbs up to the selected temperature setting, the system will automatically increase the speed of the CPU fan to cool down the overheated CPU.

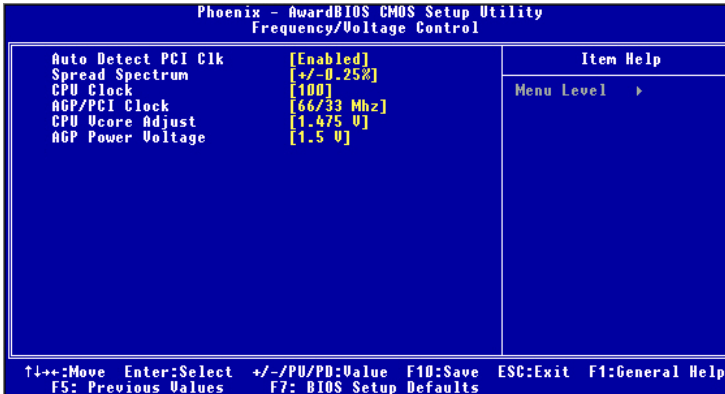
Settings: 30 /86 , 35 -95 , 40 -104 , 45 -113 ,50 /122 , 55 -131 , 60 -140 , and Disabled.

CPU Fan Tolerance Value

When a particular temperature setting is selected for the previous item, CPU Smart Fan Temperature, a temperature tolerance value between 1 to 5 can be adjusted here. Settings: *From Min. 1 to Max. 5.*

Frequency/Voltage Control

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



Auto Detect PCI Clk

This option allows you to enable/disable the feature of auto detecting the clock frequency of the installed PCI bus. The settings are: *Enabled*, *Disabled*.

Spread Spectrum

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, activate the Spread Spectrum 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. Options: *Disabled*, *Enabled*.

CPU Clock

This item specifies the clock frequency of CPU host bus (FSB), AGP (3V66) and PCI bus. It provides a method for end users to overclock the processor. Setting options: Give a DEC value by entering a number between *maximum 200 MHz* to *minimum 100 MHz*.

CPU Vcore Adjust

This item specifies the voltage of CPU Vcore. Setting options: *1.425, 1.45, 1.475, 1.5, 1.525, 1.55, 1.575, 1.6, 1.625, 1.65, 1.675, 1.7, 1.725, 1.75, 1.775, and 1.8.*

AGP/PCI Clock Control

This item is used to control the synchronous setting between CPU frequency and AGP/PCI clock. When set to *Synchronous*, the AGP/PCI clock will be adjusted when you configure the CPU frequency. Setting options: *Synchronous, Asynchronous.*

AGP Power Voltage

This item specifies the voltage of AGP. Setting options: *1.5V, 1.6V, 1.7V, and 1.8V.*

Load High Performance/BIOS Setup Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the High Performance Defaults or BIOS Setup Defaults. The High Performance Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The BIOS Setup Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load High Performance Defaults, a message as below appears:



Pressing *Y* loads the High Performance default values for the best system performance but may lead to a stability issue.

When you select Load BIOS Setup Defaults, a message as below appears:



Pressing *Y* loads the BIOS Setup default settings for stable system performance.

Set Supervisor/User Password

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

Enter Password:

Type the password, up to eight 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 BIOS 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 Security Option of the Advanced BIOS Feature menu. If the Security Option is set to *System*, 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.

Appendix: Using 2-, 4- or 6-Channel Audio Function

The motherboard comes with C-Media 9739A AC'97 audio chip, which provides exclusive Xear 3D™ technology, a value-add PC audio total solution. In addition, C-Media designs a Universal Driver Architecture (UDA driver) which has a flexible interface so that it can be applied to different platforms and all C-Media audio chips. C-Media 9739A allows the board to attach 4 or 6 speakers for better surround sound effect. The section will tell you how to install and use 2-/4-/6-channel audio function on the board.

Installing C-Media Drivers

The mainboard is able to transform the audio connectors on the back panel from 2-channel to 4-/6-channel. To use the function, you need to install the C-Media UDA driver.

The UDA driver supports all Windows, C-Media AC'97 CODEC, and audio controllers (south bridges) on board. Moreover, there is no operation barrier when switching to other C-Media's products.

Main Features of UDA Driver V.029:

1. Xear 3D - 5.1 Virtual SPEAKER SHIFTER:

- It allows users to enjoy multi-channel surround sound system with any kind of appliances including earphone (we call it **5.1 Xearphone** feature), 2, 2.1 to 5.1 speakers.
- It has an user-friendly interface to shifting virtual speakers just like moving the physical speakers literally to break through any spatial placement limitation.
- Users can adjust the best field dynamically adapted to different appliances and sound sources.
- A new multi-channel listening mode is provided: Earphone plus. You can use open-aired earphones in place of rear speakers to save the cost and setup trouble of rear speakers.

2. HRTF 3D Positional Audio : Xear 3D integrated world-standard Sensaura's CRL3D™ engine for providing the best **HRTF (Head-Related Transfer Function) 3D positional audio** and related features as follows. They are necessary for gaming and interactive applications:

- **EAX™ 1.0 & 2.0** (Creative Environment Audio eXtension has been a world-wide standard for high-quality games.)
- **A3D™ 1.0**
- **Compatible with Microsoft DirectSound 3D™ H/W & S/W**

3. Sound Effects - Environment: It provides 27 options for simulating the listening environment and get more magic and different sound field.

4. Sound Effects - Environment Size: It provides Small, Medium and Large space for every type of Environment.

5. ***Sound Effects - Equalizer***: It offers 10-band Equalizer and 12 pre-set models like “Live”, “Jazz” and so on for users to modify the frequency response of sound signals. There is also “User Defined” list for users to save their own settings.
6. ***Demo Program - Play3D Demo***: It provides 5 sound sources and moving path for playing for 3D audio playing. You can feel 3D positional sound and also use this program to adjust your virtual speakers before playing 3D audio applications like gaming.
7. ***Demo Program - Multi-channel Music***: Multi-channel Music Demo Program has three 5.1-channel melodies for playing. You can also click on the speakers respectively to test each channel and adjust virtual speakers before playing multi-channel audio applications like DVD.

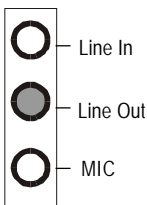
To install C-Media drivers:

1. Insert the companion CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click on **C-Media Sound Drivers**.
3. Follow the on-screen instructions to complete installation.
4. Restart the system.

Hardware Configuration

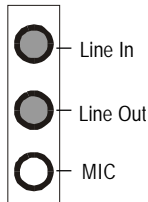
After installing the audio driver, you are able to use the 4-/6-channel audio feature now. To enable 4- or 6-channel audio operation, first connect 4 or 6 speakers to the appropriate audio connectors, and then select 4- or 6-channel audio setting in the software utility.

After installing the C-Media drivers, you can attach the speakers for 4-/6-channel audio output. Always connect the speakers to the LINE OUT connectors. Different connector configurations for 2-/4-/6-channel operations are listed below:



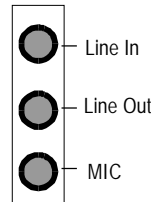
2-Channel

In 2-channel configuration, Line Out, Line In and MIC functions all exist.



4-Channel


When set to 4-channel configuration, LINE IN function DOES NOT WORK any more.



6-Channel

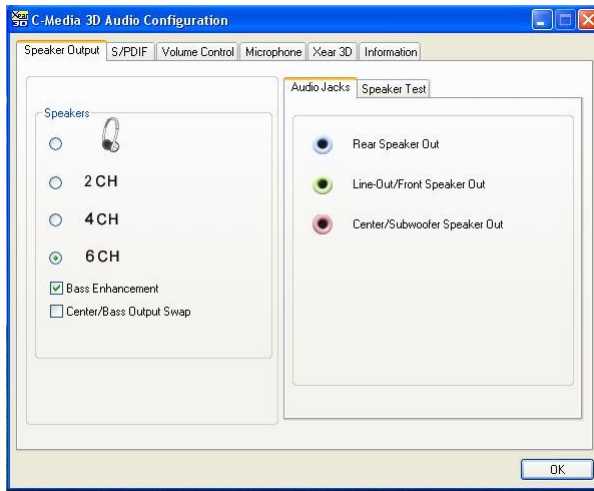
When set to 6-channel configuration, LINE IN and MIC functions DO NOT WORK anymore.

Software Configuration

To have 4-/6-channel audio work, you must set appropriate configuration in the C-Media software application. Click the C-Media Mixer icon  from the window tray on the bottom, and choose **Open**.

Then the “C-Media 3D Audio Configuration” will appear . Click on the **Speaker Output** tab to configure the audio.

Speaker Output

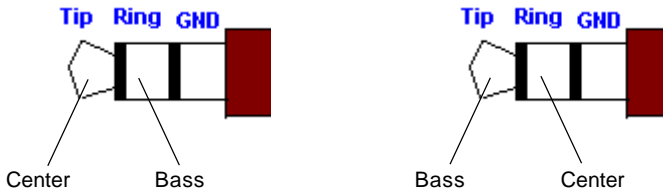


- **Bass Enhancement:** You may enable the **Bass Enhancement** option to enhance the bass signal effect, in particular for Earphone Plus Mode. It is available in 4 & 6CH setting.

4CH setting: Real channel => Front channel

In 6CH setting: Front and Rear channel => Independent Bass/ Subwoofer channel

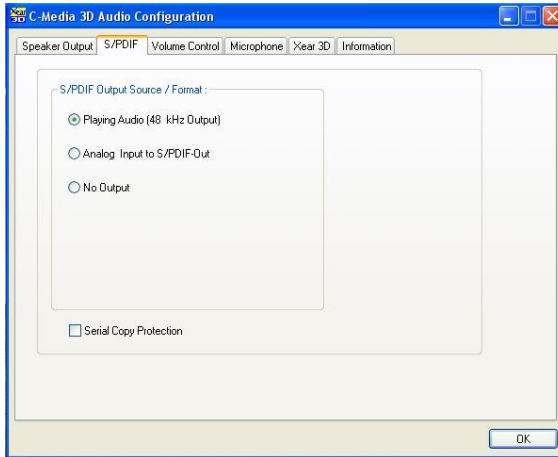
- **Center/Bass Output Swap:** Enabling this option will exchange the center/bass output channel. PC speaker manufactures define typically that the center signal is delivered by tip of the stereo plug and the bass signal is by ring of it, as the figure showed below. However, some speakers have opposite definition. Please use this option to solve the possible trouble.



In the left side, check the radio button next to the speaker to fit your audio devices. In the **Audio Jacks** tab in the right side, the audio will function as it shows. Please confirm you have connected your hardware to correct jacks before using.

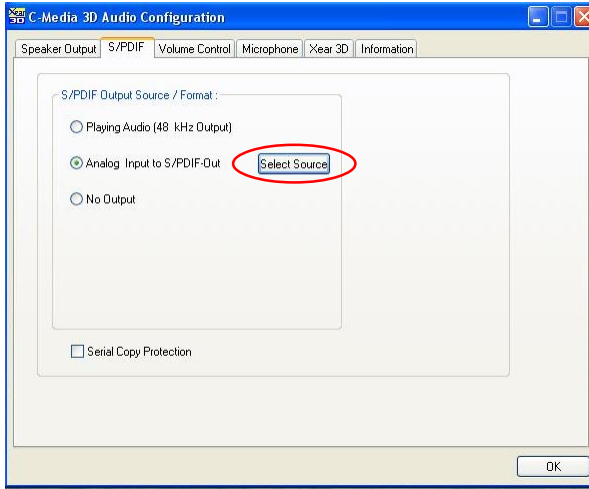
S/PDIF

Click on the **S/PDIF** tab and the following screen appears.



- **Playing Audio (48 kHz Output):** Playing Digital Audio to Digital S/PDIF Output. Choosing this option allows the output digital playing audio from your computer like DVD, VCD, digital CD, MP3, Wave... etc through S/PDIF in 48KHz sample rate.
- **Analog Input to S/PDIF-Out:** Convert Analog Input to Digital S/PDIF Out. This function is to convert analog input audio like Line-in, CD-in, Microphone-in signal to S/PDIF digital output in real time. This is useful to transfer the analog audio from one device to the S/PDIF interface of another such as the external decoder or the amplifier of Home Theater.
- **No Output:** C-Media AC'97 CODECs supports S/PDIF output with analog output at the same time. When choosing this option, S/PDIF output signal will be terminated. Otherwise, it would be transmitted all the time.
- **Serial Copy Protection Option:** When this option is enabled, the copyright of S/PDIF output audio data will be asserted. Therefore it can be only recorded once but can't be copied again according to SCMS (Serial Copy Management System) mandated by Audio Home Recording Act of U.S. in 1992.

Choose the **Analog Input to S/PDIF-Out** and then click the **Select Source** button. Then the **Select Source** window appears.

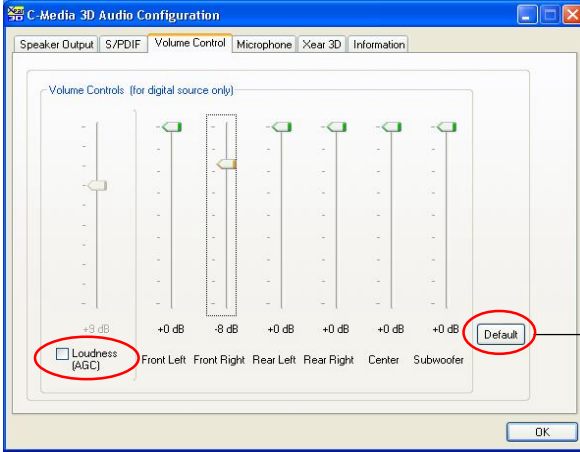


- **Select Source:** Since the analog input signal needs to be recorded and converted to digital format, you have to click **Select Source** button and select one analog source in the “Select Source” window. Actually the selected item synchronizes with the recording panel of Microsoft.



Volumn Control

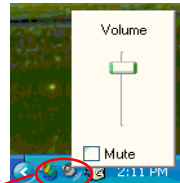
Click on the **Volumn Control** tab and the following screen appears.



Reset all to default value (0dB)

You may regulate each volumn to the speaker for current playing digital sound sources. If you use 2-channel speaker, only Front Left and Front Right bars are available for you to configure. If you use 4-channel speaker, only Front Left, Front Right, Rear Left and Rear Right bars are available. In 6-channel mode, you may adjust all the speakers as showed above.

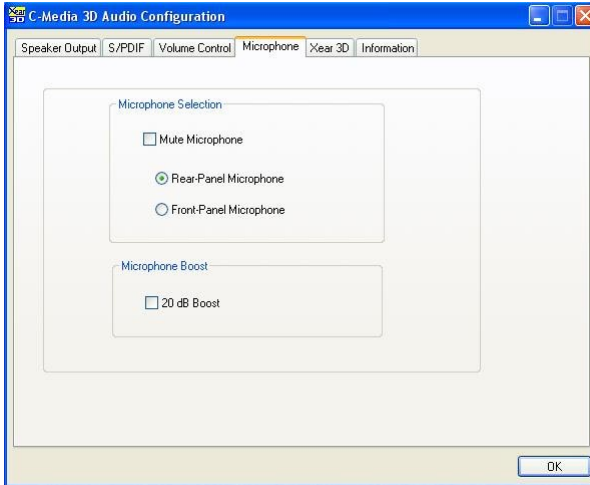
- ▶ **Loudness (AGC): Loudness w/Auto-Gain-Control:** When you want a higher volume level of digital audio, you can enable **Loudness (AGC)**. It provides extra +3dB to +12dB gain to all channels. The driver has also been designed with a sophisticated auto gain control minimizing the signal clipping distortion. However, it is not recommended to enhance the volume too much here if you want a best sound quality. The best way is to increase the volume of external speakers or just to increase the Master Volume in Microsoft Volume Control.



Left-click Microsoft "Volume Control" icon once and you'll get the Master Volume control slider.

Microphone

Click on the **Microphone** tab and the following screen appears.



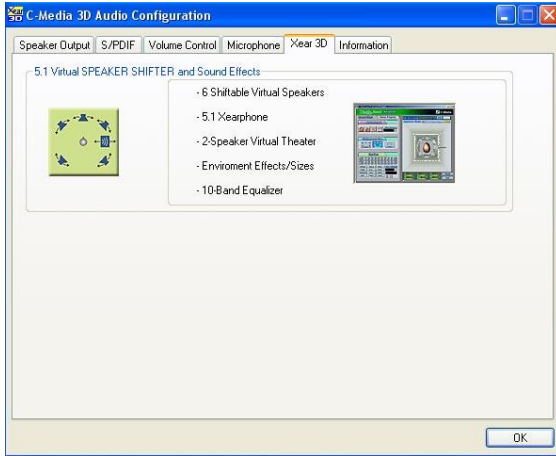
- **Mute Microphone:** Check this item to disable microphone inputs.
- **Microphone Selection:** You may select the microphone input you are going to use. But if your system does not support 2 microphone inputs, then you won't see two items. The rear-panel microphone jack is sometimes shared by center/subwoofer output and will be grayed as below: when you set 6CH speaker output. At this moment, you can still use front-panel microphone.




- **Microphone Boost:** Check this item to enhance microphone volume by +20dB.

Xear 3D

Click on the **Xear 3D** tab and the following screen appears.




C-Media UDA driver now supports **Xear 3D-5.1 Virtual SPEAKER SHIRFTER** and sound effects. Just click the left button  in Xear 3D tab and the new friendly/fancy graphic user interface will pop up as follows.



1. Sound Effect

From this part, you may choose the sound effect you like from 27 environment effects, 3 environment sizes and 10-band pre-set equalizer.



The screenshot shows the 'Sound Effect' control panel with three main sections: Environment, Environment Size, and Equalizer. Red boxes highlight the Environment icons, Environment Size buttons, and the Equalizer pre-set models table. Red lines connect these boxes to descriptive text on the left and right.

Environment

More Options
Generic

Environment Size

Small Medium Large

Equalizer

100 0 -20
70 100 200 500 1K 2K 4K 8K 16K

Default	Dance	Bass	User Defined
Treble	Live	Rock	
Soft-Rock	Jazz	Metal	
RAP	Classic	Vocal	+ -

Listening Environment Size.

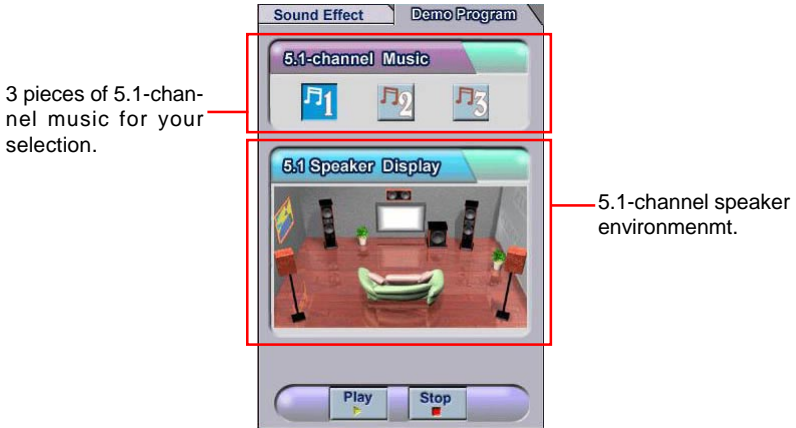
You may choose the provided environments by clicking the buttons (Bathroom, Concert Hall, Sewer Pipe and Music Pub) or use the drop-down lists to choose more.

10-Band Equalizer.

12 Pre-set Equalizer Models.

2. Demo Program

This part contains multi-channel music (including speakers testing) demo program.

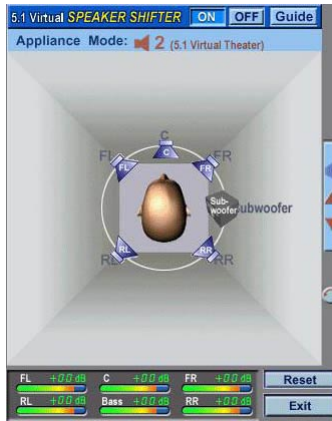


You may click each speaker to get one channel sound. If it has sound, it will be lighted up. You may also click each speaker to test your connection/configuration. Moreover, it can help you to adjust your virtual speakers for multi-channel audio applications, like DVD.

3. Xear 3D-5.1 Virtual SPEAKER SHIFTER

This part provides an advanced, amazing and considerate feature-dynamically adjustable multi-channel sound system no matter what listening appliance you are using and what application you are running.

The default setting for SPEAKER SHIFTER is OFF, thus you have to click on it to make it ON, in which all the speakers are available to adjust.

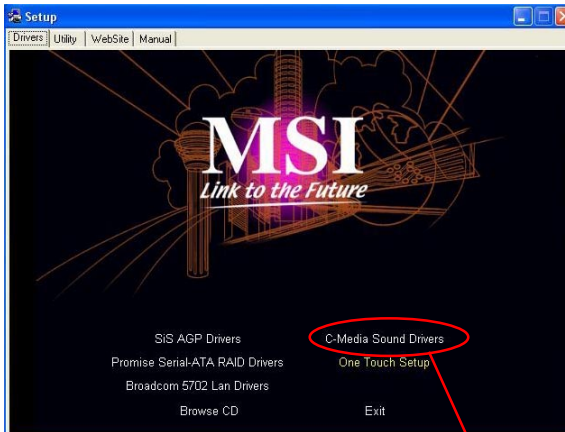


You may move Front-Left, Front-Right, Rear-Left, Rear-Right virtual speakers to anywhere. Center is usually for Voice in DVD and just suitable to move in vertical to keep the sound in the center. Subwoofer signal is directionless low-frequency sound to human ears. Thus, please move it horizontally to express strength or weakness.

Xear 3D- Play3D Demo

Xear 3D Advanced Program also provides interesting Play3D demo programs for helping you configure your audio environment.

If you click **One Touch Setup** during the setup procedure when you insert the MSI software driver, you may only see the **Sound Effect** tab in the Xear 3D Advanced Program. **Demo Program** will not be installed automatically. Please click **C-Media Sound Drivers** again for the complete installation of C-Media applications. *Please note the Setup screen may be different as showed as following depending on the mainboard you purchase.*



Click here for the complete installation of C-Media applications.

After installing the program, you will find the program from the path: Start-> Programs->C-Media 3D Audio->Play3D Demo Program.

The Xear3D Sound - Play3D Demo program is showed as follows:



Five built-in Sound Sources.

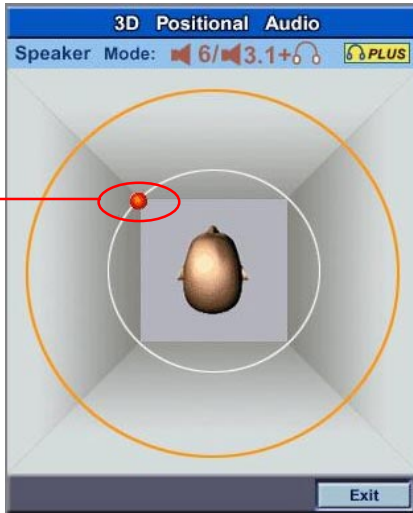


Five Moving Paths.

Six Environment Effects, which will synchronize with the Environment setting on "Sound Effect" part.

In the **Moving Path** selection, you may adjust your virtual speakers before playing 3D audio applications like gaming. When clicking each of the **Moving Path** icons (Drag Path, Horizontal Circle, Vertical Circle, Z Path and Random Curve), a real moving ball indicates the 3D source position. The **Drag Path** is recommended because it's the most flexible one.

3D Sound Source position indicator.



Using 2-, 4- or 6-Channel Audio Function

Attaching Speakers

To perform multichannel audio operation, connect multiple speakers to the system. You should connect the same number of speakers as the audio channels you will select in the software utility.

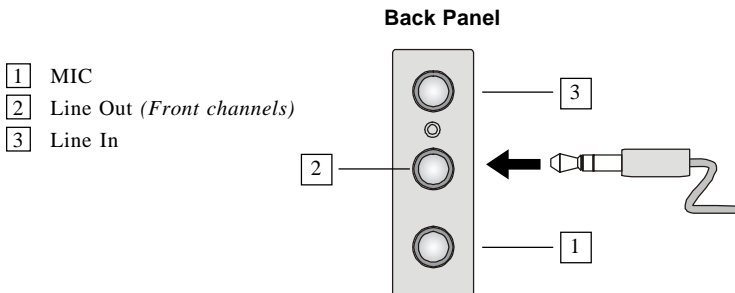
Using Back Panel connectors:

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:

2-Channel Analog Audio Output

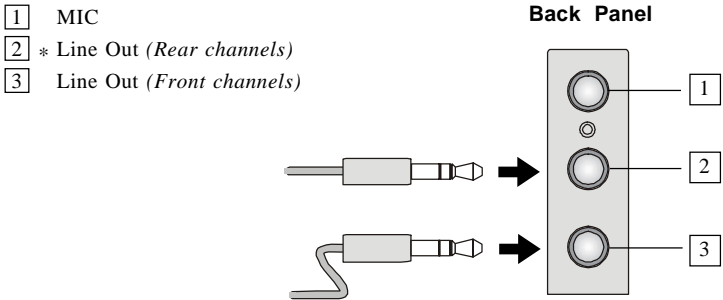
Refer to the following diagram and caption for the function of each phonejack on the back panel when 2-Channel Mode is selected.



4-Channel Analog Audio 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.

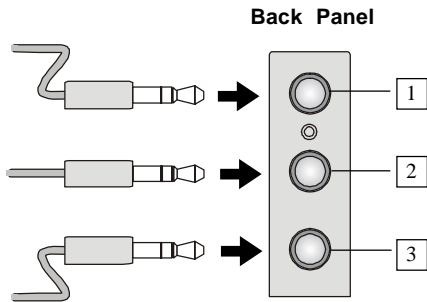


* Line In function is converted to Line Out function when 4-Channel Mode for 4-Speaker Output is selected.

6-Channel Analog Audio Output

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

- 1 * Line Out (*Center and Subwoofer channel*)
- 2 * Line Out (*Rear channels*)
- 3 Line Out (*Front channels*)



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

Troubleshooting

Q: Where will I find the model number of the mainboard?

A: There are two places where you can find the model number of the mainboard:

1. Somewhere between the PCI slots you shall find MS-xxxx or the marketing name like "K7T Turbo". You can also find the version number beside it.
2. At the back cover of the user's manual.

Q: What do you mean by PCB version 1?

A: PCB is printed circuit board. Saying PCB version 1 is the same as saying motherboard version 1.

Q: Why my motherboard BIOS sticker is "Phoenix BIOS" but when I boot up my system I saw that "Award BIOS" is being used?

A: Phoenix & Award already merged as one company. All MSI motherboard using Award BIOS comes with Phoenix logo sticker.

Q: How do I know what MSI D-LED or D-bracket light mean?

A: Please follow the special tech issue, http://www.msi.com.tw/support/techexpress/special_tech/smartled.htm

Q: I have got MSI Motherboard and when it says detecting drives, it detects them but says an error saying "Primary IDE Channel no 80 Conductor Cable Installed"

A: This is not a problem. It merely means that you're using an ATA-66 or ATA-100 HDD, but you're using the conductor 40 ATA-33 cable.

Q: I have high speed CPU cooling fan like Taisol CGK760092, Vantec CCK-6035D & GlobalWin WBK38. Can I install the fan directly to the motherboard?

A: We strongly recommend that you do NOT connect those described CPU fan directly to your motherboard, as it draws so much power, that it could damage it. Please use a 3-Pin to 4-Pin Cable that comes together with the fan.

Q: Can I use more than 512MB memory on Win9x or WinME?

A: No, you can't. You can only use more than 512MB memory on Win2000 or WinXP. This is a Microsoft OS issue. Please check <http://support.microsoft.com/support/kb/articles/Q108/0/79.ASP>

Q: I have tried to download the MSI Live Update utility from <http://www.msi.com.tw/support/liveupdate/livedriver.htm> but it keeps on failing?

A: This can be solved by one of the following suggestions: 1. Dont install zonealarm 2. Disable "WebTrap" of PC-cillon 2000 3. Disable any web based anti-virus Software.

Q: Can Live Update Series support WinXP?

A: Live Update Series version 215 can support WinXP. Download it from <http://www.msi.com.tw/support/liveupdate/livedriver.htm>

Q: After flashing the BIOS, my system for unknown reason doesn't want to boot, what should I do?

A: Please refer to the following suggestions: 1. Try the BIOS boot recovery feature as described in <http://www.msi.com.tw/support/bios/boot.htm> 2. Try to clear the CMOS. If problem still persists, ask your reseller for new BIOS chip or contact one of MSI office near your place for new BIOS chip (<http://www.msi.com.tw/contact/main.htm>).

Q: Should I update my BIOS, once a new BIOS is released?

A: A new BIOS is usually released due to the following reasons:

1. New function is supported
2. New BIOS source code

3. Bugs are found
4. Customer-specific request

When we release a new BIOS, there's usually a release note attached which lists the reason for the release. Refer to this release note and decide for yourself if upgrading to the new BIOS will be worth it. A word of advice, though, do not upgrade to the new BIOS, unless you really have to.

Q: How do I update the BIOS?

A: Please refer to <http://www.msi.com.tw/support/bios/note.htm> for details.

Q: How do I identify the BIOS version?

A: Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:

1. For older model number:

AG76091096 where:

1st digit refers to BIOS maker as A = AMI(R) W = AWARD(R) P = PHOENIX (R).

2nd digit refers to the internal chipset code.

3rd digit refers to the processor class as 5 = 486, 7 = 586, 8 = 686.

4th digit is incremental.

091096 refers to the date this BIOS is released.

2. For newer model number:

W5139MS V1.091096 where:

1st digit refers to BIOS maker as A = AMI(R) W = AWARD(R) P = PHOENIX (R).

2nd - 5th digit refers to the model number.

6th - 7th digit refers to the customer as MS = all standard customers.

V1.0 refers to the BIOS version.

091096 refers to the date this BIOS is released.

Q: After flashing the bios and rebooting the system, the screen went blank.

A: *For AMI BIOS*

Rename the desired AMI BIOS file to AMIBOOT.ROM and save it on a floppy disk. e.g. Rename A569MS23.ROM to AMIBOOT.ROM

Insert this floppy disk in the floppy drive. Turn On the system and press and hold Ctrl-Home to force update. It will read the AMIBOOT.ROM file and recover the BIOS from the A drive.

When 4 beeps are heard you may remove the floppy disk and restart the computer.

For Award BIOS

Make a bootable floppy disk

Copy the Award flash utility & BIOS file to the said floppy disk

Create an autoexec.bat with "awdf1535 biosfilename" in the content e.g.

awdf1535 a619mj21.bin

Boot up system with the said floppy (it will take less than 2 minutes before screen comes out)

Re-flash the BIOS & reboot.

Glossary

ACPI (*Advanced Configuration & Power Interface*)

This power management specification enables the OS (operating system) to control the amount of power given to each device attached to the computer. Windows 98/98SE, Windows 2000 and Windows ME can fully support ACPI to allow users managing the system power flexibly.

AGP (*Accelerated Graphics Port*)

A new, high-speed graphics interface that based on PCI construction and designed especially for the throughput demands of 3-D graphics. AGP provides a direct channel (32-bit wide bus) between the display controller and main memory for high graphics quality and performance.

Bluetooth

Bluetooth refers to a worldwide standard for the wireless exchange of data between two devices. Bluetooth requires that a low-cost transceiver chip be included in each device. The transceiver transmits and receives in a previously unused frequency band of 2.45 GHz that is available globally (with some variation of bandwidth in different countries). In addition to data, up to three voice channels are available. Each device has a unique 48-bit address from the IEEE 802 standard. Connections can be point-to-point or multipoint. The maximum range is 10 meters. Data can be exchanged at a rate of 1 megabit per second (up to 2 Mbps in the second generation of the technology).

BIOS (*Basic Input/Output System*)

On PCs, an essential software that contains all the control code of input/output interface (such as keyboard, disk drives, etc.). It executes hardware test on booting the system, starts the OS, and provides an interface between the OS and the components. The BIOS is stored in a ROM chip.

Bus

A set of hardware lines within the computer system, through which the data is transferred among different components. In a PC, the term **bus** usually refers to a local bus that connects the internal components to the CPU and main memory.

Cache

A special memory subsystem that is used to speed up the data transfer. It stores the

contents of frequently accessed RAM locations and the addresses where these data items are stored.

Chipset

A collection of integrated chips designed to perform one or more related functions. For example, a modem chipset contains all the primary circuits for transmitting and receiving data; a PC chipset provides the electronic interfaces between all subsystems.

Clock Cycle

Clock cycle (or tick) is the smallest unit of time recognized by a device. For personal computers, clock cycles generally refer to the main system clock, which runs at 66 MHz. This means that there are 66 million clock cycles per second. Since modern CPUs run much faster (up to 533 MHz), the CPU can execute several instructions in a single clock tick.

CMOS (*Complementary Metal-Oxide Semiconductor*)

CMOS is a widely used type of semiconductor, which features high speed and low power consumption. PCs usually contain a small amount of battery-powered CMOS memory to retain the date, time, and system setup parameters.

DRAM (*Dynamic RAM*)

A most common type of computer memory. It usually uses one transistor and a capacitor to represent a bit. As the development of technology, the memory type and specification used in computer becomes variety, such as SDRAM, DDR SDRAM, and RDRAM. For further instruction, please see the table below:

Dynamic RAM (DRAM) Memory Technologies					
Type	First Used	Clock Rate	Bus* Width	Peak Bandwidth	Volts
FPM (60,70ns)	1990	25MHz	64 bits	200 MBps	5v
EDO (50,60,70ns)	1994	40MHz	64 bits	320 MBps	5v
SDRAM (66MHz)	1996	66MHz	64 bits	528 MBps	3.3v
SDRAM (100MHz)	1998	100MHz	64 bits	800 MBps	3.3v
SDRAM (133MHz)	1999	133MHz	64 bits	1.1 GBps	3.3v
RDRAM (Direct Rambus)	1999	400MHz	16 bits	1.6 GBps	2.5v
DDR SDRAM (100MHz)	2000	100MHz	64 bits	1.6 GBps	3.3v
DDR SDRAM (133MHz)	2000	133MHz	64 bits	2.1 GBps	3.3v

* Memory channel width (64 bits started with 75MHz Pentium)

Source: *Computer Desktop Encyclopedia*

ECC Memory (*Error Correcting Code Memory*)

A type of memory that contains special circuitry for testing the accuracy of data and correcting the errors on the fly.

EEPROM

Acronym for Electrically Erasable Programmable Read-Only Memory. An EEPROM is a special type of PROM that can be erased by exposing it to an electrical charge. Like other types of PROM, EEPROM retains its contents even when the power is turned off. Also like other types of ROM, EEPROM is not as fast as RAM. EEPROM is similar to flash memory (sometimes called flash EEPROM). The principal difference is that EEPROM requires data to be written or erased one byte at a time whereas flash memory allows data to be written or erased in blocks. This makes flash memory faster.

EIDE

Short for Enhanced IDE, a newer version of the IDE mass storage device interface standard developed by Western Digital Corporation. It supports data rates of between 4 and 16.6 MBps, about three to four times faster than the old IDE standard. In addition, it can support mass storage devices of up to 8.4 gigabytes, whereas the old standard was limited to 528 MB. Because of its lower cost, enhanced EIDE has replaced SCSI in many areas. There are four EIDE modes defined. The most common is Mode 4, which supports transfer rates of 16.6 MBps. There is also a new mode, called ATA-3 or Ultra ATA, that supports transfer rates of 33 MBps.

EISA (*Extended Industry Standard Architecture*)

EISA is a standard bus (computer interconnection) architecture that extends the ISA standard to a 32-bit interface. It was developed in part as an open alternative to the proprietary Micro Channel Architecture (MCA) that IBM introduced in its PS/2 computers. EISA data transfer can reach a peak of 33 megabytes per second.

ESCD (*Extended System Configuration Data*)

It is a format for storing information about Plug-and-Play (PnP) devices in the BIOS. Windows and the BIOS access the ESCD area each time you re-boot your computer

External Cache

Short for Level 2 cache, cache memory that is external to the microprocessor. In general, L2 cache memory, also called the secondary cache, resides on a separate chip from the microprocessor chip. Although, more and more microprocessors are including L2 caches into their architectures.

IDE (*Integrated Drive Electronics*)

A type of disk-drive interface widely used to connect hard disks, CD-ROMs and tape drives to a PC, in which the controller electronics is integrated into the drive itself, eliminating the need for a separate adapter card. The IDE interface is known as the ATA (AT Attachment) specification.

IEEE 1394

A new, high speed external bus standard, also known as *FireWire* or *iLink*, which supports data transfer rates of up to 400 Mbps for connecting up to 63 external devices.

Internal Cache

Short for Level 1 cache, a memory cache built into the microprocessor. The L1 cache is also called the primary cache.

IrDA (*Infrared Data Association*)

A group of device vendors, including computer, component and telecommunications, who have developed a standard for transmitting data via infrared light waves. This enables you to transfer data from one device to another without any cables.

IRQ (*Interrupt Request Line*)

IRQs are hardware lines over which devices can send interrupt signals to the microprocessor. When you add a new device to a PC, you sometimes need to set its IRQ number by setting a DIP switch. This specifies which interrupt line the device may use. IRQ conflicts used to be a common problem when adding expansion boards, but the Plug-and-Play specification has removed this headache in most cases.

ISA (*Industry Standard Architecture*)

ISA is a standard bus (computer interconnection) architecture that is associated with the IBM AT motherboard. It allows 16 bits at a time to flow between the motherboard circuitry and an expansion slot card and its associated device(s). Also see EISA and MCA.

LAN (*Local Area Network*)

A computer network that covers a relatively smaller area, such as in a building or an enterprise. It is made up of servers, workstations, shared resources, a network operating system and a communications link. These individual PCs and devices on a LAN are known as “nodes”, and are connected by cables to access data and devices anywhere on the LAN, so that many users can share expensive devices and data.

LBA (*Logical Block Addressing*)

Logical block addressing is a technique that allows a computer to address a hard disk larger than 528 megabytes. A logical block address is a 28-bit value that maps to a specific cylinder-head-sector address on the disk. 28 bits allows sufficient variation to specify addresses on a hard disk up to 8.4 gigabytes in data storage capacity. Logical block addressing is one of the defining features of Enhanced IDE (EIDE), a hard disk interface to the computer bus or data paths.

LED (*Light Emitting Diode*)

A semiconductor device that converts electrical energy into light. Since it lights up (usually red) when electricity is passed through it, it is usually used for the activity lights on computer's component, such as disk drivers.

LPT (*Line Printer Terminal*)

Logical device name for a line printer; a name reserved by the MS-DOS for up to three parallel printer ports: LPT1, LPT2, and LPT3. It is frequently used by the OS to identify a printer.

Overclocking

Overclocking is resetting your computer so that the microprocessor runs faster than the manufacturer-specified speed (for example, setting an Intel 166 MHz (megahertz) microprocessor to run at 200 Mhz).

PCI (*Peripheral Component Interconnect*)

A local bus standard developed by Intel that first appeared on PCs in late 1993. PCI provides "plug and play" capability and allows IRQs to be shared. The PCI controller can exchange data with the system's CPU either 32 bits or 64 bits at a time.

PnP (*Plug and Play*)

A set of specifications that allows a PC to configure itself automatically to work with peripherals. The user can "plug" in a peripheral device and "play" it without configuring the system manually. To implement this useful feature, both the BIOS that supports PnP and a PnP expansion card are required.

POST (*Power On Self Test*)

During booting up your system, the BIOS executes a series of diagnostic tests, include checking the RAM, the keyboard, the disk drives, etc., to see if they are properly connected and operating.

PS/2 Port

A type of port developed by IBM for connecting a mouse or keyboard to a PC. The PS/2 port supports a mini DIN plug containing just 6 pins. Most modern PCs equipped with PS/2 ports so that the special port can be used by another device, such as a modem.

RAID

RAID (Redundant Array of Independent Disks; originally Redundant Array of Inexpensive Disks) is a way of storing the same data in different places (thus, redundantly) on multiple hard disks. By placing data on multiple disks, I/O operations can overlap in a balanced way, improving performance. Since multiple disks increases the mean time between failure (MTBF), storing data redundantly also increases fault-tolerance.

SCSI

Acronym for Small Computer System Interface. Pronounced "scuzzy," SCSI is a parallel interface standard used by Apple Macintosh computers, PCs, and many UNIX systems for attaching peripheral devices to computers. SCSI interfaces provide for faster data transmission rates (up to 80 megabytes per second) than standard serial and parallel ports. In addition, you can attach many devices to a single SCSI port, so that SCSI is really an I/O bus rather than simply an interface.

USB (*Universal Serial Bus*)

A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, etc. USB provides a maximum bandwidth of 12 Mbit/sec (Mbps) for connecting up to 127 peripheral devices to PC. USB features hot swap capability and multiple data streams, allows external devices to be plugged in and unplugged without turning the system off.

Virus

A program or a piece of code that infects computer files by inserting in those files copies of itself. The virus code is buried within an existing program, and is activated when that program is executed. All the viruses are man-made, and often have damaging side effects.

WLAN

Acronym for wireless local-area network. Also referred to as LAWN. A type of local-area network that uses high-frequency radio waves rather than wires to communicate between nodes.