790GX-G65 series

MS-7576 (v1.X) Mainboard

G52-75761X1

Copyright Notice

Trademarks

Revision History

Revision	Revision History	Date
V1.0	First release	January 2009

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI website for FAQ, technical guide, BIOS updates, driver updates, and other information: ***http://global.msi.com.tw/index.php?func=service***
- Contact our technical staff at: ***http://ocss.msi.com.tw***

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 60^0C (140^0F), 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.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

CE N1996

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

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

FC **Micro-Star International**
MS-7576

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

WEEE (Waste Electrical and Electronic Equipment) Statement

ENGLISH

To protect the global environment and as an environmentalist, MSI must remind you that...

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftragt, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschliesslich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

FRANÇAIS

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...

Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

РУССКИЙ

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....

В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.

ESPAÑOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:
Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como "eléctricos y equipos electrónicos" no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al termino de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su periodo de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

NEDERLANDS

Om het milieu te beschermen, wil MSI u eraan herinneren dat....
De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Electrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling.
Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.

SRPSKI

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...
Po Direktivi Evropske unije ("EU") o odbačenoj ekektronskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod "elektronsku i električnu opremu" ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće prinuđeni da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.

POLSKI

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...
Zgodnie z Dyrektywą Unii Europejskiej ("UE") dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. "produkty oraz wyposażenie elektryczne i elektroniczne " nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

TÜRKÇE

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:
Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektonik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

ČESKY

Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...
Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.

MAGYAR

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédőként fellépve az MSI emlékezteti Önt, hogy ...
Az Európai Unió („EU") 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

ITALIANO

Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che....
In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta.

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Chapter 1
Getting Started

Thank you for choosing the 790GX-G65 Series (MS-7576 v1.X) ATX mainboard. The 790GX-G65 Series mainboards are based on **AMD 790GX/780G & SB710/ SB750** chipset for optimal system efficiency. Designed to fit the advanced **64bit AMD Phenom II** processor, the 790GX-G65 Series deliver a high performance and professional desktop platform solution.

Mainboard Specifications

Processor Support

- Supports AMD® Phenom™ II X4/ X3 and Athlon X4 /X3/ X2 processors in the AM3 package.

(For the latest information about CPU, please visit http://global.msi.com.tw/index.php?func=cpuform2)

HyperTransport

- Hyper Transport 3.0 up to 5.2GT/s

Chipset

- North Bridge: AMD® 790GX / 780G chipset
- South Bridge: AMD® SB710 / SB750 chipset

Memory Support

- DDR3 800/1066/1333/1600(OC) SDRAM (16GB Max)
- 4 DDR3 DIMMs (240pin/1.5V)

(For more information on compatible components, please visit http://global.msi.com.tw/index.php?func=testreport)

Side Port Memory

- DDR3 SDRAM 1Gbit (optional)

LAN

- Supports LAN 10/100/1000 Fast Ethernet by RTL8111DL

IEEE 1394 (optional)

- Chip integrated by VIA VT6315N
- Transfer rate is up to 400Mbps
- Supports up to 2 ports

Audio

- HD Audio ALC888S / ALC889
- Up to 8-channel audio with jack sensing

IDE

- 1 IDE port by SB710 / SB750
- Supports Ultra DMA 66/100/133 mode
- Supports PIO, Bus Master operation mode

SATA

- 5 SATA II ports by SB710 / SB750
- 1 eSATA port by SB710 / SB750
- Supports storage and data transfers at up to 3 Gb/s

RAID

- SATA1~5 supports RAID 0/ 1/ 10 or JBOD mode by SB710
- SATA1~5 supports RAID 0/ 1/ 10/ 5 or JBOD mode by SB750 (optional)

Floppy

- 1 floppy port
- Supports 1 FDD with 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB

Connectors

- **Back panel**
  - 1 PS/2 port
  - 1 Optical S/PDIF-Out port
  - 1 VGA port
  - 1 DVI-D port
  - 1 HDMI port
  - 1 1394 port (optional)
  - 6 USB 2.0 ports
  - 1 eSATA port
  - 1 LAN jack
  - 6 flexible audio jacks
- **On-Board Pinheaders/ Connectors**
  - 3 USB 2.0 pinheaders
  - 1 IEEE1394 pinheader (optional)
  - 1 SPDIF out connector
  - 1 CD-In connector
  - 1 Front Panel Audio pinheader
  - 1 Chassis Intrusion Switch pinheader
  - 1 Serial port connector
  - 1 TPM pinheader (optional)
  - 1 OC switch
  - 1 Power LED Button
  - 1 Reset LED Button
  - 1 Clear CMOS Button

Slots

- **For 790GX**
  - 1 PCI Express x16 slot supports up to PCI Express x16 speed. When dual graphic cards enabled, it will turn to x8 speed.
  - 1 PCI Express x16 slot supports up to PCI Express x8 speed
  - 2 PCI Express x1 slots
  - 2 PCI slot, support 3.3V/ 5V PCI bus Interface
- **For 780G**
  - 1 PCI Express x16 slot
  - 3 PCI Express x1 slots
  - 2 PCI slot, support 3.3V/ 5V PCI bus Interface

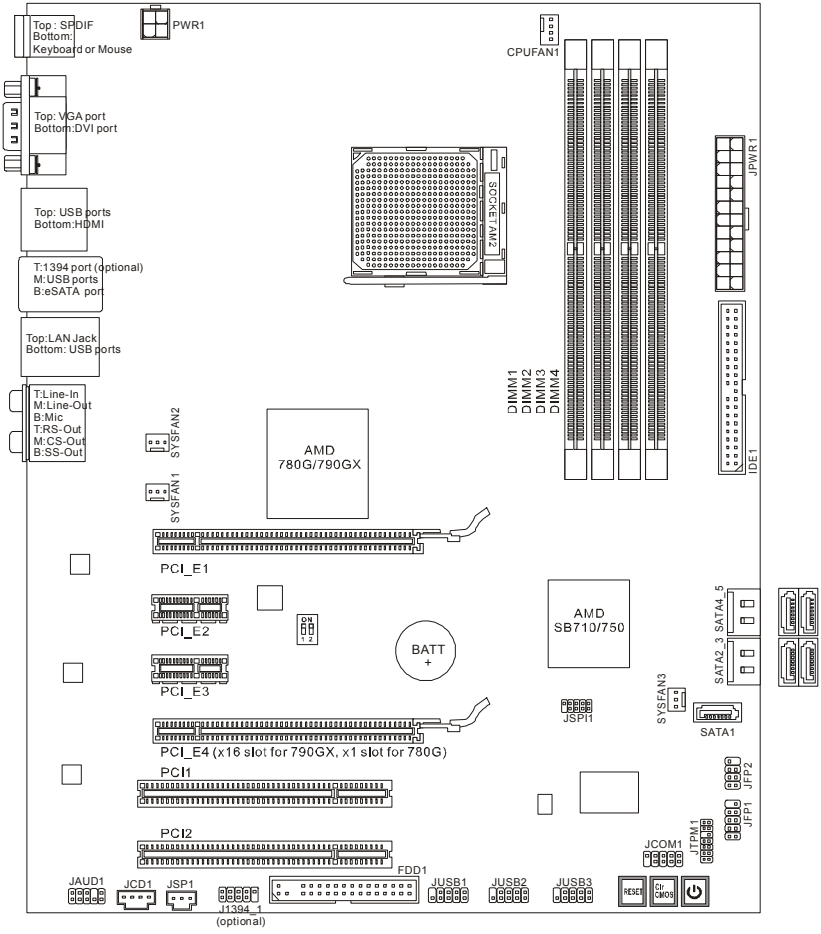
Form Factor

- ATX (30.4cm X 24.5cm)

Mounting

- 9 mounting holes

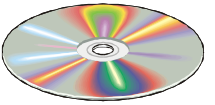
Mainboard Layout



790GX-G65 Series
(MS-7576 v1.X) ATX Mainboard

Packing Checklist

MSI motherboard



MSI Driver/Utility DVD

SATA Cable

Power Cable

Standard Cable for IDE Devices

Back IO Shield

User's Guide

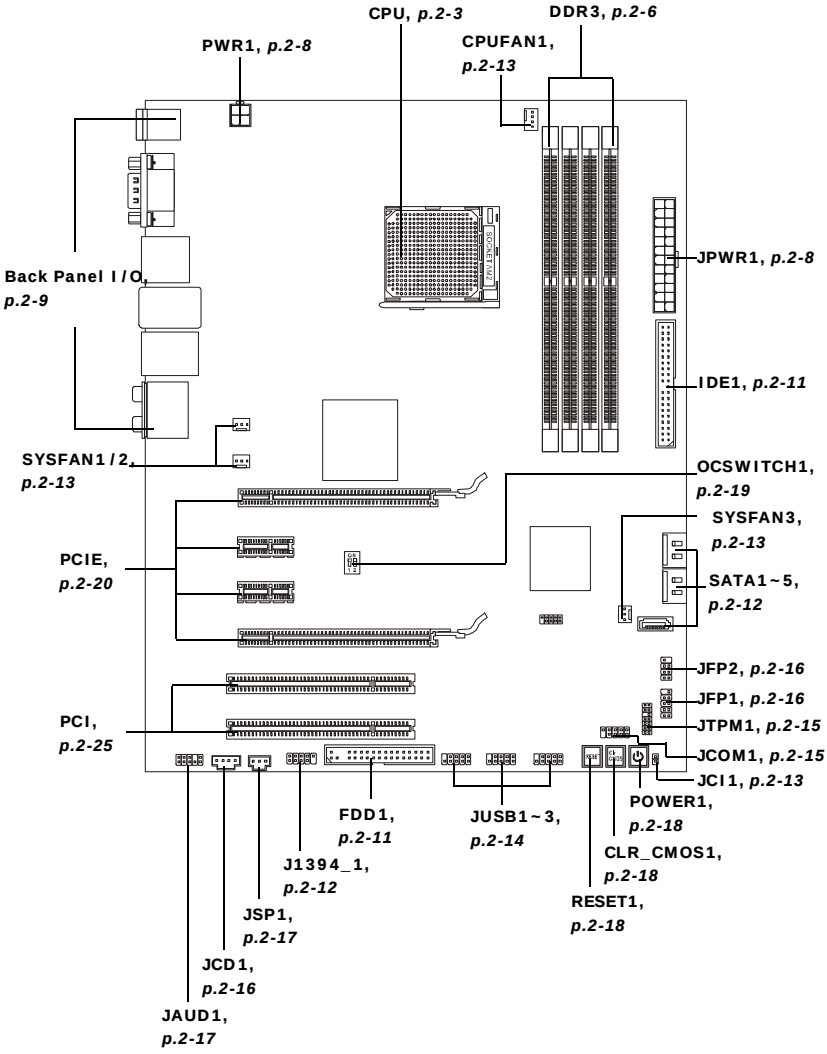
* The pictures are for reference only and may vary from the packing contents of the product you purchased.

Chapter 2
Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

Quick Components Guide



CPU (Central Processing Unit)

When you are installing the CPU, **make sure to install the cooler to prevent overheating.** If you do not have the CPU cooler, consult your dealer before turning on the computer.
For the latest information about CPU, please visit *http://global.msi.com.tw/index.php?func=cpuform2*

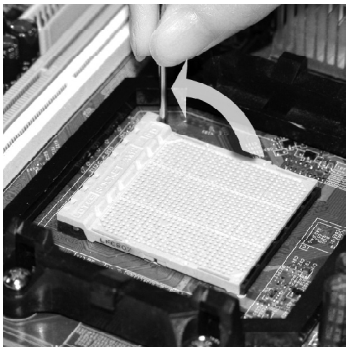
Important

Overheating
Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.
Replaceing the CPU
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.
Overclocking
This mainboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. ***We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

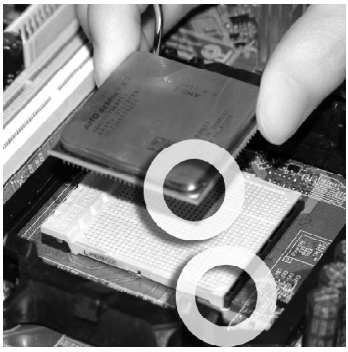
CPU & Cooler Installation

When you are installing the CPU, **make sure the CPU has a cooler attached on the top to prevent overheating.** Meanwhile, do not forget to apply some thermal paste on CPU before installing the heat sink/cooler fan for better heat dispersion. Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

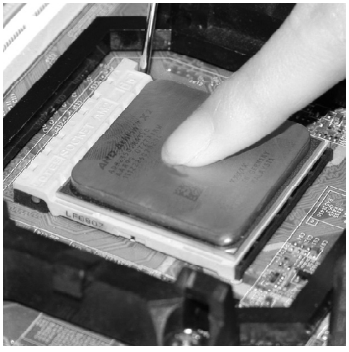
1. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.



2. Look for the gold arrow of the CPU. The gold arrow should point as shown in the picture. The CPU can only fit in the correct orientation.



3. 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.

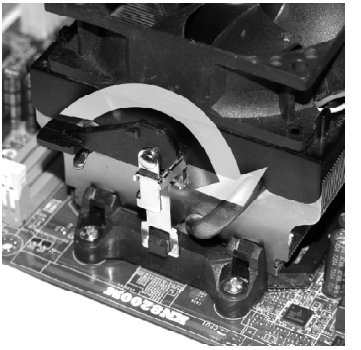


4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.

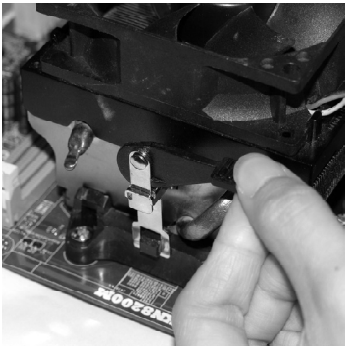
5. Position the cooling set onto the retention mechanism.

   Hook one end of the clip to hook first.

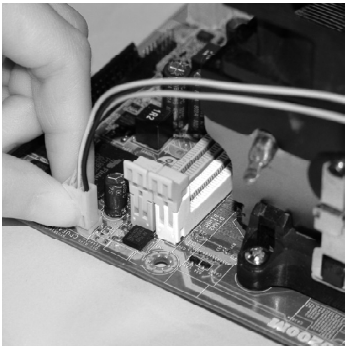
6. Then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism. Locate the Fix Lever and lift up it .



7. Fasten down the lever.



8. Attach the CPU Fan cable to the CPU fan connector on the mainboard.



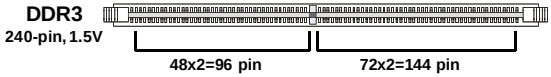
Important

1. *Mainboard photos shown in this section are for demonstration of the cooler installation for Socket AM2+ CPUs only. The appearance of your mainboard may vary depending on the model you purchase.*

2. *While disconnecting the Safety Hook from the fixed bolt, it is necessary to keep an eye on your fingers, because once the Safety Hook is disconnected from the fixed bolt, the fixed lever will spring back instantly.*

Memory

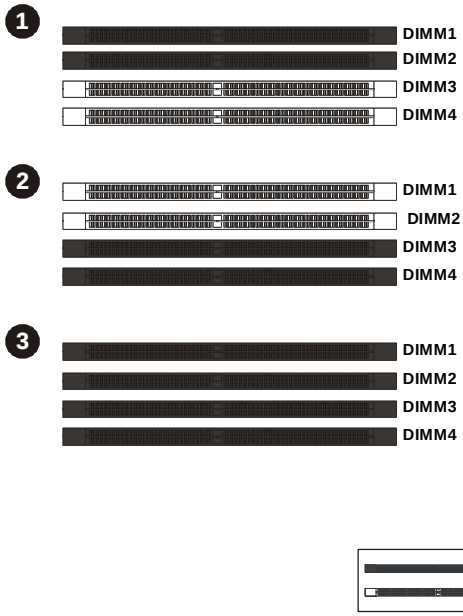
These DIMM slots are used for installing memory modules.
For more information on compatible components, please visit *http://global.msi.com.tw/index.php?func=testreport*



Dual-Channel: Channel A in SKYBLUE; Channel B in PINK

Dual-Channel Memory Population Rules

In Dual-Channel mode, the memory modules can transmit and receive data with two data bus lines simultaneously. Enabling Dual-Channel mode can enhance the system performance. Please refer to the following illustrations for population rules under Dual-Channel mode.



Installing Memory Modules

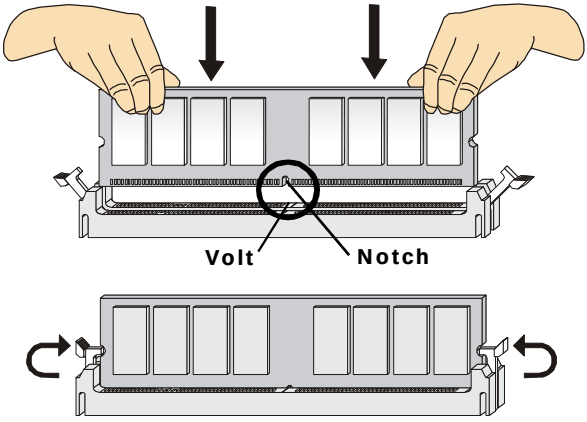
1. The memory module has only one notch on the center and will only fit in the right orientation.

2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot. The plastic clip at each side of the DIMM slot will automatically close when the memory module is properly seated.

Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

3. Manually check if the memory module has been locked in place by the DIMM slot clips at the sides.



Important

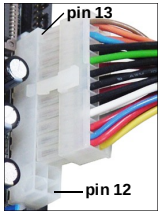
- *DDR3 memory modules are not interchangeable with DDR2 and the DDR3 standard is not backwards compatible. You should always install DDR3 memory modules in the DDR3 DIMM slots.*
- *In dual-channel mode, make sure that you install memory modules of **the same type and density** in different channel DDR DIMMs.*
- *To enable successful system boot-up, always insert the memory modules into the **DIMM1 first.***

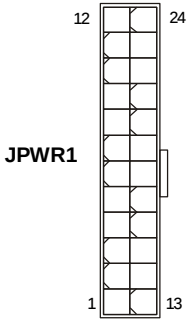
Power Supply

ATX 24-Pin Power Connector: JPWR1

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin 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.

You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13 (refer to the image at the right hand). There is also a foolproof design on pin 11, 12, 23 & 24 to avoid wrong installation.





Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

ATX 4-Pin Power Connector: PWR1

This 4-pin power connector is used to provide power to the CPU.

PWR1

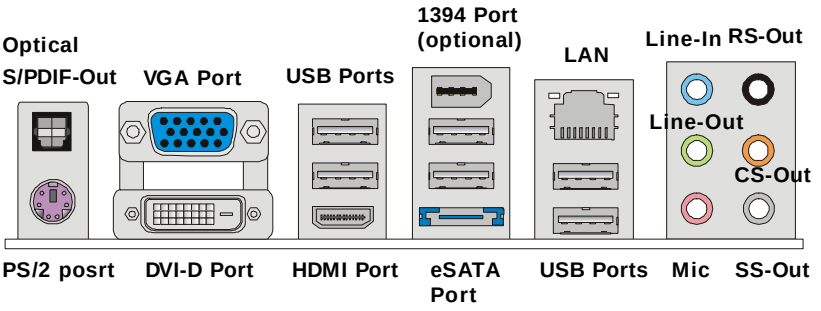
Pin Definition

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

Important

1. *Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.*
2. *Power supply of 450 watts (and above) is highly recommended for system stability.*

Back Panel



▶ **Optical S/PDIF-Out**
This S/PDIF (Sony & Philips Digital Interconnect Format) connector is provided for digital audio transmission to external speakers through an optical fiber cable.

▶ **PS/2 port**
The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

▶ **VGA Port**
The DB15-pin female connector is provided for monitor.

▶ **DVI-D Port**
The DVI-D (Digital Visual Interface) connector allows you to connect a LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect an LCD monitor, simply plug your monitor cable into the DVI-D connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information.)

▶ **HDMI Port**
The High-Definition Multimedia Interface (HDMI) is an all-digital audio/video interface capable of transmitting uncompressed streams. HDMI supports all TV format, including standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable.

▶ **1394 Port (optional)**
The IEEE1394 port on the back panel provides connection to IEEE1394 devices.

▶ **eSATA Port**
The eSATA port is for attaching the eSATA external hard drive.

Important

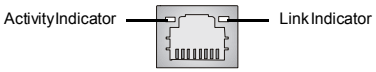
eSATA port only supports RAID and AHCI mode (does not support IDE mode)

► USB Port

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

► LAN

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



LED	Color	LED State	Condition
Left	Orange	Off	LAN link is not established.
		On (steady state)	LAN link is established.
		On (brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	Off	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.
	Orange	On	1000 Mbit/sec data rate is selected.

► Audio Ports

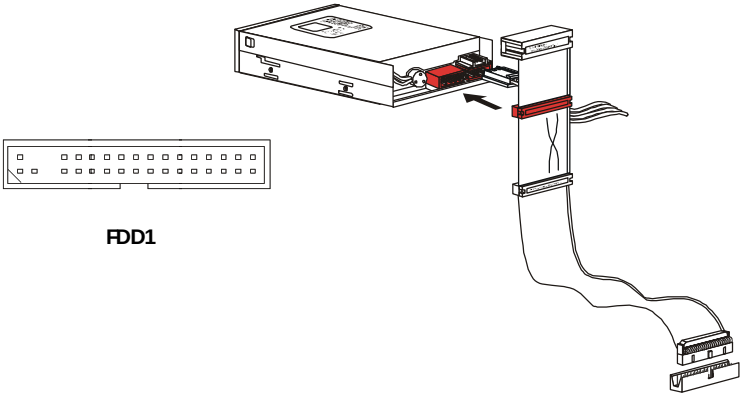
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue)** - Line In is used for external CD player, tapeplayer or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.
- **RS-Out (Black)** - Rear-Surround Out in 4/ 5.1/ 7.1 channel mode.
- **CS-Out (Orange)** - Center/ Subwoofer Out in 5.1/ 7.1 channel mode.
- **SS-Out (Gray)** - Side-Surround Out 7.1 channel mode.

Connectors

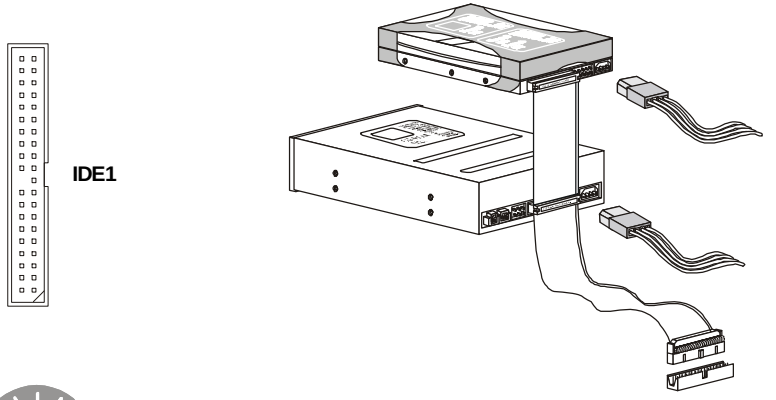
Floppy Disk Drive Connector: FDD1

This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.



IDE Connector: IDE1

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.

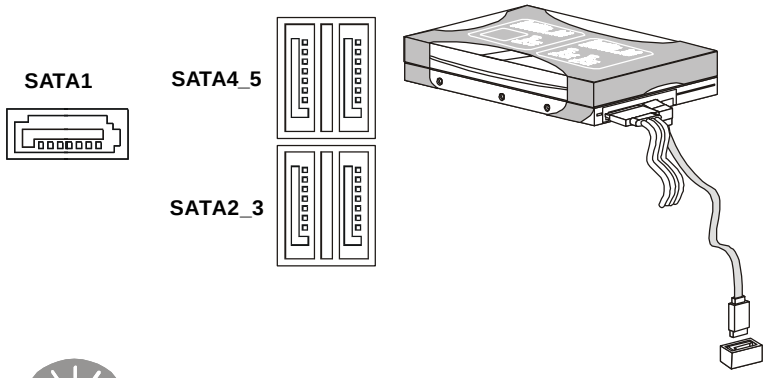


Important

If you install two IDE devices on the same cable, you must configure the drives separately to master / slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.

Serial ATA Connector: SATA1~5

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.



Important

1. *SATA5 only supports RAID and AHCI mode (does not support IDE mode)*
2. *Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.*

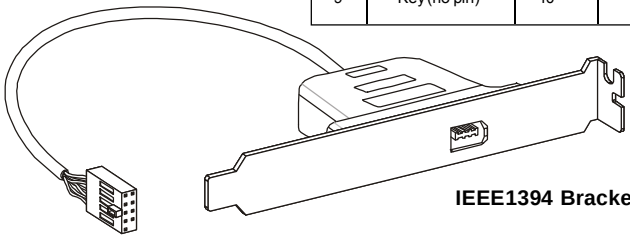
IEEE1394 Connector: J1394_1 (Optional)

This connector allows you to connect the IEEE1394 device via an optional IEEE1394 bracket.

J1394_1 (optional)

Pin Definition

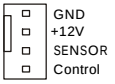
PIN	SIGNAL	PIN	SIGNAL
1	TPA+	2	TPA-
3	Ground	4	Ground
5	TPB+	6	TPB-
7	Cable power	8	Cable power
9	Key (no pin)	10	Ground



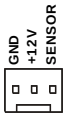
IEEE1394 Bracket (Optional)

Fan Power Connectors: CPUFAN1, SYSFAN1~3

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always 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.



CPUFAN1



SYSFAN1/2

SYSFAN3

Important

1. *Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.*
2. *CPUFAN1 supports fan control. You can install* ***Overclocking Center*** *utility that will automatically control the these fan speed according to the actual CPU and system temperature.*
3. *Fan/heatsink with 3 or 4 pins are both available for CPUFAN1.*
4. *SYSFAN1/2 support fan control, too. You may select how percentage of speed for the SYSFAN1/2 in BIOS.*

Chassis Intrusion Connector: JCI1

This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. 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

Front USB Connector: JUSB1~3

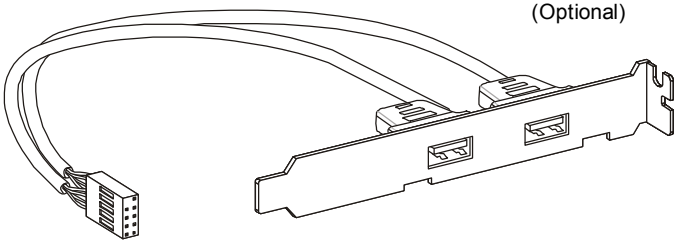
This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.

JUSB1~3

Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key(no pin)	10	USBOC

USB 2.0 Bracket
(Optional)

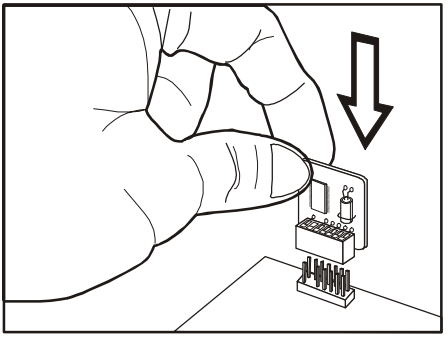


Important

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

TPM Module connector: JTPM1(optional)

This connector connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details and usages.



Pin	Signal	Description	Pin	Signal	Description
1	LCLK	LPC clock	2	3V dual/3V_STB	3V dual or 3V standby power
3	LRST#	LPC reset	4	VCC3	3.3V power
5	LAD0	LPC address & data pin0	6	SIRQ	Serial IRQ
7	LAD1	LPC address & data pin1	8	VCC5	5V power
9	LAD2	LPC address & data pin2	10	KEY	No pin
11	LAD3	LPC address & data pin3	12	GND	Ground
13	LFRAME#	LPC Frame	14	GND	Ground

Serial Port Connector: JCOM1

This connector is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial device.

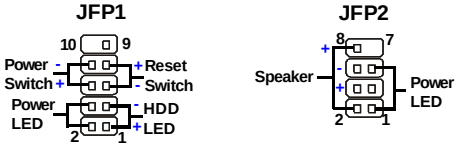
JCOM1

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

Front Panel Connectors: JFP1, JFP2

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



JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW +	Power Switch high reference pull-up
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW -	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

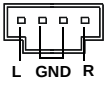
JFP2 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	SPK-	Speaker-
3	SLED	Suspend LED
4	BUZ+	Buzzer+
5	PLED	Power LED
6	BUZ-	Buzzer-
7	NC	No connection
8	SPK+	Speaker+

CD-In Connector: JCD1

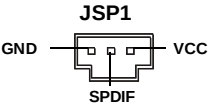
This connector is provided for external audio input.

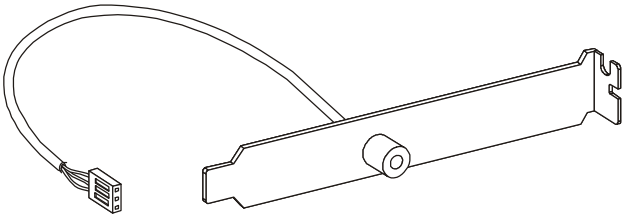
JCD1



S/PDIF-Out Connector: JSP1

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





S/PDIF Bracket (Optional)

Front Panel Audio Connector: JAUD1

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

JAUD1

HD Audio Pin Definition

PIN	SIGNAL	DESCRIPTION
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	PRESENCE#	Active low signal-signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE# = 0 when a High Definition Audio dongle is connected
5	LINE out_R	Analog Port - Right channel
6	MIC_JD	Jack detection return from front panel microphone JACK1
7	Front_JD	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	NC	No control
9	LINE out_L	Analog Port - Left channel
10	LINEout_JD	Jack detection return from front panel JACK2

Buttons

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

Clear CMOS Button: CLR_CMOS1

There is a CMOS RAM on board that has a power supply from external battery to keep the system configuration data. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the button to clear data. Press the button to clear the data.

CLR_CMOS1

Important

Make sure that you power off the system before clearing CMOS data.

Power Button: POWER1

This power button is used to turn-on or turn-off the system. Press the button to turn-on or turn-off the system. This button will light after you power-on the system, and the light will turn-off when you power-off the system.

POWER1

Reset Button: RESET1

This reset button is used to reset the system. Press the button to reset the system. This button will light when the system is in S0 status.

RESET1

Switch

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

Overclock FSB Switch: OCSWITCH1

You can overclock the FSB to increase the processor frequency by changing the switch. Follow the instructions below to set the FSB.

DOC1	DOC2	CPU Frequency
1:ON	2:ON	Default
1:ON	2:OFF	Increase 10% speed of FSB
1:OFF	2:ON	Increase 15% speed of FSB
1:OFF	2:OFF	Increase 20% speed of FSB

Important

1. *Make sure that you power off the system before setting the switch.*
2. *When overclocking cause system instability or crash during boot, the following warning message will display during POST. And then,please set the switch to default setting.*

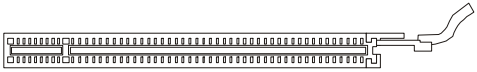
```
Warning!!! OC switch overclocking had failed,
Please shutdown and adjust oc switch to lower frequency.
Try again!
```

Slots

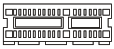
PCI (Peripheral Component Interconnect) Express Slot

The PCI Express slot supports the PCI Express interface expansion card.
The PCI Express x16 slot supports up to 4.0 GB/s transfer rate.
The PCI Express x8 slot supports up to 2.0 GB/s transfer rate.
The PCI Express x1 slot supports up to 250 MB/s transfer rate.

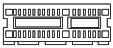
PCIE slot allocation for 790GX chipset



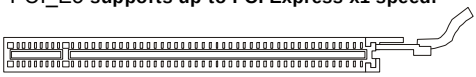
PCI_E1 **supports up to PCI Express x16 speed.**
When dual graphic cards enabled, it will turn to x8 speed.



PCI_E2 **supports up to PCI Express x1 speed.**

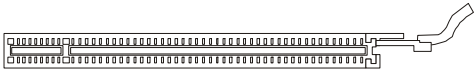


PCI_E3 **supports up to PCI Express x1 speed.**

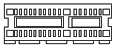


PCI_E4 **supports up to PCI Express x8 speed.**

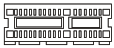
PCIE slot allocation for 780G chipset



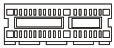
PCI_E1 **supports up to PCI Express x16 speed.**



PCI_E2 **supports up to PCI Express x1 speed.**



PCI_E3 **supports up to PCI Express x1 speed.**

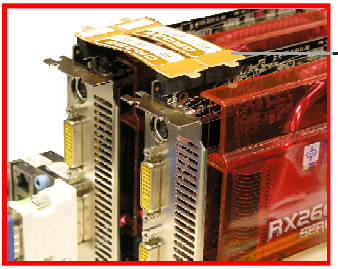


PCI_E4 **supports up to PCI Express x1 speed.**

ATI CrossFireX™ (Multi-GPU) Technology (for 790GX)

ATI CrossFireX™ is the ultimate multi-GPU performance gaming platform. Enabling game-dominating power, ATI CrossFireX™ technology enables two or more discrete graphics processors to work together to improve system performance. ATI CrossFireX technology allows you to expand your system'ss graphics capabilities. It allows you the ability to scale your system's graphics horsepower as you need it, supporting up to two or more ATI Radeon™ HD graphics cards, making this the most scalable gaming platform ever. The mainboard can auto detect the CrossFireX™ mode by software, therefore you don't have to enable the CrossFireX™ in BIOS by yourself. The following details the 2-way CrossFireX™ installation.

1. Install one ATI Radeon™ HD graphics card in the **first** PCIE x16 (PCI_E1) slot , then install one ATI Radeon™ HD graphics card in the **second** PCIE x16 (PCI_E4) slot.
2. With two cards installed, an CrossFireX™ Video Link cable is required to connect the golden fingers on the top of these two graphics cards (refer to the picture below). Please note that although you have installed two or more graphics cards, only the video outputs on the graphics card installed in PCI_E1 will work. Hence, you only need to connect a monitor to this graphics card.



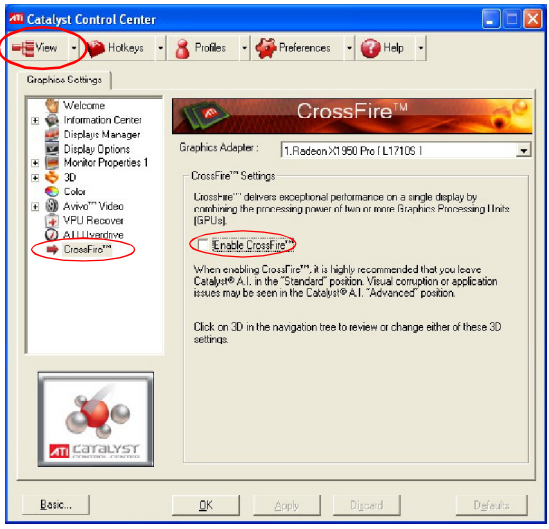
CrossFireX™ Video Link cable

Important

1. *Mainboard photos shown in this section are for demonstration only. The appearance of your mainboard may vary depending on the model you purchase.*
2. *If you intend to install **TWO** graphics cards for CrossFireX™ mode, make sure that:*
   a. these graphics cards are of the same brand and specifications;
   b. these graphics cards are installed on PCI_E1 & PCI_E4 slots.
3. *Make sure that you connect an adequate power supply to the power connector on the graphics card to ensure stable operation of the graphics card.*
4. *Only Windows® XP with Service Pack 2 (SP2)& Windows® XP Profes -sional x64 Edition & Windows® Vista support the CrossFireX™ function.*

3.When all of the hardware and software has been properly set up and installed, reboot the system. After entering the O.S., click the “Catalyst™ Control Center” icon on the desktop. There is a setting in the Catalyst™ Control Center that needs to be enabled for CrossFireX™ to operate. The following aspect appears in Catalyst™ Control Center:

Select the Advanced View from the view drop menu.



Important

A CrossFireX™ system has four possible display modes:

- *SuperTiling*
- *Scissor Mode*
- *Alternate Frame Rendering*
- *Super Anti-aliasing.*

for more details, please consult the graphics card manual from the manufacturer.

Hybrid CrossFireX™ Technology (for 780G)

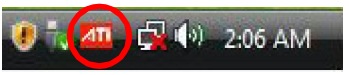
Hybrid CrossFireX™ technology brings multi-GPU performance capabilities by enabling an AMD 780 integrated graphics processor and a discrete graphics processor to operate simultaneously with combined output to a single display for blisteringly-fast frame rates. Unleash the graphics performance.

System Request

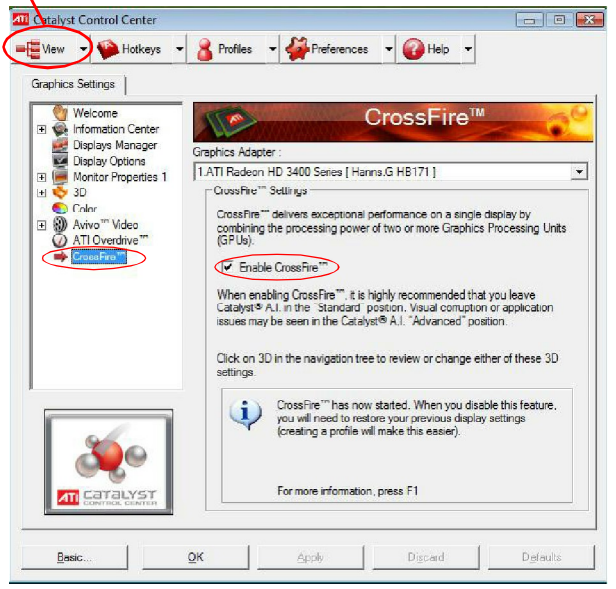
1. Hybrid CrossFireX™ is only supported with the Vista operating system.
2. Graphic card based on an ATI Radeon™ HD 2400 Series², ATI Radeon™ HD 3400 Series or ATI Mobility Radeon™ HD 3400 Series graphics processor.
3. Mainboard based on an AMD 780 integrated chipset.

Enabling Hybrid CrossFireX™ Technology

Power off the system and install the ATI graphic card that supports Hybrid CrossFireX technology. After then, power on the system and install the driver that Hybrid CrossFireX technology. Restart the system and wait for the ATI Icon to show in the System Tray. Click the icon and then the following aspect appears in Catalyst™ Control Center:



1. Select the Advanced View from the view drop menu.



2. From the Graphics Settings tree in the Catalyst™ Control Center, click **CrossFire™**.
3. From the **Graphics Adapter** list, select the graphics card that acts as the Display GPU.
4. Select **Enable CrossFire™**
5. Click **Apply.**

When Hybrid CrossFireX is enabled, GPU Accelerated Physics is automatically disabled for all cards in the configuration as are all displays except the one used by Hybrid CrossFireX.

More details please refer to *http://game.amd.com/us-en/crossfirex_hybrid.aspx*

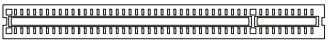
Important

Changing integrated graphic memory operating mode may cause Hybrid CrossFire fail. To avoid the issue, please follow the steps below to setup the system:

1. *Disable the Hybrid CrossFire in Catalyst Control Center.*
2. *Reboot into BIOS*
3. *Select the option in Advanced BIOS Features -> Chipset Feature -> On-Chip VGA*
4. *Save BIOS settings and reboot*
5. *Enable the Hybrid CrossFire in Catalyst Control Center.*

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN cards, SCSI cards, USB cards, and other add-on cards that comply with PCI specifications. At 32 bits and 33 MHz, it yields a throughput rate of 133 MBps.



32-bit PCI Slot

Important

When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

PCI Interrupt Request Routing

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

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

Chapter 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 <DEL> 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.

Important

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

   A7576AMS V1.0 010109 where:

   1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.
   2nd - 5th digit refers to the model number.
   6th digit refers to the chipset as I = Intel, N = nVidia, A = ATi and V = VIA.
   7th - 8th digit refers to the customer as MS = all standard customers.
   V1.0 refers to the BIOS version.
   010109 refers to the date this BIOS was released.

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
<F6>	Load Optimized Defaults
<F10>	Save configuration changes and exit setup

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 arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

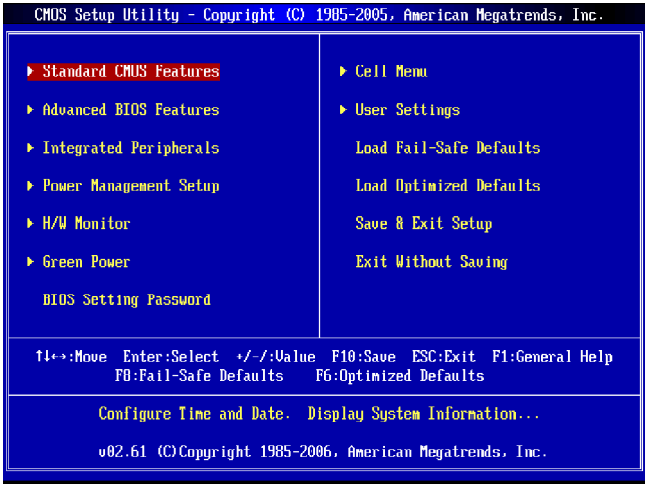
Sub-Menu

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 can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) 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 the <Esc >.

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.

The Main Menu



▶ Standard CMOS Features
Use this menu for basic system configurations, such as time, date etc.

▶ Advanced BIOS Features
Use this menu to setup the items of AMI® special enhanced features.

▶ 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.

▶ H/W Monitor
This entry shows your PC health status.

▶ Green Power
Use this menu to specify the power phase.

▶ BIOS Setting Password
Use this menu to set the password for BIOS.

▶ Cell Menu
Use this menu to specify your settings for frequency/voltage control and overclocking.

▶ User Settings
Use this menu to save/ load your settings to/ from CMOS for BIOS.

▶ **Load Fail-Safe Defaults**
Use this menu to load the default values set by the BIOS vendor for stable system performance.

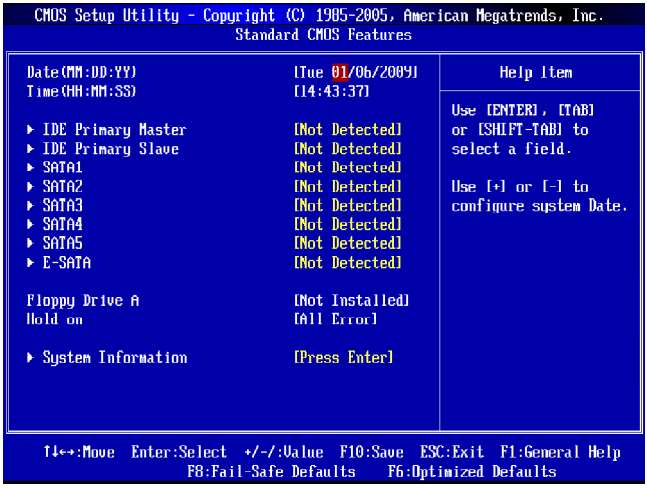
▶ **Load Optimized Defaults**
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

▶ **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 includes some basic 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 (MM:DD:YY)

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 (HH:MM:SS)

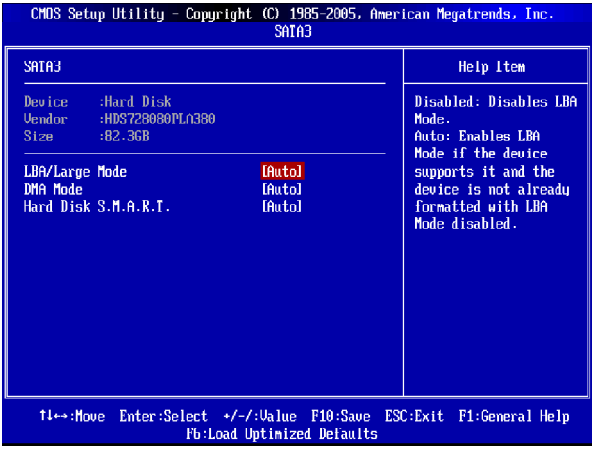
This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

▶ IDE Primary Master/ Slave, SATA1~5 & E-SATA

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

Important

IDE Primary Master/ Slave, SATA1~5 & E-SATA *are appearing when you connect the HD devices to the IDE/ SATA connector on the mainboard.*



▶ Device/ Vender/ Size
It will showing the device information that you connected to the IDE/SATA connector.

▶ LBA/Large Mode
This allows you to enable or disable the LBA Mode. Setting to Auto enables LBA mode if the device supports it and the devices is not already formatted with LBA mode disabled.

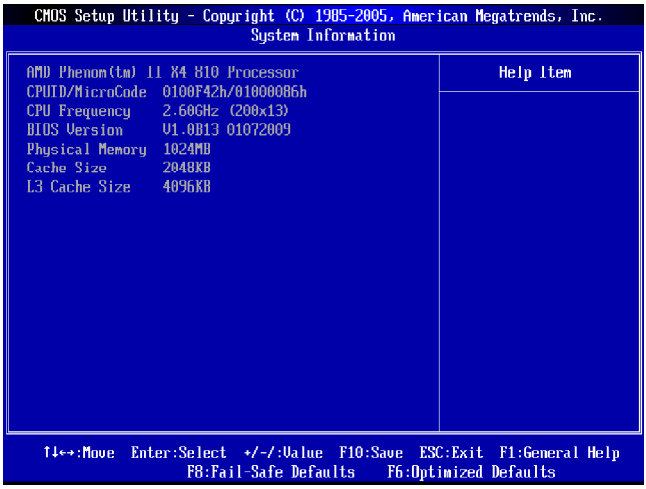
▶ DMA Mode
Select DMA Mode.

▶ 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.

▶ Floppy A
This item allows you to set the type of floppy drives installed.

▶ System Information

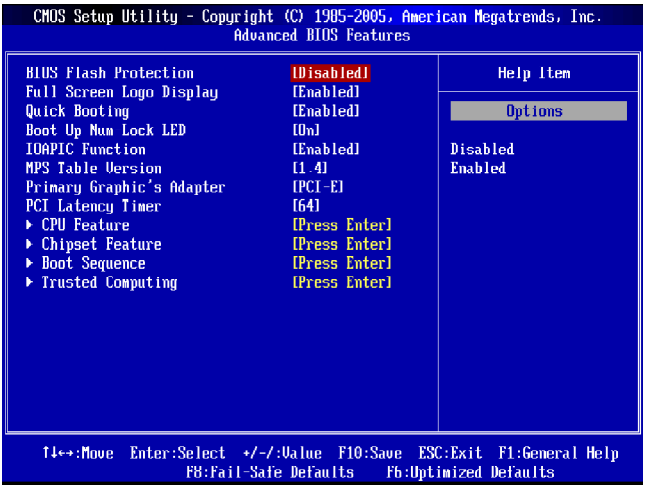
Press <Enter> to enter the sub-menu, and the following screen appears.



▶ CPU Infromation/ BIOS Version/ Memory Information

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

Advanced BIOS Features



▶ BIOS Flash Protection

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you'll need to disable this Flash BIOS Protection function.

You should enable this function at all times. The only time when you need to disable it is when you want to update the BIOS. After updating the BIOS, you should immediately re-enable it to protect it against viruses.

▶ Full Screen Logo Display

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

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

▶ Quick Booting

Setting the item to [Enabled] allows the system to boot within 10 seconds since it will skip some check items.

▶ Boot Up Num-Lock 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.

▶ IOAPIC Function

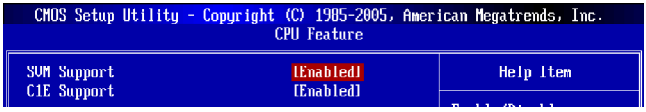
This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.

▶ 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.

▶ Primary Graphic's Adapter
This setting specifies which graphics card is your primary graphics adapter.

▶ PCI Latency Timer
This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

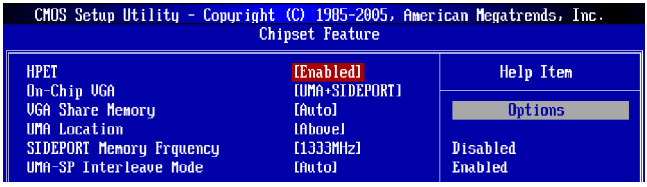
▶ CPU Feature
Press <Enter> to enter the sub-menu and the following screen appears:



▶ SVM Support
This item allows you to enable/disable the AMD SVM (Secure Virtual Machine) Technology.

▶ C1E Support
To enable this item to read the CPU power consumption while idle. Not all porcessors support Enhanced Halt state (C1E).

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



▶HPET
The HPET (High Precision Event Timers) is a component that is part of the chipset. You can to enable it, and will provide you with the means to get to it via the various ACPI methods.

▶ On-chip VGA
This item specifies whether to allocate the memory for onboard VGA from the

system memory or sideport memory. Setting to [UMA], allocates the system share memory for onboard VGA. Setting to [SIDEPORT], allocates the sideport memory for onboard VGA. Setting to [UMA+SIDEPORT], allocates both system memory and sideport memory for onbaord VGA.

▶ VGA Share Memory
The system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card.

▶ UMA Location
This function is used to select the location of UMA to avoid overlaping with the other data blocks in system memory.

▶ SIDEPORT Memory Frequency
This item allows you to set the SIDEPORT memory frequency (in MHz).

▶ UMA-SP Interleave Mode
This item allows you to adjust the ratio of UMA to SIDEPORT memory.

▶ Boot Device Priority
Press <Enter> to enter the sub-menu and the following screen appears:

▶ xxx Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

▶ Boot From Other Device
Setting the option to [Yes] allows the system to try to boot from other device if the system fails to boot from the 1st/2nd/3rd boot device.

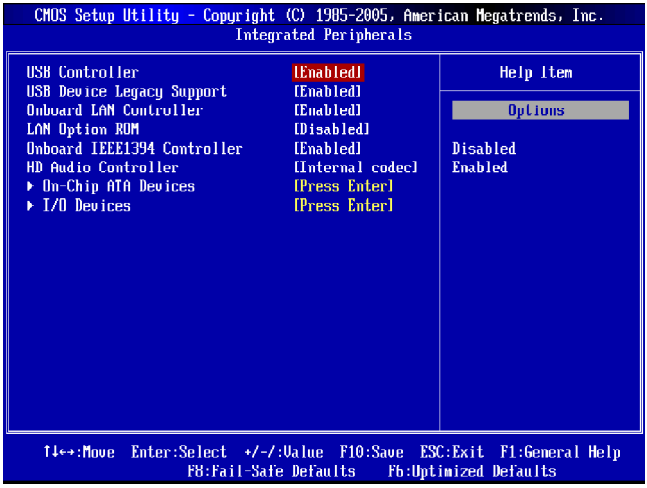
▶ Trusted Computing
Press <Enter> to enter the sub-menu and the following screen appears:

▶ TCG/TPM SUPPORT
This setting allows you to enable/disable the TCG/TPM.

▶ TPM Enable/Disable Status
This item is not configurable.

▶ TPM Owner Status
This item is not configurable.

Integrated Peripherals



▶ USB Controller
This setting allows you to enable/disable the onboard USB 1.1/ 2.0 controller.

▶ USB Device Legacy Support
Select [Enabled] if you need to use a USB-interfaced device in the operating system.

▶ Onboard LAN Controller
This setting allows you to enable/disable the onboard LAN controller.

▶ LAN Option ROM
This item is used to decide whether to invoke the Boot ROM of the onboard LAN.

▶ Onboard IEEE1394 Controller
This item allows you to enable/disable the onboard IEEE1394 controller.

▶ HD Audio Controller
This setting is used to enable/disable the onboard audio controller.

▶ On-Chip ATA Devices
Press <Enter> to enter the sub-menu and the following screen appears:

▶ **PCI IDE BusMaster**
This item allows you to enable/ disable BIOS to used PCI busmastering for reading/ writing to IDE drives.

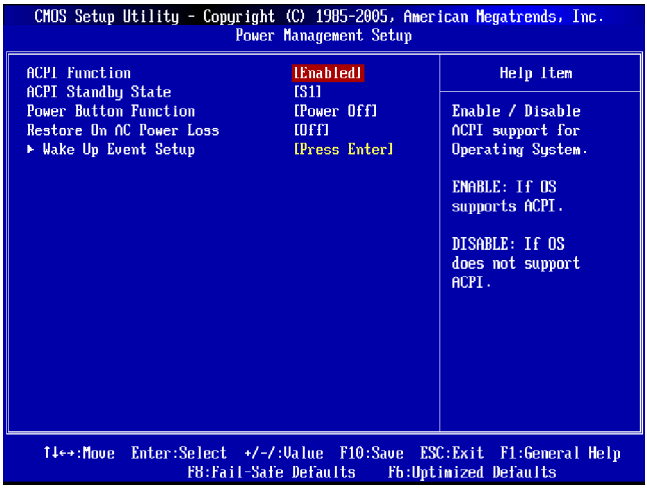
▶ **OnChip SATA Controller**
This item allows users to enable or disable the SATA controller.

▶ **RAID Mode**
This item is used to select mode for SATA connectors.

▶ **I/O Devices Configuration**
Press <Enter> to enter the sub-menu and the following screen appears:

▶ **COM Port 1**
Select an address and corresponding interrupt for the serial port.

Power Management Setup



Important

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

▶ ACPI Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows XP/ Vista, select [Enabled].

▶ ACPI Standby State

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows XP/Vista , you can choose to enter the Standby mode in S1(POS) or S3(STR) fashion through the setting of this field. Settings 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 in formation 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.

▶ Power Button Function

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

[Power On/ Off] The power button functions as normal power off button.

[Suspend] When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

▶ Restore On AC Power Loss

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

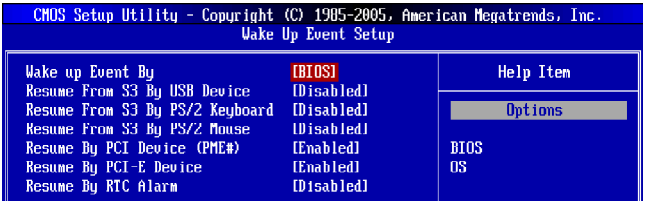
[Off] Always leaves the computer in the power off state.

[On] Always leaves the computer in the power on state.

[Last State] Restores the system to the status before power failure or interrupt occurred.

▶ Wakeup Event Setup

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



▶ Wake Up Event By

Setting to [BIOS] activates the following fields, and use the following fields to set the wake up events. Setting to [OS], the wake up events will be defined by OS.

▶ Resume From S3 By USB Device

The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state.

▶ Resume From S3 By PS/2 Keyboard

This controls how the PS/2 keyboard is able to power on the system. If you choose *Specific Key*, the power button on the case will not function anymore and you must type the password to power on the system.

▶ Resume from S3 By PS/2 Mouse

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected.

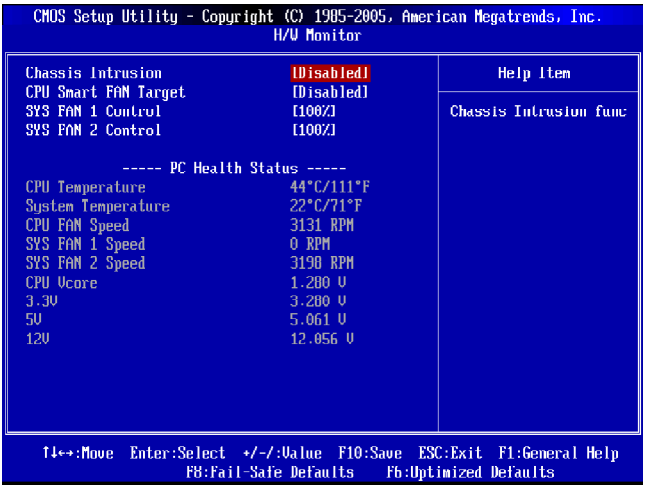
▶ Resume by PCI Device (PME#)

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

▶ **Resume by PCI-E Device**
When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PCIE device.

▶ **Resume by RTC Alarm**
The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

H/W Monitor



▶ Chassis Intrusion

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.

▶ CPU Smart Fan Target

The mainboard provides the Smart Fan function which can control the CPU fan speed automatically depending on the current temperature to keep it with in a specific range. You can select a fan target value here. If the current CPU fan temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automaticlly .

▶ SYS FAN1/2 Control

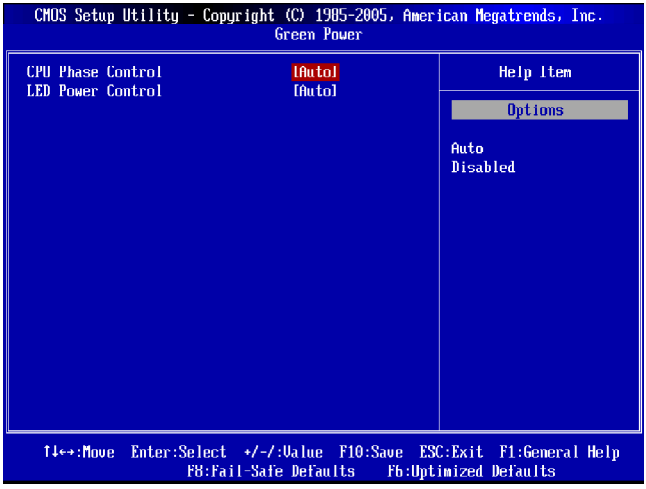
This item allows users to select how percentage of speed for the SYSFAN1/2.

▶ PC Health Status

▶ CPU/ System Temperature, CPU FAN/ SYS FAN1/ SYS FAN2 Speed, CPU Vcore, 3.3V, 5V, 12V

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

Green Power



▶ CPU Phase Control
When set to [Auto], the hardware will auto adjust the CPU power phase according to the loading of CPU to reach the best power saving function.

▶ LED Power Control
This item allows you to enable/disable the CPU Power Phase LED.

BIOS Setting Password

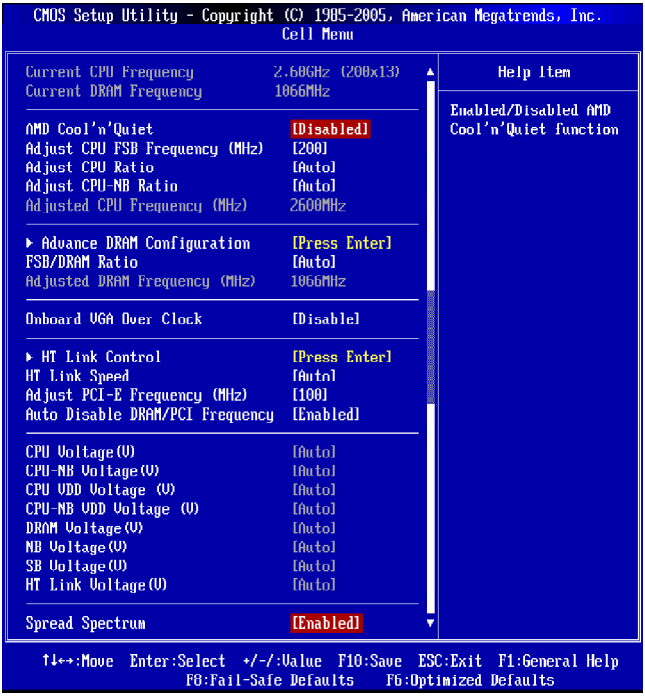
When you select this function, a message as below will appear on the screen:

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

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

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

Cell Menu



Important

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

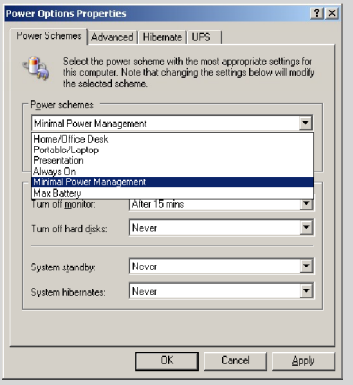
▶ Current CPU/ DRAM Frequency
These items show the current clocks of CPU and Memory speed. Read-only.

▶ AMD Cool'n'Quiet
The Cool'n' Quiet technology can effectively and dynamically lower CPU speed and power consumption.

Important

To ensure that Cool'n'Quiet function is activated and will be working properly, it is required to double confirm that:

1. *Run BIOS Setup, and select **Cell Menu**. Under **Cell Menu**, find **AMD Cool'n'Quiet**, and set this item to "Enable."*
2. *Enter Windows, and select [Start]->[Settings]->[Control Pannel]->[Power Options]. Enter **Power Options Properties** tag, and select **Minimal Power Management** under **Power schemes**.*



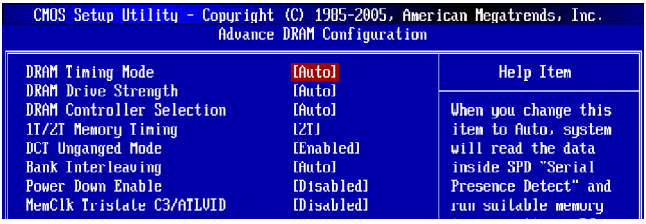
▶ Adjust CPU FSB Frequency (MHz)
This item allows you to select the CPU Front Side Bus clock frequency (in MHz).

▶ Adjust CPU Ratio
This item is used to adjust CPU clock multiplier (ratio). It is available only when the processor supports this function.

▶ Adjust CPU-NB Ratio
This item is used to adjust CPU-NB ratio.

▶ Adjusted CPU Frequency (MHz)
It shows the adjusted CPU frequency. Read-only.

▶ Advance DRAM Configuration
Press <Enter> to enter the sub-menu and the following screen appears.



▶ DRAM Timing Mode
This field has the capacity to automatically detect all of the DRAM timing. If you set this field to [DCT 0], [DCT 1] or [Both], some fields will appear and selectable. DCT 0 controls channel A and DCT1 controls channel B.

▶ **DRAM Drive Strength**
This feature allows you to control the memory data bus' signal strength. Increasing the drive strength of the memory bus can increase stability during overclocking.

▶ **DRAM Controller Selection**
This feature allows you to select the DRAM controller.

▶ **1T/2T Memory Timing**
This item controls the SDRAM command rate. Select [1T] makes SDRAM signal controller to run at 1T (T=clock cycles) rate. Selecting [2T] makes SDRAM signal controller run at 2T rate.

▶ **DCT Unganged Mode**
This feature is used to Integrate two 64-bit DCTs into a 128-bit interface.

▶ **Bank Interleaving**
Bank Interleaving is an important parameter for improving overclocking capability of memory. It allows system to access multiple banks simultaneously.

▶ **Power Down Enable**
This is a memory power-saving technology. When the system does not access memory over a period of time, it will automatically reduce the memory power supply.

▶ **MemClk Tristate C3/ATLVID**
This setting allows you to enable/disable the MemClk Tristating during C3 and ATLVID.

▶ **FSB/DRAM Ratio**
This item allows you to select the FSB/DRAM ratio.

▶ **Adjusted DRAM Frequency (MHz)**
It shows the adjusted Memory frequency. Read-only.

▶ **Onboard VGA Over Clock**
This item allows you to overclock the onboard VGA.

▶ **Onboard VGA Clock**
This item will appear when Onboard VGA Over Clock sets to [Enabled]. It allows you to adjust the onboard VGA clock.

▶ **HT Link Control**
Press <Enter> to enter the sub-menu and the following screen appears.

▶ **HT Incoming Link Width**
This field specifies the operation width of the incoming link.

▶ **HT Outgoing Link Width**
This field specifies the operation width of the outgoing link.

▶ **HT Link Speed**
This item allows you to set the Hyper-Transport Link speed. Setting to [Auto], the system will detect the HT link speed automatically.

▶ **Adjust PCI-E Frequency (MHz)**
This field allows you to select the PCIE frequency (in MHz).

▶ **Auto Disable DIMM/PCI Frequency**
When set to [Enabled], the system will remove (turn off) clocks from empty DRAM/ PCI slots to minimize the electromagnetic interference (EMI).

▶ **CPU Voltage (V)/ CPU-NB Voltage (V)/ CPU VDD Voltage (V)/ CPU-NB VDD Voltage (V)/ DRAM Voltage (V)/ NB Voltage (V)/ SB Voltage (V)/ HT Link Voltage (V)**
These items are used to asjust the voltage of CPU, Memory and chipset.

▶ **Spread Spectrum**
When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses create 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, set to Enabled for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.

Important

1. *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, select the value of Spread Spectrum for EMI reduction.*
2. *The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.*
3. *Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.*

CPU and Memory Clock Overclocking

The **Adjust CPU Ratio, FSB/DRAM Ratio** items for you to overclock the CPU and the Memory. Please refer to the descriptions of these fields for more information.

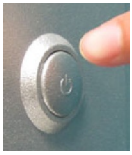
Important

1. *CPU Speed = Base clock * CPU Ratio*
2. *This motherboard supports overclocking greatly. However, please make sure your peripherals and components are bearable for some special settings. Any operation that exceeds product specification is not recommended. Any risk or damge resulting from improper operation will not be under our product warranty.*

Two ways to save your system from failed overclocking...

Reboot

1. Press the Power button to reboot the system three times. Please note that, to avoid electric current to affect other devices or components, we suggest an interval of more than 10 seconds among the reboot actions.



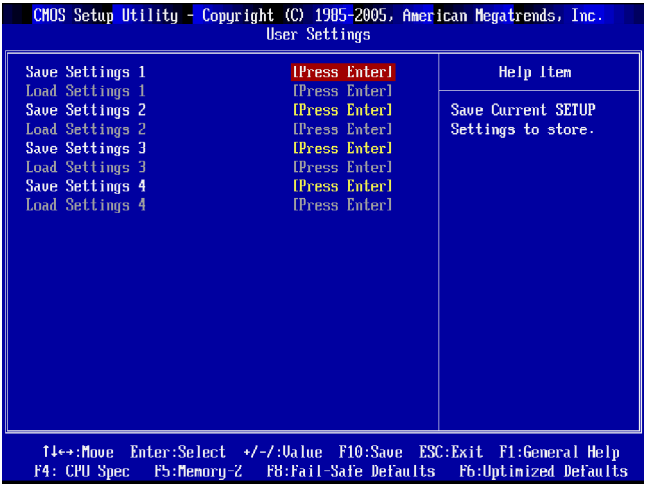
2. At the fourth reboot, BIOS will determine that the previous overclocking is failed and restore the default settings automatically. Please press any key to boot the system normally when the following message appears on screen.

```
Warning !!! The previous overclocking had failed,
and system will restore its defaults setting,
Press any key to continue.....
```

Clear CMOS

- Please refer to “chapter 2” for more information about how to clear CMOS data.

User Settings



▶ Save Settings 1/ 2/ 3/ 4
These items are used to save the settings set by yourself to CMOS.

▶ Load Settings 1/ 2/ 3/ 4
These items are available after you save your settings in **Save Settings 1/ 2/ 3/ 4** items , and are used to load the settings from CMOS.

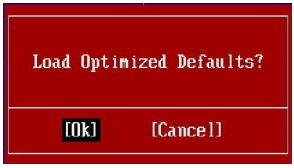
Load Fail-Safe/ Optimized Defaults

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

When you select Load Fail-Safe Defaults, a message as below appears:

Selecting [Ok] and pressing *Enter* loads the BIOS default values for the most stable, minimal system performance.

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



Selecting [Ok] and pressing *Enter* loads the default factory settings for optimal system performance.

Appendix A
Realtek Audio

The Realtek Audio provides 10-channel DAC that simultaneously supports 7.1 sound playback and 2 channels (multiple streaming) of independent stereo sound output through the Front-Out-Left and Front-Out-Right channels.

Installing the Realtek HD Audio Driver

You need to install the driver for Realtek Audio codec to function properly before you can get access to 2-, 4-, 6-, 8- channel or 7.1+2 channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

Installation for Windows XP /Vista

For Windows® XP, you must install Windows® XP Service Pack1 or later before installing the driver.

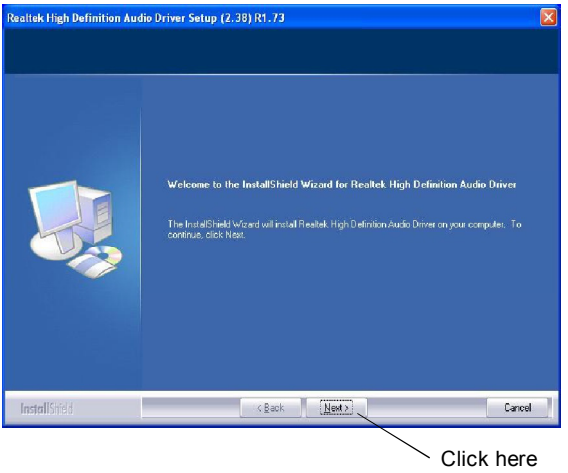
The following illustrations are based on Windows® XP environment and could look slightly different if you install the drivers in different operating systems.

1. Insert the MSI DVD into the DVD-ROM drive. The setup screen will automatically appear.
2. Click **Realtek HD Audio Drivers**.

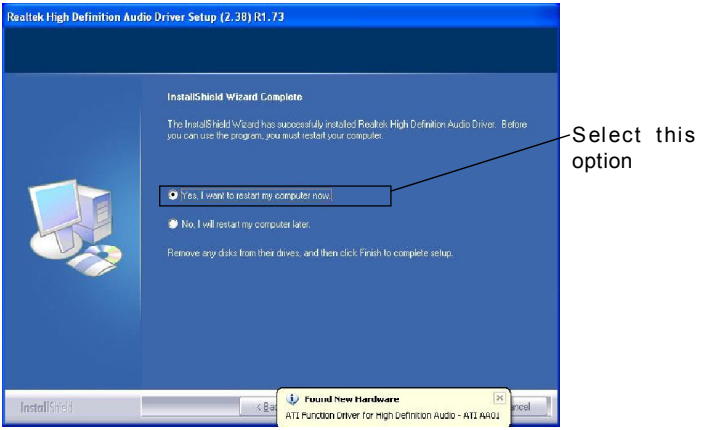
Important

*The **HD Audio Configuration** software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this section may be slightly different from the latest software utility and shall be held for reference only.*

3. Click **Next** to install the Realtek High Definition Audio Driver.

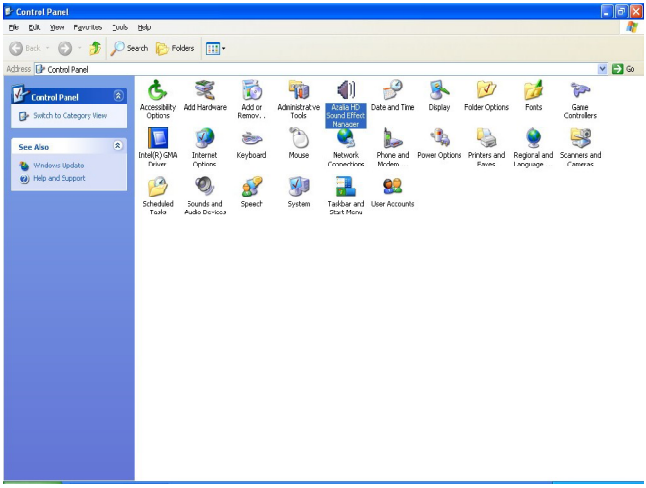


4. Click **Finish** to restart the system.



Software Configuration

After installing the audio driver, you are able to use the 2-, 4-, 6- or 8- channel audio feature now. Click the audio icon from the system tray at the lower-right corner of the screen to activate the **HD Audio Configuration**. It is also available to enable the audio driver by clicking the **Realtek HD Audio Manager** from the **Control Panel**.



Sound Effect

Here you can select a sound effect you like from the **Environment** list.

Environment Simulation

You will be able to enjoy different sound experience by pulling down the arrow, totally 23 kinds of sound effect will be shown for selection. Realtek HD Audio Sound Manager also provides five popular settings “Stone Corridor”, “Bathroom”, “Sewer pipe”, “Arena” and “Audio Corridor” for quick enjoyment.

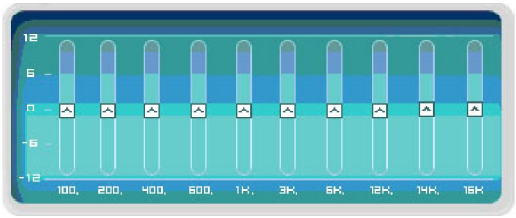
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make an new equalizer setting to save as an new one by using the “**Load EQ Setting**” and “**Save Preset**” button, click “**Reset EQ Setting**” button to use the default value, or click “**Delete EQ Setting**” button to remove a preset EQ setting.

There are also other pre-set equalizer models for you to choose by clicking “**Others**” under the **Equalizer** part.

Equalizer Selection

Equalizer frees users from default settings; users may create their owned preferred settings by utilizing this tool.

10 bands of equalizer, ranging from 100Hz to 16KHz.



Save
The settings are saved permanently for future use

Reset
10 bands of equalizer would go back to the default setting

Enable / Disable
To disable, you can temporarily stop the sound effect without losing the settings

Load
Whenever you would like to use preload settings, simply click this, the whole list will be shown for your selection.

Delete
To delete the pre-saved settings which are created from previous steps.

Frequently Used Equalizer Setting

Realtek recognizes the needs that you might have. By leveraging our long experience at audio field, Realtek HD Audio Sound Manager provides you certain optimized equalizer settings that are frequently used for your quick enjoyment.

[How to Use It]

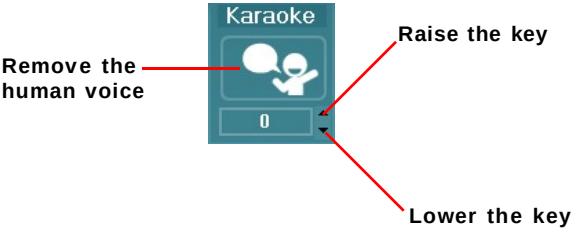
Other than the buttons “Pop” “Live” “Club” & “Rock” shown on the page, to pull down the arrow in “Others”, you will find more optimized settings available to you.

Karaoke Mode

Karaoke mode brings Karaoke fun back home. Simply using the music you usually play, Karaoke mode can help you eliminate the vocal of the song or adjust the key to accommodate your range.

1.Vocal Cancellation: Single click on “Voice Cancellation”, the vocal of the song would be eliminated, while the background music is still in place, and you can be that singer!

2.Key Adjustment: Using “Up / Down Arrow” to find a key which better fits your vocal range.



Mixer

In the **Mixer** part, you may adjust the volumes of the rear and front panels individually.

1. Adjust Volume

You can adjust the volume of the speakers that you plugged in front or rear panel by select the **Realtek HD Audio rear output** or **Realtek HD Audio front output** items.

Important

*Before set up, please make sure the playback devices are well plugged in the jacks on the rear or front panel. The **Realtek HD Audio front output** item will appear after you plugging the speakers into the jacks on the front panel.*

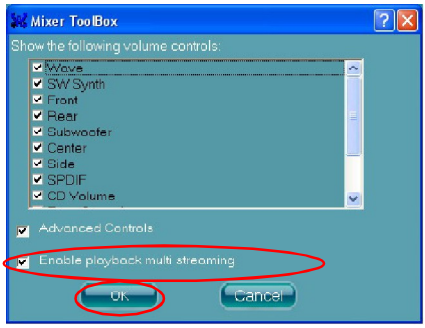
2. Multi-Stream Function

ALC888 supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated real panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

Click the button and the Mixer **ToolBox** menu will appear. Then check the **Enable playback multi-streaming** and click **OK** to save the setup.

Important

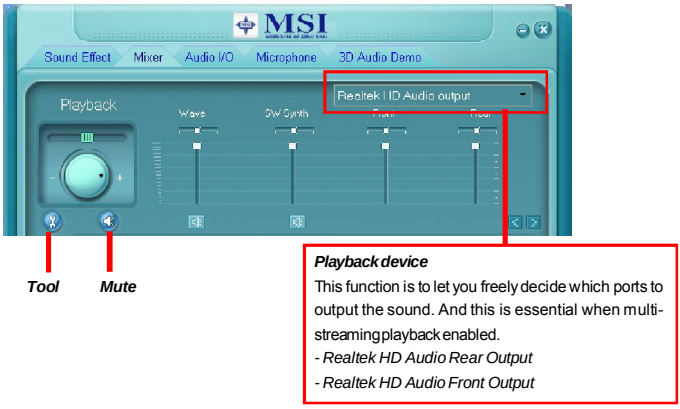
You have to plug the device into the jacks on the rear/ front panel before enable the multi-stream function.



When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

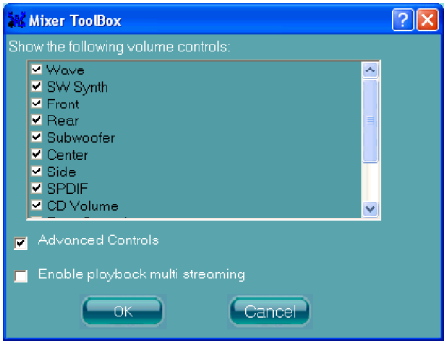
Then you **must** to select the **Realtek HD Audio front output** from the scroll list **first**, and use a different program to play the second audio source (for example: use Winamp to play MP3 files). You will find that the second audio source (MP3 music) will come out from the Line-Out audio jack of Front Panel.

3. Playback control

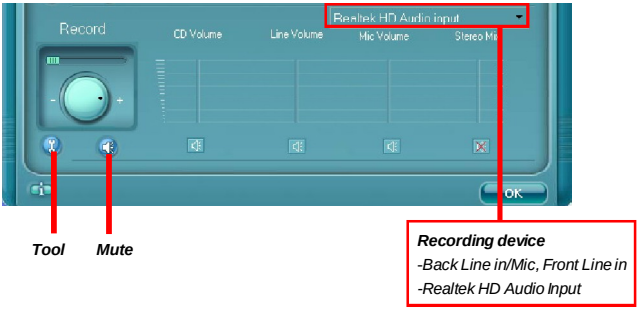


Mute
You may choose to mute single or multiple volume controls or to completely mute sound output.

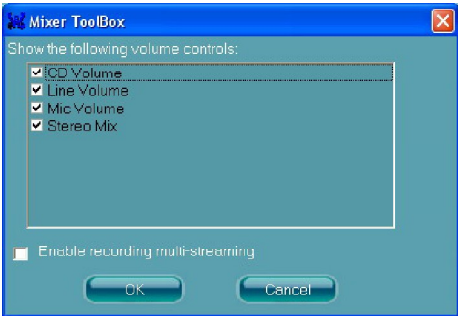
Tool
- *Show the following volume controls*
This is to let you freely decide which volume control items to be displayed.
- Advanced controls
- Enable playback multi-streaming
With this function, you will be able to have an audio chat with your friends via headphone (stream 1 from front panel) while still have music (stream 2 from back panel) in play. At any given period, you can have maximum 2 streams operating simultaneously.



4. Recording control



Mute
You may choose to mute single or multiple volume controls or to completely mute sound input.
Tool
- Show the following volume controls
This is to let you freely decide which volume control items to be displayed.
- Enable recording multi-streaming



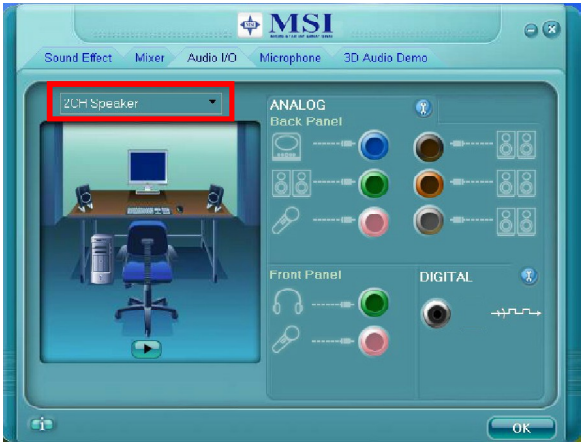
Important

Realtek Audio allows you to record the CD, Line, Mic and Stereo Mix channels simultaneously, frees you from mixing efforts. At any given period, you may choose 1 of the following 4 channels to record.

Audio I/O

In this tab, you can easily configure your multi-channel audio function and speakers. You can choose a desired multi-channel operation here.

a. **Headphone** for the common headphone
b. **2CH Speaker** for Stereo-Speaker Output
c. **4CH Speaker** for 4-Speaker Output
d. **6CH Speaker** for 5.1-Speaker Output
e. **8CH Speaker** for 7.1-Speaker Output



Speaker Configuration:

1. Plug the speakers in the corresponding jack.

2. Dialogue “connected device” will pop up for your selection. Please select the device you have plugged in.
   - If the device is being plugged into the correct jack, you will be able to find the icon beside the jack changed to the one that is same as your device.
   - If not correct, Realtek HD Audio Manager will guide you to plug the device into the correct jack.

Connector Settings

Click  to access connector settings.

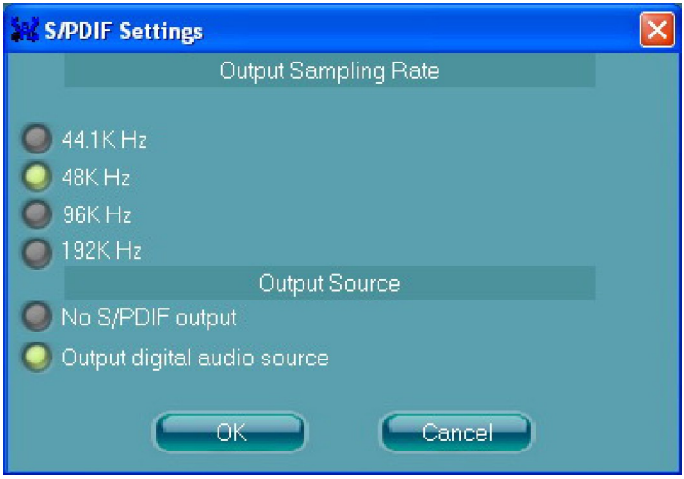
Disable front panel jack detection (option)
Find no function on front panel jacks? Please check if front jacks on your system are so-called AC'97 jacks. If so, please check this item to disable front panel jack detection.

Mute rear panel output when front headphone plugged in.

Enable auto popup dialogue, when device has been plugged in
Once this item checked, the dialog "Connected device" would automatically pop up when device plugged in.

S/PDIF

Short for Sony/Philips Digital Interface, a standard audio file transfer format. S/PDIF allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Maintaining the viability of a digital signal prevents the quality of the signal from degrading when it is converted to analog.



Output Sampling Rate

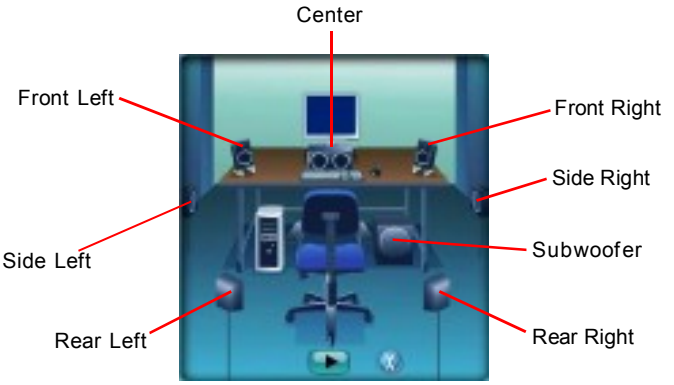
44.1KHz: This is recommend while playing CD.
48KHz: This is recommended while playing DVD or Dolby.
96KHz: This is recommended while playing DVD-Audio.
192KHz: This is recommended while playing High quality Audio.

Output Source

Output digital audio source: The digital audio format (such as .wav, .mp3,.midi etc) will come out through S/PDIF-Out.

Test Speakers

You can select the speaker by clicking it to test its functionality. The one you select will light up and make testing sound. If any speaker fails to make sound, then check whether the cable is inserted firmly to the connector or replace the bad speakers with good ones. Or you may click the **auto test** button to test the sounds of each speaker automatically.



Microphone

In this tab you may set the function of the microphone. Select the **Noise Suppression** to remove the possible noise during recording, or select **Acoustic Echo Cancellation** to cancel the acoustic echo during recording.

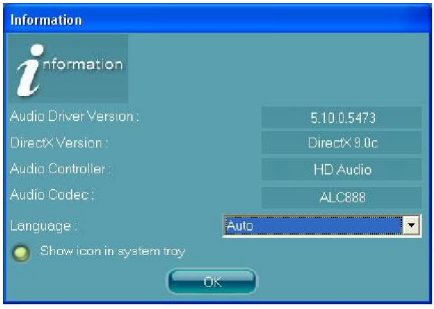
Acoustic Echo Cancellation prevents playback sound from being recorded by microphone together with your sound. For example, you might have chance to use VOIP function through Internet with your friends. The voice of your friend will come out from speakers (playback). However, the voice of your friend might also be recorded into your microphone then go back to your friend through Internet. In that case, your friend will hear his/her own voice again. With AEC(Acoustic Echo Cancellation) enabled at your side, your friend can enjoy the benefit with less echo.

3D Audio Demo

In this tab you may adjust your 3D positional audio before playing 3D audio applications like gaming. You may also select different environment to choose the most suitable environment you like.

Information

In this tab it provides some information about this HD Audio Configuration utility, including Audio Driver Version, DirectX Version, Audio Controller & Audio Codec. You may also select the language of this utility by choosing from the **Language** list.



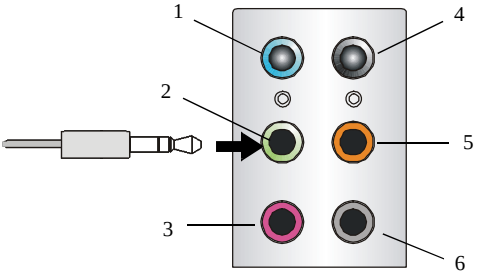
Also there is a selection **Show icon in system tray**. Switch it on and an icon  will show in the system tray. Right-click on the icon and the **Audio Accessories** dialogue box will appear which provides several multimedia features for you to take advantage of.

Hardware Setup

Connecting the Speakers

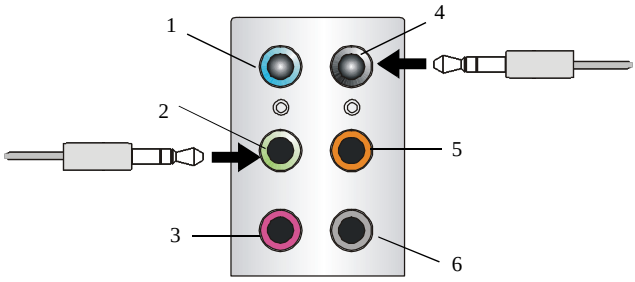
When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phone jacks in accordance with the setting in software utility.

n 2-Channel Mode for Stereo-Speaker Output



1 Line In
2 Line Out *(Front channels)*
3 MIC
4 No function
5 No function
6 No function

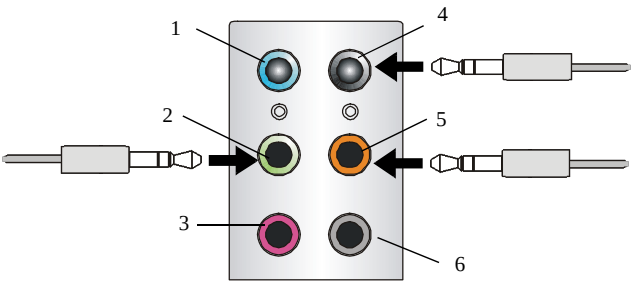
n 4-Channel Mode for 4-Speaker Output



4-Channel Analog Audio Output

1. Line In
2. Line Out *(Front channels)*
3. MIC
4. Line Out *(Rear channels)*
5. No function
6. No function

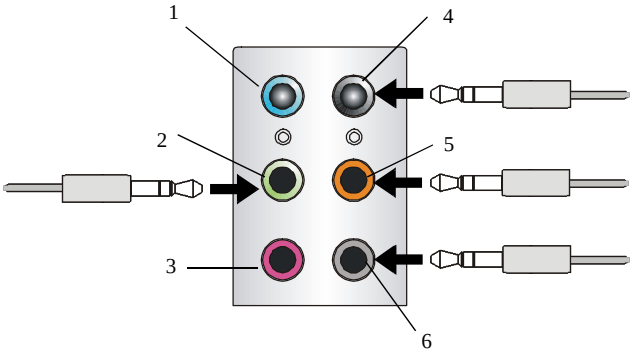
n 6-Channel Mode for 6-Speaker Output



6-Channel Analog Audio Output

1. Line In
2. Line Out *(Front channels)*
3. MIC
4. Line Out *(Rear channels)*
5. Line Out *(Center and Subwoofer channel)*
6. No function

n 8-Channel Mode for 8-Speaker Output



8-Channel Analog Audio Output

1. Line In
2. Line Out *(Front channels)*
3. MIC
4. Line Out *(Rear channels)*
5. Line Out *(Center and Subwoofer channel)*
6. Line Out *(Side channels)*

Important

To enable 7.1 channel audio-out function on Vista operating system, you have to install the Realtek Audio Driver. Or, the mainboard will support 5.1 channel audio-out only.

Appendix B
Overclocking Center

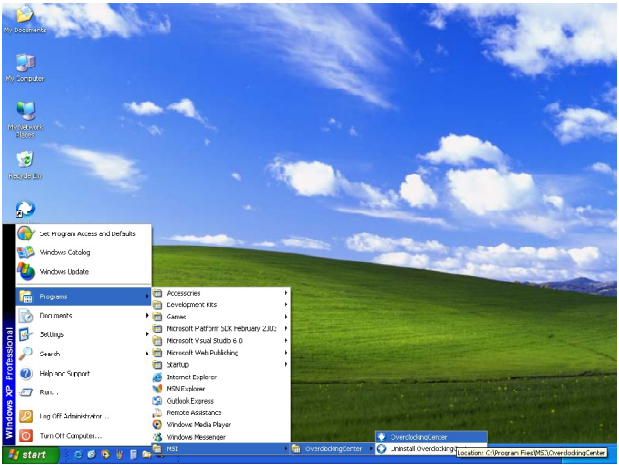
Overclocking Center, the most useful and powerful utility that MSI has spent much research and efforts to develop, helps users to monitor or configure the hardware status of MSI Motherboard in windows, such as CPU clock, voltage, fan speed and temperature.
Before you install the Overclocking Center, please make sure the system has meet the following requirements:

1. 256MB system memory.
2. DVD-ROM drive for software installation.
3. Operation system: Windows XP or up.
4. DotNet Frame Work 2.0

Activating Overclocking Center

Once you have your Overclocking Center installed (locate the setup source file in the setup DVD accompanying with your motherboard, path: **Utility --> MSI Utility --> Overclocking Center**), it will have a short cut icon on the desktop, and a short cut path in your "Start-up" menu. You may double-click on each icon to activate Overclocking Center.

short-cut icon on the desktop



short-cut path in the start-up menu
(path: Start-->Program Files-->MSI-->
Overclocking Center-->Overclocking Center)

System Info

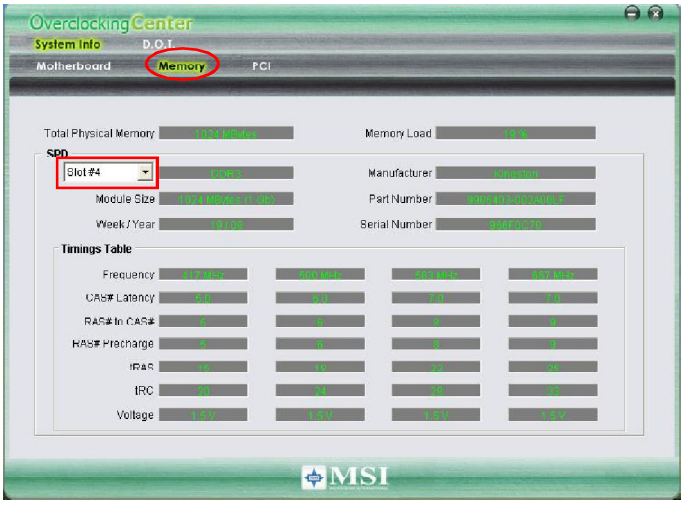
In the System Info screen, you can read the information of motherboard/ memory/ PCI.

Motherboard

Click **Motherboard** to read the information of motherboard, BIOS, installed CPU and installed graphics card.

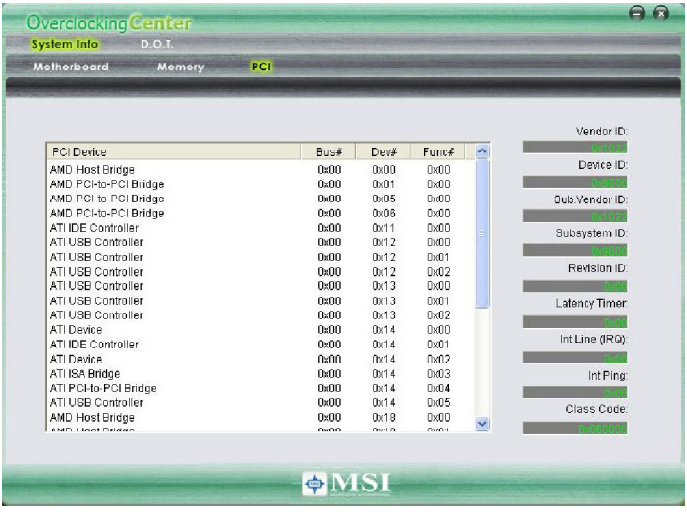
Memory

Click Memory to read the information of each memory DIMM slot. You can select a DIMM slot you want to read from the **SPD** list.



PCI

Click PCI to read the information of devices on the motherboard.



DOT

Click DOT to enter the DOT screen. In DOT, you can select the basic setting to reach optimal performance in **Novice** menu or you can adjust advanced values for overclocking in **Advance** menu.

Novice

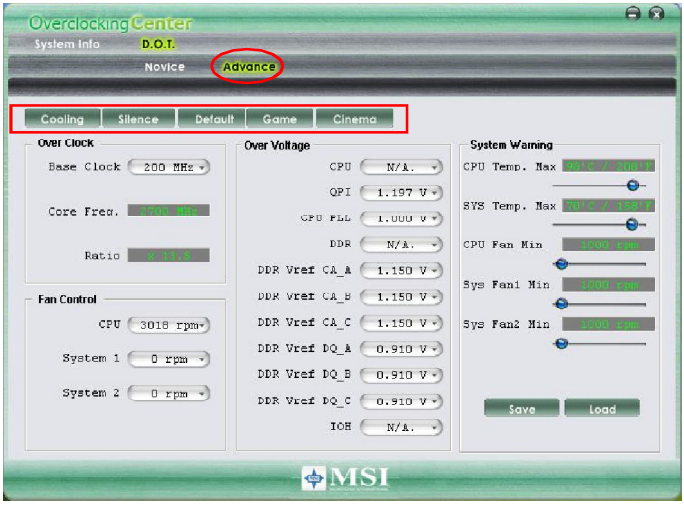
In the Novice menu, it provides one default setting and several common settings for different environments. You may choose one of the settings that you need. The settings in Novice menu are not adjustable.

Important

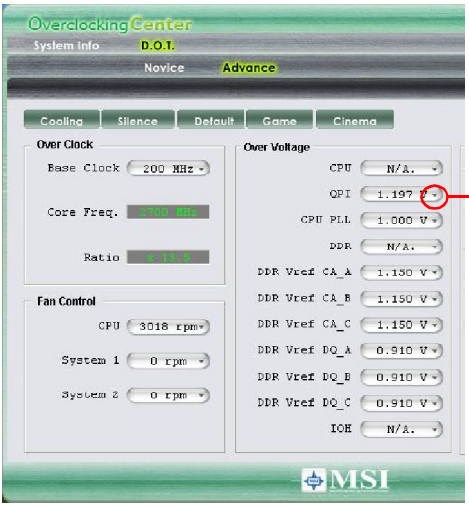
You may change the values of each environment setting/ default setting in ***Advance*** *menu. Please refer the following section for more details.*

Advance

In the Advance menu, you can adjust the values for each environment setting/ default setting. Click the Cooling/ Silence/ Default/ Game/ Cinema button to enter it's setting menu. Please refer to the following descriptions to adjust the values and save them.



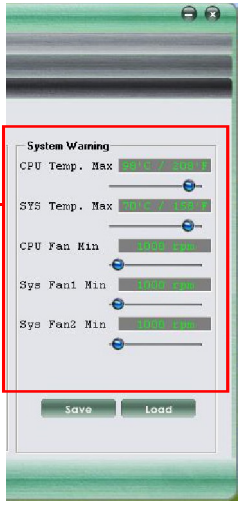
In each setting menu, you can select desired values for manual overclocking. Simply click the right side of the button which arranges an arrow sign, and a drop-down menu will appear below the button, then select a value.



Click the arrow sign and the drop-down menu will appear.

In the “System Warning” block, you can set the maximum CPU/ system temperature and the minimum CPU/ system fan speed by using the scroll bar. The system will pop-up a warning message to warning you when the temperature/ fan speed is over/ lower the values you set.

Set the thresholds of CPU temperature & CPU FAN speed.



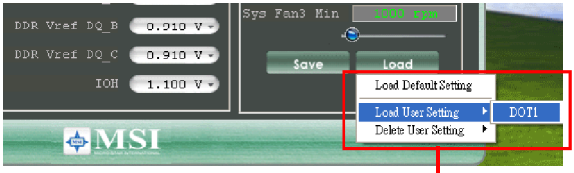
After you adjust the values in setting menu, you can save it for future use.

Click the **Save** button, and enter a name in the empty box. Then, click **Save** button again to save the settings.

Important

It provides you to save up to 20 user settings.

Click the Load button and choose a saved user setting to load the settings for the system.



Click the **Load** button, and choose a saved user setting.

Important

Every time you turn-off the system, the settings will be restored to the factory default. If you want to use the saved settings, you have to load it after entering the operating system every time.

Appendix C
SATA RAID

The 710 / 750 integrate one SATA host controller separately, and support RAID function for performance and reliability.
SATA RAID provides support for RAID 0 (Striping), RAID 1 (Mirroring), RAID 0+1 (Striping & Mirroring) & RAID 5 (striping with parity). RAID 0 greatly improves hard disk I/O performance by concurrently striping data across multiple drives. RAID 1 makes sure data is not lost if a drive fails as data is simultaneously written to two drives. Drives configured for RAID Striping are said to form a RAID 0 set, while drives configured for RAID Mirroring are said to form a RAID 1 set. RAID 0+1 is implemented as a mirrored array whose segments are RAID 0 arrays. RAID 0+1 has same fault tolerance as mirroring and reduces overhead by striping. It needs at least four drives to form a RAID 0+1. RAID 5 defines techniques for parity data.

**Only 750 supports RAID 5.*

RAID Configuration

Creating and deleting RAID set and performing other RAID setting up operations are done in the RAID BIOS. During bootup, a screen similar to the one below will appear for about few seconds. Press <Ctrl-F> to enter FastBuild utility.

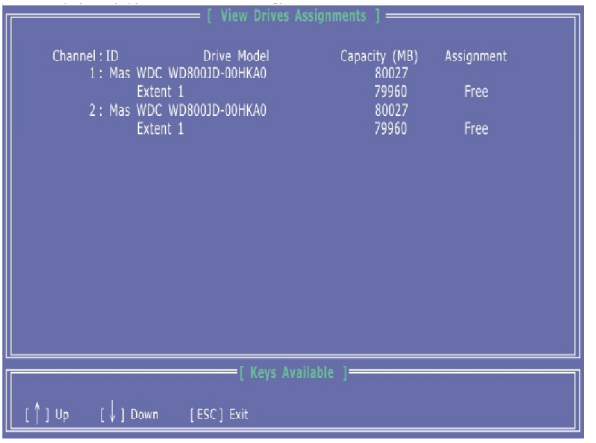
Important

*Be sure to enable the **RAID** function for SATA device in BIOS before configuring the Fastbuild Utility.*

The FastBuild menu screen will appear. The Main Menu is used to choose the operation to be performed.

View Drives Assignments

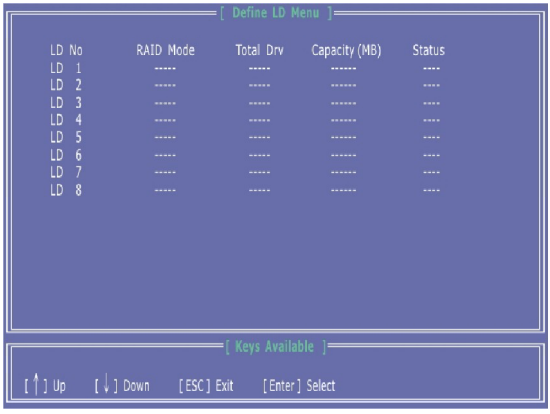
This window displays the model number, capacities and assignment of the drives physically attached to the SATA host adapter.



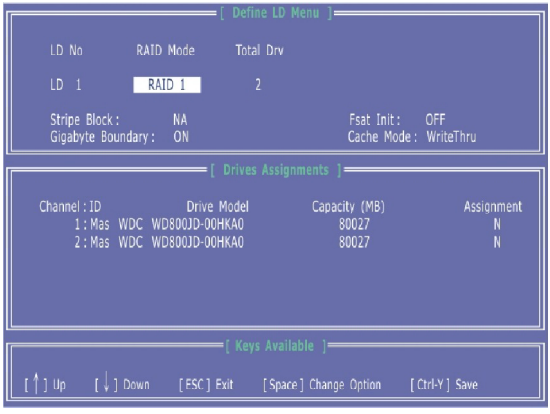
Define LD (Creating RAID)

The selection of the RAID configuration should be based upon factors including performance, data security, and the number of drives available. It is best to carefully consider the long-term role of the system and plan the data storage strategy. RAID sets can be created either automatically, or to allow the greatest flexibility, manually.

1. Press **2** on the Main Menu screen to enter the Define LD Menu.
2. Press the arrow keys to highlight an logical drive number you want to define and press Enter to select it.



3. On the next screen, use the space key to choose a RAID mode (RAID 0/ 1/ 0+1/ 5) and use the arrow key to move to the *Drives Assignments* window.
   • Initialize logical drive, zero the disk drives. RAID 1 or 10 only.



- Stripe Block Size, the default 64KB is best for most applications. RAID 0 or 10 only.
- Gigabyte Boundary, allows use of slightly smaller replacement drives.
- Cache Mode, WriteThru or WriteBack.

4. On the *Drives Assignments* window, use the arrow key to choose the hard drives which you want to make part of the LD, use the space key to change the assignment to "Y". Then press [Ctrl+Y] to save the configuration.

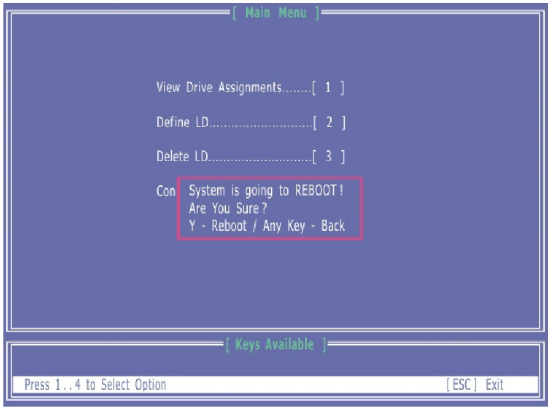
5. A message will show up on the bottom, press any key to save the configuration or press [Ctrl-Y] to allocate the RAID capacity manually.

Important

1. The default capacity is the full capacity of the selected hard drives.
2. If you allocate the first LD capacity manually, you can create second LD with remaining capacity of the selected hard drives.

6. The LD creation is done, the screen shows the LD information as below. Press ESC key to the main screen.

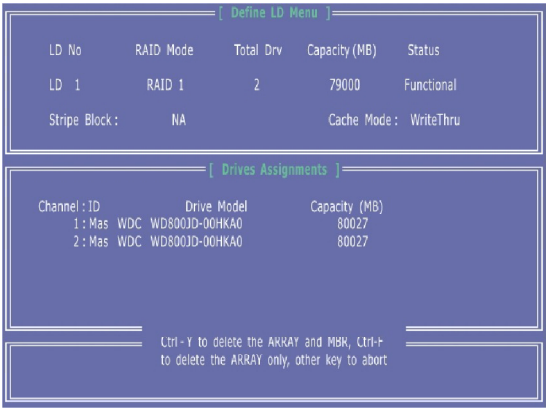
7. Press ESC key to exit the utility, a message “System is going to REBOOT! Are You Sure?” will display, answer “Y” to exit it and the system will reboot.



Delete LD (Deleting RAID)

1. Select “Delete LD” on the main screen.
2. Choose a LD No you want to delete and press “Del” or “Alt+D” delete the RAID set.

3. On the next screen, a message will display to inform you, press “Ctrl+Y” to delete the RAID set or other key to abort it. Press “Ctrl+Y” to complete the deletion.



Installing the RAID Driver (for bootable RAID Array)

For Windows XP:

1. After you complete the RAID BIOS setup, boot from the Windows CD, and the Windows XP Setup program starts.
2. Press **F6** and wait for the Windows Setup screen to appear.
3. Insert the floppy that contains the RAID driver, press the "S" key to select "Specify Additional Device".

Important

Please follow the instruction below to make a SATA RAID driver for yourself.

1. *Insert the MSI DVD into the DVD-ROM drive.*
2. *Click the "Browse" on the Setup screen.*
3. *Copy all the contents in the :*
   \\ChipSet\AMD\XP\SBDrv\RAID7xx\x86 (for Windows XP 32-bit) or X64 (for Windows XP 64-bit)
   \\ChipSet\AMD\VISTA\Packages\Drivers\SBDrv\SB7xx\RAID\x86 (for Windows Vista 32-bit) or X64 (for Windows Vista 64-bit)
   Note: for Windows Vista, you can copy the files to a medium (floppy/ CD/ DVD or USB)
4. *The driver disk for RAID controller is done.*

4. When prompted, insert the floppy disk and press Enter.
5. You should be shown a list of available SCSI Adapters.
6. Select the compatible RAID controller for 32-bit/ 64-bit version system and then press ENTER.
7. The next screen should confirm that you have selected the RAID controller. Press ENTER again to continue.
8. You have successfully installed the RAID driver, and Windows setup should continue.
9. Leave the disk in the floppy drive until the system reboots itself. Windows setup will need to copy the files from the floppy again after the RAID volume is formatted, and Windows setup starts copying files.

For Windows Vista:

During the operating system installation, after selecting the location to install Windows Vista, please click on the "Load Driver" button to load RAID driver. Please refer the **Important** notice above to make a RAID Driver medium. And then, follow the instructions on the screen to complete the whole installation.

Installing the RAID Driver Under Windows (for Non-bootable RAID Array)

1. Insert the MSI DVD into the DVD-ROM drive.
2. The DVD will auto-run and the setup screen will appear.
3. Under the Driver tab, click on ***ATI System Driver*** *by your need*. The ATI System Driver includes RAID Driver.
4. The driver will be automatically installed.

Important

*You **must** install the RAID driver to enable RAID.*