

790FX-GD70 Series

MS-7577 (v1.X) Mainboard



G52-75771X1

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



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



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.

- 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 LANOTICE D'INSTALLATIONAVANT DE RACCORDER AU RESEAU.



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 équipements 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 вышеречисленного 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 término 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 período 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 Electriche 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 odbačenju elektronskoj 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 prinudeni 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 śmieć 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 atılmayacak ve bu elektronik 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 odebrání 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 környezetvédként 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 kezelhetők lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelesek válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkánév 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 adegnerà 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 790FX-GD70 Series (MS-7577 v1.X) ATX motherboard. The 790FX-GD70 Series motherboards are based on **AMD® 790FX & SB750** chipset for optimal system efficiency. Designed to fit the advanced **AMD® Phenom II X4/ X3** and **Athlon X4/ X3/ X2 AM3** processor, the 790FX-GD70 Series deliver a high performance and professional desktop platform solution.

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Motherboard 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

- Supports HyperTransport 3.0 up to 5.2 GT/s

Chipset

- North Bridge: AMD® 790FX chipset
- South Bridge: AMD® SB750 chipset

Memory Support

- DDR3 1066/ 1333/ 1600*/ 1800*/ 2133* SDRAM (total 16 GB Max)
- 4 DDR3 DIMMs (240pin / 1.5V)
(*means overclock, for more information on compatible components, please visit <http://global.msi.com.tw/index.php?func=testreport>)

LAN

- Supports Dual Gigabit LAN by Realtek® RTL8111DL

IEEE 1394 (optional)

- Chip integrated by VIA® VT6315N
- Supports 2 IEEE1394 ports (rear x 1, front x 1)

Audio

- HD Audio Realtek® ALC889
- Up to 8-channel audio with jack sensing

IDE

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

SATA

- SATA1~6 ports by AMD® SB750
- SATA7~8 ports by JMicron® JMB322
- Supports storage and data transfers at up to 3.0 Gb/s

ESATA

- Supports 1 E-SATA port by JMicron® JMB362
- Supports storage and data transfers at up to 3.0 Gb/s

RAID

- SATA1~6 supports RAID 0/ 1/ 10/ 5 or JBOD mode by AMD® SB750

Hardware RAID

- SATA7 & SATA8 support RAID 0/ 1 & JBOD mode by JMicron® JMB322

Floppy

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

Connectors

● **Back panel**

- 1 PS/2 mouse/ 1 PS/2 keyboard port
- 1 Coaxial S/PDIF-out jack / 1 Optical S/PDIF-out port
- 7 USB 2.0 Ports
- 1 E-SATA/USB common port
- 1 IEEE 1394 port (optional)
- 2 LAN jacks
- 6 flexible audio jacks

● **On-Board Pinheaders/ Connectors**

- 2 USB 2.0 pinheaders
- 1 IEEE 1394 pinheader (optional)
- 1 COM port pinheader
- 1 CD-in pinheader
- 1 TPM Module pinheader
- 1 Chassis Intrusion pinheader
- 1 Front Panel Audio pinheader
- 1 S/PDIF-out pinheader
- 1 Debug LED

Slots

- 4 PCI Express gen2 x16 slots, support CrossFireX™ technology
 - a. the PCIE x16 slots (PCI_E1 & PCI_E4) support up to PCIE 2.0 x16 speed
 - b. the PCIE x16 slots (PCI_E3 & PCI_E5) support up to PCIE 2.0 x8 speed
 - c. if you intend to install four expansion cards into all PCIE x16 slots, these four PCIE x16 lanes will auto arrange from x16/ x16/ x0/ x0 to x8/ x8/ x8/ x8
- 1 PCI Express gen2 x1 slot
- 2 PCI slots

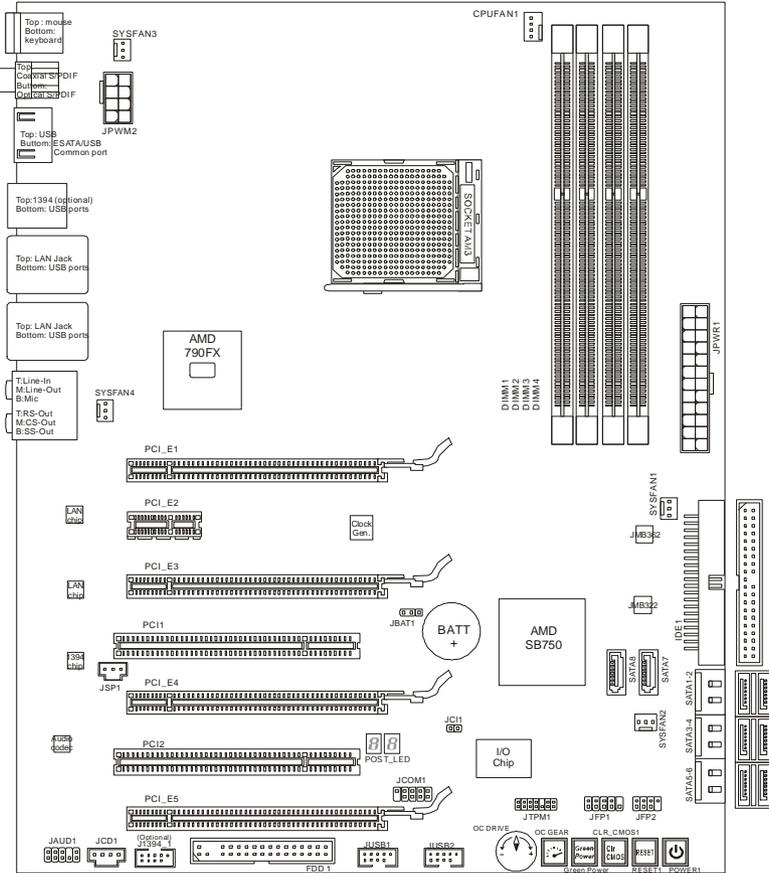
Form Factor

- ATX (30.4cm X 24.5 cm)

Mounting

- 9 mounting holes

Motherboard Layout



**790FX-GD70 Series
(MS-7577 v1.X) ATX Motherboard**

Packing Checklist



MSI motherboard



MSI Driver/Utility CD



Back IO Shield



Power Cable



SATA Cable



IDE/ Floppy Cable



CrossFire
Video Link Cable



USB Bracket



User's Guide

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

Chapter 2

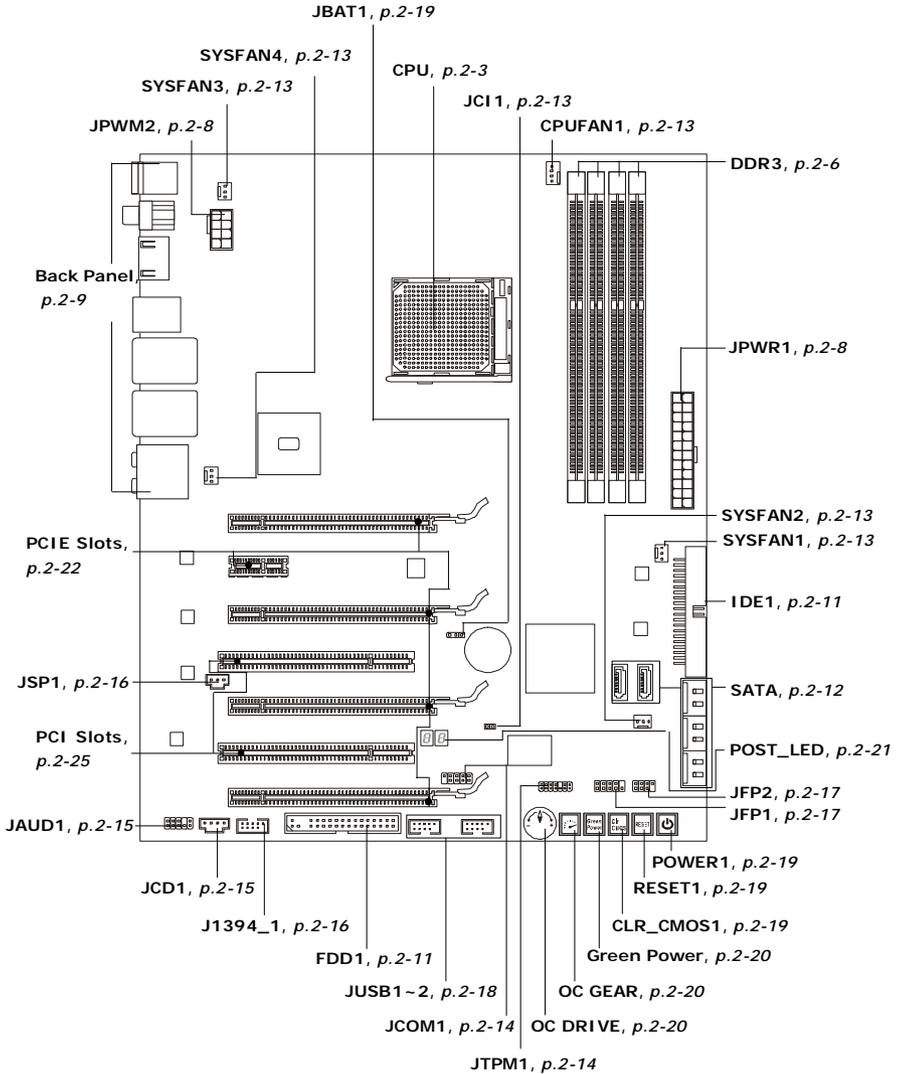
Hardware Setup

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.

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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.

Replacing 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.

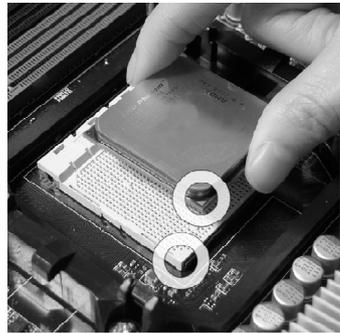
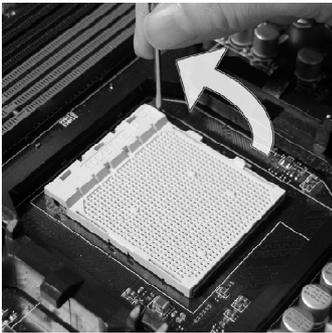
Overclocking

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

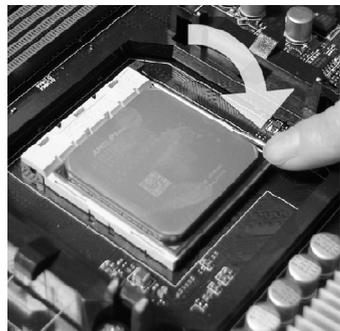
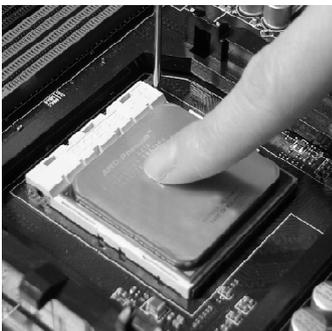
CPU & Cooler Installation

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 & motherboard.

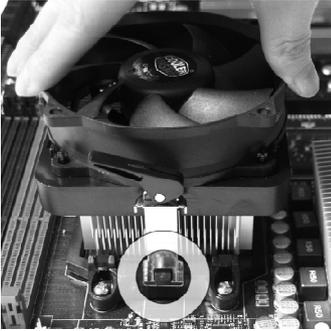
1. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
2. Look for the gold arrow of the CPU. The gold arrow should point as shown in the picture. The CPU can only fit in the correct orientation.



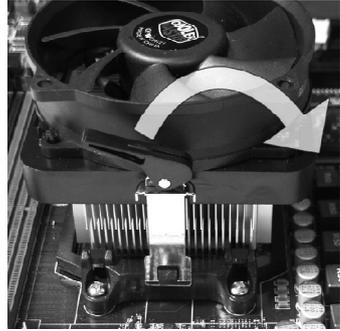
3. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your motherboard.
4. Press the CPU down firmly into the socket and close the lever. As 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.



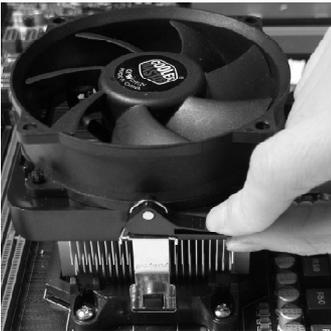
5. Position the cooling set onto the retention mechanism.
Hook one end of the clip to hook first.



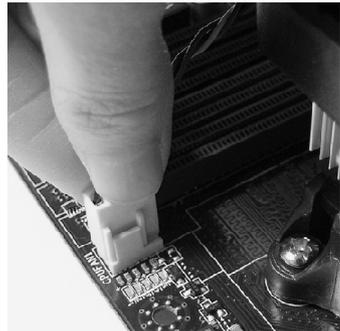
6. Then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism. Locate the Fix Lever and lift it up .



7. Fasten down the lever.



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

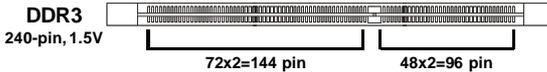


Important

1. Motherboard photos shown in this section are for demonstration only. The appearance of your motherboard 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.

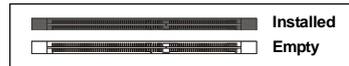
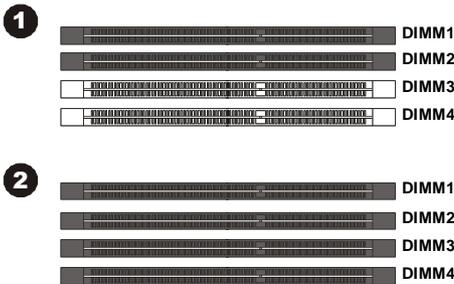
Memory

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 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.



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 DIMM slots.
- To enable successful system boot-up, always insert the memory modules into the **DIMM1 first**.

Installing Memory Modules

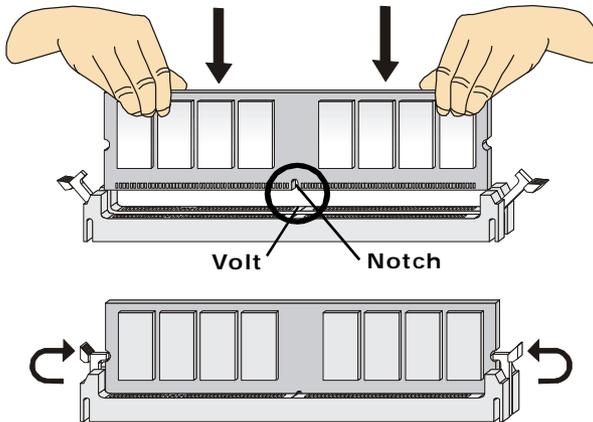
1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot. The plastic clip at each side of the DIMM slot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



Power Supply

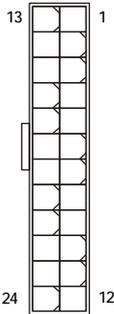
ATX 24-pin Power Connector: JPWR1

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).



Pin Definition

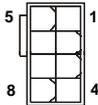


PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

ATX 12V Power Connector: JPWM2

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

Pin Definition



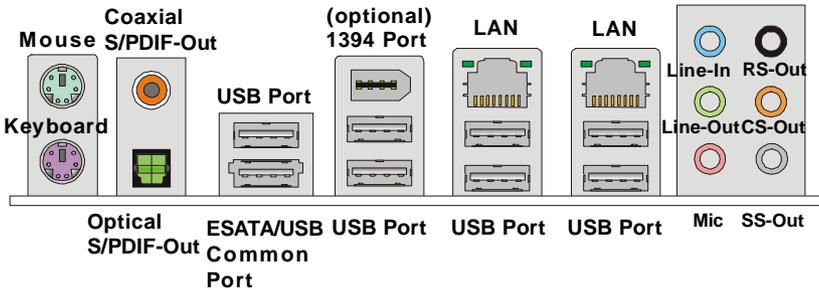
PIN	SIGNAL	PIN	SIGNAL
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V



Important

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

Back Panel



► Mouse/ Keyboard

The standard PS/2[®] keyboard / mouse DIN connector is for a PS/2[®] keyboard / mouse.

► Coaxial S/PDIF-Out

This SPDIF (Sony & Philips Digital Interconnect Format) connector is provided for digital audio transmission to external speakers through a coaxial cable.

► Optical S/PDIF-Out

This SPDIF (Sony & Philips Digital Interconnect Format) connector is provided for digital audio transmission to external speakers through an optical fiber cable.

► USB Port

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

► ESATA/USB Common Port

The ESATA/USB common port is for attaching the ESATA external hard drive or USB device.

► 1394 Port (optional)

The IEEE1394 port on the back panel provides connection to IEEE1394 devices.

► **LAN**

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



LED	Color	LED State	Condition
Left	Yellow	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**

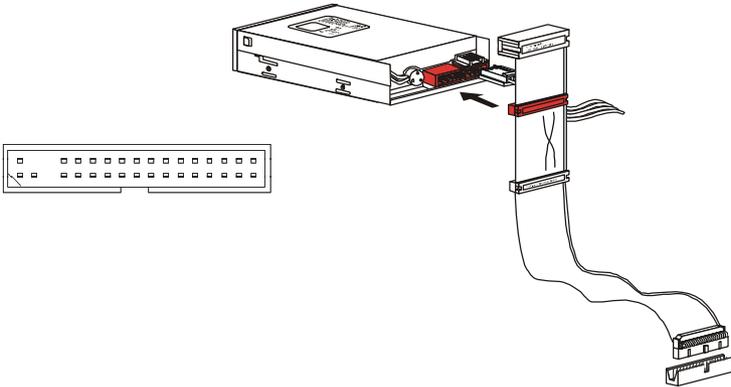
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **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

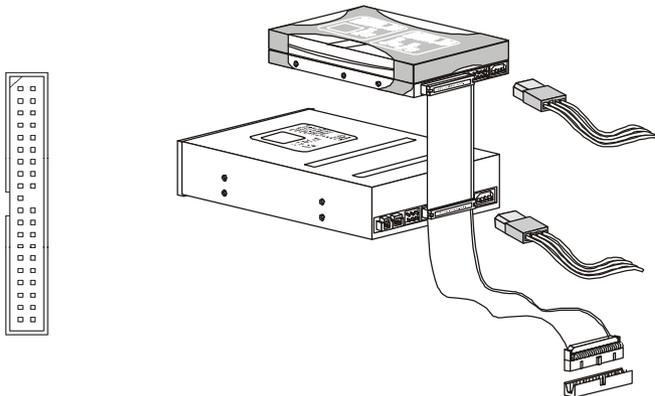
Floppy Disk Drive Connector: FDD1

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.



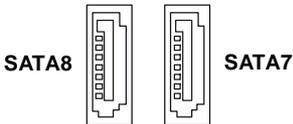
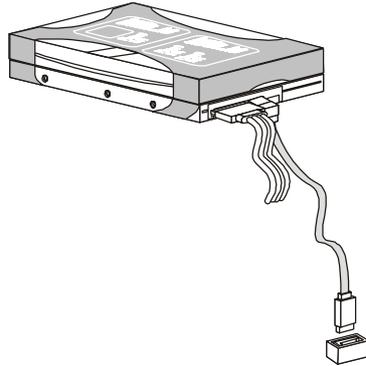
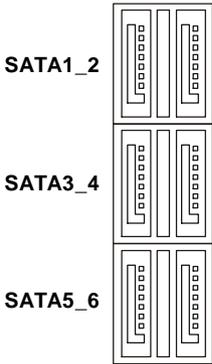
Important

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~ SATA8

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

**SATA1~6 stack SATA connectors
are controlled by SB750**



**SATA7 & SATA8 are
controlled by JMB322**

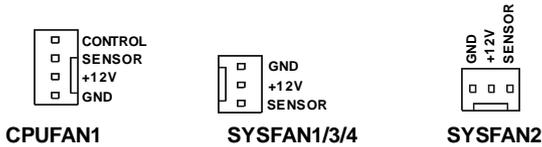


Important

1. Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.
2. Please always use the **AMD** default **Black** SATA connectors (SATA1~6) first.
3. SATA7 & SATA8 support RAID 0/ RAID 1/ JBOD function and you can set RAID mode in BIOS setup or in DRIVE BOOSTER MANAGER (refer to the BIOS section or Appendix section).

Fan Power Connectors: CPUFAN1, SYSFAN1/ 2/ 3/ 4

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 motherboard 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.



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 CPU fan speed according to the actual CPU temperature.
3. Fan cooler set with 3 or 4 pins power connector are both available for CPUFAN1.

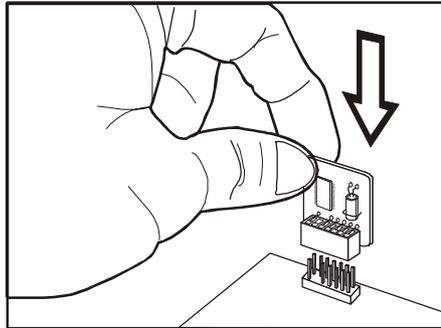
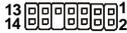
Chassis Intrusion Connector: JCI1

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.



TPM Module Connector: JTPM1

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	LPCclock	2	3V_STB	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#	LPCFrame	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.

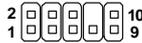


Pin Definition

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 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.

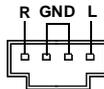


HD Audio Pin Definition

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	LINE out_JD	Jack detection return from front panel JACK2

CD-In Connector: JCD1

This connector is provided for external audio input.

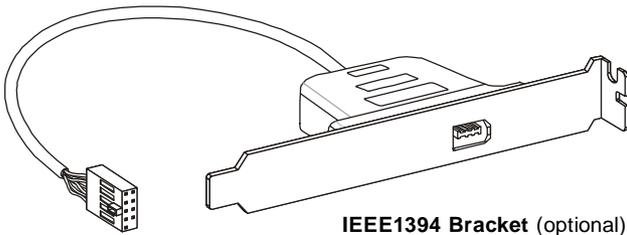


IEEE1394 Connector: J1394_1 (optional)

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

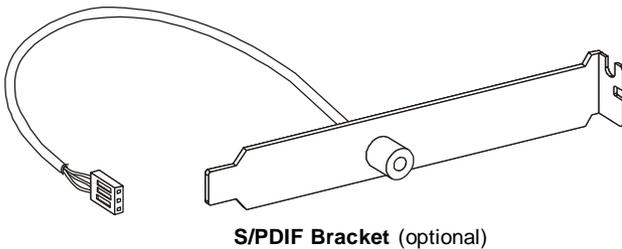
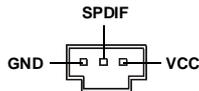
Pin Definition

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



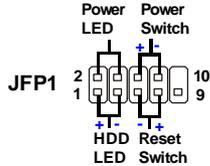
S/PDIF-Out Connector: JSP1

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



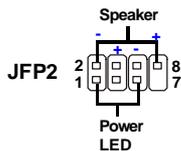
Front Panel Connectors: JFP1, JFP2

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	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/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

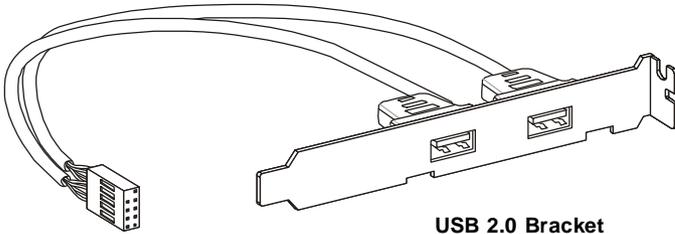
PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	SPK-	Speaker-
3	SLED	SuspendLED
4	BUZ+	Buzzer+
5	PLED	PowerLED
6	BUZ-	Buzzer-
7	NC	No connection
8	SPK+	Speaker+

Front USB Connector: JUSB1 / JUSB2

These connectors, 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.**

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	NC



USB 2.0 Bracket
(Optional)



Important

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

Button

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

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.



Reset Button: RESET1

This reset button is used to reset the system. Press the button to reset the system.



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.



Important

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

GreenPower Button: Green Power

This button is used to switch GreenPower function of system. Once you press the button, the system will switch the GreenPower between disable and auto mode.



OC Dial Button and OC Dial Knob: OC GEAR & OC DRIVE

The button and the knob are used to adjust the FSB.



OC Dial Knob: OC DRIVE



OC Dial Button: OC GEAR

You can use them to change FSB clock at any time under the operating systems. This method does not need to install software or reboot. Please follow the steps below to increase or decrease the frequency of base clock.

1. Press the OC Dial button to start adjustment. The OC Dial LED will light to indicate current operation.
2. Turn the OC Dial knob clockwise/anti-clockwise to increase/decrease base clock. You can set the value of OC Dial Step in BIOS.
3. Press the OC Dial button again to complete adjustment. The OC Dial LED will turn off automatically.



Important

1. Before you use OC Dial function to overclock the system. In order to increase the success rate, you should set the voltage in BIOS properly.
2. After each of the adjustments, this feature should be shut down. Otherwise, it would affect the system performance. Therefore, when you complete the adjustment, check whether OC Dial LED is on or off, if OC Dial LED is still lit, press the button and then check again.

Debug LED: POST_LED

Please refer to the table below to get more information about the Debug LED message.



Post	Status
FF	Power on and first initialize CPU.
C0, C1, C2	Early CPU Initialize.
C4, C6	Initialize chipset.
D4, D5	Initialize memory.
08	Initialize keyboard.
2A, 31	Initialize onboard devices. Load Option ROM (VGA and RAID option ROM) from BIOS to memory.
37	Displaying sign-on message, CPU information, setup key message and any OEM specific information.
38	Initialize USB device and different devices.
3C	Mid POST initialization of chipset registers. Detect different devices (parallel ports, serial ports and coprocessor in CPU...etc.)
75, 78	Initialize INT 13 devices and IPL devices. (include SATA/ PATA HDD and CD/DVD ROM).
87	Enter setup screen. BIOS setup if needed/ requested.
A4	Wait for user input at configuration display if needed.
A7	Display the system configuration screen if enabled.
B1	Save system context for ACPI (Advanced Configuration and Power Interface). Prepare give control to OS loader (INT 19H).
00	Pass control to OS Loader (typically INT 19H).
AA	Enter OS (Vista or Windows XP).

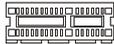
Slots

PCIe (Peripheral Component Interconnect Express) Slot

The PCIe slot supports the PCI Express interface expansion card.
The PCIe x16 slots support up to 8.0 GB/s transfer rate.
The PCIe x1 slot supports up to 250 MB/s transfer rate.



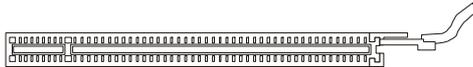
PCI_E1 supports up to PCIe 2.0 x16 speed



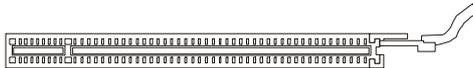
PCI_E2 supports up to PCIe 2.0 x1 speed



PCI_E3 supports up to PCIe 2.0 x8 speed



PCI_E4 supports up to PCIe 2.0 x16 speed



PCI_E5 supports up to PCIe 2.0 x8 speed



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.

ATI CrossFireX™ (Multi-GPU) Technology

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's graphics capabilities. It allows you the ability to scale your system's graphics horsepower as you need it, supporting two or more ATI Radeon™ HD graphics cards, making this the most scalable gaming platform ever. The motherboard 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 **third** 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

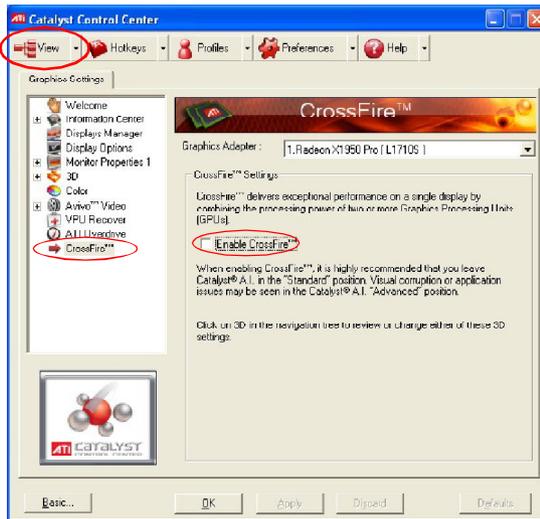


Important

1. *Motherboard photos shown in this section are for demonstration only. The appearance of your motherboard 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) or later & Windows® XP Professional x64 Edition & Windows® Vista support the CrossFireX™ function.*
5. *This motherboard supports up to 4 graphics cards with 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

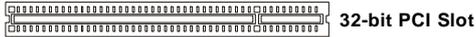
A CrossFireX™ system has four possible display modes:

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

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

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



Important

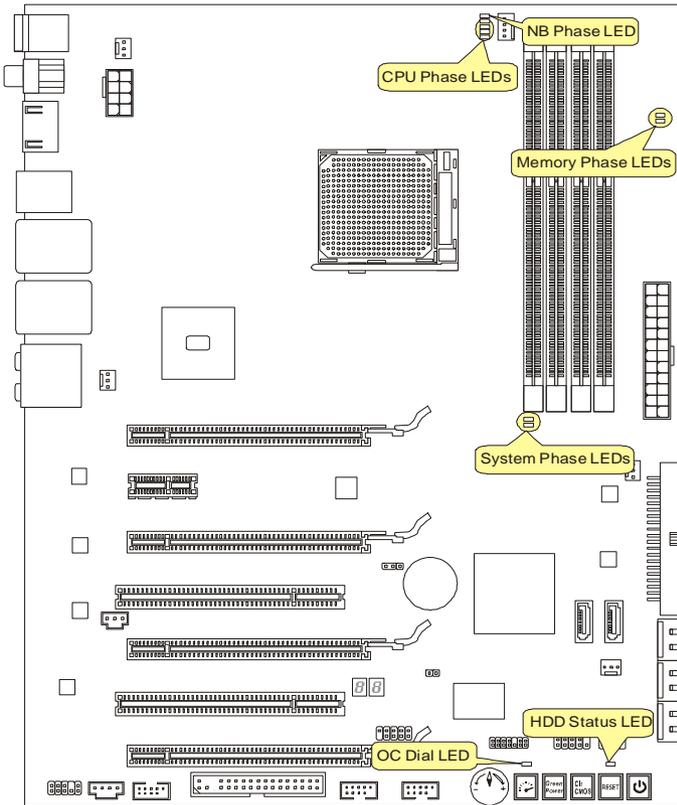
When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

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 C#	INT D#	INT A#	INT B#
PCI Slot 2	INT D#	INT A#	INT B#	INT C#

LED Status Indicators



NB Phase LED

Lights blue when the the NB is operating.

CPU Phase LEDs

These LEDs indicate the current CPU power phase mode. Follow the instructions below to read.

1 LED will light blue when
 CPU is in 1 phase power mode.

2 LEDs will light blue when
 CPU is in 2 phase power mode.

3 LEDs will light blue when
 CPU is in 3 phase power mode.

4 LEDs will light blue when
 CPU is in 4 phase power mode.

Memory Phase LEDs

These LEDs indicate the current memory power phase mode. Follow the instructions below to read.



1 LED will light blue when memory is in 1 phase power mode.



2 LEDs will light blue when memory is in 2 phase power mode.

System Phase LEDs

These LEDs indicate the current chipsets (NB & SB) phase mode. Follow the instructions below to read.



1 LED will light blue when the chipsets are in 1 phase power mode.



2 LEDs will light blue when the chipsets are in 2 phase power mode.

HDD Status LED

Lights red when hard disk drives are reading or writing.

OC Dial LED

Lights red when the OC Dial is operating.

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 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:

A7577AMS 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, and A = AMD.

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
<F1>	General Help
<F4>	Enter CPU Specification submenu
<F5>	Enter Memroy-Z submenu
<F6>	Load Optimized Defaults
<F8>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

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

Main Menu

The main menu lists the setup functions you can make changes to. You can use the 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 >.

▶ IDE Primary Master
▶ IDE Primary Slave

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.

► M-Flash

Use this menu to read/ flash the BIOS from storage drive (FAT/ FAT32 format only).

► 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 motherboard manufacturer specifically for optimal performance of the motherboard.

► Save & Exit Setup

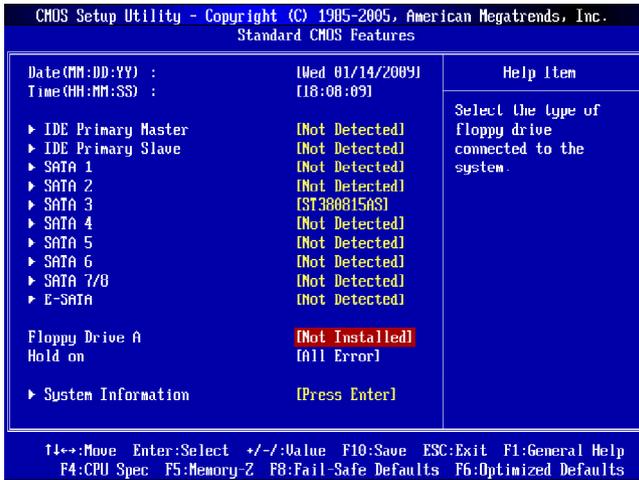
Save changes to CMOS and exit setup.

► Exit Without Saving

Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu include 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, SATA1~8, E-SATA

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

CHOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
IDE Primary Master	
IDE Primary Master	Help Item
Device : Hard Disk	
Vendor : IBM-DTLA-307015	
Size : 15.3GB	

► **Device / Vender / Size**

It shows the device information that you connected to the SATA connector.



Important

IDE Primary Master/ Slave, SATA 1/2/3/4/5/6/7/8 & E-SATA are appearing when you connect the HD devices to the IDE/ SATA/ ESATA connector on the motherboard.

► **Floppy Drive A**

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

► **Hold on**

The setting determines whether the system will stop if an error is detected at boot. When the system stops for the errors preset, it will halt on for 15 seconds and then automatically resume its operation. Available options are:

- [All Errors] The system stops when any error is detected.
- [No Errors] The system doesn't stop for any detected error.

► **System Information**

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

CHOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
System Information	
	Help Item
AMD Phenom(tm) 11 X4 925 Processor	
CPUID/MicroCode 0F42/0886	
CPU Frequency 2.80GHz (200x14)	
BIOS Version 01.0B5 12302000	
Physical Memory 1024MB	
Cache Size 2048KB	
L3 Cache Size 6144KB	

This sub-menu shows the CPU information, BIOS version and memory status of your system (read only).

Advanced BIOS Features



▶ BIOS Flash Protection

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

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

▶ 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 graphic 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:

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
CPU Feature		
SVM Support	[Enabled]	Help Item
C1E Support	[Disabled]	

► **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 processors support Enhanced Halt state (C1E).

► **Chipset Feature**

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
Chipset Feature		
HPET	[Enabled]	Help Item

► **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.

► **Boot Sequence**

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
Boot Sequence		
1st Boot Device	[1st FLOPPY DRI]	Help Item
2nd Boot Device	[USB:memory]	
3rd Boot Device	[SATA:4M-ST3000]	Specifies the boot sequence from the
Boot From Other Device	[Yes]	

► 1st/ 2nd/ 3rd Boot Device

The items allow you to set the first/ second/ Third boot device 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 boot device.

► Trusted Computing

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
Trusted Computing		
TCG/TPM Support	[Yes]	Help Item
Execute TPM Command	[Don't change]	
TPM Enable/Disable Status	[Disabled]	Enable/Disable TPM
TPM Owner Status	[Unowned]	TCG (TPM 1.1/1.2) supp

► TCG/TPM SUPPORT

Setting the option to [Yes] enables TPM (Trusted Platform Module) to the system.

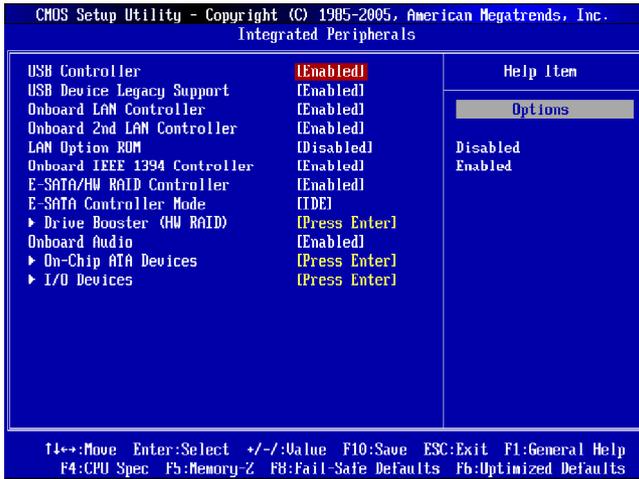
► Execute TPM Command

Setting the option to [Enable] allows the system to execute TPM Command.

► TPM Enable/Disable status, TPM Owner Status

These items show the status of TPM (read only).

Integrated Peripherals



▶ USB Controller

This setting allows you to enable/disable the onboard USB controller.

▶ USB Device Legacy Support

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

▶ Onboard LAN Controller

This item is used to enable/disable the onboard LAN controller.

▶ Onboard 2nd LAN Controller

This item is used to enable/disable the onboard 2nd LAN controller.

▶ LAN Option ROM

This item is used to decide whether to invoke the Boot ROM of the LAN controller.

▶ Onboard IEEE 1394 Controller

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

▶ E-SATA/ HW RAID Controller

This item allows you to enable/ disable the E-SATA & HW RAID controller.

▶ E-SATA Controller Mode

This item allows you to configure E-SATA mode. Setting options: [AHCI] or [IDE].

► **Drive Booster (HW RAID) (for JMB322, SATA7~8)**

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

CMOS Setup Utility - Copyright (C) 1905-2005, American Megatrends, Inc.	
Drive Booster (HW RAID)	
Current Mode : Normal Mode	Help Item
Drive Booster Mode Update:	Update Drive Booster changes after saving changes and exiting BIOS setup.
Update To RAID0 (Stripe) [Press Enter]	
Update To RAID1 (Mirror) [Press Enter]	
Update To JBOD (Large) [Press Enter]	
Update To Normal Hdd [Press Enter]	

► **Current Mode**

This item shows the current SATA mode. Read only.

Drive Booster Mode Update:

► **Update To RAID0 (Stripe)/ RAID1 (Mirror)/ JBOD (Large)/ Normal Hdd**

These items are used to enable the RAID0/ RAID1/ JBOD/ Normal (non-RAID) mode for the SATA devices.

► **Onboard Audio**

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:

CMOS Setup Utility - Copyright (C) 1905-2005, American Megatrends, Inc.	
On-Chip ATA Devices	
PCI IDE BusMaster [Enabled]	Help Item
On-Chip SATA Controller [Enabled]	
RAID Mode [IDE]	ENABLED: BIOS uses

► **PCI IDE BusMaster**

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

► **On-Chip SATA Controller**

These items allow users to enable or disable the SATA controller.

► **RAID Mode**

This item allows you to configure SATA mode. Setting options: [RAID],[AHCI] or [IDE].

► **I/O Device Configuration**

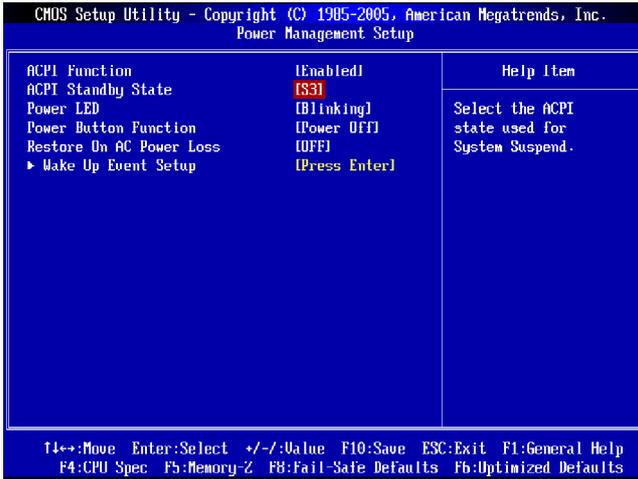
Press <Enter> to enter the sub-menu and the following screen appears:

CMOS Setup Utility - Copyright (C) 1905-2005, American Megatrends, Inc.	
I/O Devices	
COM Port 1 [3F0/IRQ4]	Help Item

► **COM Port 1**

Select an address and corresponding interrupt for the first 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 2000/XP, select [Enabled].

▶ ACPI Standby State

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

- [S1] 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] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

► **Power LED**

When ACPI Standby State is set to [S3], this item will appear and selectable. This item is used to select the indication method of Power LED.

► **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.

► **Wake Up Event Setup**

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



► **Wake Up Event By**

The item allows you to wake up event by BIOS or 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/ Mouse**

This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 keyboard/ 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 by PCI-E device.

▶ Resume By Onboard LAN

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event by onboard LAN.

▶ Resume By RTC Alarm

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the S3, S4, and S5 state.

H/W Monitor

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
H/W Monitor		
Chassis Intrusion	[Enabled]	Help Item
CPU Smart Fan Target	[Disabled]	
SYS FAN 1 Control	[100%]	Chassis Intrusion func
SYS FAN 2 Control	[100%]	
SYS FAN 3 Control	[100%]	
SYS FAN 4 Control	[100%]	
----- PC Health Status -----		
CPU Temperature	55°C/131°F	
System Temperature	33°C/91°F	
CPU FAN Speed	4424 RPM	
SYS FAN 1 Speed	0 RPM	
SYS FAN 2 Speed	0 RPM	
SYS FAN 3 Speed	0 RPM	
SYS FAN 4 Speed	0 RPM	
CPU Vcore	1.320 V	
CPU NB Vcore	0.992 V	
3.3V	3.280 V	
5V	5.003 V	
12V	12.144 V	
↑↓←→:Move Enter:Select +/-:Value F10:Save ESC:Exit F1:General Help F4:CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults		

► 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 motherboard 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 automatically.

► SYS FAN 1/ 2/ 3/ 4 Control

This item allows users to select the percentage of speed for the SYS FAN 1/ 2/ 3/ 4.

► PC Health Status

► CPU/ System Temperature, CPU FAN/ SYS FAN 1/ 2/ 3/ 4 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 PWM 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.

► System Phase Control

When set to [Auto], the hardware will auto adjust the chipset power phase according to the loading of it to reach the best power saving function.

► Memory Phase Control

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

► Motherboard LED Control

This item is used to control the power phase LEDs of the motherboard.

----- GreenPower Genie-----

► ICore/ I12V

These items show the amperage of Core/ 12V. Read only.

► Pout/ Efficiency

These items show the power consumption & efficiency of the system. Read only.

BIOS Setting Password

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

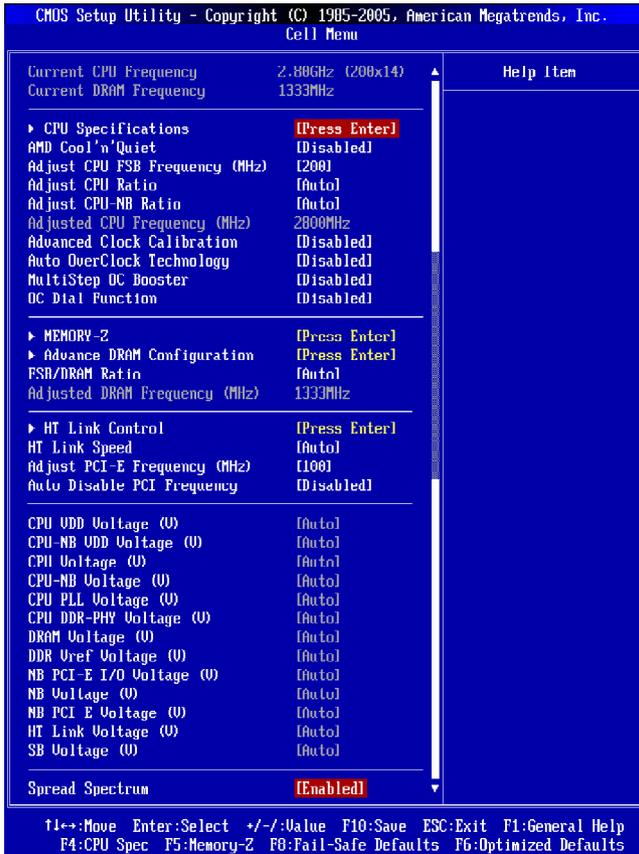


Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a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

▶ CPU Specifications

Press <Enter> to enter the sub-menu and the following screen appears. This submenu shows the information of installed CPU.

MS-7577 Mainboard

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
CPU Specifications	
AMD Phenom(tm) II X4 925 Processor	Help Item
CPUID/MicroCode	0F42/0886
CPU Frequency	2800MHz
CPU Ratio	14.0
CPU Stepping	C2
Cache L1	128KB
Cache L2	2048KB
Cache L3	6144KB
Core VID	1.3000 V
Core Number	4
▶ CPU Technology Support	[Press Enter]

▶ CPU Technology Support

Press <Enter> to enter the sub-menu and the following screen appears. This sub-menu shows the technologies that the installed CPU supported.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
CPU Technology Support		
MMX (TM)	YES	Help Item
SSE Extensions	YES	
SSE2 Extensions	YES	
SSE3 Extensions	YES	
SSE4 Extensions	N/A	
SSE5 Extensions	N/A	
Page Size Extension (PSE)	YES	
Page Attribute Table (PAT)	YES	
3D-Now	YES	
SVM	YES	

▶ AMD Cool'n'Quiet

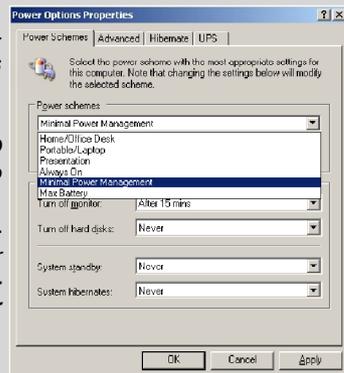
The Cool'n' Quiet technology can effectively and dynamically lower CPU speed and power consumption.



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 Panel]-> [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 adjust the CPU FSB frequency.

► **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 (FSB x Ratio). Read-only.

► **Advanced Clock Calibration**

This item is for overclock. Setting to [Enabled] allows you to set the CPU Ratio higher. It is available only when the processor supports this function.

► **Auto OverClock Technology**

Setting this item to [Max FSB] allows the system to detect the maximum FSB clock and to overclock automatically. If overclocking fails to run, you can try the lower FSB clock for overclocking successfully.

► **MultiStep OC Booster**

This item is used to avoid the BIOS might crash with overclocking.

Disabled	Disable this item, apply OC settings during POST.
Mode 1	Slight OC during POST and then apply full OC when loading the OS
Mode 2	Load the OS then apply the OC settings.

► **OC Dial Function**

This item allows you to enable/disable the OC Dial function. Setting to [Enable] activates the following fields, and use the following fields to set each OC Dial function.

OC Dial Function	[Enabled]
OC Dial Step	[1]
OC Dial Reset	[Keep]
OC Dial Value	0
OC Dial Adjusted Base Clock (MHz)	133

► **OC Dial Step**

This item is used to set value of each step when you rotate the OC dial knob.

► **OC Dial Reset**

Select [Reset] if you need to reset the OC Dial Value.

► **OC Dial Value**

This item indicates the overclocking value by OC dial function. When you rotate the OC dial knob, this value will change.

► **OC Dial Adjusted Base Clock (MHz)**

It shows the adjusted FSB clock by OC Dial function (FSB Clock +OC Dial Value). Read-only.

► Memory-Z

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
MEMORY-Z	
► DIMM1 Memory SPD Information [Press Enter]	Help Item

► DIMM1~4 Memory SPD Information

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

DIMM1 Memory SPD Information	Help Item
Memory Type: DDR3 SDRAM	
Max Bandwidth:DDR3-1332(666Mhz)	
Manufacture: Qimonda	
Part Number: IMSH1GU13A1F1C-13	
Serial Number:24030213	
SDRAM Cycle Time:1.500ns(1CLK)	
DRAM TCL: 13.500ns(9CLK)	
DRAM TRCD: 13.500ns(9CLK)	
DRAM TRP: 13.500ns(9CLK)	
DRAM TRNS: 36.0ns(24CLK)	
DRAM TRFC: 90.0ns(60CLK)	
DRAM TWR: 15.0ns(10CLK)	
DRAM TWTR: 7.500ns(5CLK)	
DRAM TRRD: 6.0ns(4CLK)	
DRAM TRTP: 7.500ns(5CLK)	

This sub-menu displays the informations of installed memory.

► Advance DRAM Configuration

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
Advance DRAM Configuration	
DRAM Timing Mode [Auto]	Help Item
DRAM Drive Strength [Auto]	
DRAM Advance Control [Auto]	
IT/ZT Memory Timing [ZT]	
DCT Unganged Mode [Enabled]	
Bank Interleaving [Auto]	
Power Down Enable [Disabled]	
MemClk Tristate C3/ATLVID [Disabled]	
	When you change this item to auto, system will read the data inside SPD "Serial Presence Detect" and run suitable memory

► DRAM Timing Mode

This field has the capacity to automatically detect 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 Advance Control**

This field has the capacity to automatically detect the advanced DRAM timing. If you set this field to [DCT 0], [DCT 1] or [Both], some fields will appear and selectable.

► **1T/2T Memory Timing**

This field controls the SDRAM command rate. Selecting [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 will allow you to adjust the ratio of FSB to memory.

► **Adjusted DRAM Frequency (MHz)**

It shows the adjusted DRAM frequency. Read-only.

► **HT Link Control**

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



► **HT Incoming/ Outgoing Link Width**

These items allow you to set the Hyper-Transport Link width. Setting to [Auto], the system will detect the HT link width automatically.

► **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 PCI Frequency**

When set to [Enabled], the system will remove (turn off) clocks from empty PCI slots to minimize the electromagnetic interference (EMI).

► **CPU VDD Voltage (V)/ CPU-NB VDD Voltage (V)/ CPU Voltage (V)/ CPU-NB Voltage (V)/ CPU PLL Voltage (V)/ CPU DDR-PHY Voltage (V)/ DRAM Voltage (V)/ DDR Vref Voltage (V)/ NB PCI-E I/O Voltage (V)/ NB Voltage (V)/ NB PCI-E Voltage (V)/ HT Link Voltage (V)/ SB Voltage (V)**

These items are used to adjust 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.*

Failed Overclocking Resolution

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 damage 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.



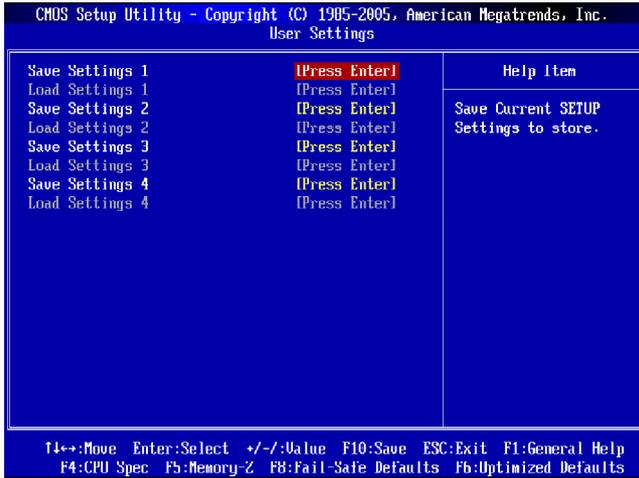
2. At the fourth reboot, BIOS will determine that the previous overclocking is failed and restore the default settings automatically. Please press any key to boot the system normally when the following message appears on screen.

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.

M-Flash



== BIOS Update or Load BIOS From USB drive==

► M-Flash function as

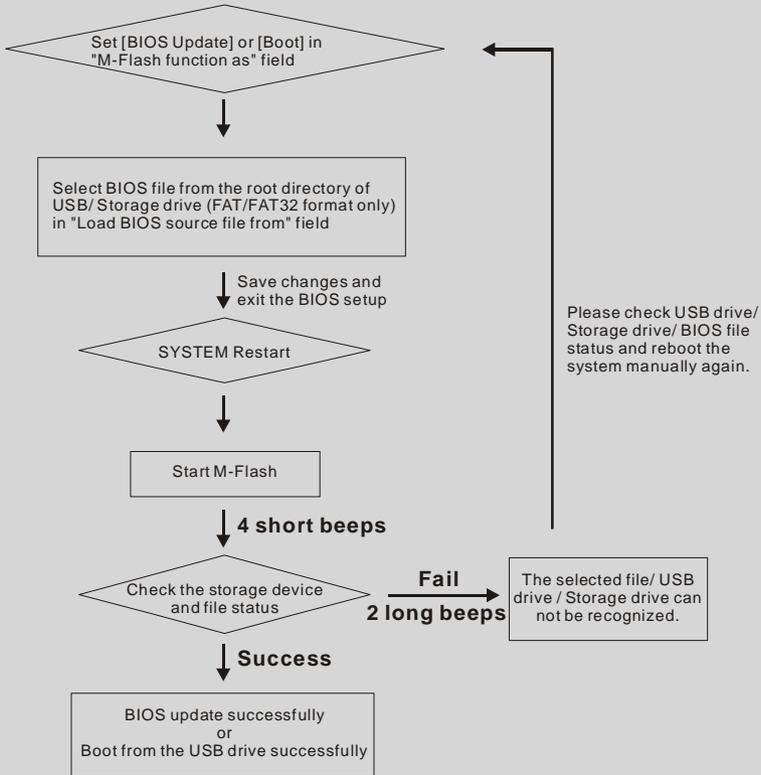
M-Flash function allows you to flash BIOS from USB drive/ storage drive (**FAT/ FAT32 format only**), or allows the system to boot from the BIOS file inside USB drive (**FAT/ FAT32 format only**).

- [Disabled] Disable M-Flash function.
- [BIOS Update] Flash BIOS via the **USB/ Storage** drive directly. Update BIOS ROM chip data from selected file, which is download from official website and must be saved in the root directory of the **USB/ Storage** drive. It only supports particular file name, which is the official BIOS file name from us.
- [Boot] After allocated particular BIOS file, system will boot from this BIOS file which saved in the root directory of **USB drive**. System will skip MB ROM chip data and boot with this particular BIOS inside **USB** drive.
Note: this option is for **USB** drive only.



Important

1. Please refer to the block diagram below about the M-Flash function.



2. Due to the special design of some graphics cards will cause dark screen during M-flash operation, and you may refer the beeps from the system to confirm the current M-flash process.

► **Load BIOS source file from**

When the **M-Flash function as** sets to [Boot] or [BIOS Update], this item is selectable. Using this item to select particular BIOS file from the USB/ Storage (FAT/32 format only) drive.

== BIOS Data Saving ==

The following fields are used to read the onboard BIOS ROM data, and save it to USB drive/ storage drive.

▶ Save File to Selected Device

Please setup a specific folder in specific USB drive/ storage drive to save BIOS file from BIOS ROM chip data. Note: it only supports FAT/ FAT32 file system drive.

▶ Save File Name as

Please setup a specific name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using the official name as the default name.

▶ Save Extend File name as

Please setup a specific extend name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using [ROM] as default name.

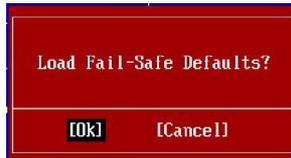
▶ Start to save file

Press "Enter" and select "OK", the system will start to save the onboard ROM chip data to the selected USB drive/ storage drive.

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 motherboard manufacturer specifically for optimal performance of the motherboard. 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:



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

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



Pressing Y 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 of independent stereo sound output (multiple streaming) through the Front-Out-Left and Front-Out-Right channels.

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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.

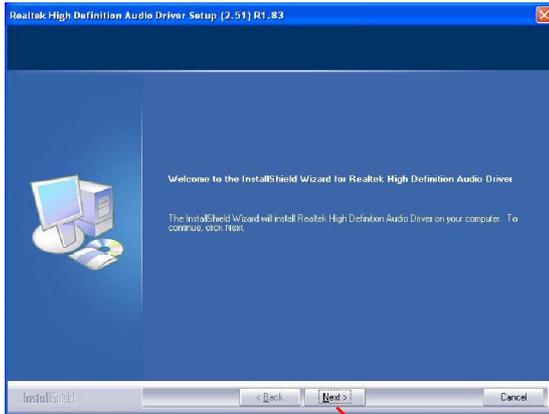
1. Insert the application **DVD** into the DVD-ROM drive. The setup screen will automatically appear.
2. Click **Realtek HD Audio Driver**.



Important

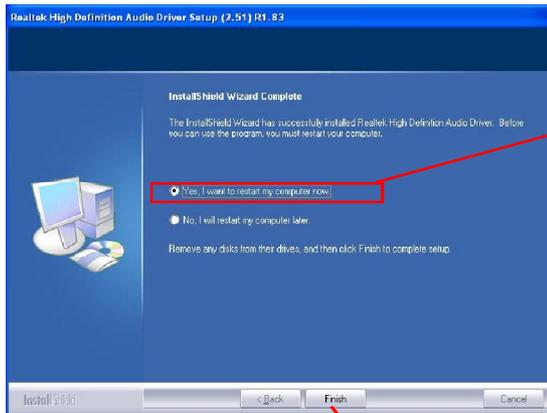
The **HD Audio Configuration**  software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this section may be slightly different from the latest software utility and shall be held for reference only.

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



Click here

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



Select this option

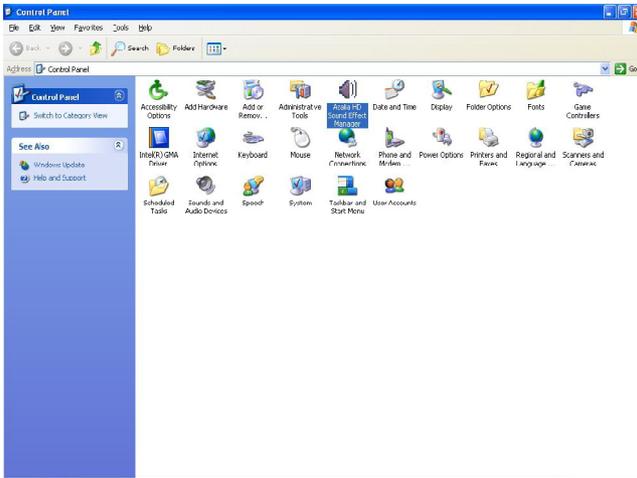
Click here

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**.



Double click



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 “Auditorium” for quick enjoyment.

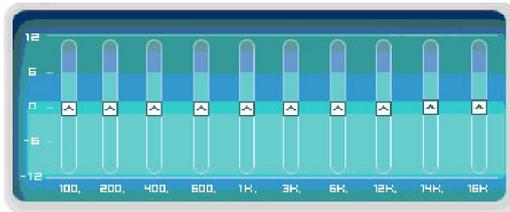
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make an new equalizer setting to save as an new one by using the “**Load EQ Setting**” and “**Save Preset**” button, click “**Reset EQ Setting**” button to use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

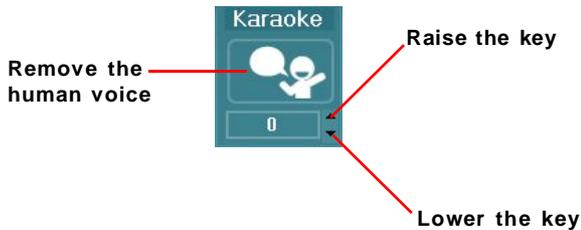
[How to Use It]

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

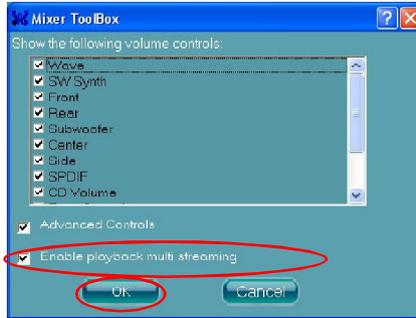
Realtek Audio supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated rear panel or front panel. This feature is very helpful when 2 people are using the same computer together for different 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 audio device into the jacks on the rear and front panel first 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



Tool **Mute**

Playback device
This function is to let you freely decide which ports to output the sound. And this is essential when multi-streaming playback enabled.
- Realtek HD Audio Rear Output
- Realtek HD Audio Front Output

Mute

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

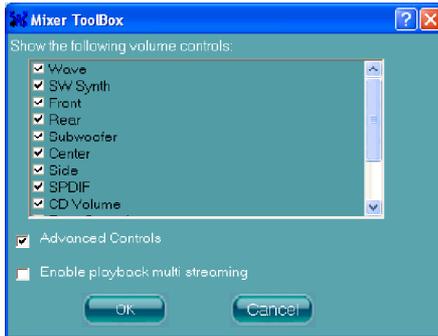
Tool

- Show the following volume controls

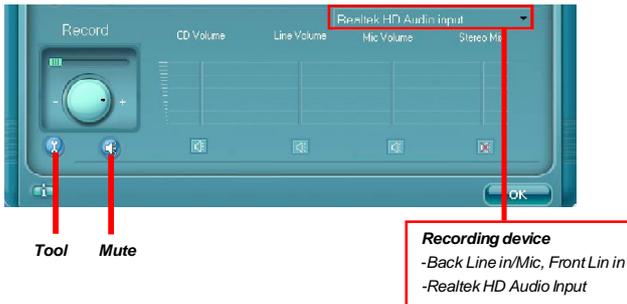
This is to let you freely decide which volume control items to be displayed.

- 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.

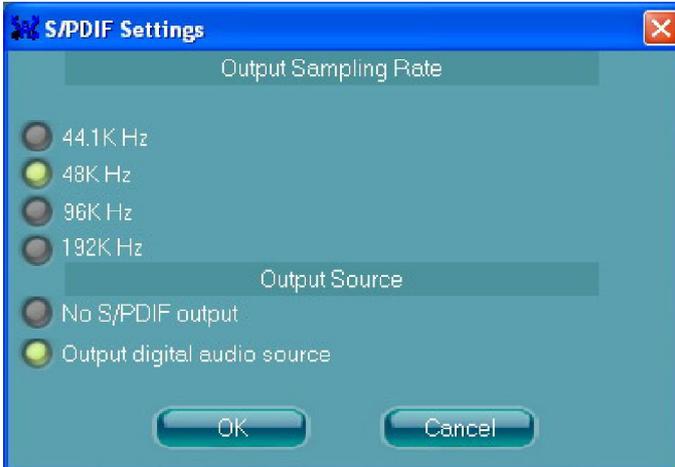
Mute rear panel output when front headphone plugged in.

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.

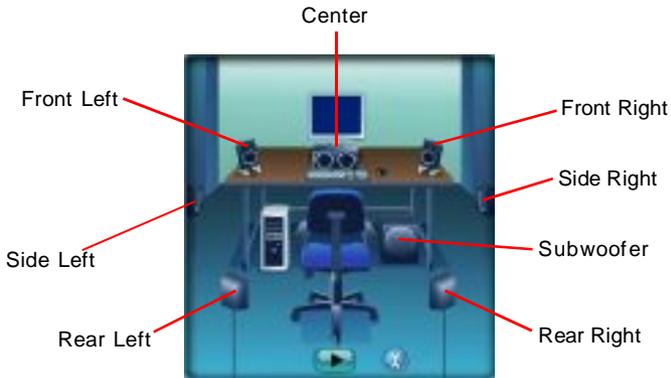
Output Source

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

S/PDIF-in to S/PDIF -out pass though mode: The data from S/PDIF-In can be real-time played from 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.

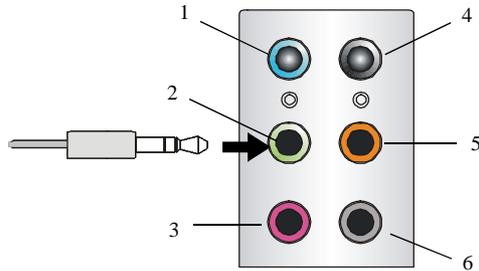


Hardware Setup

Connecting the Speakers

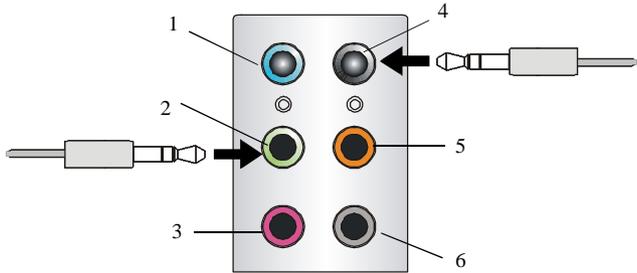
When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phone jacks in accordance with the setting in software utility.

■ 2-Channel Mode for Stereo-Speaker Output



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

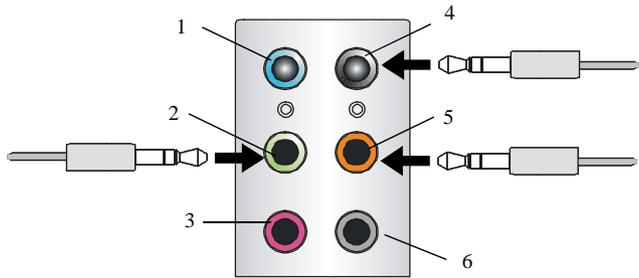
■ 4-Channel Mode for 4-Speaker Output



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

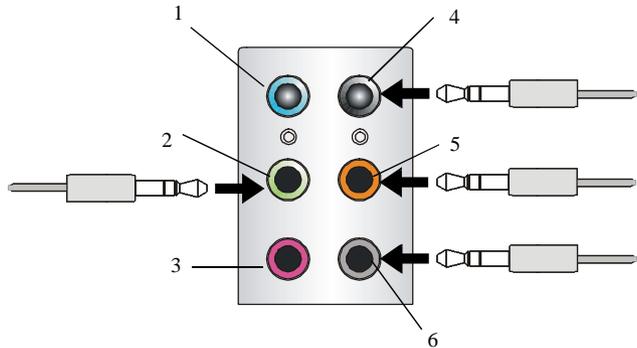
■ 6-Channel Mode for 6-Speaker Output



6-Channel Analog Audio Output

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

■ 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 motherboard 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

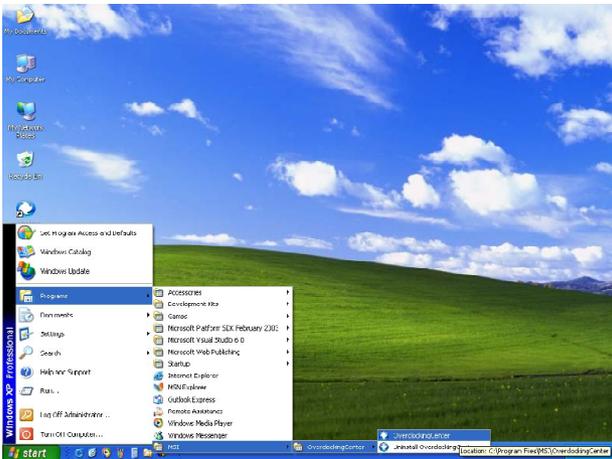
msi[™]

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.

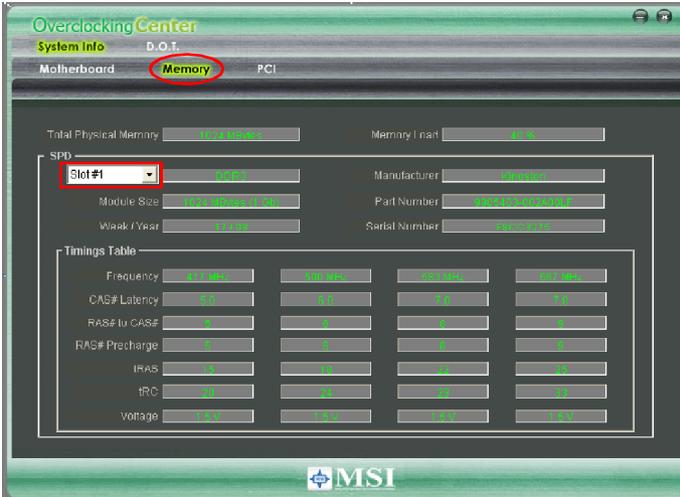
Motherboard

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



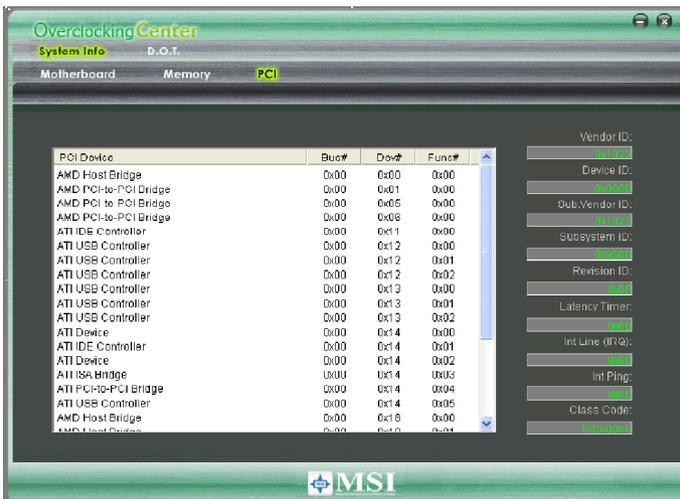
Memory

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.

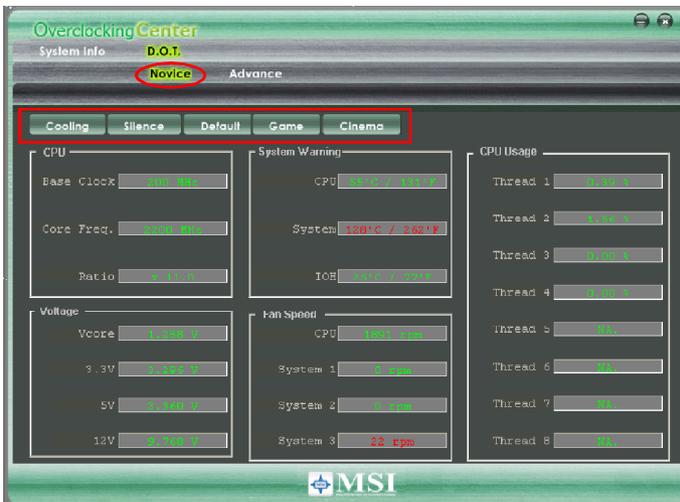


DOT

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.

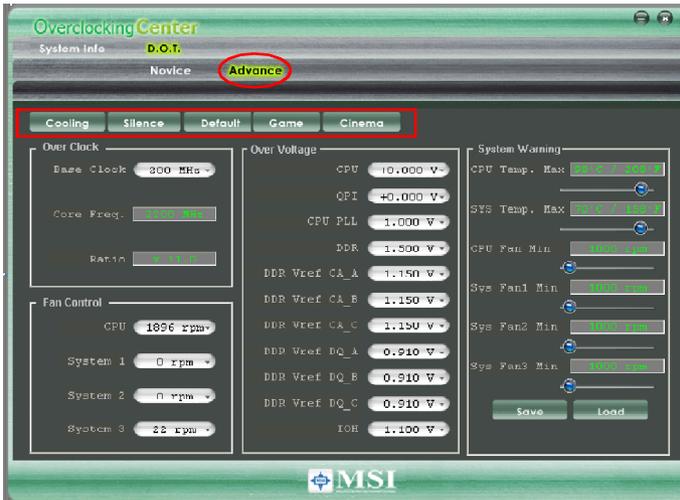


Important

*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 its setting menu. Please refer to the following descriptions to adjust the values and save them.



Overclocking Center

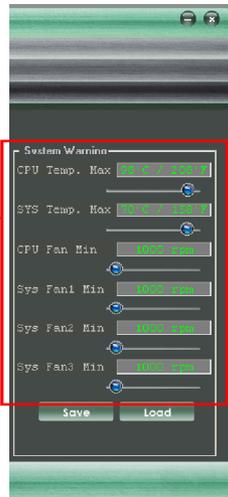
In each setting menu, you can select desired values for manual overclocking. Simply click the right side of the button which arranges an arrow sign, and a drop-down menu will appear below the button, then select a value.



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 warn you when the temperature/ fan speed is over/ lower the values you set.

Set the thresholds of CPU temperature & CPU FAN speed.



MS-7577 Mainboard

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

SB750 SATA RAID

The integrated SATA host controller separately, and support RAID function for performance and reliability. SB750 SATA RAID (SATA1-6) provides support for RAID 0 (Striping), RAID 1 (Mirroring), RAID 10 (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 10 is implemented as a mirrored array whose segments are RAID 0 arrays. RAID 10 has same fault tolerance as mirroring and reduces overhead by striping. It needs at least four drives to form a RAID 10. RAID 5 defines techniques for parity data.

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RAID Configuration

Creating and deleting RAID set and performing other RAID setting operations 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.

No Array is defined...

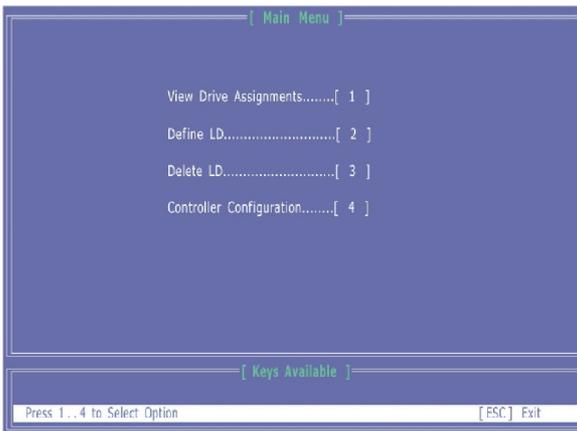
Press <Ctrl-F> to enter Fastbuild (tm) Utility



Important

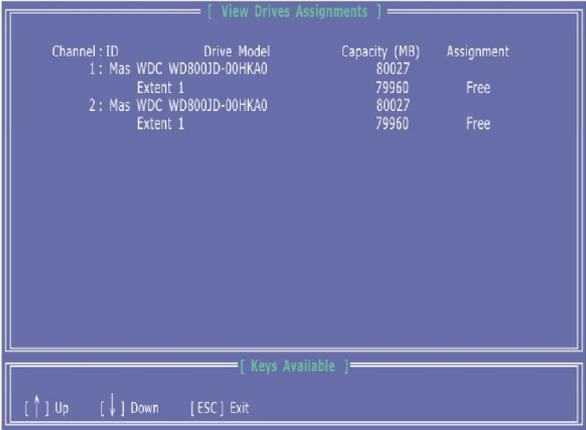
*Be sure to enable the **RAID** function for SATA device in BIOS before configuring the Fastbuild Utility.*

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



View Drives Assignments

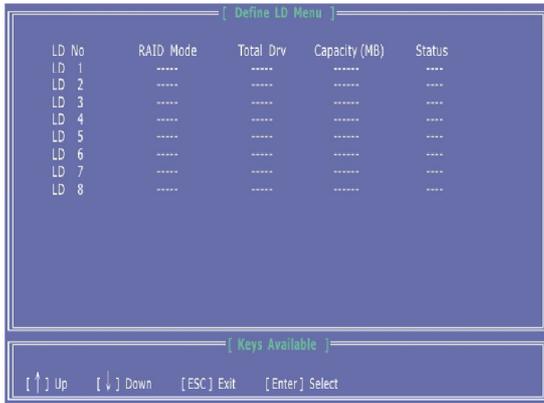
This window displays the model number, capacities and assignment of the drives physically attached to the SATA host adapter.



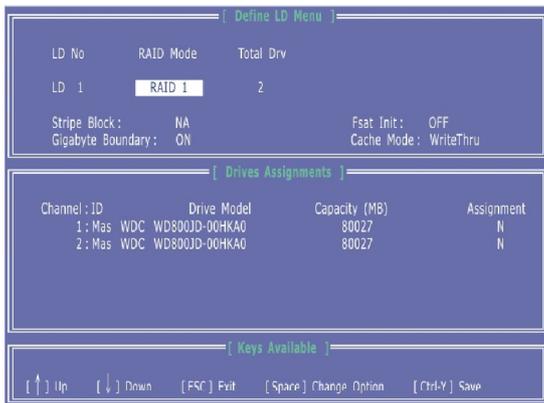
Define LD (Creating RAID)

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 a 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/ 10/ 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.

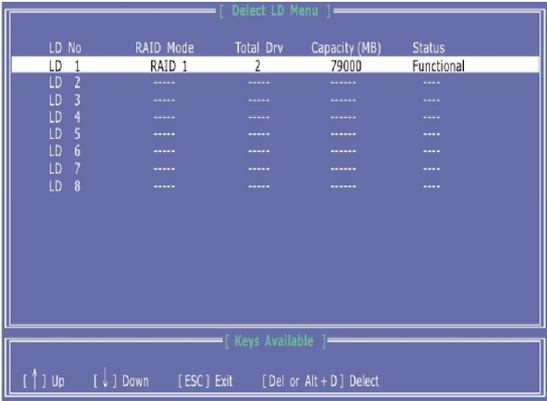


Important

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.

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)

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".

Note: for Windows Vista, you can copy the SATA driver to a medium (floppy/ CD/ DVD or USB)



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 CD" on the Setup screen.
3. Copy all the contents in the :

* for Windows XP:

\\ChipSet\AMD\XP\SBDrv\RAID7xx

* for Windows Vista:

\\ChipSet\AMD\VISTA\Packages\Drivers\SBDrv\SB7xx\RAID\ x86 (for 32bit) or x64(for 64bit)

4. The driver disk for RAID controller is done.

4. When prompted, insert the floppy disk and press Enter.
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.
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.

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 **AMD chipset drivers by your need**. The **AMD chipset drivers** includes RAID Driver.
4. The driver will be automatically installed.



Important

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

Appendix D

Drive Booster Manager

This appendix will assist users in configuring and enabling JMB322 RAID (SATA7 & SATA8) functionality on platform. The DRIVER BOOSTER MANAGER supports RAID level 0 (striping), RAID level 1 (mirroring) and JBOD (Concatenate).

msi[™]

Introduction

DRIVER BOOSTER MANAGER offers RAID level 0 (Striping), RAID level 1 (Mirroring and Duplexing) and JBOD (Concatenate) for **SATA** ports (**SATA7 & SATA8**) on this motherboard.

RAID 0 breaks the data into blocks which are written to separate hard drives. Spreading the hard drive I/O load across independent channels greatly improves I/O performance.

RAID 1 provides data redundancy by mirroring data between the hard drives and provides enhanced read performance.

JBOD provides a method for combining drives of different sizes into one large disk.



Important

The least number of hard drives for RAID 0, RAID 1 or JBOD mode is 2. All the information/ volumes/ pictures listed in your system might differ from the illustrations in this appendix.

RAID Configuration

The DRIVE BOOSTER MANAGER which helps you to perform the following tasks of JMicron RAID.

- Viewing SATA Drive information
- Creating RAID Arrays
- Deleting RAID

Installing the DRIVE BOOSTER MANAGER

Follow the procedures described below to install the Drive Booster Manager.

1. Insert the application DVD into the DVD-ROM drive. The setup screen will automatically appear.
2. Click **Utility**.
3. Click **Drive Booster Manager** to install it.



Activating DRIVE BOOSTER MANAGER

Once you have your Drive Booster Manager installed, it will have a short cut icon on the desktop. You may double-click on the icon to activate Drive Booster Manager.

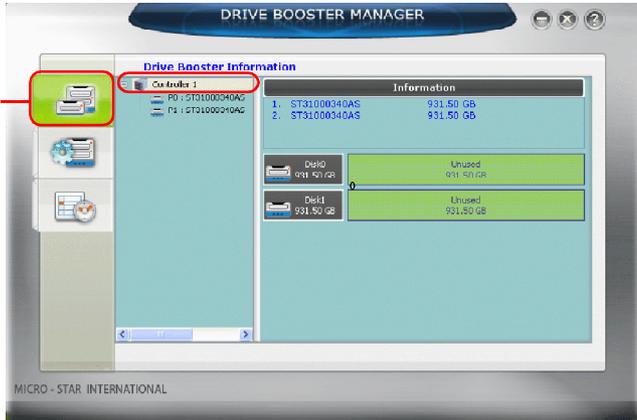


short-cut icon in the system tray

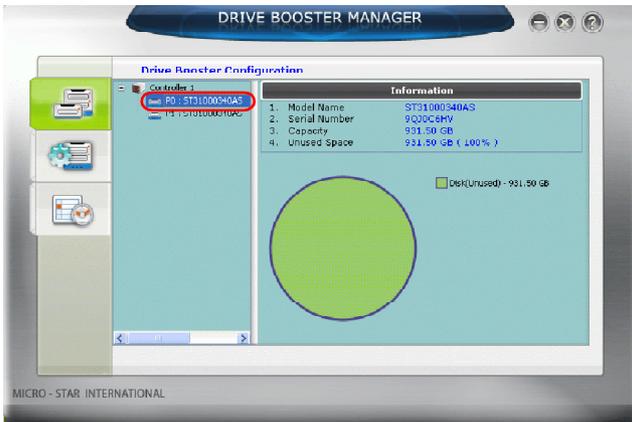
View SATA Drive Information

Click the “Drive Booster Information” button and the information of all hard disks will display on the right side of the window. You may click the item “Controller”, you will find controller information.

“Drive Booster Information” button



Or you may click the SATA drive item just below the item “Controller”, you will find SATA drive information.

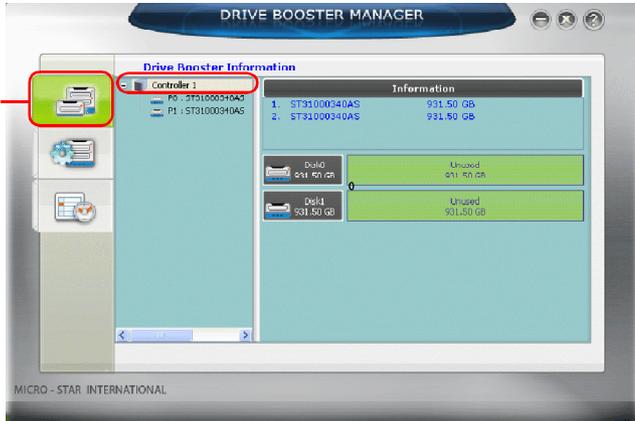


Create RAID

DRIVE BOOSTER MANAGER supports the creation of RAID 0, 1 and JBOD.

1. First, you have to choose a controller, that supports 2 SATA devices with RAID mode, in the **Drive Booster Information** screen.

“Drive Booster Information” button



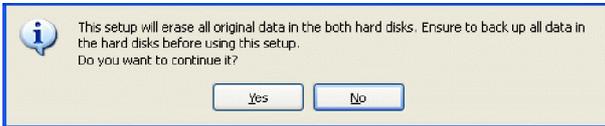
2. Click the “Drive Booster Configuration” button, and select a RAID mode you want to create. Then click the “Apply” to apply the RAID creation.

“Drive Booster Configuration” button



- a. The speed mode corresponds to the RAID 0 mode.
- b. The Backup mode corresponds to the RAID 1 mode.
- c. The Large mode corresponds to the JBOD mode.

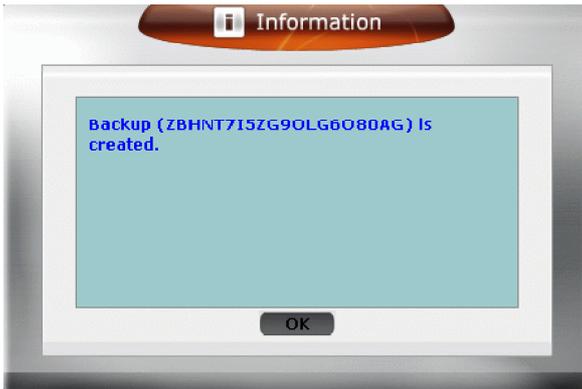
3. A warning message will appear to remind you that the data will be erased. Press the “Yes” if you really want to perform this creation.



Important

You will lose all data on the SATA drives when you perform this creation. Please ensure to back up all data in the SATA hard drives before performing this creation.

4. An information will appear to inform you that the creation is finished. Click “OK” to close the information window.



Setup Password

You may set a password for a volume. Click the “Change Password”, a screen will display. Please enter a new password in the “New Password” box, and enter the password again in the “confirm password” box to confirm the password. Then click OK.



Important

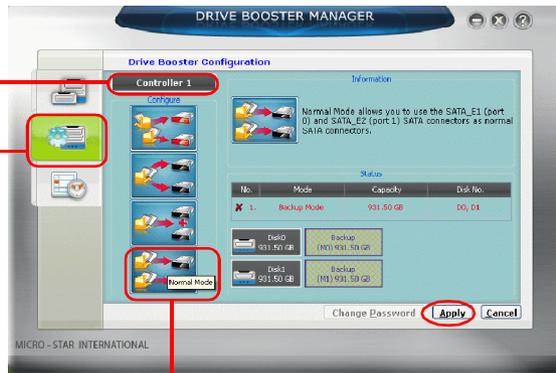
A password is available for a volume only. That is to say, if you set a password for a volume and you will be asked to enter the password when you intend to apply a configuration to the volume.

Delete RAID

1. First, you have to choose a volume that you intend to delete RAID mode in the **Drive Booster Information** screen.
2. Click the “Drive Booster Configuration” button, and click the “Normal Mode” button. And then, click “Apply” to remove the RAID mode.

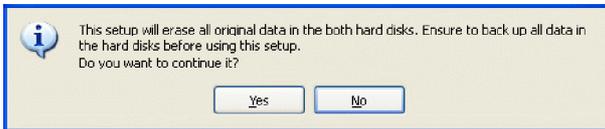
Please confirm the volume is the one you intend to delete.

“Drive Booster Configuration” button



“Normal Mode” button

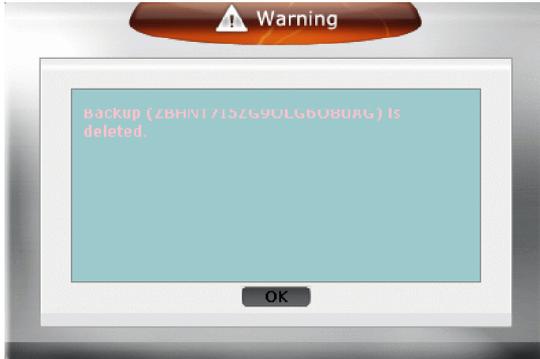
3. A warning message will appear to remind you that the data will be erased. Press the “Yes” if you really want to perform this task.



Important

You will lose all data on the SATA drives when you perform this task. Please ensure to back up all data in the SATA hard drives before performing this task.

4. A warning will appear to inform you that the deletion is finished. Click “OK” to close the window.



Event Log

Click the “Event Log” button, all of the significant events will be listed.

