

# Hetis G31 Series

**MS-6470 (V1.X) Barebone**



**Hetis G31 Series**

**G52-64701X1**

## **FCC-B Radio Frequency Interference Statement**

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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 instruction manual, 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 LA NOTICE D'INSTALLATION AVANT 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.

## Trademarks

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All trademarks are the properties of their respective owners.

Intel® and Pentium® are registered trademarks of Intel Corporation.

PS/2 and OS®/2 are registered trademarks of International Business Machines Corporation.

Windows® 95/98/2000/NT/XP/Vista Home Premium are registered trademarks of Microsoft Corporation.

Netware® is a registered trademark of Novell, Inc.

Award® is a registered trademark of Phoenix Technologies Ltd.

AMI® is a registered trademark of American Megatrends Inc.

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## U.S. Patent Numbers.

**4,631,603; 4,819,098; 4,907,093; 5,315,448; and 6,516,132.**

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

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## Revision History

Revision	Revision History	Date
V1.0	First release	August 2007

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## Copyright Notice

The material in this document is the intellectual property of **MICRO-STAR INTERNATIONAL**. We take every care in the preparation of this document, but no guarantee is given as to the correctness of its contents. Our products are under continual improvement and we reserve the right to make changes without notice.



## 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 115/230V 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 40<sup>o</sup>C (102<sup>o</sup>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.



廢電池請回收

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

## Warning:

1. For every changes in powercord's usage, please use an approved power cord with condition greater or equal to H05VV-F,3G , 0.75mm<sup>2</sup>.
2. Internal part is hazardous moving parts, please keep fingers and other body parts away.
3. For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.
4. Do not disable the protective earth pin from the plug, the equipment must be connected to an earthed mains socket-outlet.

***1. The optical storage devices are classified as a Class 1 Laser products. Use of controls or adjustments or performance of procedures other than those specified***  
***2. Do not touch the lens inside the drive***

## WEEE Statement

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### 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 вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по присему 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 Elektrische 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 elektonskoj 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 śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

## **TÜRKÇE**

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:

Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe 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 kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelesek válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavételrel 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 addegnerà 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

Congratulations for purchasing Hetis G31 Series (MS-6470) Barebone. Hetis G31 Series is your best Slim PC choice. With the fantastic appearance and small form factor, it can easily be set anywhere. The feature packed platform also gives you an exciting PC experience.

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## Mainboard Specifications

### Processor Support

- Intel® Smithfield Pentium D (8XX), Presler Pentium D (9XX) and Core™ 2 Duo / Core 2 Extreme / Core 2 Quad processors in the LGA775 package.

### Supported FSB

- 800 / 1066 / 1333 MHz

### Chipset

- North Bridge: Intel® G31 Chipset
- South Bridge: Intel® ICH7 Chipset

### Memory Support

- DDR2 667 / 800 SDRAM (240-pin / 1.8V)
- 2 DDR2 DIMMs (4GB Max) (unbuffered non-ECC)

### LAN

- Supports Giga LAN by Intel® 82573L

### IEEE 1394

- Chip integrated by VIA® VT6308P
- Transfer rate is up to 400Mbps

### Audio

- Chip integrated by Realtek® ALC888
- Flexible 8-channel audio with jack sensing
- Compliant with Azalia 1.0 Spec

### IDE

- 1 IDE port by Intel® ICH7
- Supports Ultra DMA 66 / 100 mode
- Supports PIO, Bus Master operation mode

### SATA

- 2 SATAII ports by Intel® ICH7
- Supports two SATA devices
- Supports storage and data transfers at up to 300 MB/s

## Connectors

### ● Back Panel

- 1 PS/2 mouse port
- 1 PS/2 keyboard port
- 2 serial ports
- 1 VGA port
- 1 DVI port (Optional)
- 1 LAN jack
- 1 IEEE 1394 port
- 4 USB 2.0 ports
- 6 audio jacks

### ● Front Panel

- 2 audio jacks
- 2 USB 2.0 ports
- 1 IEEE 1394 port
- 1 Chassis Intrusion Switch

### ● On-Board Pinheaders / Connectors

- 1 CD-In connector
  - 1 Card Reader pinheader
  - 1 SPDIF-Out pinheader
- (For HDMI Graphics Card Audio Line Use Only)

## Slots

- 1 PCI-X Slot (For Riser Card Use Only)

## Form Factor

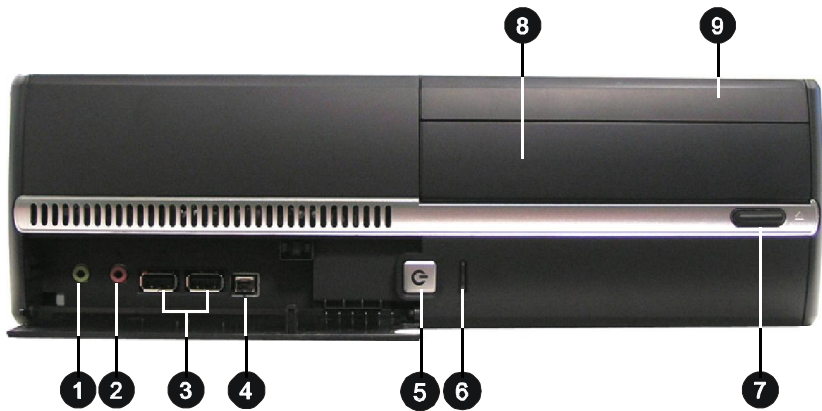
- Proprietary (334MM x 190 MM)

## Mounting

- 5 mounting holes

## System Configuration

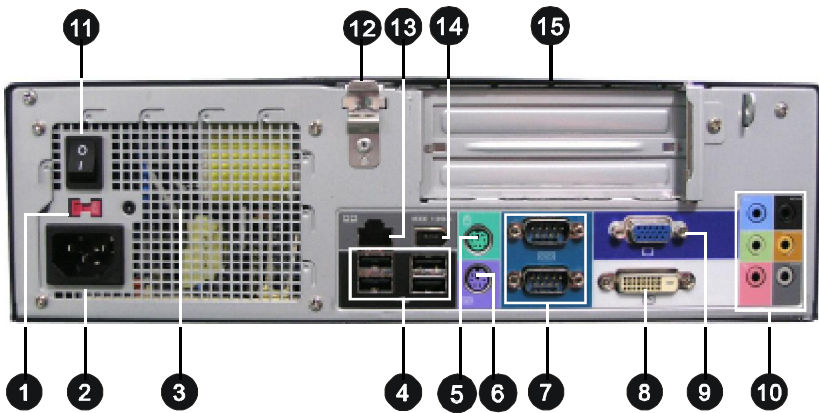
### Front View



1. Headphone (Green)
2. Microphone (Pink)
3. USB 2.0 Ports
4. IEEE 1394 Port
5. Power Button / Power LED

6. HDD LED
7. ODD Eject / Close Button
8. Optical Disk Drive (Optional)
9. Card Reader Drive (Optional)

## Back View



1. Voltage Selector

2. Power Jack

3. Ventilation Hole

4. USB 2.0 Ports

5. PS/2 Mouse (Green)

6. PS/2 Keyboard (Purple)

7. Serial Ports

8. DVI Port (Optional)

9. VGA Port

10. Audio Jacks

11. Power Switch

12. Support Bracket Spring

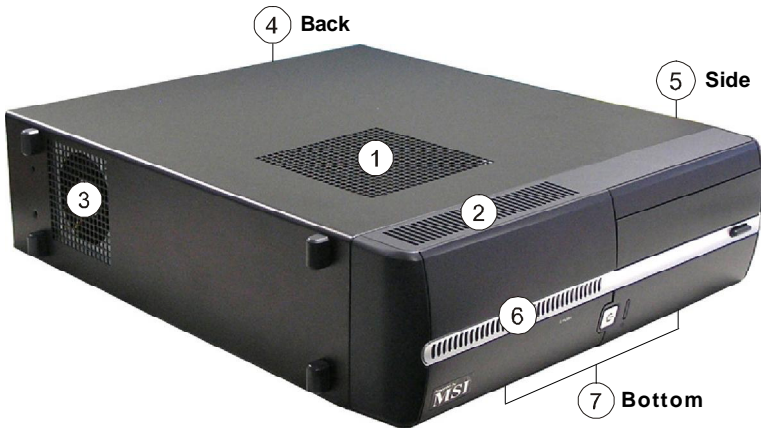
13. LAN Jack (RJ45)

14. IEEE 1394 Port

15. Expansion Slots

## Chassis Design

- † Dimension: 330MM (D) x 320MM (W) x 94MM (H)
- † Minimized screw structure
- † Detachable bay housing
- † Multiple ventilation holes



- 1. CPU Fan Ventilation Hole
- 2. System Ventilation Hole
- 3. System Fan Ventilation Hole
- 4. Power Supply Ventilation Hole

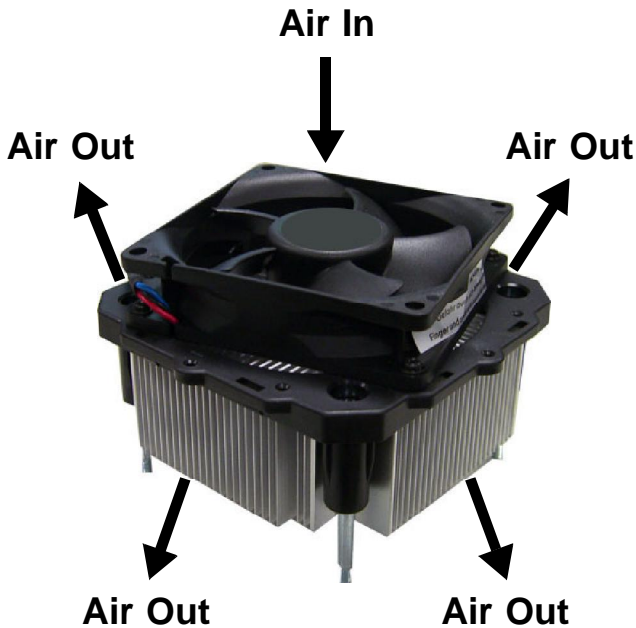
- 5. System Ventilation Hole
- 6. System Ventilation Hole
- 7. System Ventilation Hole



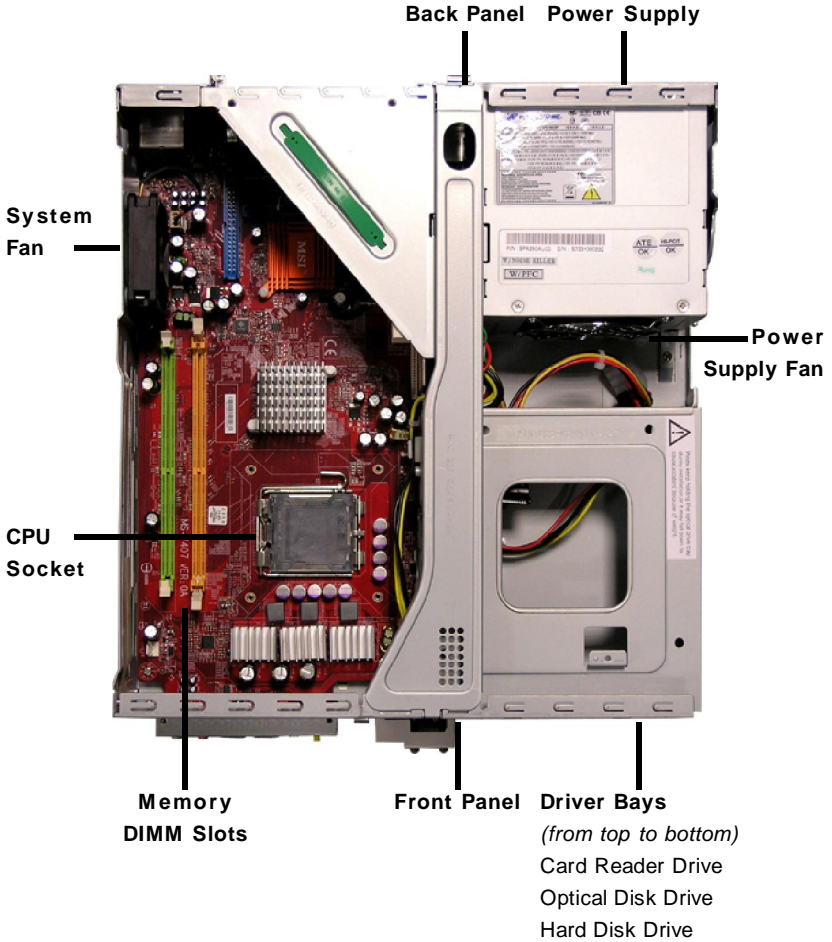
## Thermal Solution

To prevent the system from overheating, we have adopted a specially designed CPU cooler and multiple ventilation holes for better cooling effects. The following figures illustrate how the system fan effectively exhausts hot air through multiple ventilation holes.

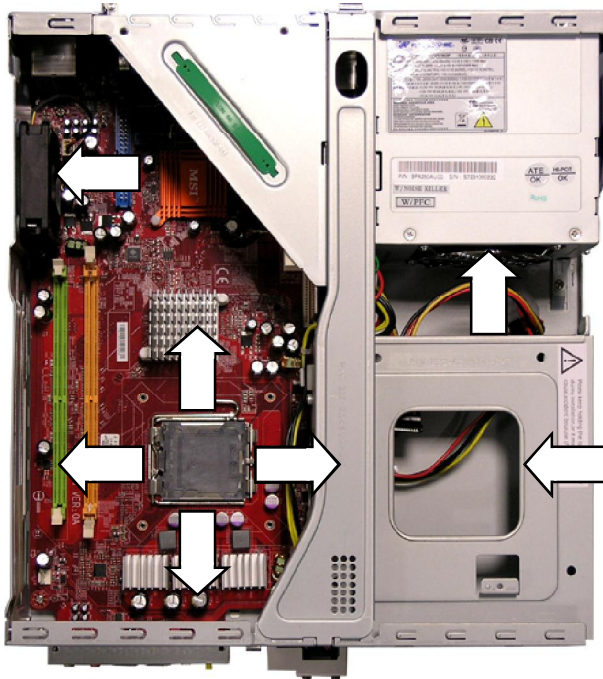
### CPU Cooler Air Flow Direction



## System Design



## System Air Flow Direction



**WARNING !**  
KEEP OTHER OBJECTS AWAY  
FROM THIS VENTILATION HOLE  
AT LEAST 2.5CM AND ABOVE

After the installation is completed, please keep other objects away from the ventilation hole at least 2.5cm and above. Do not block the ventilation hole.



## 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.

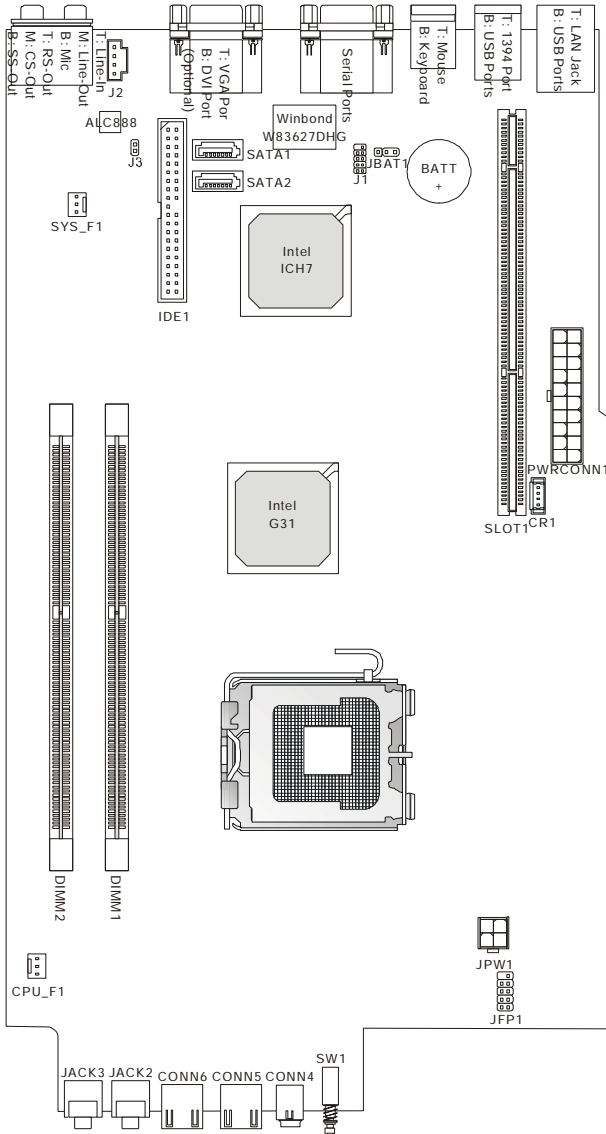
### **ONLY FOR SERVICE PERSONEL**



**Always unplug the power cord before inserting any add-on card or module.**

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# Mainboard Layout



**MS-7407 (V1.X) Mainboard**

## CPU (Central Processing Unit)

This mainboard supports Intel® Smithfield Pentium D (8XX), Presler Pentium D (9XX) and Core™ 2 Duo / Core 2 Extreme / Core 2 Quad processors in the LGA775 package. 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.



### 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**

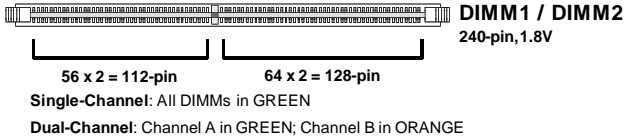
*While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.*

#### **Overclocking**

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

## Memory

These DIMM slots are used for installing memory modules.



### Important

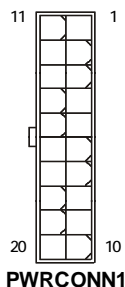
1. *DDR2 memory modules are not interchangeable with DDR and the DDR2 standard is not backwards compatible. You should always install DDR2 memory modules in the DDR2 DIMM slots.*
2. *In Dual-Channel mode, make sure that you install memory modules of the same type and density in different channel DIMM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



## Power Supply

### ATX 20-Pin Power Connector: PWRCONN1

This connector allows you to connect to a power supply. To connect to the 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.

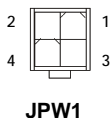


**Pin Definition**

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

### ATX 12V Power Connector: JPW1

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



**Pin Definition**

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

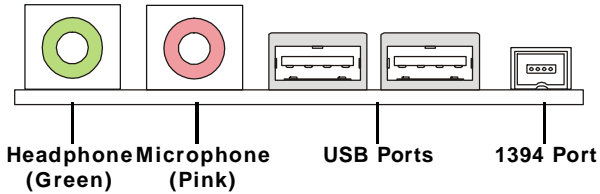


### Important

1. Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.
2. Power supply of 250 watts (and above) is highly recommended for system stability.
3. ATX 12V power connection should be greater than 18A.
4. For this model, you must use a power supply that comes with a -5V pin supply.

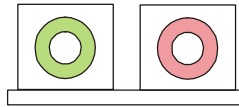
## Front Panel

The Front Panel provides the following connectors:



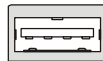
### Audio Ports

These audio ports allow you to connect front audio devices.



### USB Ports

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



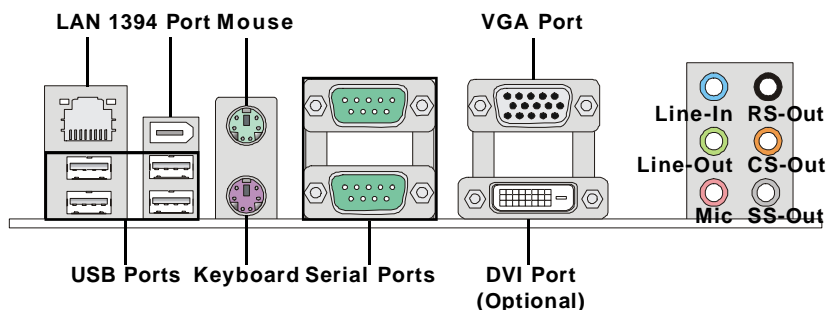
### 1394 Port

The front panel provides one IEEE 1394 port. This smaller one is designed for you to connect the IEEE 1394 device with external power. The IEEE 1394 high-speed serial bus complements USB by providing enhanced PC connectivity for a wide range of devices, including consumer electronics audio/video (A/V) appliances, storage peripherals, other PCs, and portable devices.



## Back Panel

The Rear Panel provides the following connectors:



### ► LAN

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

### ► 1394 Port

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

### ► USB Ports

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

### ► Mouse / Keyboard

The standard PS/2<sup>®</sup> mouse/keyboard DIN connector is for a PS/2<sup>®</sup> mouse/keyboard.

### ► Serial Ports

The serial port is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

### ► VGA Port

The DB15-pin female connector is provided for monitor.

### ► DVI Port (Optional)

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

**► Audio Ports**

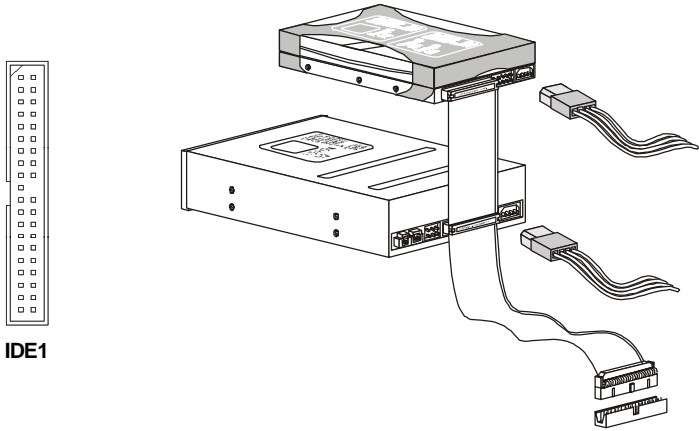
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- 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

### IDE Connector: IDE1

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

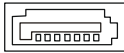


### Important

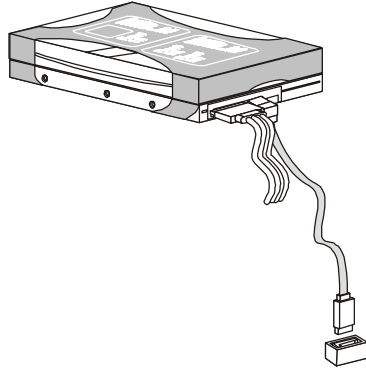
*If you install two IDE devices on the same cable, you must configure the drives separately to Master / Slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.*

### Serial ATA Connector: SATA1 / SATA2

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



SATA1 / SATA2



#### Important

*Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.*

### Fan Power Connectors: CPU\_F1 / SYS\_F1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

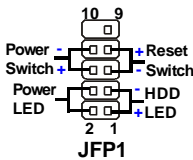


### Important

*Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.*

### Front Panel Connector: JFP1

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

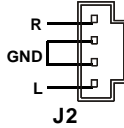


#### Pin Definition

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

### CD-In Connector: J2

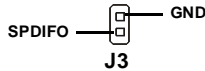
This connector is provided for external audio input.



---

### SPDIF-Out Connector: J3 (For HDMI Graphics Card Audio Line Use Only)

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



---

### Card Reader Connector: CR1

The mainboard provides a connector to connect the Card Reader on the Front Panel.

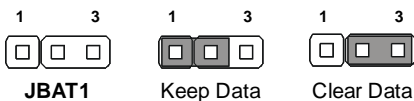




## Jumper

### Clear CMOS Jumper: JBAT1

There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the jumper to clear data.



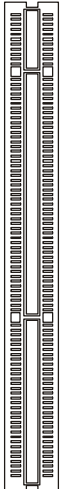
### Important

*You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

## Slot

### PCI-X Slot: SLOT1 (For Riser Card Use Only)

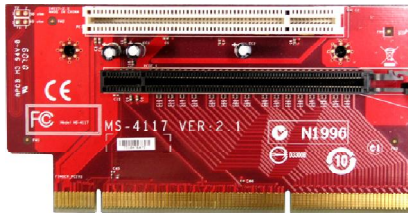
The mainboard provides one PCI-X slot. The PCI-X slot allows you to insert Riser Card and the Riser Card is included in the barebone. The Riser Card allows you to insert PCI and PCI Express expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings.



SLOT1



MS-4134 Riser Card (for version with & without DVI port)  
Supports two PCI slots



MS-4117 Riser Card (for version without DVI port)  
Supports one PCI-E slot and one PCI slot

### Suggested PCI and PCI Express Expansion Card Size

Link Width		Height	Length
x1	Standard height, half length card	111.15 mm (4.376 inches) maximum	167.65 mm (6.600 inches) maximum
x1, x4, x8, x16	Low profile cards	68.90 mm (2.731 inches) maximum	167.65 mm (6.600 inches) maximum

\* Note that card height is measured from the bottom of the edge finger to the top of the card.

## Chapter 3

# System Assembly

This chapter provides you with the information about system assembly procedures. While doing the installation, be careful in holding the components and follow the installation procedures.

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

### **ONLY FOR SERVICE PERSONEL**



**Always unplug the power cord before inserting any add-on card or module.**

**MSI**  
MICRO-STAR INTERNATIONAL

## Overview

The built-in mainboard (MS-7407) is designed for Hetis G31 Series (MS-6470) barebone only. Except the mainboard, the built-in components of the barebone include power supply. In this chapter, we will show you how to install CPU, CPU Cooler, Memory Modules, Card Reader, Hard Disk Drive (HDD) and Optical Disk Drive (ODD).

### Installation Tools



*Cross type screwdriver*, can be used to do most of the installation. Choose one with a magnetic head would be better.



*Pliers*, can be used as an auxiliary tool to connect some connectors or cables.



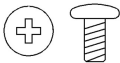
*Forceps*, can be used to pick up tiny screws or set up the jumpers.



*Rubber gloves*, can prevent yourself from being incised and suffering the static charge.

### Installation Screws

Two types of screws are used in assembling the barebone: Round-headed screw and thumb screw.



*Round-headed screw*: This type of screw is used to attach the HDD and Card Reader to the tray.

## Checking the Items

Before assembling your system, please check the items listed below for basic system operation. The footstand and the CPU cooler are included in the package, other items are optional.

### Footstand



### CPU Cooler



### CPU (Optional)



### ODD (Optional)



### HDD (Optional)



### Memory Module (Optional)



### Card Reader (Optional)



\* These pictures are for your reference only. Your packing contents may vary depending on the model you purchased.

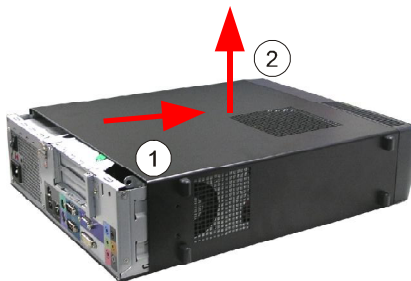
## Installation Procedures

### 1. Removing Chassis Cover

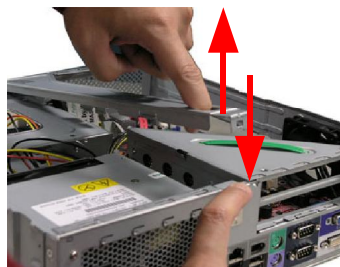
Unlock the two screws on the back panel with hands.



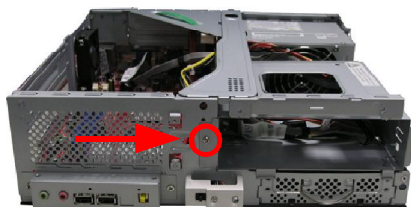
Remove the chassis cover.



Press the level on the support bracket spring to release it.

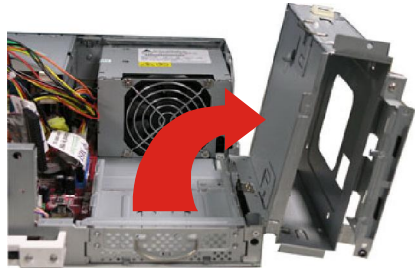


Unlock the screw on the front panel to release the drive cage.

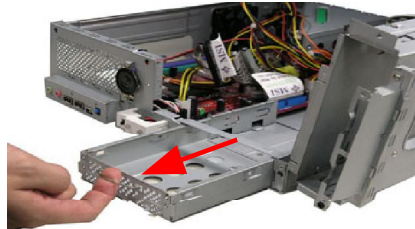


## 2. Installing Hard Disk Drive (HDD)

Lift the drive cage to slide aside.



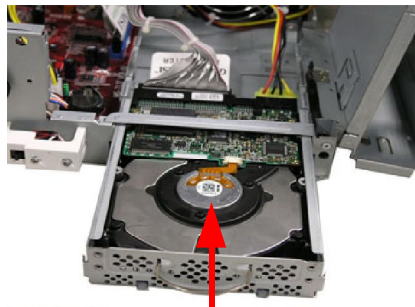
Pull the HDD tray forwards to remove it from the chassis.



Put the HDD in the HDD tray and use four screws to fix it on both sides.

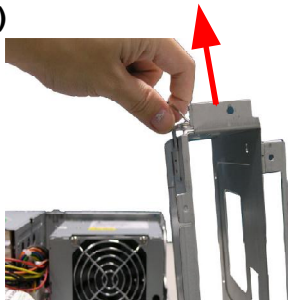


Connect the cable and the power cord to the HDD, then put the HDD tray back to secure it on the drive cage.



### 3. Installing Optical Disk Drive (ODD)

Pull the lock brackets outwards on the both sides to release.



Insert the ODD and push the lock brackets back to fix it.



Connect the cable and the power cord to the ODD, then restore the drive cage.



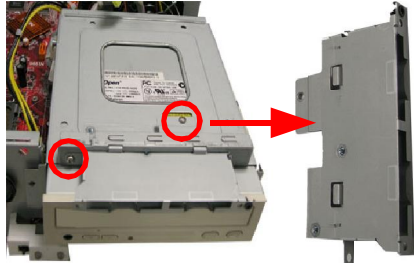
Lock the screw on the front panel to fix the drive cage.



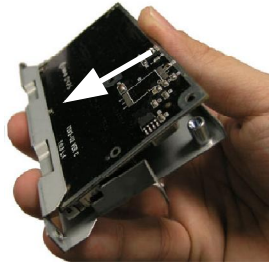


#### 4. Installing Card Reader (Optional)

Use the screwdriver to unlock the card reader cage.



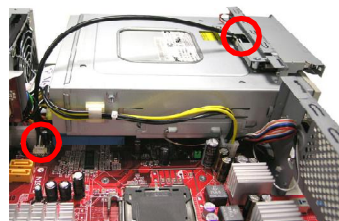
Insert the card reader into the cage with 15 degree angle.



Insert the LED into the cage and lock the card reader with two screws.

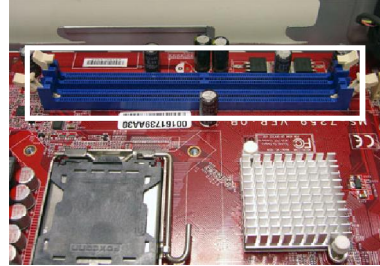


Restore the card reader back and connect the cable to the CR1 connector on the mainboard.



## 5. Installing Memory Modules

Locate the DIMM slots.



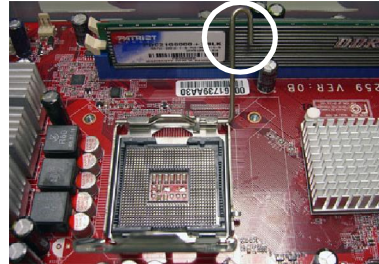
Insert the DIMM vertically into the slot.

*Note: The DIMM has only one notch on the center of module. It will only fit in the right direction.*



### 6. Installing CPU

Locate the CPU socket. Pull the lever away from the socket and raise it up, then lift up the cover.



Put the CPU onto the socket.

*Note: Make sure the pins are completely embedded into the socket. The CPU can only fit in the correct direction.*



Close the cover and the lever to complete the installation.



## 7. Installing CPU Cooler

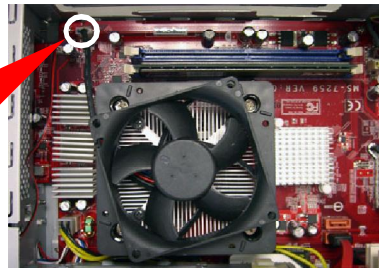
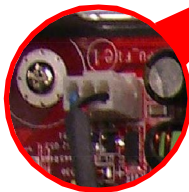
Place the CPU cooler onto the CPU socket and secure the four screws.



### Important

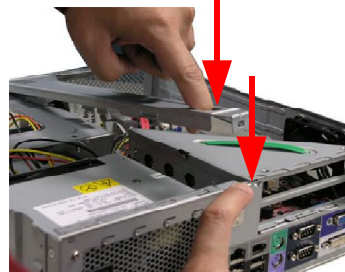
*Do not fix any screw until all the four screws are in the position, and lock the four screws with balance, or it may shift the CPU position to cause the system unbootable.*

Connect the CPU cooler's power cord to the connector on the mainboard.

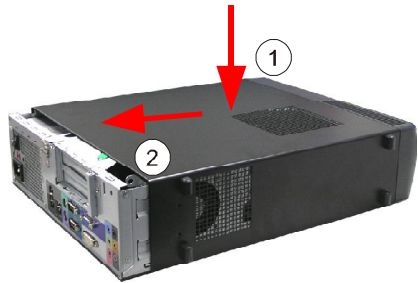


### 8. Restoring Chassis Cover

Restore the support bracket.



Restore the chassis cover.



Lock the chassis cover with the screws.



**Tower type**



**Horizontal type**

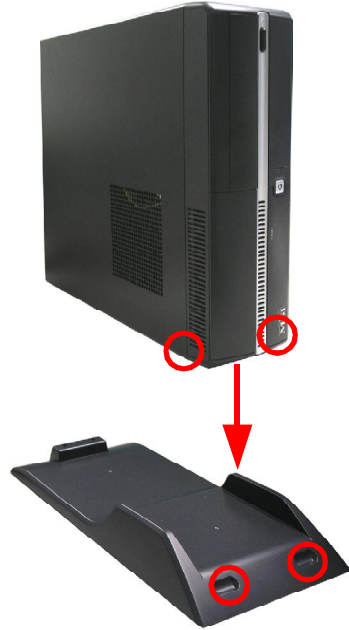


### 9. Installing Footstand

Lift up the PC and put the rubber feet into the pits on the footstand.

Make sure the rubber feet to get stuck on the footstand.

Put the PC on the footstand or lay on the rubber feet.



## Chapter 4

# BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:

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

## Entering Setup

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

### Press DEL to enter SETUP

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



#### Important

- 1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
- 2. Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:*

#### **A7404IMS V1.0 072407 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 V = VIA.*

*7th - 8th digit refers to the customer as MS = all standard customers.*

*V1.0 refers to the BIOS version.*

*070124 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
<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

```

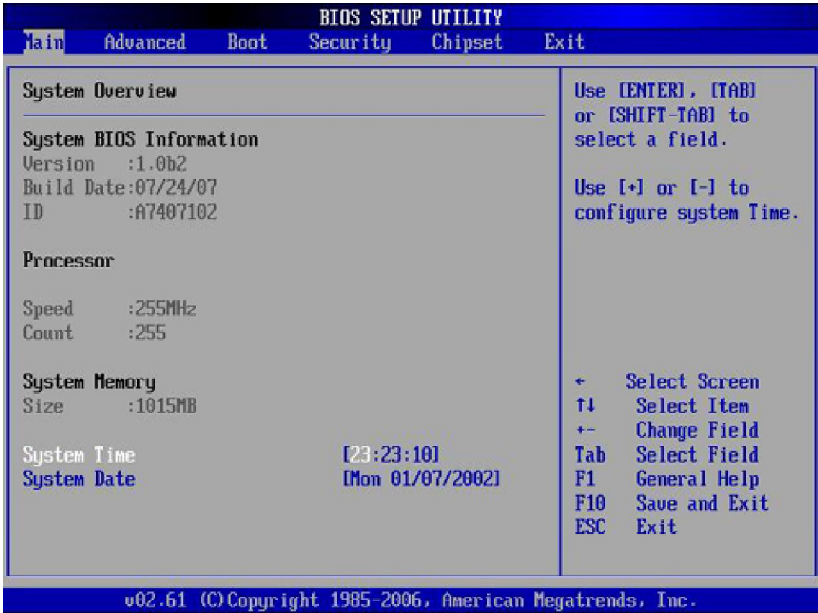
> IDE Channel 0 Master   [ None]
> IDE Channel 0 Slave   [ None]
> IDE Channel 1 Master   [ None]
> IDE Channel 1 Slave   [ None]
    
```

options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc>.

## General Help <F1>

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

## The Menu Bar



### ► Main

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

### ► Advanced

Use this menu to set up the items of special enhanced features available on your system.

### ► Boot

Use this menu to specify the priority of boot devices.

### ► Security

Use this menu to set Supervisor and User Passwords.

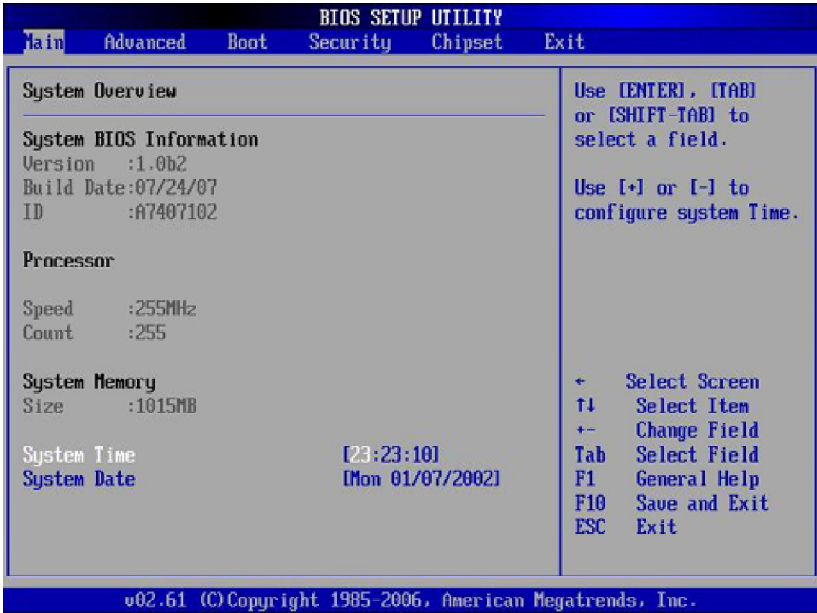
### ► Chipset

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

### ► Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

## Main



## - System Overview -

## ► System BIOS Information

This item shows the information of AMI BIOS. (Read-only)

## ► Processor

This item shows the information of Processor. (Read-only)

## ► System Memory

This item shows the information of System Memory. (Read-only)

## ► System Time

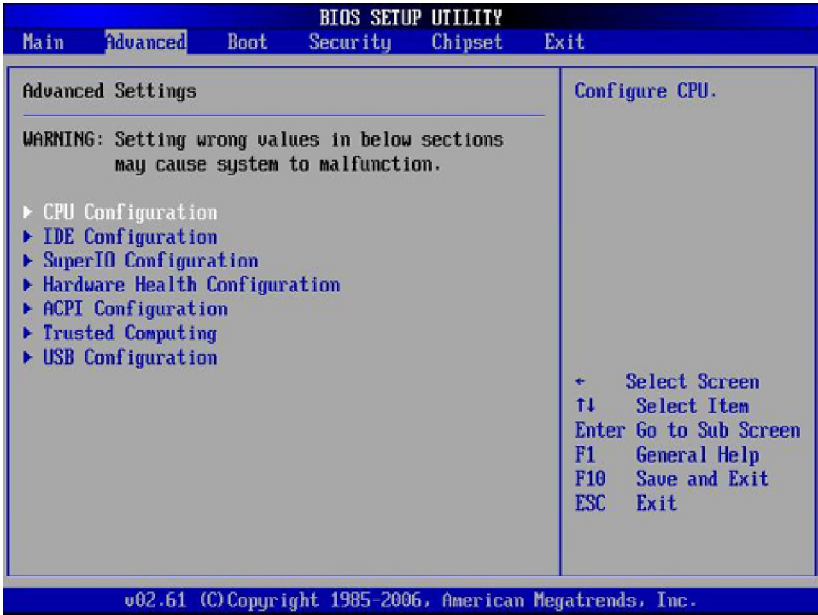
This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

## ► System Date

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

[Day]	Day of the week, from Sun to Sat, determined by BIOS.
[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.

## Advanced

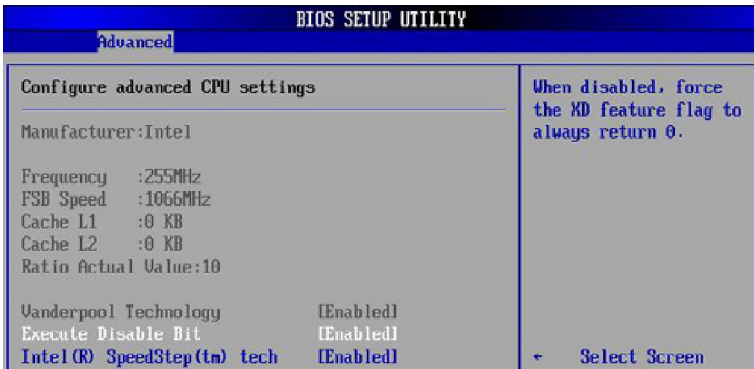


### - Advanced Settings -

**WARNING:** Setting wrong values in below sections may cause system to malfunction.

#### ► CPU Configuration

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



**- Configure advanced CPU settings -**

**Manufacturer**

This item shows the CPU related information of your system. (Read-only)

**Frequency / FSB Speed**

These items show the current CPU Front Side Bus (FSB) clock frequency and speed. (Read-only)

**Cache L1 / L2**

Cache memory is additional memory that is much faster than conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. This item shows the internal cache (also known as L1 or level 1 cache) and external cache (also known as L2 or level 2 cache).

**Ratio Actual Value**

This item shows the CPU ratio actual value. (Read-only)

**Vanderpool Technology**

Enable this item will allow a platform to run multiple virtual operating systems and applications in independent partitions.

**Execute Disable Bit**

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

**Intel® SpeedStep™ tech**

Intel' SpeedStep technology can provide average power savings depending on system usage and design. This technology allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.

► **IDE Configuration**

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



- IDE Configuration -

**Onboard IDE Master / Slave, SATA Port#1 / 2**

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

► **SuperIO Configuration**

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



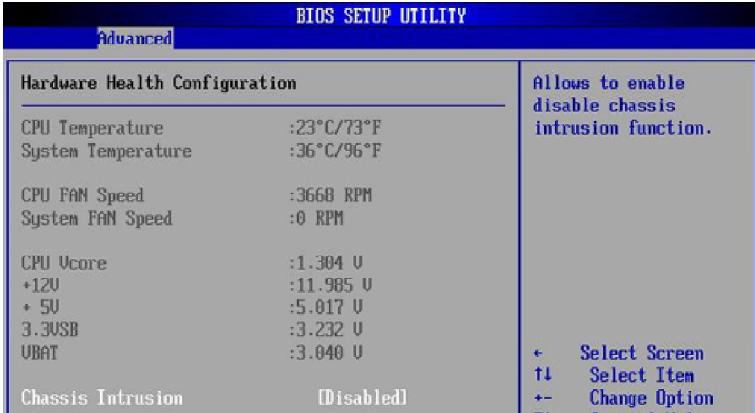
- Configure Win627DHG Super IO Chipset -

**Serial Port 1 / 2 Address**

These items specify the base I/O port addresses of the onboard Serial Port 1 (COM 1). Select [Auto] allows AMI BIOS to automatically determine the correct base I/O port address.

► **Hardware Health Configuration**

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



- **Hardware Health Configuration** -

**CPU / System Temperature, CPU / System FAN Speed, CPU Vcore, +12V, +5V, 3.3VSB, VBAT**

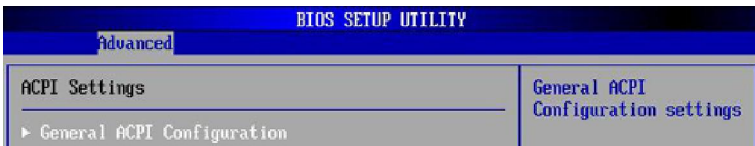
These items display the current status of all of the monitored hardware devices and components such as CPU voltages, temperatures and all fans' speeds.

**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.

► **ACPI Configuration**

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



- ACPI Settings -

**General ACPI Configuration**

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



- General ACPI Configuration -

**Suspend Mode**

Select the type of Suspend mode:

- [POS] Power-on suspend (the CPU and core system remain powered on in a very low-power mode)
- [Auto] After the period of inactivity selected in the Auto Suspend Timeout field, the system automatically enters STD mode. If STD mode is unavailable, the system enters STR mode.
- [STD] Save to disk
- [STR] Suspend to RAM

► **Trusted Computing**

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



- Trusted Computing -

**TCG / TPM SUPPORT**

This item allows you to set the TCG (Trusted Computing Group) / TPM (TrustedPlatform Module) support function. Setting options are: [Yes] and [No].

**Excute TPM Command**

This item allows you to enable or disable the TPM security chip. Setting options are: [Don't change], [Disabled] and [Enabled].



**Clearing the TPM**

This item allows you to clear the user information saved in the TPM securitychip. When you press <Enter>, a warning message will appear to ask if you want to clear the user information in the security chip. Use the left / right arrowkey to select between [OK] and [Cancel], then press <Enter> to confirm your choice.

**TPM Enable / Disable Status**

This item is not configurable.

**TPM Owner Status**

This item is not configurable.

► **USB Configuration**

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



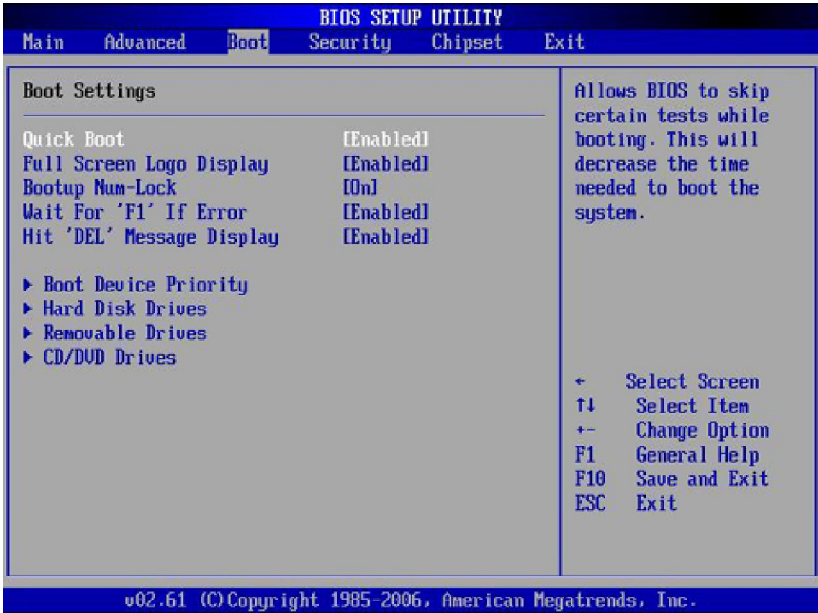
- **USB Configuration** -

**USB Devices Enabled : 1 Drive**

**USB 2.0 Controller Mode**

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

## Boot



### - Boot Settings -

#### ▶ Quick Boot

Setting the item to [Enabled] allows the system to boot within 5 seconds since it will skip some check items.

#### ▶ 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.

#### ▶ Bootup Num-Lock

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.

► **Wait For 'F1' If Error**

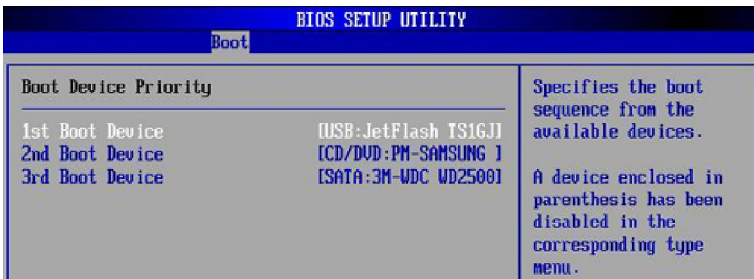
This BIOS feature controls the system's response when an error is detected during the boot sequence. When enabled, the BIOS will halt the boot sequence when an error is detected. You will need to press the F1 button at this point. It brings you to the BIOS setup menu where you can adjust the settings to fix the problem. When disabled, the BIOS will not halt the boot sequence, even when an error is detected. The system will continue to boot into the operating system.

► **Hit 'DEL' Message Display**

When set to Enabled, the system displays the message "Press DEL to run setup" during POST. When set to Disabled, the system prevents to display the message "Press DEL to run setup" during POST. Available options: Disabled, Enabled.

► **Boot Device Priority**

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



- **Boot Device Priority -**

**1st / 2nd / 3rd Boot Device**

These items allow you to set the sequence of boot devices where BIOS attempts to load the operating system.

► **Hard Disk Drives**

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



- **Hard Disk Drives -**

**1st Drive**

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

### ► Removable Drives

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

BIOS SETUP UTILITY	
Boot	
Removable Drives	Specifies the boot sequence from the available devices.
1st Drive	[USB:JetFlash TS1GJ]

#### - Removable Drives -

##### 1st Drive

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

### ► CD / DVD Drives

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

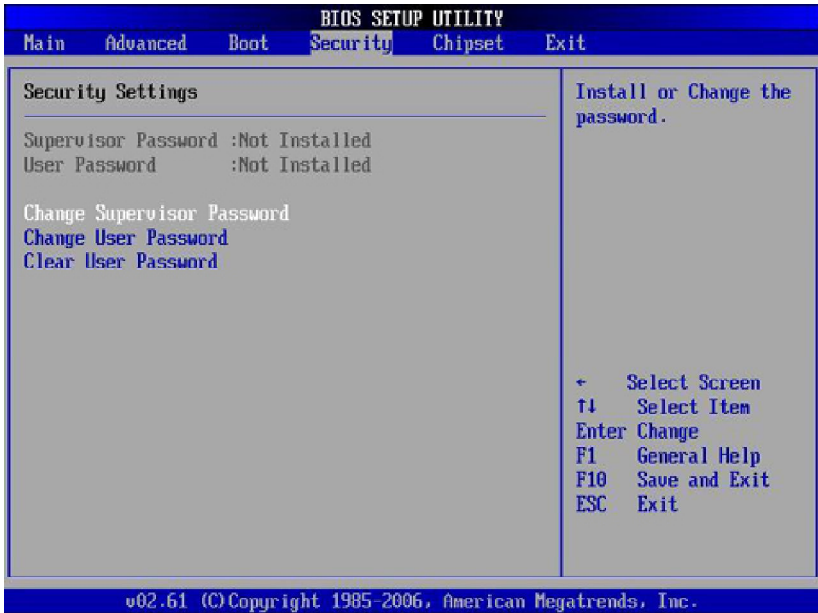
BIOS SETUP UTILITY	
Boot	
CD/DVD Drives	Specifies the boot sequence from the available devices.
1st Drive	[CD/DVD:PM-SAMSUNG I]

#### - CD / DVD Drives -

##### 1st Drive

This item allows you to set the type of CD / DVD drives installed.

## Security



### - Security Settings -

**Supervisor Password** : Not Installed  
**User Password** : Not Installed

#### ► Change Supervisor Password

Use this item to change the supervisor password that controls access to the BIOS Setup utility.

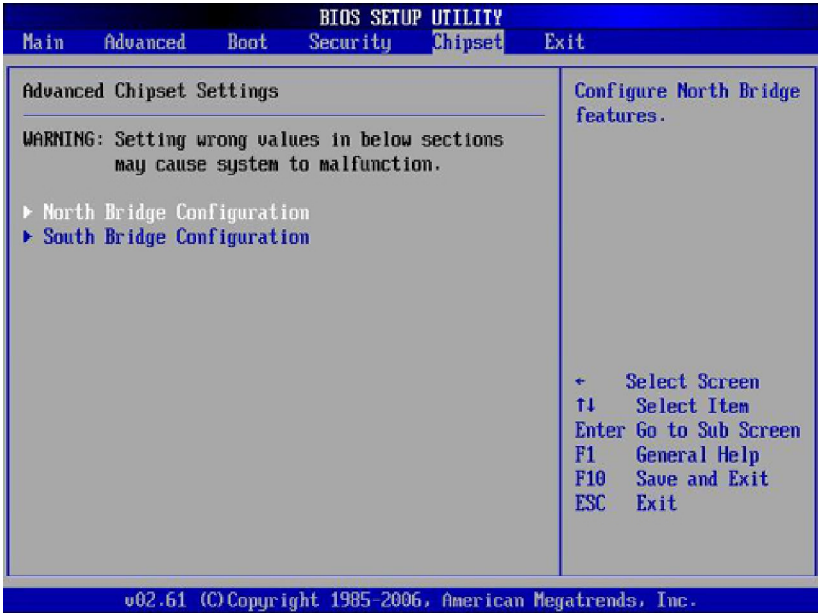
#### ► Change User Password

Use this item to change the user password that controls access to the system at boot.

#### ► Clear User Password

Use this item to clear the user password that controls access to the system at boot.

## Chipset



### - Advanced Chipset Settings -

**WARNING:** Setting wrong values in below sections may cause system to malfunction

#### ▶ North Bridge Configuration

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



### - North Bridge Chipset Configuration -

#### Video Function Configuration

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



### - Video Function Configuration -

#### DVMT Mode Select

This item allows you to set the mode for the graphics core.

- [Fixed] mode, a fixed-size fragment of the system memory is allocated to the graphics core. It can only be used by the graphics core.
- [DVMT] mode, the driver of the graphics core uses the system memory like any other OS component or application does.

#### DVMT / FIXED Memory

Specify the size of DVMT / FIXED memory to allocate for video memory.

#### Spread Spectrum Clock

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



#### 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.

### ► South Bridge Configuration

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

BIOS SETUP UTILITY	
Chipset	
South Bridge Chipset Configuration	
USB 2.0 Controller	[Enabled]
Onboard Audio Controller	[Enabled]
Onboard LAN	[Enabled]
Advanced Resume Event Controls	
Resume On Ring	[Disabled]
PCI Wakeup	[Disabled]
Resume On RTC Alarm	[Disabled]
Restore on AC Power Loss	[Last State]
	Options
	Enabled
	Disabled

### - South Bridge Chipset Configuration -

#### USB 2.0 Controller

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

#### Onboard Audio Controller

Select [Enabled] to use the audio capabilities of your system. Most of the following fields do not appear when this field is [Disabled].

#### Onboard LAN

This setting controls the onboard LAN controller.

#### Advanced Resume Event Controls

##### Resume On Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

##### PCI Wakeup

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

##### Resume On 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.

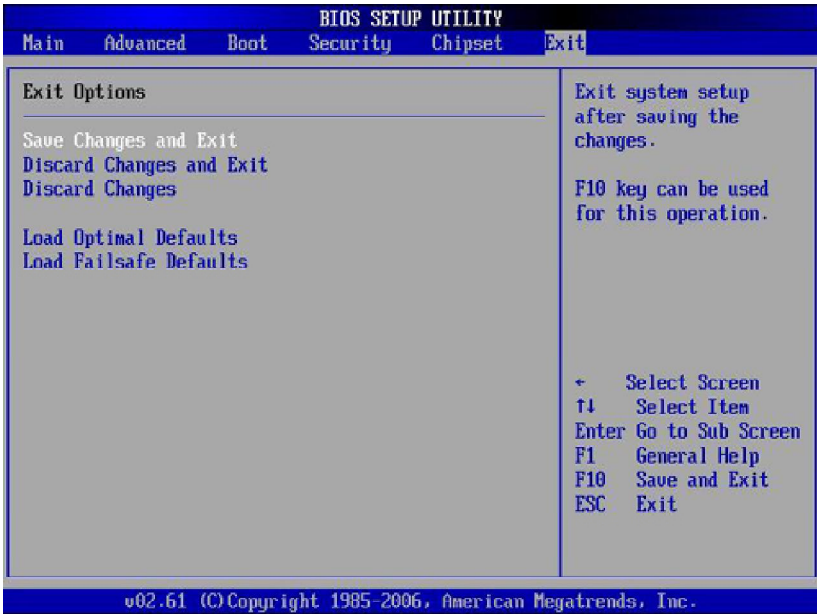
##### Restore on AC Power Loss

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

- [Off] Leaves the computer in the power off state.
- [On] Leaves the computer in the power on state.
- [Last State] Restores the system to the previous status before power failure or interrupt occurred.



## Exit



### - Exit Options -

#### ► Save Changes and Exit

Save changes to CMOS and exit setup.

#### ► Discard Changes and Exit

Abandon all changes and exit setup.

#### ► Discard Changes

Abandon all changes.

#### ► Load Optimal Defaults

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

#### ► Load Failsafe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.



## *Appendix A*

# *Realtek ALC888 Audio*

The Realtek ALC888 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.

## Installing the Realtek HD Audio Driver

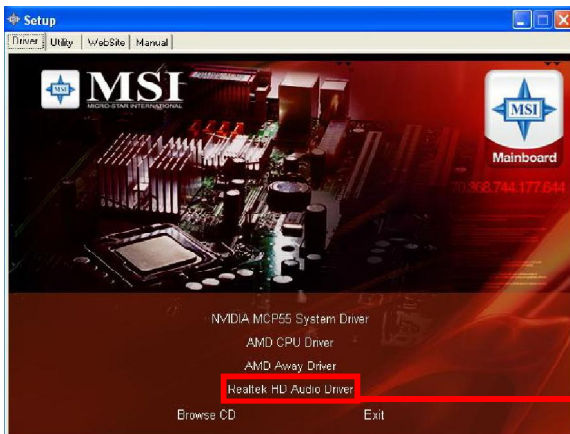
You need to install the driver for Realtek ALC888 codec to function properly before you can get access to 2-, 4-, 6-, 8- channel or 7.1+2 channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

### Installation for Windows 2000/XP

For Windows® 2000, you must install Windows® 2000 Service Pack4 or later before installing the driver. 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 CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click **Realtek HD Audio Driver**.



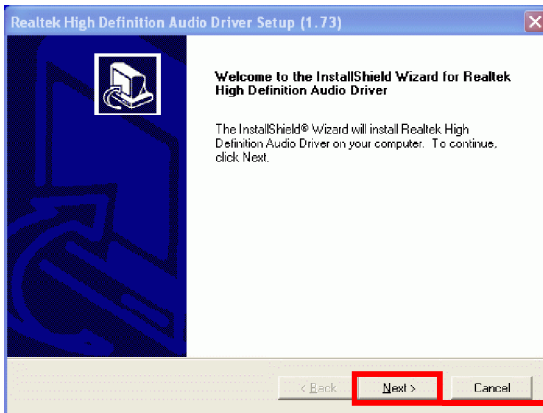
Click here



### 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

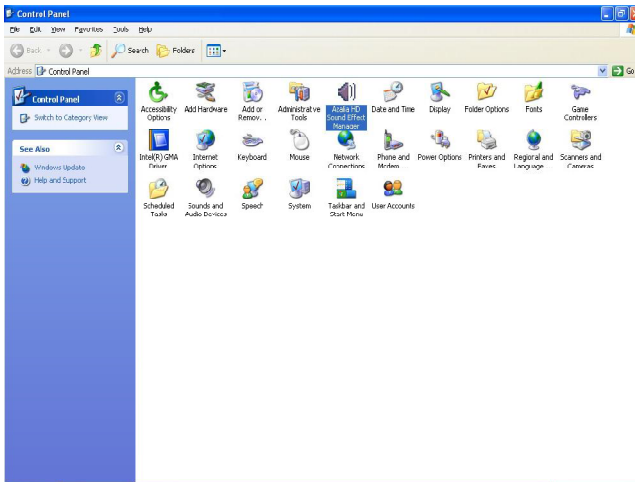
Click here

## 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**.

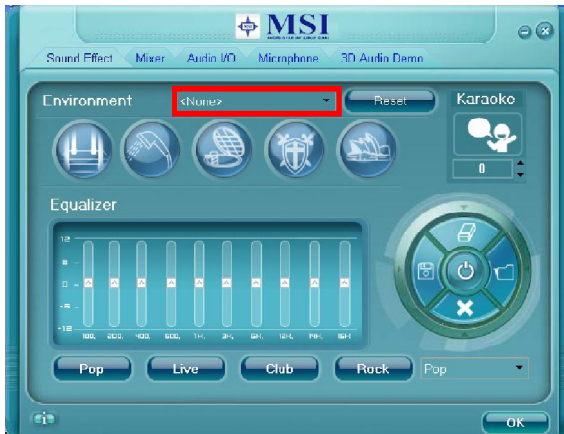


Double click



## 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 “Audio Corridor” for quick enjoyment.

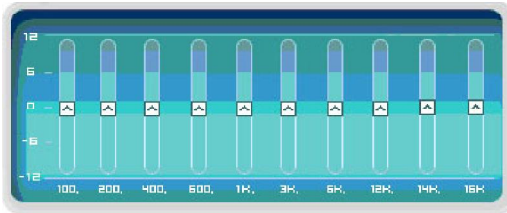
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make an new equalizer setting to save as an new one by using the **“Load EQ Setting”** and **“Save Preset”** button, click **“Reset EQ Setting”** button to use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

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

### Equalizer Selection

Equalizer frees users from default settings; users may create their 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.

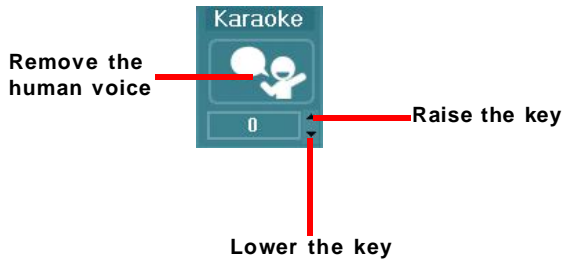
[How to Use It]

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

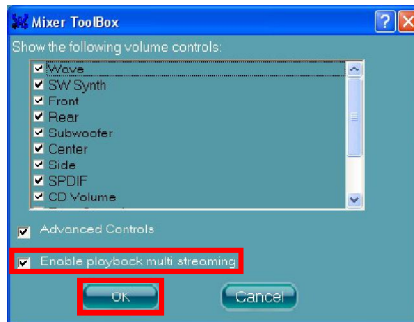
ALC888 supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated real panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

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



## Important

*You have to plug audio device into the jacks on the rear and front panel first before enable the multi-stream function.*

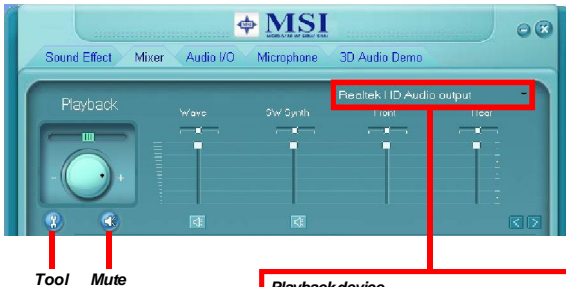


When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

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



**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

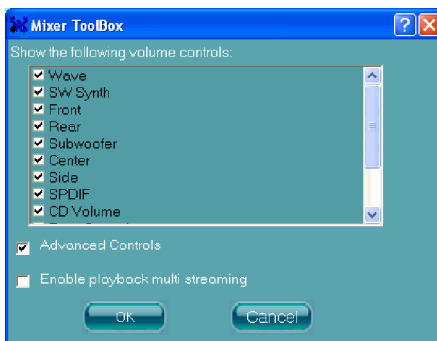
- Show the following volume controls

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

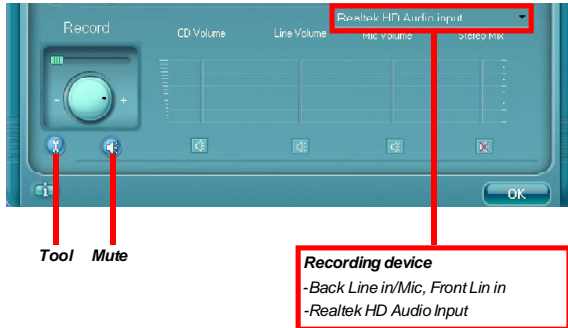
- Advanced controls

- 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

ALC888 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.

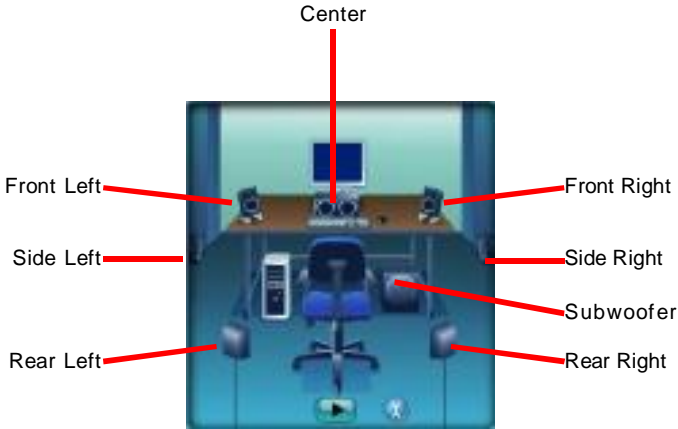
### **Mute rear panel output when front headphone plugged in.**

### **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.

### Test Speakers

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





## Microphone

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

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



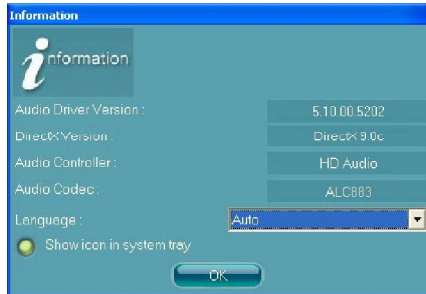
### 3D Audio Demo


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



## Information

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



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



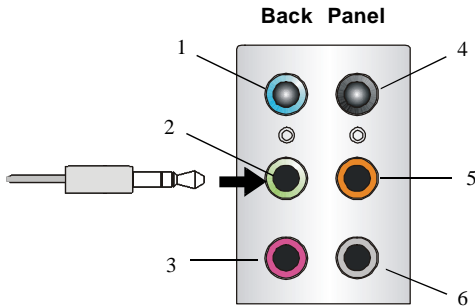
## Hardware Setup

### Connecting the Speakers

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

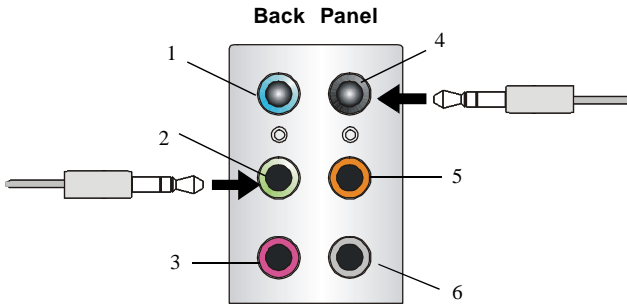
#### n 2-Channel Mode for Stereo-Speaker Output

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



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

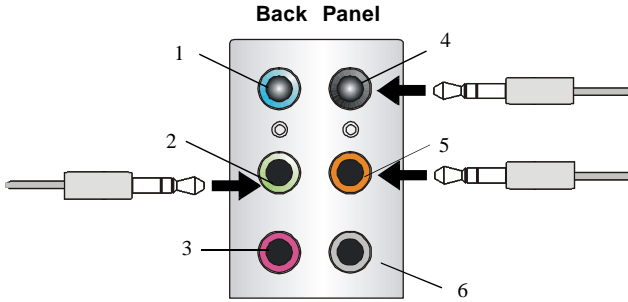
### n 4-Channel Mode for 4-Speaker Output



### 4-Channel Analog Audio Output

- 1 Line-In
- 2 Line-Out (Front channels)
- 3 Mic
- 4 RS-Out (Rear surround channels)
- 5 No function
- 6 No function

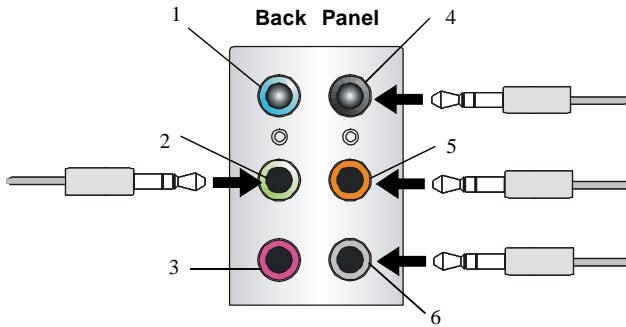
**n 6-Channel Mode for 6-Speaker Output**



**6-Channel Analog Audio Output**

- 1 Line-In
- 2 Line-Out (Front channels)
- 3 Mic
- 4 RS-Out (Rear surround channels)
- 5 CS-Out (Center and Subwoofer channel)
- 6 No function

### n 8-Channel Mode for 8-Speaker Output



### 8-Channel Analog Audio Output

- 1 Line-In
- 2 Line-Out (Front channels)
- 3 Mic
- 4 RS-Out (Rear surround channels)
- 5 CS-Out (Center and Subwoofer channel)
- 6 SS-Out (Side channels)