

K9AGM Series

MS-7242 (V1.X) Mainboard



G52-72421X1

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Revision History

Revision	Revision History	Date
V1.0	First release	May 2006

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 at http://www.msi.com.tw/program/service/faq/faq_esc_faq_list.php for FAQ, technical guide, BIOS updates, driver updates, and other information.
- 🔍 Contact our technical staff at <http://support.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



N1996

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 beauftrag, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschließlich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

FRANÇAIS

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

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

РУССКИЙ

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

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

ESPAÑOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

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

NEDERLANDS

Om het milieu te beschermen, wil MSI u eraan herinneren dat....

De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Electrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling.

Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.

SRPSKI

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...

Po Direktivi Evropske unije ("EU") o 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 wechodzi 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 atılamayacak 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 K9AGM Series (MS-7242 v1.X), an excellent Micro ATX mainboard from MSI.

Based on the innovative **ATI® RS485/RS485C & SB600** controllers for optimal system efficiency, the K9AGM Series accommodates the latest AMD® Sempron / Athlon64 / Athlon64 X2 AM2 processors in Socket 940 package and supports up to four 240-pin DDRII 800/667/533/400 DIMM slots to provide the maximum of 8GB memory capacity.

Mainboard Specifications

Processor Support

- AMD Sempron/Athlon64/Athlon64 X2 AM2 processors in Socket 940
- Supports 3/4 pin CPU Fan with Fan Speed Control
- Supports up to 5000+ and higher CPU

Supported FSB

- 1000 MHz

Chipset

- North Bridge: ATI RS485/RS485C chipset (optional)
- South Bridge: ATI SB600 chipset

Memory Support

- DDRII 800/667/533/400 DRAM (8GB Max)
- 4 DIMMs DDRII (240pin / 1.8V)

LAN (Optional)

- Supports PCI LAN Realtek RTL8100C (10/100) or RTL8110SB/SC (10/100/1000) Fast Ethernet (optional)

1394 (Optional)

- Supports 2 IEEE1394 ports, transfer rate is up to 400Mbps
- Controlled by VIA VT6307/VT6308 (optional)

Audio

- Realtek® ALC883/888 chip integrated (optional)
- Flexible 8-channel audio
- Compliant with High Definition Audio

IDE

- 1 IDE port by SB600
- Supports Ultra DMA 66/100/133 mode
- Supports PIO, Bus Master operation mode

SATA

- SATA II ports by SB600
- Supports four SATA II device
- Supports storage and data transfers at up to 300MB/s

Floppy

- 1 floppy port
- Supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes

Connectors

● Back Panel

- 1 PS/2 mouse port
- 1 PS/2 keyboard port
- 1 DVI port (optional)
- 1 VGA port
- 1 parallel port supporting SPP/EPP/ECP mode
- 4 USB 2.0 ports
- 1 LAN jack (optional 10/100Mbps or Gigabit)
- 3 flexible audio jacks
- 1 1394 port (optional)

● Onboard Pinheaders

- 3 USB 2.0 pinheaders
- 1 1394 pinheader (optional)
- 1 TV-out pinheader (optional)
- 1 Audio header (rear/center/side output)

Slots

- 1 PCI Express x16 slot
- 2 PCI slots
- 1 PCI Express x 1 slot

Form Factor

- Micro-ATX (24.5cm X 24.5 cm)

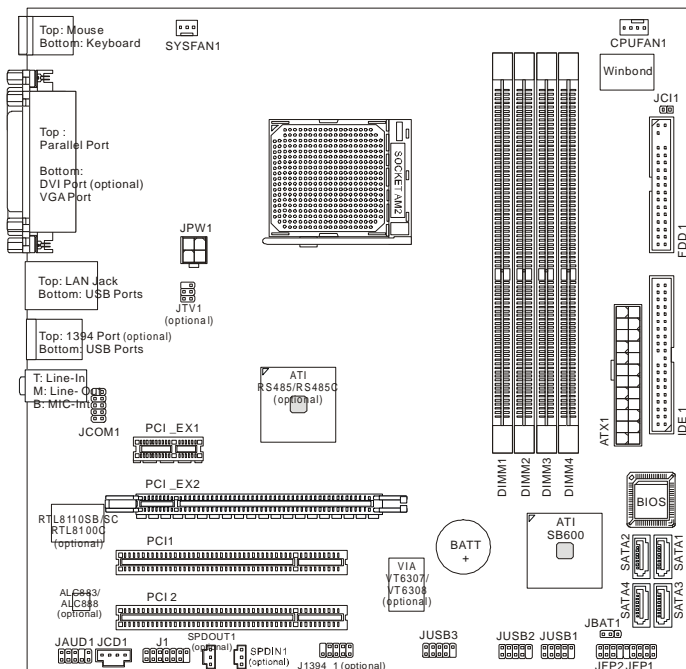
Mounting

- 8 mounting holes



For more information on compatible components, please visit
[http://www.msi.com.tw/program/products/mainboard/mbd/
pro_mbd_cpu_support.php](http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php)
[http://www.msi.com.tw/program/products/mainboard/mbd/
pro_mbd_trp_list.php](http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php)

Mainboard Layout

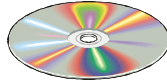


K9AGM Series (MS-7242 v1.X) Micro ATX Mainboard

Packing Checklist



MSI motherboard



MSI Driver/Utility CD



SATA Cable (Optional)



Power Cable (Optional)



Standard Cable for
Floppy Disk



Standard Cable for
IDE Devices



1394 Bracket (Optional)



USB Bracket (Optional)



Back IO Shield



User's Guide



TV-out Bracket
(Optional)



Audio-out Bracket
(Optional)

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

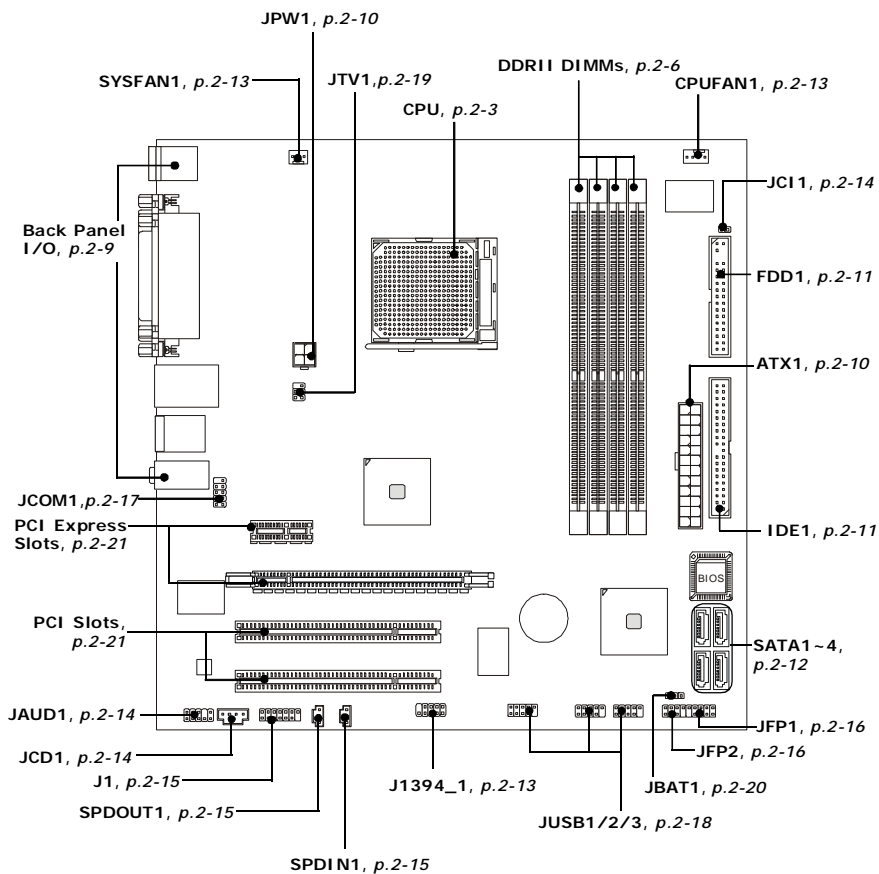
Chapter 2

Hardware Setup

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

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

Quick Components Guide



CPU (Central Processing Unit)

The mainboard supports AMD® Sempron / Athlon64 / Athlon64 X2 AM2 processors in Socket 940. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

For more information on compatible components, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php.

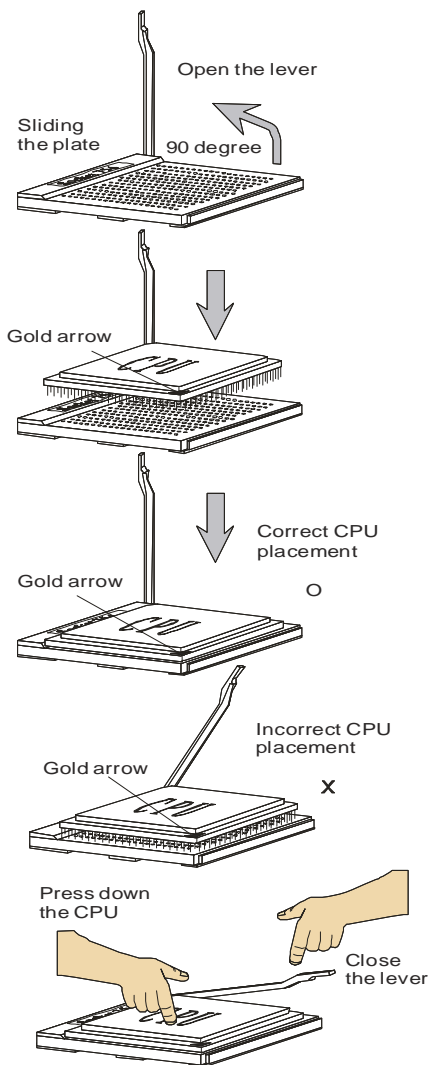


Important

1. *Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating.*
2. *Make sure that you apply an even layer of heat sink paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.*
3. *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.*

CPU Installation Procedures for Socket AM2

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



Installing AMD Socket AM2 CPU Cooler Set

When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent the CPU from overheating.** If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

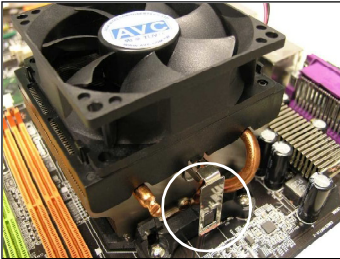


Important

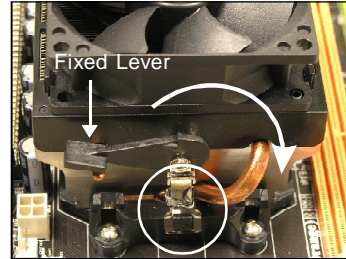
Mainboard photos shown in this section are for demonstration of the cooler installation for Socket AM2 CPUs only. The appearance of your mainboard may vary depending on the model you purchased.

1. Position the cooling set onto the retention mechanism.

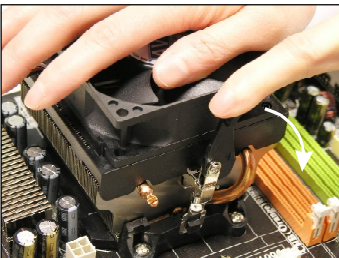
Hook one end of the clip to hook first.



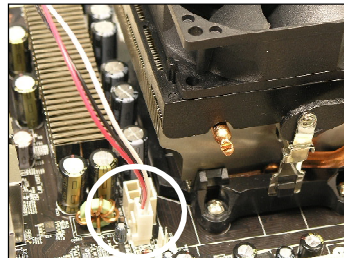
2. Then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism. Locate the Fix Lever and lift up it .



3. Fasten down the lever.



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

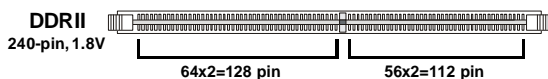


** While disconnecting the Safety Hook from the fixed bolt, it is necessary to keep an eye on your fingers, because once the Safety Hook is disconnected from the fixed bolt, the fixed lever will spring back instantly.*

Memory

The mainboard provides four 240-pin DDRII 800/667/533/400 DIMM slots and supports up to 8GB system memory.

For more information on compatible components, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php.



Dual-Channel: Channel A in GREEN; Channel B in ORANGE

Memory Population Rules

This mainboard supports DDRII 800/667/533/400 memory interface.

Each DIMM slot supports up to a maximum size of 2GB. Users can install either single- or double-sided modules depending on their needs.

GREEN Slots		ORANGE Slots		
DIMM1 (CH A)	DIMM3 (CH A)	DIMM2 (CH B)	DIMM4 (CH B)	Mode
128MB~2GB		128MB~2GB		Dual Channel
	128MB~2GB		128MB~2GB	Dual Channel
128MB~2GB	128MB~2GB	128MB~2GB	128MB~2GB	Dual Channel



Important

Make sure that you install memory modules of the same type and density on DDRII DIMMs.

Installing DDRII Modules

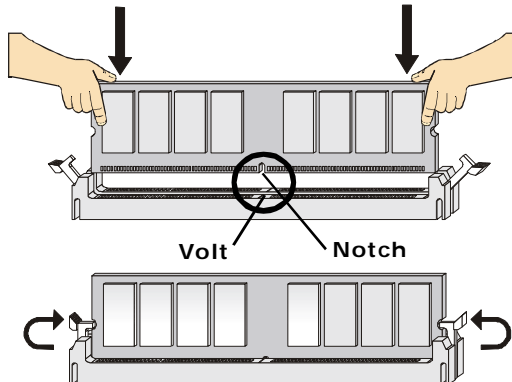
1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.



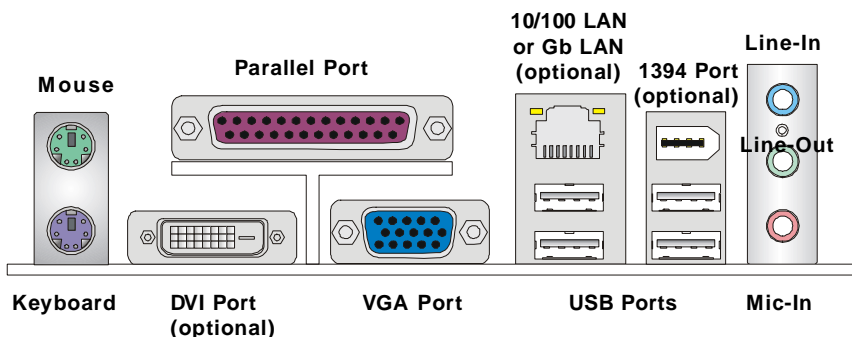
Important

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

3. The plastic clip at each side of the DIMM slot will automatically close.



Back Panel



► Mouse/Keyboard Connector

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

► Parallel Port Connector

A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

► Digital Panel Connector (optional)

The DVI (Digital Visual Interface) connector allows you to connect an 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.)

► VGA Connector

The DB15-pin female connector is provided for VGA monitors.

► USB Connectors

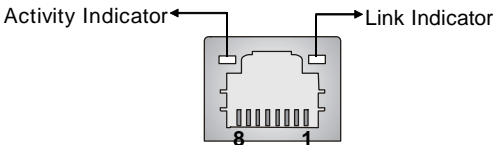
The OHCI (Open Host Controller Interface) Universal Serial Bus root is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

► IEEE 1394 Port (optional)

The 1394 port on the back panel provides connection to 1394 devices.

► **RJ-45 LAN Jack** (optional)

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



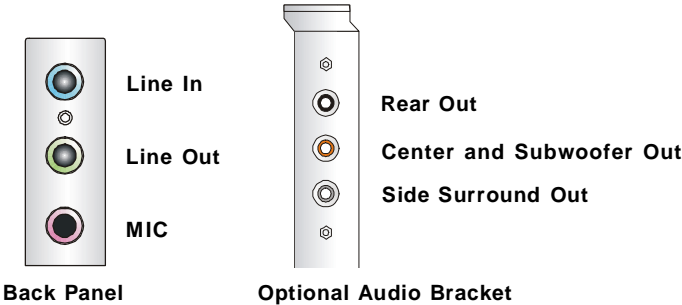
RJ-45 LAN Jack

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

► **Audio Port Connectors**

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

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

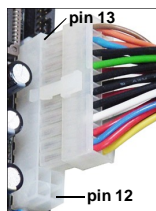


Power Supply

ATX 24-Pin Power Connector: ATX1

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

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



Pin Definition

ATX1		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	NC	24	GND

ATX 12V Power Connector: JPW1

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

JPW1 Pin Definition

JPW1		JPW1 Pin Definition	
PIN	SIGNAL	PIN	SIGNAL
1	GND	1	GND
2	GND	2	GND
3	12V	3	12V
4	12V	4	12V



Important

1. Make sure that these two connectors are connected to adequate ATX power supplies to ensure stable operation of the mainboard.
2. Power supply of **350watts** (and above) is highly recommended for system stability.
3. ATX 12V power connection should be greater than 18A.

Connectors

Floppy Disk Drive Connector: FDD1

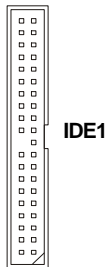
This standard FDD connector supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



ATA133 Hard Disk Connector: IDE1

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100/133 controller that provides PIO mode 0–4, Bus Master, and Ultra DMA 66/100/133 function. You can connect hard disk drives, CD-ROM and other IDE devices.

The Ultra ATA133 interface boosts data transfer rates between the computer and the hard drive up to 133 megabytes (MB) per second. The new interface is one-third faster than earlier record-breaking Ultra ATA/100 technology and is backwards compatible with the existing Ultra ATA interface.



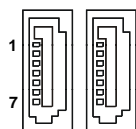
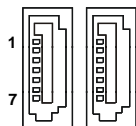
Important

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

Serial ATA Connectors: SATA1~SATA4

SATA1~SATA4 are high-speed SATA II interface ports and support SATA II data rates of 300MB/s. Each SATA II connector can connect to 1 hard disk device and is fully compliant with Serial ATA 2.0 specifications.

SATA2 SATA1

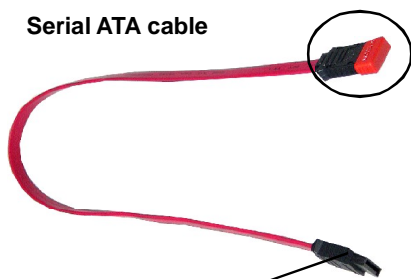


SATA4 SATA3

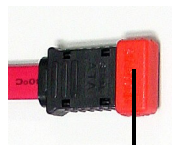
SATA1 ~ SATA4 Pin Definition

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

Serial ATA cable



Connect to SATA1/2/3/4



Take out the dust cover and connect to the hard disk devices

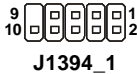


Important

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

IEEE 1394 Connector: J1394_1 (Optional)

The mainboard provides an IEEE1394 pinheader that allows you to connect IEEE 1394 ports via an external IEEE1394 bracket (optional).

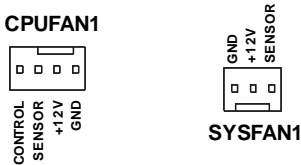


Pin Definition

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

Fan Power Connectors: CPUFAN1, SYSFAN1

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



Important

Please refer to the recommended CPU fans at Intel® / AMD® official website or consult the vendors for proper CPU cooling fan.

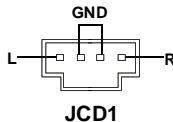
Chassis Intrusion Switch Connector: JCI1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. 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.



CD-In Connector: JCD1

This connector is provided for CD-ROM audio.



Front Panel Audio Connector: JAUD1

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

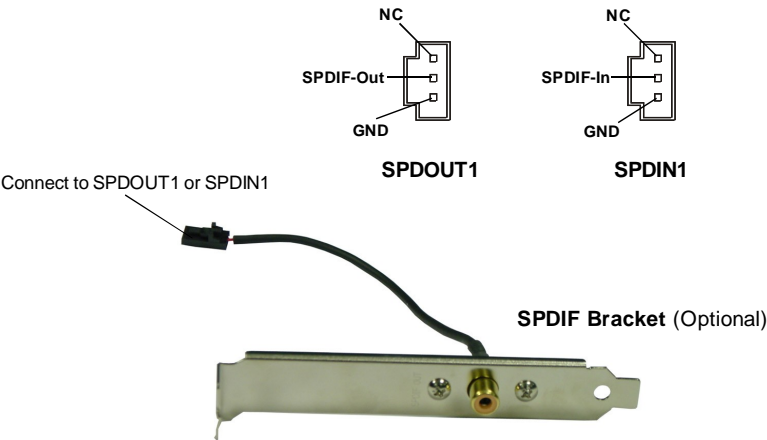


Pin Definition

PIN	SIGNAL	DESCRIPTION
1	PORT 1L	Analog Port 1 - Left channel
2	GND	Ground
3	PORT 1R	Analog Port 1 - 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	PORT 2R	Analog Port 2 - Right channel
6	SENSE1_RETIRN	Jack detection return from front panel JACK1
7	SENSE_SEND	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	KEY	ConnectorKey
9	PORT 2L	Analog Port 2 - Left channel
10	SENSE2_RETIRN	Jack detection return from front panel JACK2

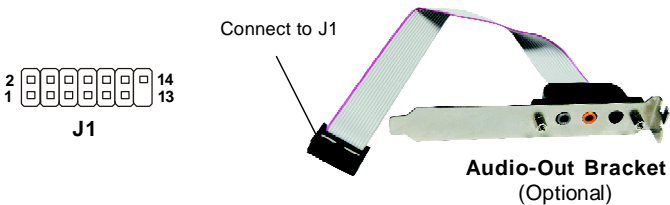
SPDIF Connector: SPDOUT1/SPDIN1 (Optional)

These connectors are used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission. The SPDOUT1 is for SPDIF-Out and the SPDIN1 is for SPDIF-In.



Audio-Out Connector: J1

The J1 is an audio-out connector for you to attach an external Audio-Out bracket (optional). The Audio-Out bracket offers three audio-out jacks. Select the appropriate one to connect to the proper speaker.

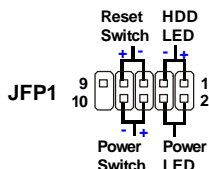


Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	SURROutR	2	LEFOut
3	SURROutL	4	CENTEROut
5	SURRBackR	6	CENJD
7	SURRBackL	8	SURRJD
9	SURRBackJD	10	Ground
11	Ground	12	Ground
13	NC	14	Ground

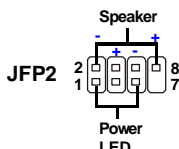
Front Panel Connectors: JFP1/JFP2

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



JFP1 Pin Definition

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

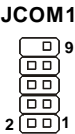


JFP2 Pin Definition

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

Serial Port Connector: JCOM1

The mainboard provides one 9-pin header as serial port. The port is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to it.



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 USB Connectors: JUSB1, JUSB2, JUSB3

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

JUSB1/2/3



Pin Definition

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



Important

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

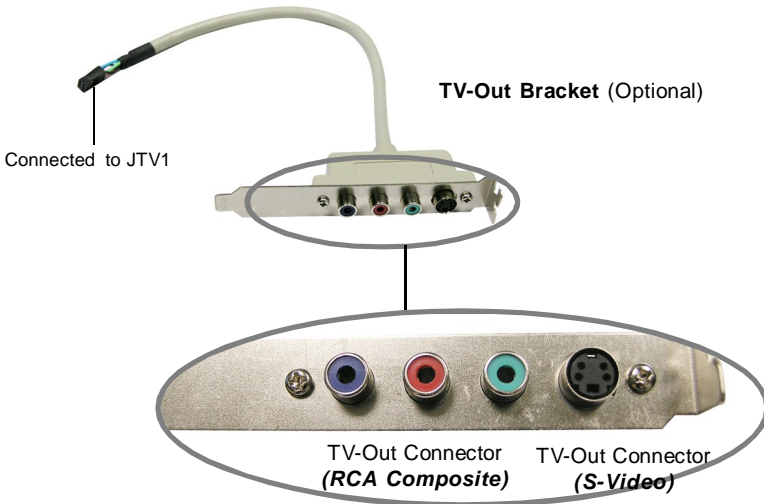
TV-Out Connector: JTV1 (Optional)

The mainboard optionally provides a TV-Out connector for you to attach a TV-Out bracket that integrates HDTV-out. The TV-Out bracket offers two types of TV-Out connectors: S-Video and RCA Composite connectors. Select the appropriate one to connect to the standard television or the HDTV (High-Definition TeleVision) and it will be able to display PC's information.



JTV1 Pin Definition

Pin	Description	Pin	Description
1	GND	4	COMP
2	Y	5	GND
3	C		



Important

1. Please note that the TV-Out bracket can connect to one TV only. Users have to choose either the RCA Composite or the S-Video to connect. Simultaneous connection (of this bracket) to two TVs is prohibited and may lead to the malfunction of the TVs.
2. Please refer to **Appendix: Using TV-Out Function** for details.

Jumpers

Clear CMOS Jumper: JBAT1

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

JBAT1


3  1
 Keep Data

3  1
 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.

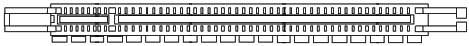
Slots

PCI (Peripheral Component Interconnect) Express Slots

PCI Express architecture provides a high performance I/O infrastructure for Desktop Platforms with transfer rates starting at 2.5 Giga transfers per second over a PCI Express x1 lane for Gigabit Ethernet, TV Tuners, 1394 controllers, and general purpose I/O. Also, desktop platforms with PCI Express Architecture will be designed to deliver highest performance in video, graphics, multimedia and other sophisticated applications. Moreover, PCI Express architecture provides a high performance graphics infrastructure for Desktop Platforms doubling the capability of existing AGP 8x designs with transfer rates of 4.0 GB/s over a PCI Express x16 lane for graphics controllers, while PCI Express x1 supports transfer rate of 250 MB/s.



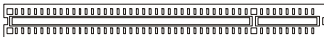
PCI Express x1 Slot



PCI Express x16 Slot

PCI (Peripheral Component Interconnect) Slots

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



32-bit PCI Slot

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	INTE#	INT F#	INT G#	INT H#
PCI Slot 2	INT F#	INT G#	INT H#	INTE#



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.

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:

A7242AMS V1.0 041506 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.

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

6th digit refers to the chipset as I = Intel, N = nVidia, A = ATI, and V = VIA.

7th - 8th digit refers to the customer as MS = all standard customers. V1.0 refers to the BIOS version.

041506 refers to the date this BIOS was released.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F7>	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

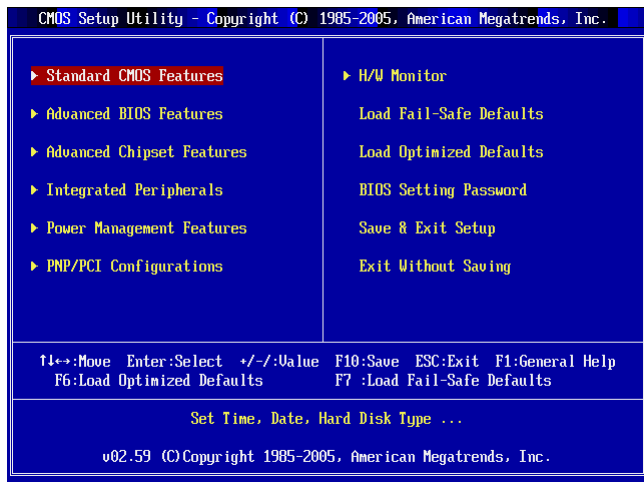
If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the 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 >.

▶ Primary IDE Master	[Hard Disk]
▶ Primary IDE Slave	[ATAPI CDROM]
▶ Third IDE Master	[Not Detected]
▶ Third IDE Slave	[Not Detected]

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.

Main



► Standard CMOS Features

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

► Advanced BIOS Features

Use this menu to set up the items of special enhanced features.

► Advanced Chipset Features

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

► Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

► Power Management Features

Use this menu to specify your settings for power management.

► PNP/PCI Configurations

This entry appears if your system supports PnP/PCI.

► H/W Monitor

This entry shows your PC health status.

► **Load Fail-Safe Defaults**

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

► **Load Optimized Defaults**

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

► **BIOS Setting Password**

Use this menu to set the password for BIOS.

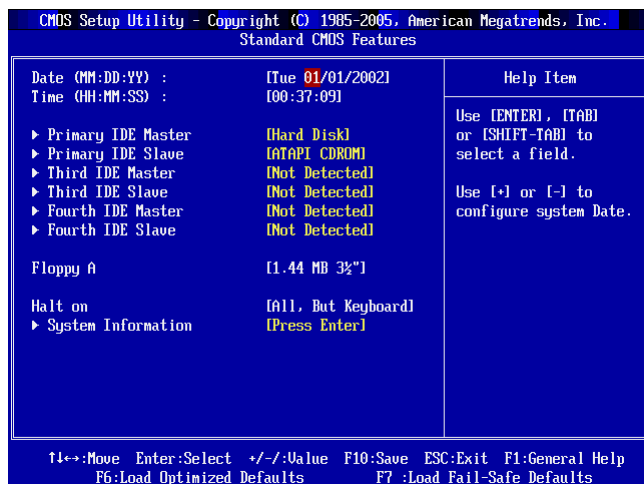
► **Save & Exit Setup**

Save changes to CMOS and exit setup.

► **Exit Without Saving**

Abandon all changes and exit setup.

Standard CMOS Features



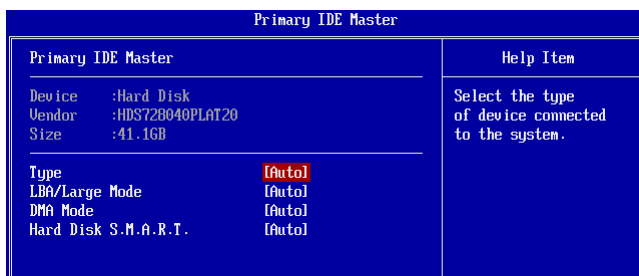
► Date (MM:DD:YY)

The date format is <Day>, <Month> <Date> <Year>.

► Time (HH:MM:SS)

The time format is <Hour> <Minute> <Second>.

► Primary/Third/Fourth IDE Master/Slave



[Type]: Press PgUp/<+> or PgDn/<-> to select [Manual], [None] or [Auto] type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use [Manual] to define your own drive type manually.

If you select [Manual], related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

[LBA/Large Mode]: Large Mode is for drives that do not support LBA and have more than 1024 cylinders. Applicable to only a few drives.

When set to LBA (Logical Block Addressing) Mode during drive accesses, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. LBA Mode is for drives with greater than 1024 cylinders.

[DMA Mode]: This item controls the DMA (Direct Memory Access) mode.

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

► Floppy A

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

► Halt 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:

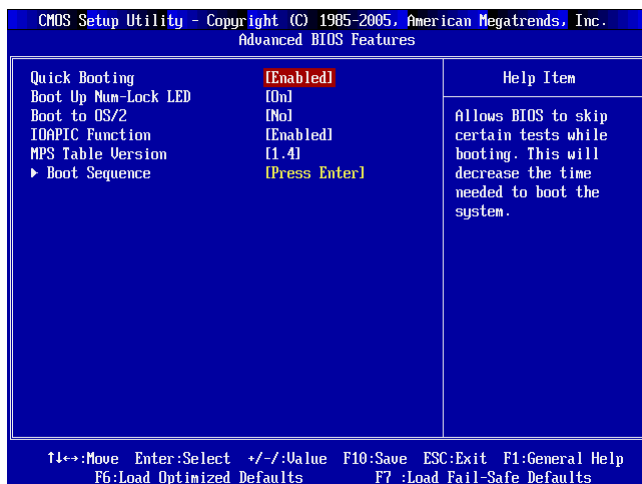
- | | |
|---------------------|---|
| [No Errors] | The system doesn't stop for any detected error. |
| [All, But Keyboard] | The system doesn't stop for a keyboard error. |

► System Information

Press <Enter> to view the hardware specifications of your system.

System Information		
CPU Type	AMD Athlon(tm) 64 X2 Dual Core P	Help Item
CPUID/MicroCode	0FB2h/00h	
CPU Frequency	2000MHz (200x10)	
BIOS Version	V3.0B5 04/22/2006	
Physical Memory	512MB	
Usage Memory	448MB	

Advanced BIOS Features



► Quick Booting

Setting the item to [Enabled] allows the system to boot within 5 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.

► Boot to OS/2

This allows you to run the OS/2® operating system with DRAM larger than 64MB.

► 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.

► Boot Sequence

Boot Sequence		
1st Boot Device	[1st FLOPPY DRIVE]	Help Item
2nd Boot Device	[HDD:PM-HDS728040PL]	
3rd Boot Device	[CD/DVD:PS-SONY CDU]	Specifies the boot sequence from the available devices.
Boot From Other Device	[Yes]	
► Hard Disk Drives	[Press Enter]	A device enclosed in parenthesis has been disabled in the corresponding type menu.
► Removable Drives	[Press Enter]	
► CD/DVD Drives	[Press Enter]	

► 1st Boot Device, 2nd Boot Device, 3rd Boot Device

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

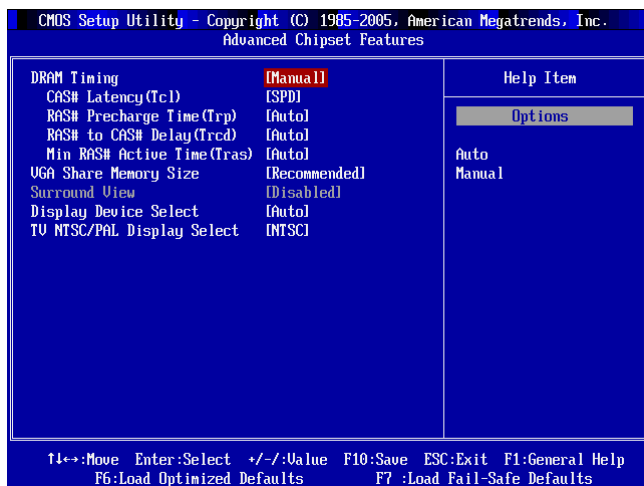
► Boot From Other Device

Setting the option to [Yes] allows the system to try to boot from other device if the system fails to boot from the first/second/third boot device.

► Hard Disk Drives, Removable Drives, CD/DVD Drives

These settings allow users to set the priority of the specified devices. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

Advanced Chipset Features



► DRAM Timing

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto] enables DRAM timing to be determined automatically by BIOS based on the configurations on the SPD. Selecting [Manual] allows users to configure the following fields manually.

► CAS# Latency (Tcl)

This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Smaller clocks increase system performance while bigger clocks provide more stable system performance.

► RAS# Precharge Time (Trp)

When the **DRAM Timing** is set to [Manual], this field is adjustable. This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

► RAS# to CAS# Delay (Trcd)

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. [Disabled] gives faster performance; [Enabled] gives more stable performance.

► Min RAS# Active Time (Tras)

This setting determines the time RAS takes to read from and write to a memory cell.

► VGA Share Memory Size

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

► SurroundView

SURROUNDVIEW™ provides the power and convenience of multi-adapter, multi-monitor support for computers that use a PCI Express®-based graphics card in conjunction with ATI integrated graphics processors (IGPs).

► Display Device Select

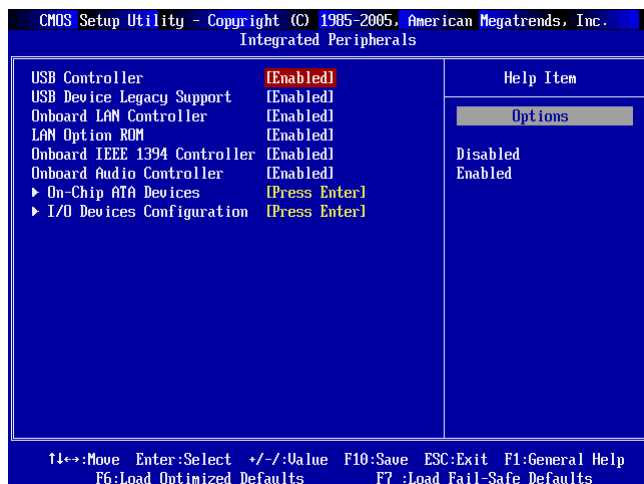
Use the field to select the type of device you want to use as the display(s) of the system.

► TV NTSC/PAL Display Select

Select the TV standard which is used as the video signal format of your TV if you have connected a TV to the system.

[PAL]	PAL format. This is a dominant standard in Europe.
[NTSC]	NTSC format. This format is used by many American and Asian countries including US and Japan.

Integrated Peripherals



► USB Controller

This setting is used to enable/disable the onboard USB controller.

► USB Device Legacy Support

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix. Set to [Disabled] only if you want to use any USB device other than the USB mouse.

► Onboard LAN Controller

This setting controls the onboard LAN controller.

► LAN Option ROM

This setting enables/disables the initialization of the onboard LAN Boot ROM during bootup. Selecting [Disabled] will speed up the boot process.

► Onboard IEEE 1394 Controller

This setting disables/enables the onboard IEEE 1394 controller.

► Onboard Audio Controller

This setting disables/enables the onboard audio controller.

► On-Chip ATA Devices

On-Chip ATA Devices		
On-Chip IDE Controller	[Enabled]	Help Item DISABLED: disables the integrated IDE Controller. ENABLED: enables only the Primary IDE Controller.
PCI IDE BusMaster	[Disabled]	
OnChip SATA Controller	[Enabled]	
OnChip SATA Type	[Native IDE]	

► On-Chip IDE Controller

Setting to [Disabled] disables the integrated IDE controller. Setting to [Enabled] enables only the Primary IDE controller.

► PCI IDE BusMaster

Set this option to [Enabled] to specify that the IDE controller on the PCI local bus has bus mastering capability.

► OnChip SATA Controller

This setting controls the onchip SATA controller.

► OnChip SATA Type

This setting specifies the function type of SATA devices.

► I/O Devices Configuration

I/O Devices Configuration		
COM Port 1	[3F8/IRQ4]	Help Item Allows BIOS to Select Serial Port1 Base Addresses.
Parallel Port	[378]	
Parallel Port Mode	[Bi-Directional]	

► COM Port 1

Select an address and corresponding interrupt for Serial Port 1.

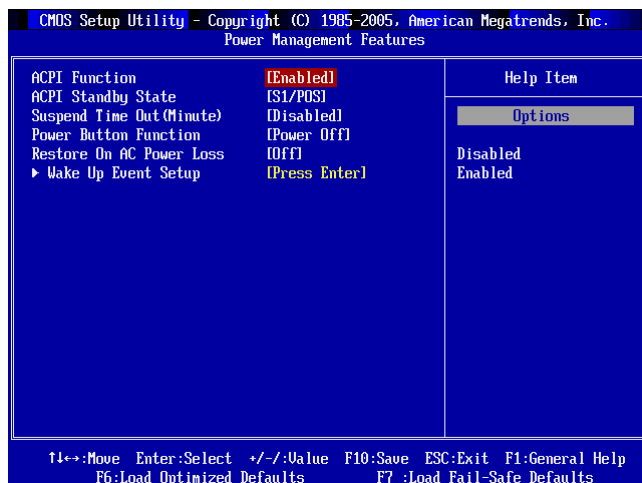
► Parallel Port

This setting specifies the I/O port address and IRQ of the onboard parallel port.

► Parallel Port Mode

This setting specifies the parallel port mode.

Power Management Features



► 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 98SE/2000/ME, 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, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Setting options:

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

► Suspend Time Out (Minute)

If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off.

► Power Button Function

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

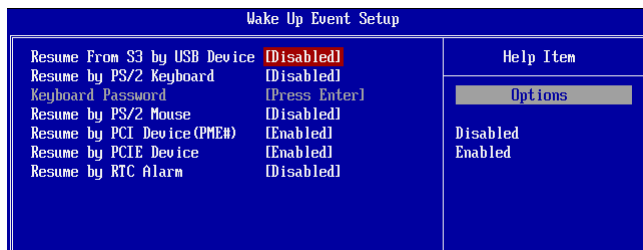
- [Power Off] The power button functions as a normal power-on/-off button.
- [Suspend] When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

► Restore On AC Power Loss

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

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

► Wake Up Event Setup



► 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 By PS/2 Keyboard

The item specifies how the system will be awakened from power saving mode when input signal of the PS2 keyboard is detected. Use the <PageUp> & <PageDown> keys to select the options. When selecting [Password], enter the desired password.

► Keyboard Password

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

► Resume By PS/2 Mouse

This setting will be disabled when **Resume By PS/2 Keyboard** is set to [Any Key]. It determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected.

► Resume by PCI Device (PME#)

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any PME (Power Management Event) from PCI device.

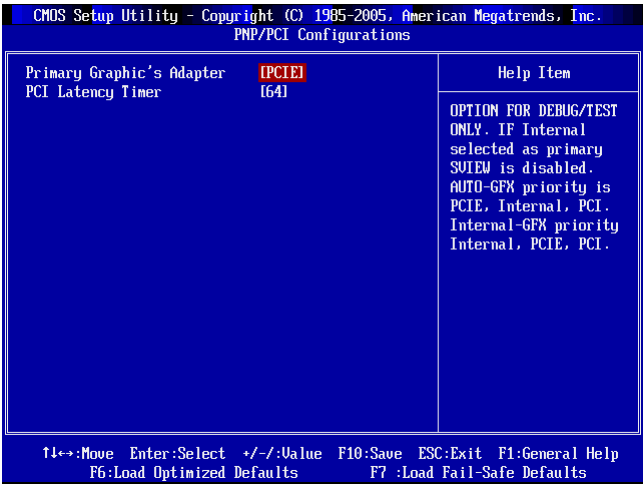
► Resume by PCIE Device

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any PME (Power Management Event) from PCI Express device.

► 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.

PNP/PCI Configurations



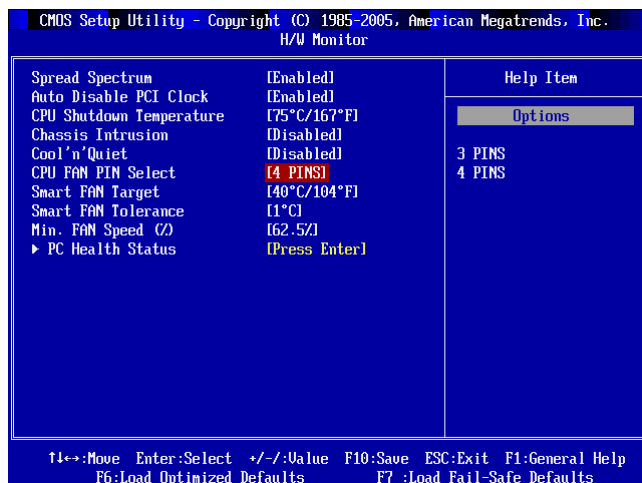
► Primary Graphics Adapter

This setting specifies which VGA 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.

H/W Monitor



► Spread Spectrum

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



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.

► Auto Disable PCI Clock

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

► CPU Shutdown Temperature

If the CPU temperature reaches the upper limit preset in this setting, the system will be shut down automatically. This helps you to prevent the CPU overheating problem. This item is available only when your OS supports this function, such as Windows ME/XP.

► 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.

► Cool'n'Quiet

This feature is especially designed for AMD Athlon processor, which provides a CPU temperature detecting function to prevent your CPU's from overheating due to the heavy working loading.

► CPU FAN PIN Select

Be sure to select the correct pin number identical to the pin of the CPU fan you purchase.

► Smart FAN Target

The mainboard provides the Smart Fan system which can control the fan speed automatically depending on the current temperature to keep it within a specific range.

► Smart FAN Tolerance

You can select a fan tolerance value here for the specific range for the "Smart Fan Target" item. If the current temperature of the fan reaches the maximum threshold (the temperatures set in the "Smart Fan Target" plus the tolerance values you set here), the fan will speed up for cooling down. On the contrary, if the current temperature reaches to the minimum threshold (the set temperatures minus the tolerance value), the fan will slow down to keep the temperature stable.

► Min. FAN Speed (%)

This item allows you to set the minimum CPU fan speed.

► PC Health Status

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

PC Health Status		
CPU Temperature	: 39°C/102°F	Help Item
System Temperature	: 30°C/86°F	
CPU FAN Speed	: 0 RPM	
SYSTEM FAN Speed	: 3183 RPM	
Vcore	: 1.288 V	
+3.3V	: 3.344 V	
+12.0V	: 11.827 V	
+5.0V	: 5.145 V	
+3VSB	: 3.328 V	

Load Fail-Safe/Optimized Defaults

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

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



Selecting *OK* loads the BIOS default values for the most stable, minimal system performance.

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



Selecting *OK* loads the default factory settings for optimal system performance.

BIOS Setting Password

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



Enter New Password

Type the password, up to 6 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.

Appendix A

Realtek ALC883 Audio

The Realtek ALC883 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

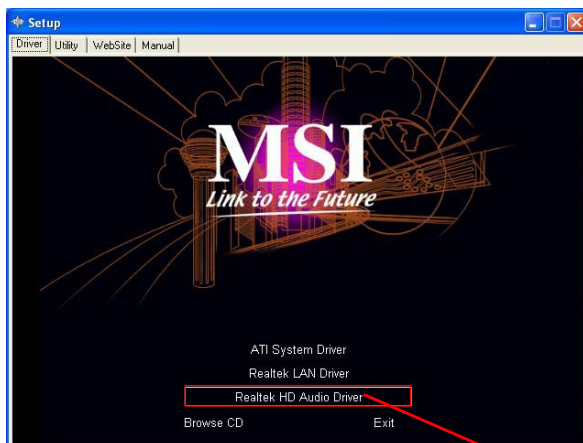
You need to install the driver for Realtek ALC883 codec to function properly before you can get access to 2-, 4-, 6-, 8- channel or 7.1+2 channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

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**.



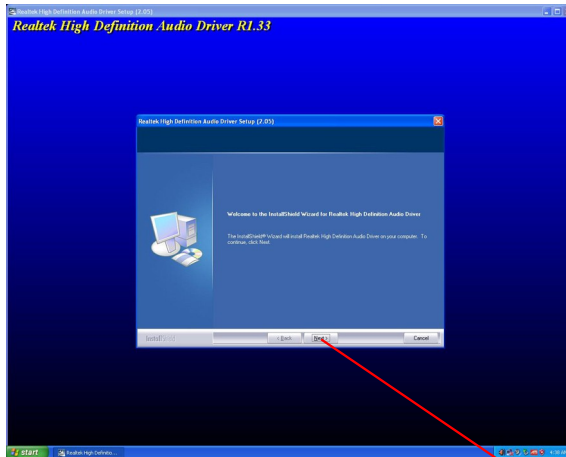
Click here



Important

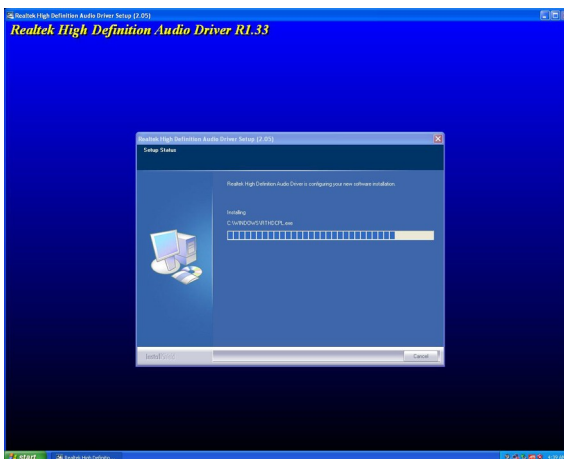
The **HD Audio Configuration**  software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this section may be slightly different from the latest software utility and shall be held for reference only.

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




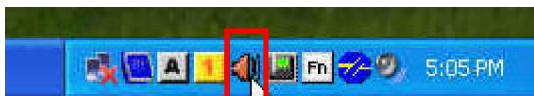
Click here

4. The installation begins.

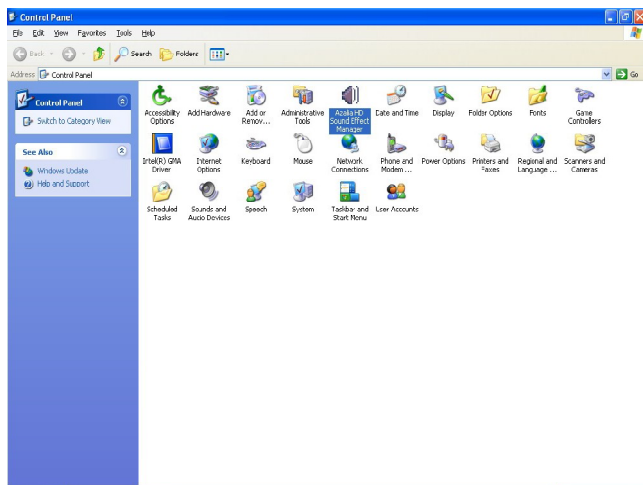


Software Configuration

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.

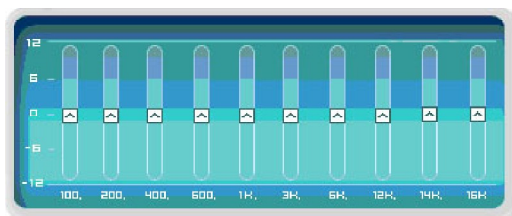
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make an new equalizer setting to save as an new one by using the “**Load EQ Setting**” and “**Save Preset**” button, click “**Reset EQ Setting**” button to use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

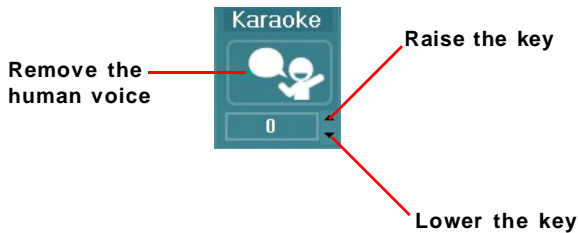
[How to Use It]

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 setting 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 plug the speakers into the jacks on the front panel.*

2. Multi-Stream Function

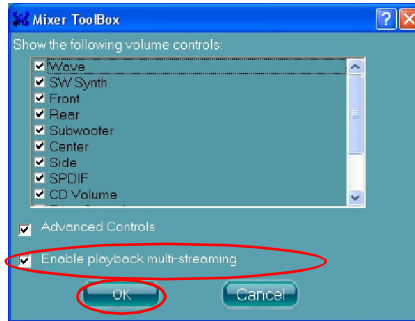
ALC883 supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated rear panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

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

*If you use **AC97 front panel**, the device has to be plugged into the jacks on the panel before you 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.

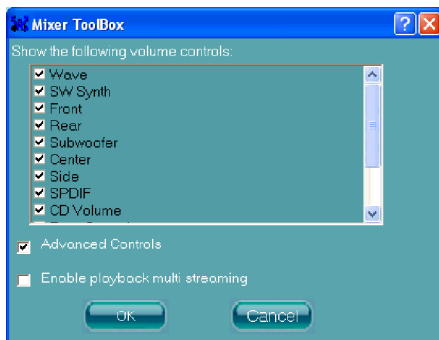
Tool

- Show the following volume controls

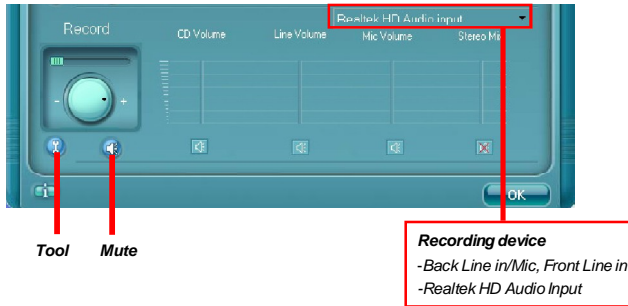
This is to let you freely decide which volume control items to be displayed.

- 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

ALC883 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.

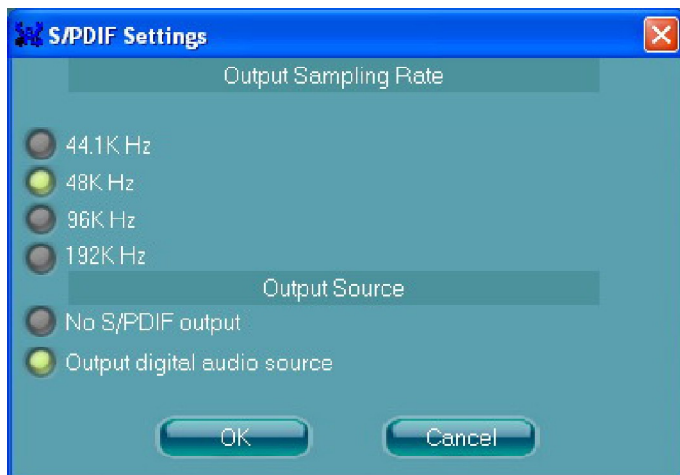
Mute rear panel output when front headphone plugged in.

Enable auto popup dialogue, when device has been plugged in

Once this item checked, the dialog "Connected device" would not 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 recommended 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.

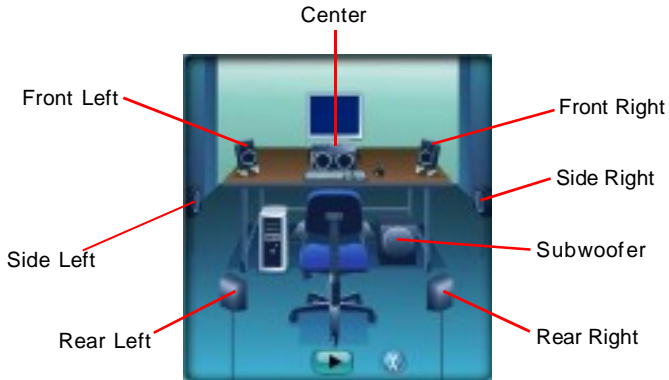
Output Source

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 through 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.



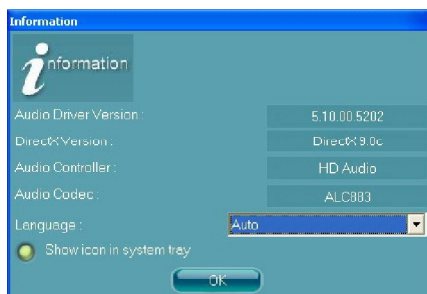
3D Audio Demo


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

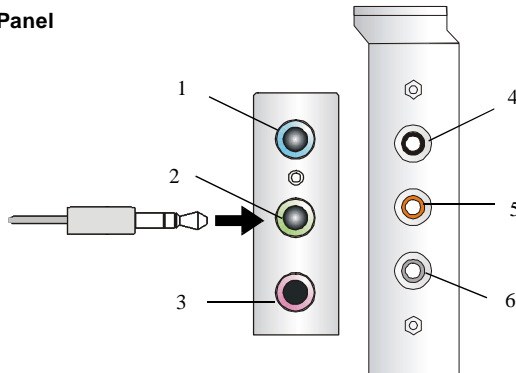
Connecting the Speakers

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.

n 2-Channel Mode for Stereo-Speaker Output

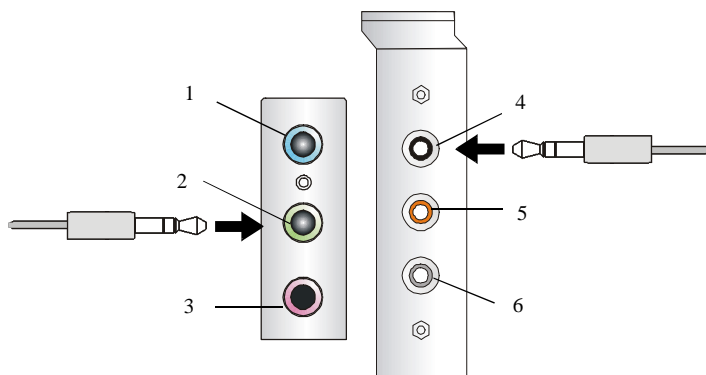
Refer to the following diagram and caption for the function of each phone jack on the back panel when 2-Channel Mode is selected.

Back Panel



- 1** Line In
- 2** Line Out (*Front channels*)
- 3** MC
- 4** Line Out (*Rear channels, but no functioning in this mode*)
- 5** Line Out (*Center and Subwoofer channel, but no functioning in this mode*)
- 6** Side Surround Out (*Side channels, but no functioning in this mode*)

n 4-Channel Mode for 4-Speaker Output



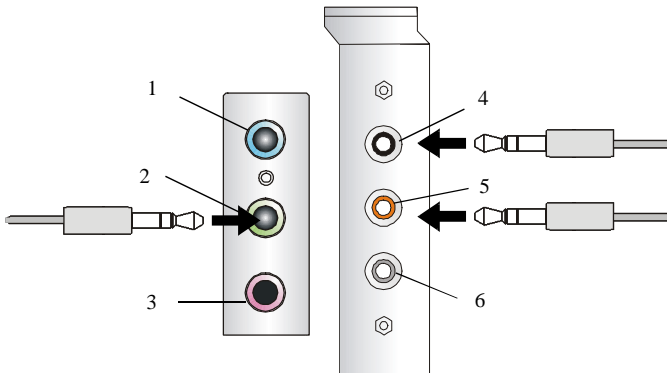
Description:

Connect two speakers to back panel's Line Out connector and two speakers to the real-channel Line Out connector.

4-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, but no functioning in this mode*)
- 6 Side Surround Out (*Side channels, but no functioning in this mode*)

n 6-Channel Mode for 6-Speaker Output



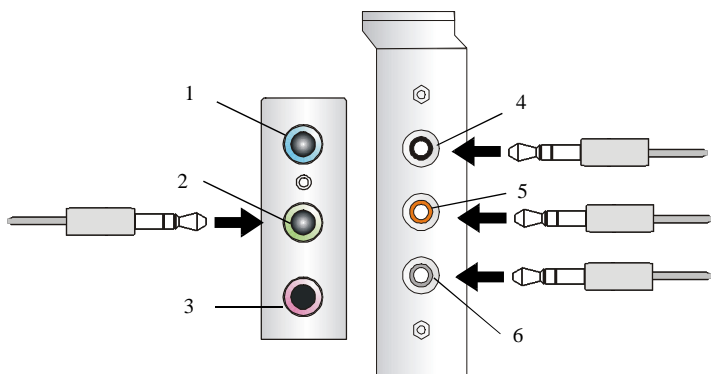
Description:

Connect two speakers to back panel's Line Out connector, two speakers to the rear-channel and two speakers to the center/subwoofer-channel Line Out connectors.

6-Channel Analog Audio Output

- 1 Line In
- 2 Line Out (*Front channels*)
- 3 MIC
- 4 Line Out (*Rear channels*)
- 5 Line Out (*Center and Subwoofer channel*)
- 6 Side Surround Out (*Side channels, but no functioning in this mode*)

n 8-Channel Mode for 8-Speaker Output



Description:

Connect two speakers to back panel's Line Out connector, two speakers to the rear-channel, two speakers to the center/subwoofer-channel Line Out connectors, and two speakers to the side-channel Line Out connectors.

8-Channel Analog Audio Output

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

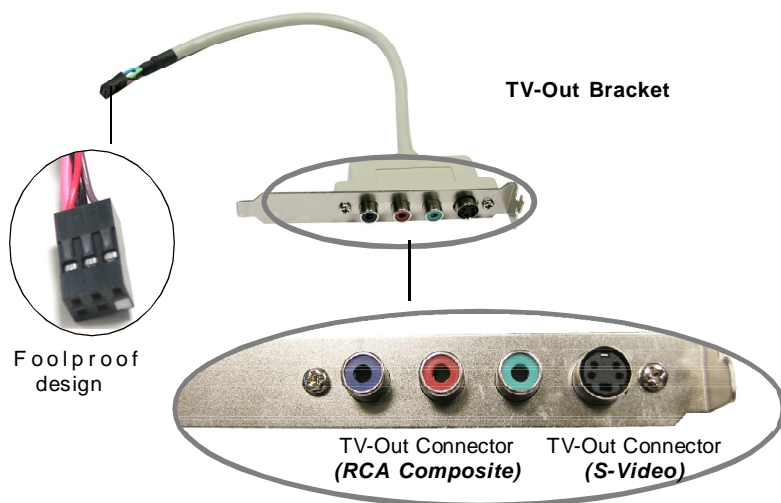
Appendix B

Using TV-Out Function

You need to install the TV-Out bracket before you can get access to the TV-out function. Follow the procedures described later to set up the TV-Out bracket and configure the display settings. Note that the TV-Out bracket works with the onboard graphic core. Do not insert any VGA card into the slot while using the TV-Out bracket.

Installing the TV-Out Bracket

1. Take out the TV-Out bracket.



2. Locate the TV-out connector (JTV1) on the mainboard.
3. Connect the TV-Out bracket to the connector. Align the foolproof design with the pin layout of the connector to avoid mis-inserting.
4. Place the TV-Out bracket into the first slot of your system case.



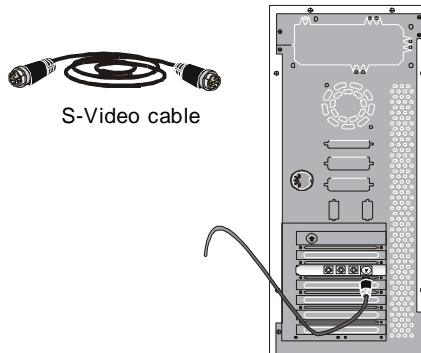
Important

Please note that the TV-Out bracket can connect to one TV only. Users have to choose either the RCA Composite or the S-Video to connect. Simultaneous connection (of this bracket) to two TVs is prohibited and may lead to the malfunction of the TVs.

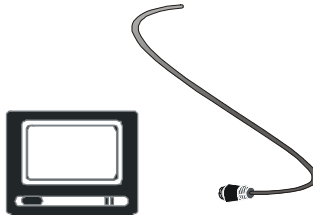
Connecting S-Video & HDTV Cables

Connecting S-Video cable

1. Connect one end of the S-Video cable to the TV-Out(S) connector.

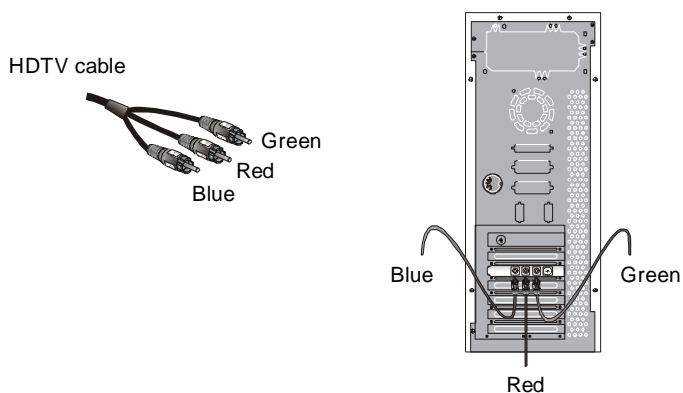


2. Connect the other end of the S-Video cable to the TV.

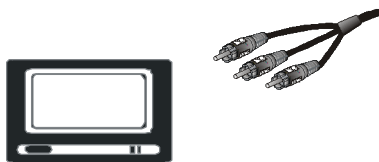


Connecting HDTV cable

1. Connect one end of the HDTV cable to the TV-Out(C) connectors. The HDTV cable usually comes with three connectors on both ends.



2. Connect the other end of the HDTV cable to the HDTV.

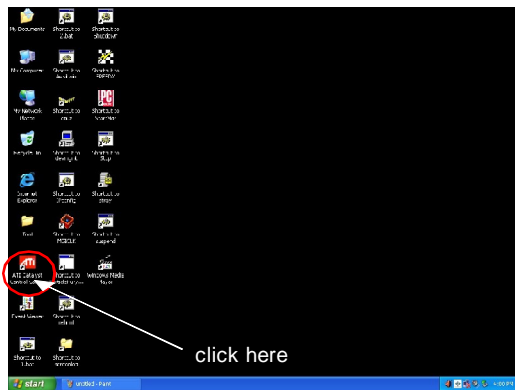


Display Setup

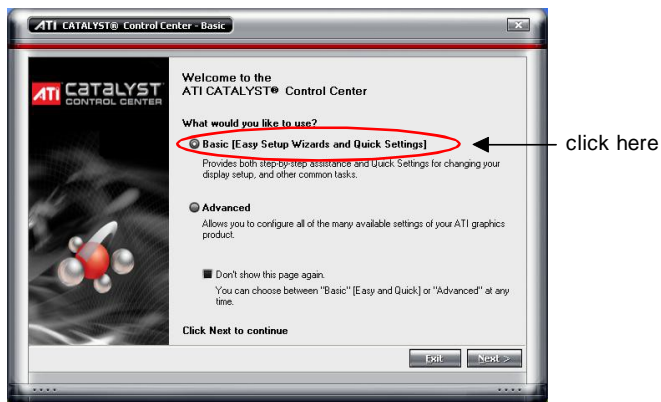
The following procedures describe display setup using Windows XP. Windows 2000/ME/9X screens are slightly different but the procedures are the same as described. Before enabling the TV-Out function, you have to select the TV-out mode in BIOS (refer to the “TV NTSC/PAL Display Select” item of **Advance Chipset Features** for details.)

To enable the TV-Out function, follow this procedure:

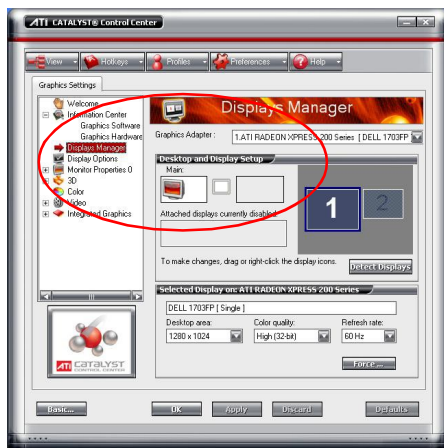
1. After installing the “ATI System Drivers” bundled in the driver CD for the mainboard, restart the computer. Click the “ATI Catalyst Control Center” icon on the desktop.



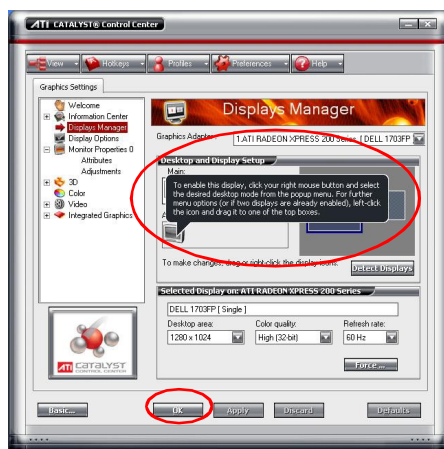
2. The setup screen appears. Select “Basic [Easy Setup Wizards and Quick Settings)” to open the Displays Manager wizard for step-by-step assistance in setting up your display configuration.



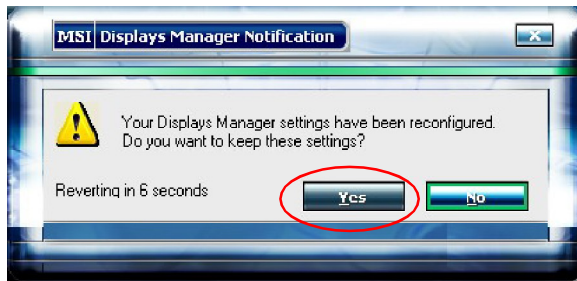
3. Select "Displays Manager" in the left control pane.



4. Select the display that you would like to enable. Right-click the mouse and select the desired desktop mode from the popup menu. Then click "OK" to proceed.



5. Finally, click "Yes" to complete the configuration.



Appendix C

ATI SURROUNDVIEW™

ATI SURROUNDVIEW™ is an integrated feature supported by the onboard ATI northbridge chipset. It provides the power and convenience of multi-adapter, multi-monitor support for computers that use an PCI Express®-based graphics card in conjunction with specific ATI integrated graphics processors (IGPs).

Introduction

SURROUNDVIEW™ provides the power and convenience of multi-adapter, multi-monitor support for computers that use an PCI Express®-based graphics card in conjunction with the following ATI integrated graphics processors (IGPs):

■ RADEON® XPRESS 200

SURROUNDVIEW™ enables support for up to four independent monitors with this mainboard.

Multi-monitor capability increases productivity, allowing you to read e-mail on one screen, work on a spreadsheet on another, and create a document on yet another. SURROUNDVIEW™ is also ideal for an office environment. For example, a brokerage can monitor trades, place orders, and sell—each on a different display.

When the home-office computer is not being used for work, it can be used to play the latest games, several of which can take advantage of SURROUNDVIEW™'s multi-monitor display capabilities. For example, with Microsoft® Flight Simulator, cyber pilots can move different views to separate monitors.

Enabling the SURROUNDVIEW™ feature requires only a few steps:

1. Installing a graphics card in the motherboard's PCIe™ slot.
2. Enabling the integrated graphics processor (if necessary).
3. Enabling SURROUNDVIEW™ in the BIOS.

System Requirements

Supported ATI Products	<p>Integrated graphics processors (enabled by system BIOS):</p> <ul style="list-style-type: none">I RADEON® XPRESS 200 <p>PCIe™ graphics cards (subject to change without notice):</p> <ul style="list-style-type: none">I RADEON® X300 seriesI RADEON® X600 seriesI RADEON® X700 seriesI RADEON® X800 seriesI Or more advanced series
Expansion Slot	<ul style="list-style-type: none">I PCIe™ x 16
Operating System	<ul style="list-style-type: none">I Windows® 2000I Windows® XP (Home or Pro)
CPU	AMD® Socket AM2 recommended
System Memory	1 GB minimum
UMA Frame Buffer	64 MB minimum, 128 MB recommended

Installing a Graphics Card



Important

*This section provides **generic** installation instructions only. In most cases a graphics card will come with **specific** installation instructions, in which case users should consult their graphics card manual and follow the instructions therein.*

Before You Begin

Before you begin installing your graphics card, please do the following:

1. Record any serial numbers printed on the card itself.
2. Update your PCIe™ chipset drivers to the latest version. Consult your motherboard manual or manufacturer's Web site for more information.
3. Uninstall the graphics drivers for any previously installed graphics card if you are installing a new ATI graphics card.



Important

Your integrated graphics processor will have separate drivers from your PCIe™ graphics card. Do not uninstall the drivers for your IGP.

Basic Graphics Card Installation

u To install a graphics card

1. Turn off the computer, monitor, and other peripheral devices.
2. Unplug the computer's power cord and disconnect all cables from the back of your computer.



Important

WARNING - Wait approximately 20 seconds after unplugging the power cord before disconnecting a peripheral or removing a component from the motherboard to avoid possible damage to the motherboard.

3. Remove the computer cover. If necessary, consult your computer's manual for help in removing the cover.



Important

***WARNING** - Remember to discharge your body's static electricity by touching the power supply or the metal surface of the computer chassis.*

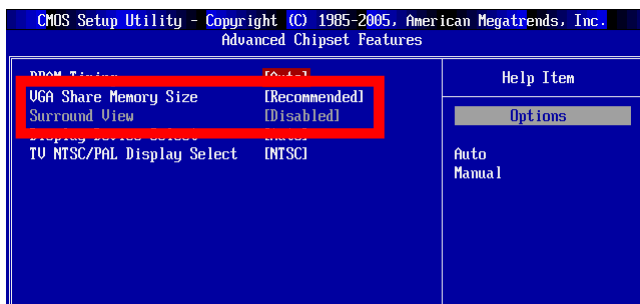
4. Unscrew or unfasten and remove any existing graphics card from your computer.
5. Locate the appropriate slot and, if necessary, remove the metal back-plate cover.
6. Align your graphics card with the slot and press it in firmly until the card is fully seated.
7. Screw in or fasten the graphics card securely and replace the computer cover.
8. Reconnect any cables you have disconnected and plug in the computer's power cord.
9. Turn on the monitor and then your computer. If you have properly installed your graphics card, operating system messages will appear once the boot procedure is finished.

Your monitor will be running in a basic video mode. Higher refresh rates are not available at this stage of the installation. Once you have installed the proper drivers and software, you can use the Display Properties control panel to adjust the video settings and configure multiple monitors.

Enabling SURROUNDVIEW™

To enable SURROUNDVIEW™, you must first alter your computer's BIOS settings.

1. Restart your system, and enter CMOS setup. CMOS is part of your system's BIOS (Basic Input/Output System). When restarting, press **DEL** key to enter Setup. The CMOS Setup screen appears.
2. Use the arrow keys to navigate to **Advanced Chipset Features**, and then press Enter. The Advanced Chipset Features screen appears.



3. Use the arrow keys to navigate to **VGA Share Memory Size**. The default value **[Recommended]** refers to a minimum size of 64MB and up. Users may leave the value to **[Recommended]** or set it to **64MB** (or higher).
4. Use the arrow keys to navigate to **SurroundView** and set it to **Enabled**.
5. Press **F10** to Save your changes. When the **Save to CMOS and Exit** prompt appears, press **Y**.



Important

After setting the BIOS and enter the O.S., the system will pop up the "Found New Hardware Wizard" window to ask you to provide some files to complete the surroundview installation. Please insert the "MSI system driver" CD into the CD-ROM which provides the appropriate files for it.

Frequently Asked Questions

Using SURROUNDVIEW™	
Question	Answer
Does the Windows® “Standby” function work when SURROUNDVIEW™ is enabled?	Yes, Standby should work properly with SURROUNDVIEW™.
Do all ATI cards support SURROUNDVIEW™?	No, only the ATI graphics cards noted in System Requirements will support SURROUNDVIEW™.
Can SURROUNDVIEW™ run with other manufacturers' graphics cards?	
If the integrated graphics processor (IGP) is enabled and I install a PCI graphics card, is SURROUNDVIEW™ available?	No, this function is called “dual adaptor,” and functions similarly to using two, discrete graphics cards. SURROUNDVIEW™ requires an AGP- or PCIe-based graphics card.

Using Multiple Displays

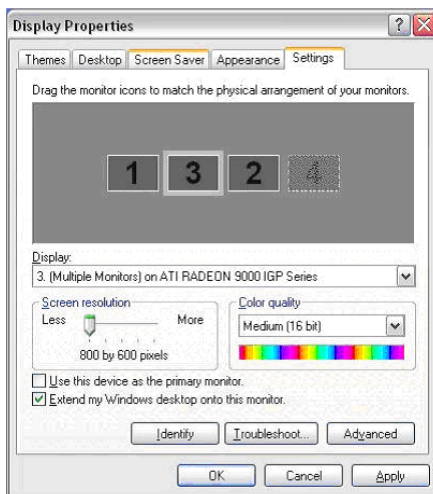
Setting Up Multiple Displays

To use SURROUNDVIEW™, connect display devices to the output connections of both your integrated graphics processor (IGP) and your PCI Express® graphics card.

There will normally be three or four connections:

- I Four connections mode
 - two from the IGP and two from the graphics card.
- I Three connections mode
 - one from the TV-out and two from the graphics card;
 - one from the IGP and two from the graphics card;
 - two from the IGP and one from the graphics card.
- u **To connect your monitors**
 1. **Power off** your computer and monitors.
 2. **Plug** the monitor cables into their appropriate connectors.
 3. **Power on** your monitors first, and then restart your computer so that Windows® can detect the new hardware settings.

Once your monitors are connected, you can configure them for a multi-monitor display using SURROUNDVIEW™.



Windows® Display Properties Dialog with Multiple Monitors

u To set up a multi-monitor display

1. Right-click on a clear area of your desktop and choose **Properties**. The Display Properties dialog opens.
2. Select the **Settings** tab.
3. Click the **Identify** button to display a large number on each monitor.
4. Right-click the display icon in the Display Properties dialog that you wish to be your primary (main) monitor, and choose **Primary**.

Note: When you use multiple monitors with your card, one monitor will always be Primary. All additional monitors will be designated as Secondary.

5. Select the display icon identified by the number **2**.
6. Click **Extend my Windows desktop onto this monitor**.
7. Right-click the display icon and choose **Attached**, if necessary.
8. Set the **Screen Resolution** and **Color Quality** as appropriate for the second monitor. Click **Apply** or **OK** to apply these new values.

u Refer to your Windows® online help and documentation for further information on using the **Settings** tab.

Note: Each display can use a different screen resolution. For games, it is recommended that you use the same resolution on all displays.

9. Repeat steps 5 through 7 for the display icon identified by the number three.
10. Click and drag the display icons to positions that represent the physical setup of your monitors that you wish to use. The placement of display icons determines how you move items from one monitor to another.

u To move items by dragging left and right, place the display icons side by side.

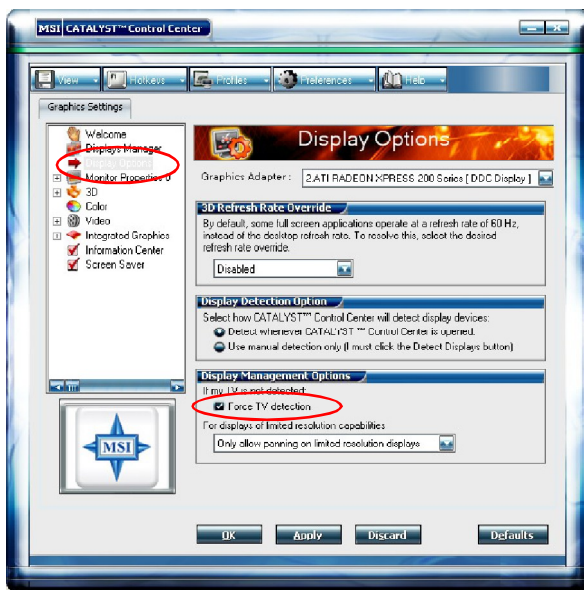
u To move items by dragging up and down, place the display icons one above the other.

u To use three connection mode: One from TV and two from the graphics card.)

If you use the three connections mode (one from the TV and two from the graphics card), it is required to follow the step below to **recognize** the TV that connected to the mainboard:

1. Install the TV-out bracket to the mainboard.
2. Connect the TV to the TV-out bracket.
3. Power on the computer. (Be sure you had install the "ATi System Drivers" already, if not please install it.)
4. Click the "ATI Catalyst Control Center" icon on the desktop.
5. Click the "Display Options" from the left side on the CATALYST™ Control Center.
6. Check the "Force TV detection" in the Display Detection Option part. Then click "Apply" and "OK".

The system will detect the TV after the configuration.



Using SURROUNDVIEW™

Business Applications

Using SURROUNDVIEW™, you can run multiple applications simultaneously — for example, a spreadsheet, a Web browser and a stock trader could be run and viewed on separate screens at the same time.

u To enable SURROUNDVIEW™ for business applications

1. Right-click a clear area of your desktop, click **Properties**, click the **Settings** tab, and then click the **Identify** button to display a large number on each monitor, showing which monitor corresponds with each icon.



Identifying your screens

2. Open your spreadsheet program. Your spreadsheet opens in the primary monitor.



Launching a spreadsheet in your primary monitor

3. Open your Web browser, and then drag it to monitor 2.



Web browser displayed on monitor 2

4. Launch another instance of your Web browser, and then drag it to monitor 3.



Another Web browser displayed on monitor 3

Games

The following section uses Microsoft® Flight Simulator as an example of using SURROUNDVIEW™ for games.

Using SURROUNDVIEW™, you can display a different Flight Simulator view on each of your monitors.



Important

*For best results, in the **Flight Simulator Settings Display** dialog, set the full screen resolution for each video adapter to match the desktop resolution for the corresponding display.*

Because the simulation creates additional information that is sent to the video hardware and monitors, running multiple displays always affects performance compared to a single-display configuration.

U To enable SURROUNDVIEW™ for Microsoft® Flight Simulator

1. Start with Flight Simulator running in windowed mode, so that you can move windows off the primary display.

To switch between full-screen and windowed mode, press **Alt + Enter** or, in the **Views** menu, click **Full Screen**.

Your displays will look like the following:



Initial Start Up Screen for Microsoft® Flight Simulator

- U** Monitor 2
- V** Monitor 1 (Primary)
- W** Monitor 3

2. Click the **FLY NOW!** button to start Flight Simulator. Then click the "X" button to continue. You are now "flying".



"Flying" in Microsoft® Flight Simulator using primary monitor only

3. From the **Views** menu, create a new window, and then drag it to monitor 2.



Microsoft® Flight Simulator with both Primary and Monitor 2 running



Important

1. When moving a 3D window, you may see some hesitation when crossing the boundary to a secondary display. After you move the 3D window to the secondary display, that scene will be displayed in 3D. You can return to full-screen mode on each display after you move the windows.
2. Multiple full-screen setups are not saved in the Flight Simulator or Flight Configuration (.cfg) files. You can save a Flight while each display is in windowed mode, and then switch to full-screen mode after you launch Flight Simulator.

4. From the **Views** menu, create another new window, and then drag it to monitor 3.



Microsoft® Flight Simulator using all three monitors