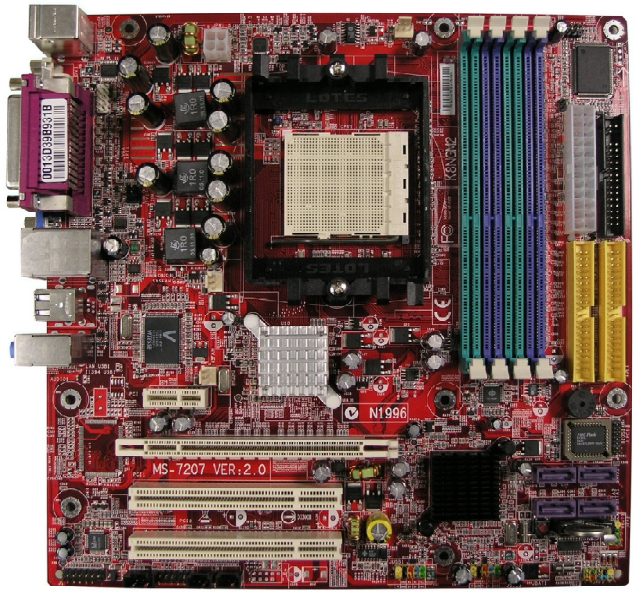
K8NGM2-NBP

MS-7207 (v2.X) Micro-ATX Mainboard



G52-72071X2

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

CE N1996

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

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

FC

Micro-Star International
MS-7207

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

Copyright Notice

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Revision History

Revision	Revision History	Date
V2.1	For NBP	Jan. 2006
V2.2	RAID Spec Update	Jun. 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 homepage & FAQ site for technical guide, BIOS updates, driver updates, and other information: **http://www.msi.com.tw** & **http://www.msi.com.tw/program/service/faq/faq/esc_faq_list.php**

† 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 60^0 C (140^{0}F), it may damage the equipment.**



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



廢電池請回收

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

WEEE Statement



ENGLISH

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

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

DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

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

FRANÇAIS

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

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

РУССКИЙ

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

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

ESPAÑOL

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

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

NEDERLANDS

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

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

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

SRPSKI

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

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

POLSKI

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...

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

TÜRKÇE

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

ČESKY

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

MAGYAR

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

ITALIANO

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

CONTENTS

FCC-B Radio Frequency Interference Statement ii
Copyright Notice iii
Technical Support iv
Safety Instructions iv
WEEE Statement v
Chapter 1. Getting Started 1-1
Mainboard Specifications 1-2
Mainboard Layout 1-5
Packing Checklist 1-6
Chapter 2. Hardware Setup 2-1
Quick Components Guide 2-2
Central Processing Unit: CPU 2-3
CPU Installation Procedures for Socket 939 2-4
Installing AMD Athlon64 CPU Cooler Set 2-5
Memory 2-7
DIMM Module Combination 2-7
Installing DDR Modules 2-8
Power Supply 2-9
ATX 24-Pin Power Connector: ATX1 2-9
ATX 12V Power Connector: JPW1 2-9
Back Panel 2-10
Mouse/Keyboard Connector 2-10
VGA Connector 2-10
Digital Panel Connector 2-11
USB Connectors 2-11
LAN(RJ-45) Giga-bit LAN (VSC8201RX) 2-12
Audio Port Connectors & Audio Header (J1) 2-13
IEEE 1394 Port (optional) 2-13
Parallel Port Connector: LPT1 2-14
Connectors 2-15
Floppy Disk Drive Connector: FDD1 2-15
Fan Power Connectors: CPUFAN1 / SYSFAN1 / NBFAN1 2-15
ATA133 Hard Disk Connectors: IDE1 & IDE2 2-16
Serial ATAII Connectors: SATA1~SATA4 2-17
CD-In Connector: JCD1 2-18
Front Panel Audio Connector: JAUD1 2-18
Chassis Intrusion Switch Connector: JCI1 2-18

SPDIF-Out/ SPDIF-In Connector: JSPDO1/JSPDI1 (SPDIF-In is optional) 2-19
Audio-out Connector: J1 2-19
Serial Port Header: JCOM1 2-20
IEEE 1394 Connectors: J1394_1 (Optional) 2-20
Front Panel Connector: JFP1/JFP2 2-21
IrDA Infrared Module Header: JIR1 2-21
Front USB Connectors: JUSB1/ JUSB2 2-22
Button 2-23
Clear CMOS Button: SW1 2-23
Slots 2-24
PCI Express Slots 2-24
PCI (Peripheral Component Interconnect) Slots 2-24
PCI Interrupt Request Routing 2-24
Chapter 3. BIOS Setup 3-1
Entering Setup 3-2
Control Keys 3-2
Getting Help 3-3
The Main Menu 3-4
Standard CMOS Features 3-6
Advanced BIOS Features 3-9
Advanced Chipset Features 3-11
Integrated Peripherals 3-14
Power Management Features 3-17
PNP/PCI Configurations 3-20
H/W Monitor 3-23
Cell_Menu 3-24
Load Fail-Safe/ Optimized Defaults 3-26
BIOS Setting Password 3-27
Chapter 4. Introduction to DigiCell 4-1
Main 4-2
Introduction: 4-2
H/W Diagnostic 4-4
Communication 4-5
Software Access Point 4-6
Terminology 4-6
Access Point Mode 4-7
WLAN Card Mode 4-8

Live Update 4-9
MEGASTICK 4-10
Basic Function 4-10
Non-Unicode programs supported 4-12
PC Alert 4-14
Power on Agent 4-15
Power Off / Restart 4-16
Start With 4-16
Auto Login 4-17
Chapter 5. nVidia RAID Introduction 5-1
Introduction 5-2
System Requirement 5-2
RAID Arrays 5-2
Summary of RAID Configurations 5-2
RAID Configuration 5-3
Basic Configuration Instructions 5-3
Setting Up the NVRAID BIOS 5-3
Installing the RAID Driver (for bootable RAID Array) 5-7
NVIDIA RAID Utility Installation 5-9
Installing the NVIDIA RAID Software under Windows (for Non-bootable RAID Array) 5-9
Initializing and Using the Disk Array 5-11
RAID Drives Management 5-12
Viewing RAID Array Configurations 5-12
Setting Up a Spare RAID Disk 5-13
Morphing From One RAID Array to Another 5-17
Hot Plug Array 5-18
Initializing a RAID Array 5-19
Rebuilding a RAID Array 5-22
Synchronizing a RAID Array 5-25
Usind Disk Alert 5-26
Appendix A: Introduction to Realtek ALC880 ..... A-1
Installing the Audio Driver A-2
Installation for Windows 2000/XP A-2
Software Configuration A-4
Sound Effect A-5
Mixer A-8
AudioIO A-12

S/PDIF A-15
Microphone A-17
3D Audio Demo A-18
Information A-19
Using 2-, 4-, 6- & 8- Channel Audio Function A-20



Getting Started

Thank you for choosing the K8NGM2-NBP (MS-7207 v2.X) Micro ATX mainboard. The K8NGM2-NBP mainboards are based on **nVidia® GeForce 6150B & nVidia® nForce 430** chipsets for optimal system efficiency. Designed to fit the advanced **AMD® K8 Athlon 64 FX** processor, the K8NGM2-NBP deliver a high performance and professional desktop platform solution.

Mainboard Specifications

CPU

† Supports 64-bit AMD K8 Athlon64 / Athlon64 X2 / Athlon64 FX processor (Socket 939)

† Supports 4800+ and higher CPU.
(For the latest information about CPU, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php)

Chipset

† nVidia® GeForce 6150B Chipset
- HyperTransport™ connection to AMD K8 Athlon64 processor.
- 8 or 16 bit control/address/data transfer both directions.
- 1GHz "Double Data Rate" operation both direction.
- Supports one PCI-E x16 slot.
- Graphic integrated.

† nVidia® nForce 430 Chipset
- Supports dual channel native SATA controller up to 300MB/s.
- Supports RAID 0, 1.
- Ultra DMA 66/100/133 master mode PCI EIDE controller.
- ACPI & PC2001 compliant enhanced power management.
- Supports USB2.0 up to 8 ports.
- Supports HD audio.

TPM

† Infineon SLB9635

Main Memory

† Supports DDR333/400 DDR SDRAM for dual channel.

† Supports a maximum memory size of 4GB.
(For the updated supporting memory modules, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php.)

Slots

† One PCI Express x 16 slot.

† One PCI Express x 1 slot.

† Two 32-bit Master 3.3v/5v PCI Bus slots.

Onboard IDE

† An IDE controller on the nVidia® nForce 430 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 66/100/133 operation modes.

† Can connect up to 4 IDE devices.

Onboard Serial ATA

† Supports 4 SATAII ports with up to 300MB/s transfer rate.



MSI Reminds You...

1. *Please note that users cannot install OS, either WinME or Win98, in their SATA hard drives. Under these two OSs, SATA can only be used as an ordinary storage device.*
2. *To create a bootable RAID volume for a Windows 2000 environment, Microsoft's Windows 2000 Service Pack 4 (SP4) is required. As the end user cannot boot without SP4, a combination installation CD must be created before attempting to install the operating system onto the bootable RAID volume.*
   To create the combination installation CD, please refer to the following website:
   http://www.microsoft.com/windows2000/downloads/servicepacks/sp4/HFdeploy.htm

USB Interface

† 8 USB ports
  - 4 ports in the rear I/O, 4 ports via the external bracket

LAN

† VITESSE VSC8201RX
  - Compliant with PCI v2.2.
  - Supports ACPI Power Management.
  - Supports 10Mb/s, 100Mb/s or 1000Mb/s.

IEEE 1394 (Optional)

† Supports two IEEE1394 ports, transfer rate is up to 400Mbps.
† Controlled by VIA VT6307/VT6308 chipset (optional).

Audio

† 8 channels HD audio codec Realtek ALC880
  - High Definition link controller integrated in nForce 430.

On-Board Peripherals

† On-Board Peripherals include:
  - 1 floppy port supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
  - 1 VGA port
  - 1 DVI port
  - 2 IEEE1394 ports (Rear*1/ Front*1) (optional)
  - 1 parallel port supporting SPP/EPP/ECP mode
  - 8 USB2.0 ports (Rear*4/Front*4)
  - 1 Audio (Line-In/Line-Out/MIC) port
  - 1 Audio header (Rear/ central/side output)
  - 1 RJ-45 LAN Jack
  - 2 IDE ports support 4 IDE devices
  - 4 serial ATAII ports

BIOS

† The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.

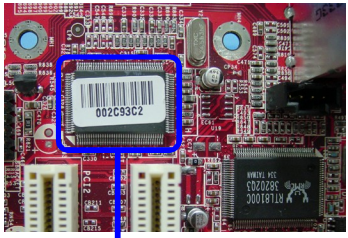
† The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

Dimension

† Micro-ATX Form Factor: 24.4cm X 24.4cm

Mounting

† 8 mounting holes



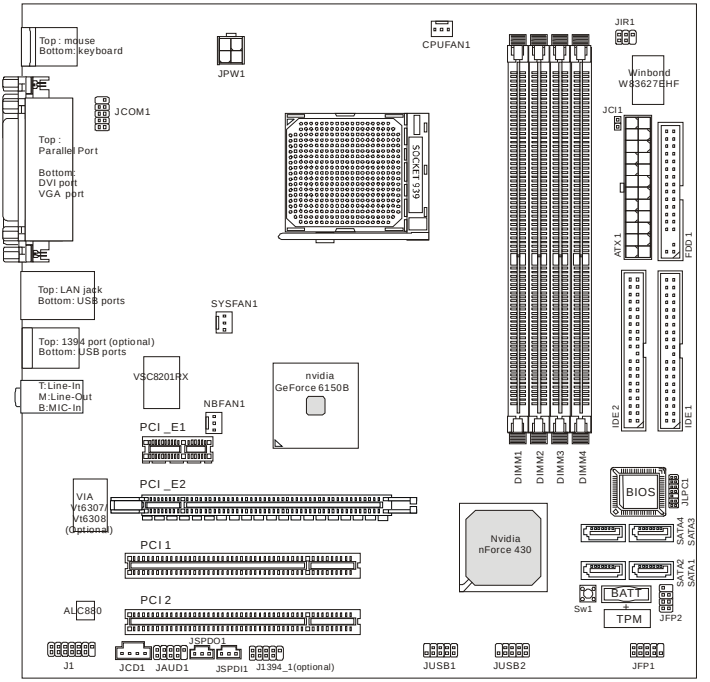
1394 GUID address Label (optional)

MSI Reminds You...

1. Each board will be given a unique 1394 GUID from the manufacturer’s default settings in the system BIOS.

2. Use the flash utility or Live Update from MSI’s website for BIOS update. The 1394 GUID address is burnt in the BIOS core. If the 1394 GUID address is lost due to an unpredictable event, such as replacing a new BIOS chip, users can use the utility from MSI’s website by entering the 1394 GUID address to recover its original one.

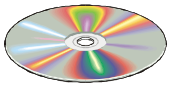
Mainboard Layout



K8NGM2-NBP (MS-7207 v2.X)
M-ATX Mainboard

Packing Checklist

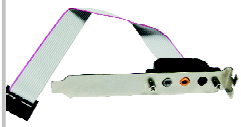

MSI motherboard


MSI Driver/Utility CD


SATA Cable (Optional)


Power Cable (Optional)


Standard Cable for IDE Devices


Audio-out Bracket (Optional)


1394 Bracket (Optional)


USB Bracket (Optional)


Back IO Shield


User's Guide

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

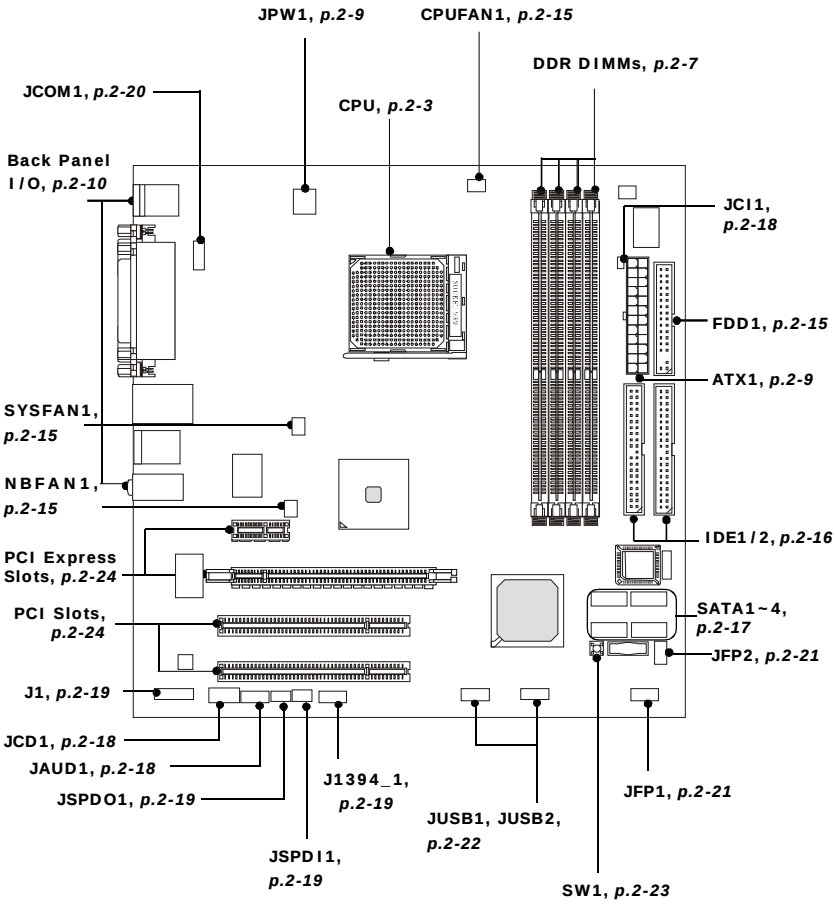


Hardware Setup

This chapter tells you how to install the CPU, memory modules, and expansion cards, as well as how to setup the jumpers on the mainboard. Also, it provides the instructions on connecting the peripheral devices, such as the mouse, keyboard, etc.

While doing the installation, be careful in holding the components and follow the installation procedures.

Quick Components Guide



Central Processing Unit: CPU

The mainboard supports AMD® Athlon64 processor. The mainboard uses a CPU socket called Socket-939 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

For the latest information about CPU, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php.



MSI Reminds You...

Overheating

Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.

Replacing the CPU

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

CPU Installation Procedures for Socket 939

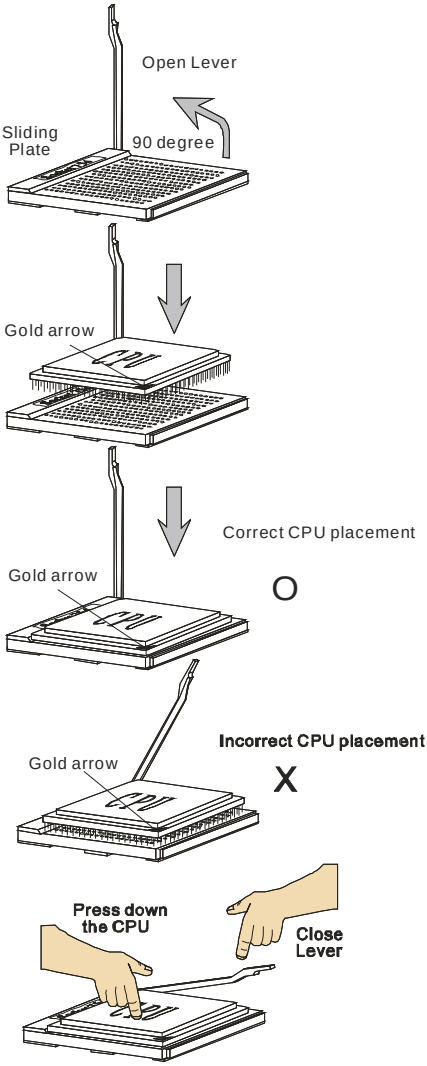
1. Please turn off the power and unplug the power cord before installing the CPU.

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

4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.

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

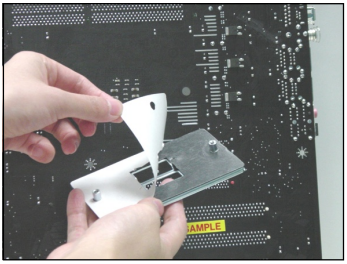


Installing AMD Athlon64 CPU Cooler Set

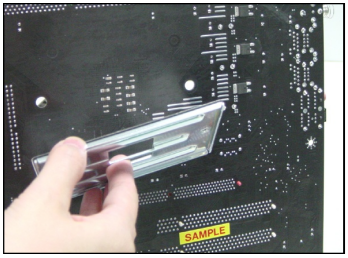
When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

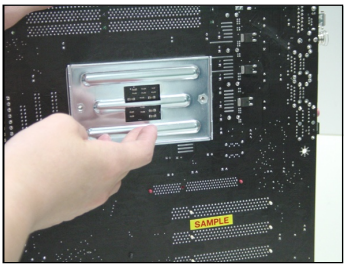
MSI Reminds You...
Mainboard photos shown in this section are for demonstration of the cooler installation for Socket 939 CPUs only. The appearance of your mainboard may vary depending on the model you purchase.

1. Detach the shield off the backplate's paster.

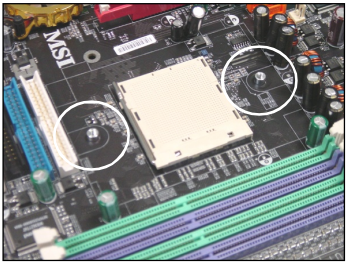


2. Turn over the mainboard, and install the backplate to the proper position.



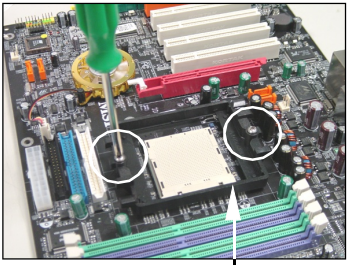


3. Turn over the mainboard again, and place the mainboard on the flat surface. Locate the two screw holes of the mainboard.



4. Align the retention mechanism and the backplate.

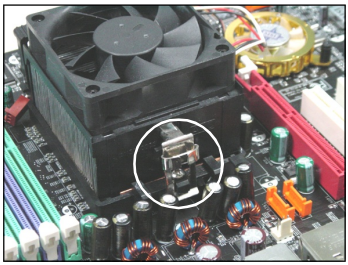
   Fix the retention mechanism and the backplate with two screws.



retention mechanism

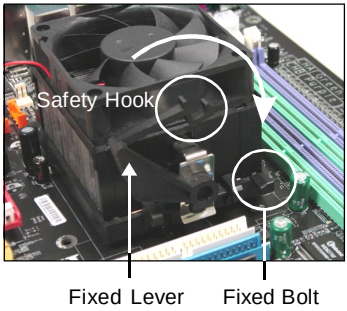
5. Position the cooling set onto the retention mechanism.

   Hook one end of the clip to hook first, and then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism.

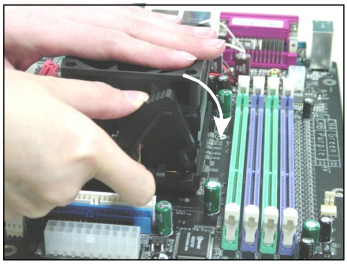


6. Locate the Fix Lever, Safety Hook and the Fixed Bolt.

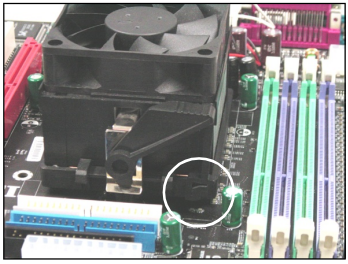
   Lift up the intensive fixed lever.



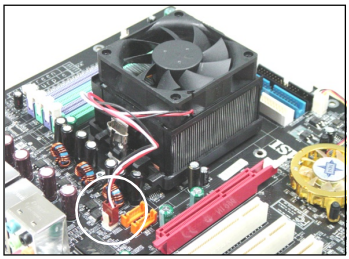
7. Fasten down the lever.



8. Make sure the safety hook completely clasps the fixed bolt of the retention mechanism.



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



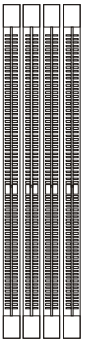
MSI Reminds You...

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 4 slots for 184-pin DDR DIMM (Double In-Line Memory Module) modules and supports the memory size up to 4GB. You can install DDR 333/ 400 modules on the DDR DIMM slots (DIMM 1~4).

DIMM1~DIMM4
(from left to right)



DIMM Module Combination

Install at least one DIMM module on the slots. Each DIMM slot supports up to a maximum size of 1GB. Users can install either single- or double-sided modules to meet their own needs. Users may install memory modules of different type and density on different-channel DDR DIMMs. However, ***memory modules of the same type and density*** are required while using dual-channel DDR, or instability may happen.

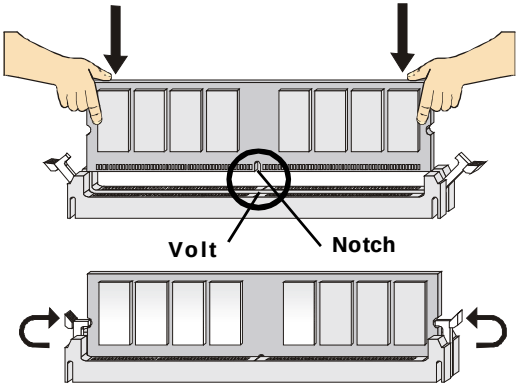
GREEN Slots		**PURPLE Slots**		
DIMM1 (CH A)	DIMM3 (CH A)	DIMM2 (CH B)	DIMM4 (CH B)	Mode
128MB~1GB		128MB~1GB		Dual Channel
	128MB~1GB		128MB~1GB	Dual Channel
128MB~1GB	128MB~1GB	128MB~1GB	128MB~1GB	Dual Channel

MSI Reminds You...

- *In dual-channel mode, make sure that you install memory modules of **the same type and density** on DDR DIMMs.*
- *To enable successful system boot-up, always insert the memory modules into the **DIMM1 slots first.***
- *This mainboard DO NOT support the memory module installed with more than 18 pieces of IC (integrated circuit).*
- *Do not support three memory modules.*

Installing DDR Modules

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

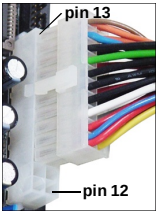


Power Supply

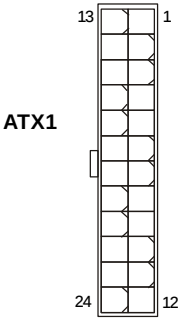
The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 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.

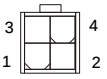


Pin Definition

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.

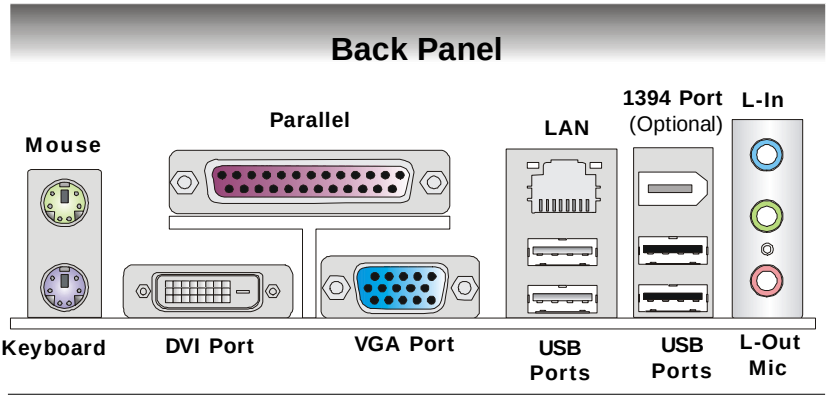


Pin Definition

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

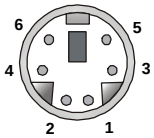
MSI Reminds You...

1. *These two connectors connect to the ATX power supply and have to work together to ensure stable operation of the mainboard.*
2. *Power supply of 350 watts (and above) is highly recommended for system stability.*
3. *ATX 12V power connection should be greater than 18A.*



Mouse/Keyboard Connector

The mainboard provides a standard PS/2® mouse/keyboard mini DIN connector for attaching a PS/2® mouse/keyboard. You can plug a PS/2® mouse/keyboard directly into this connector. The connector location and pin assignments are as follows:



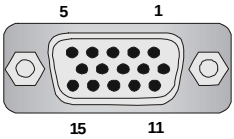
PS/2 Mouse / Keyboard (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse/Keyboard Data	Mouse/Keyboard data
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse/KeyboardClock	Mouse/Keyboardclock
6	NC	No connection

VGA Connector

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

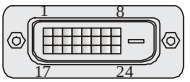


VGA Connector
(DB 15-pin)

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

Digital Panel Connector

The mainboard provides a DVI (Digital Visual Interface) connector which allows you to connect an LCD monitor. The DVI connector provides a high-speed digital interconnection between the computer and its display device. To connect a 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.)

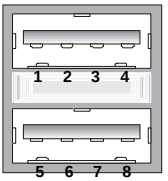


DVI Connector			
Pin	**Signal Assignment**	**Pin**	**Signal Assignment**
1	T.M.D.S.* Data2-	13	T.M.D.S. Data3+
2	T.M.D.S. Data2+	14	+5V
3	T.M.D.S. Data2/4 Shield	15	GND (for +5V)
4	T.M.D.S. Data4-	16	Hot Plug Detect
5	T.M.D.S. Data4+	17	T.M.D.S. Data0-
6	DDC Clock	18	T.M.D.S. Data0+
7	DDC Data	19	T.M.D.S. Data0/5 Shield
8	N/C	20	T.M.D.S. Data5-
9	T.M.D.S. Data1-	21	T.M.D.S. Data5+
10	T.M.D.S. Data1+	22	T.M.D.S. Clock Shield
11	T.M.D.S. Data1/3 Shield	23	T.M.D.S. Clock+
12	T.M.D.S. Data3-	24	T.M.D.S. Clock-

MSI Reminds You...
Please note that the DVI connector doesn't support to connect the D-Sub to DVI converter.

USB Connectors

The mainboard provides an OHCI (Open Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.



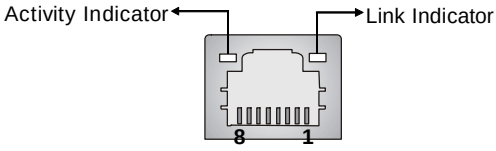
USB Ports

USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

LAN (RJ-45) Giga-bit LAN (VSC8201RX)

The mainboard provides 1 standard RJ-45 jack for connection to single Local Area Network (LAN). This LAN enables data to be transferred at 10/ 100/ 1000Mbps. 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.

The pin assignments vary depending on the transfer rates: 10/100Mbps or 1000Mbps. Note that Pin 1/2, 3/6, 4/5, 7/8 must work in pairs. Please refer to the following for details:

10/100 LAN Pin Definition

PIN	SIGNAL	DESCRIPTION
1	TDP	Transmit Differential Pair
2	TDN	Transmit Differential Pair
3	RDP	Receive Differential Pair
4	NC	Not Used
5	NC	Not Used
6	RDN	Receive Differential Pair
7	NC	Not Used
8	NC	Not Used

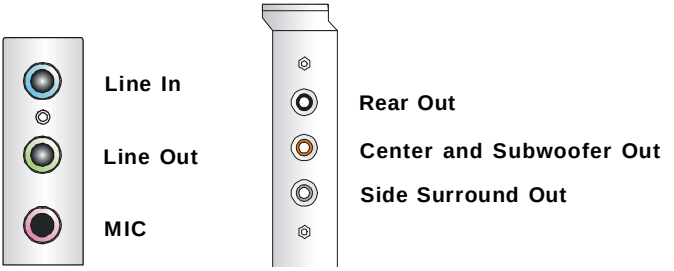
Giga-bit LAN Pin Definition

PIN	SIGNAL	DESCRIPTION
1	D0P	Differential Pair 0+
2	D0N	Differential Pair 0-
3	D1P	Differential Pair 1+
4	D2P	Differential Pair 2+
5	D2N	Differential Pair 2-
6	D1N	Differential Pair 1-
7	D3P	Differential Pair 3+
8	D3N	Differential Pair 3-

Audio Port Connectors & Audio Header (J1)

The 3 audio jacks are for 2-channel mode for stereo speaker output: **Line Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones.

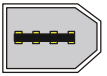
However, there is an advanced audio application provided by Realtek ALC880 to offer support for **7.1-channel audio operation**. You can use the external audio cable and the rear audio connectors to function the 2-/4-/5.1-/7.1- channel audio.



MSI Reminds You...
*For the advanced functions of the audio codec, please refer to **Appendix A: Introduction to Realtek ALC880** for details.*

IEEE 1394 Port (optional)

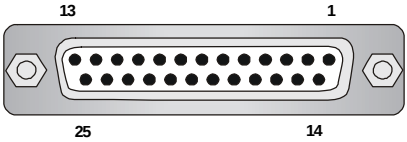
There is one 1394 port on the back panel providing the connection for 1394 devices.



1394 port

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin Definition

PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	PaperEnd
13	SELECT	Select
14	AUTO FEED#	AutomaticFeed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

Floppy Disk Drive Connector: FDD1

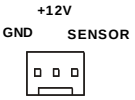
The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



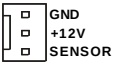
FDD1

Fan Power Connectors: CPUFAN1/SYSFAN1/NBFAN1

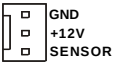
The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset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



CPUFAN1



SYSFAN1



NBFAN1

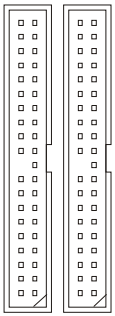
MSI Reminds You...

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

ATA133 Hard Disk Connectors: IDE1 & IDE2

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 up to four 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.



IDE2 **IDE1**

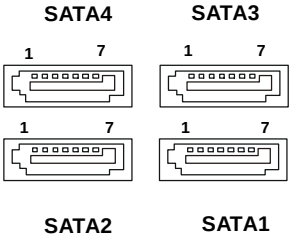
IDE1 (Primary IDE Connector)
The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)
IDE2 can also connect a Master and a Slave drive.

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

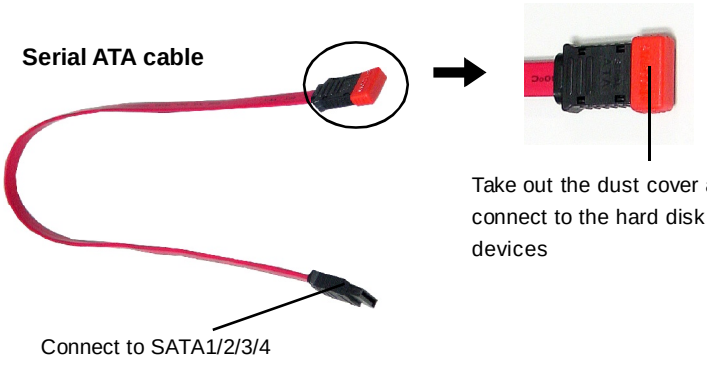
Serial ATAII Connectors: SATA1~SATA4

The Mainboard supports four serial ATAII connectors SATA1~SATA4. SATA1~SATA4 are high-speed Serial ATAII interface ports. Each supports 2st generation serial ATA data rates of 300MB/s and is fully compliant with Serial ATA 2.0 specifications. Each Serial ATAII connector can connect to 1 hard disk device.



Pin Definition

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



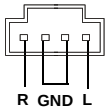
MSI Reminds You...

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

CD-In Connector: JCD1

This connector is provided for CD-ROM audio.

JCD1



Front Panel Audio Connector: JAUD1

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

JAUD1



Pin Definition

PIN	SIGNAL	DESCRIPTION
1	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	Connector Key
9	PORT 2L	Analog Port 2 - Left channel
10	SENSE2_RETIRN	Jack detection return from front panel JACK2

Chassis Intrusion Switch Connector: JCI1

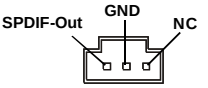
This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



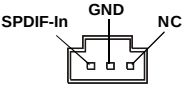
JCI1

SPDIF-Out/ SPDIF-In Connector: JSPDO1/ JSPDI1 (SPDIF-In is optional)

These connectors are used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission. The JSPDO1 is for SPDIF-Out and the JSPDI1 is for SPDIF-In.



JSPDO1



JSPDI1

Connected to JSPDO1 or JSPDI1 is by your desire.



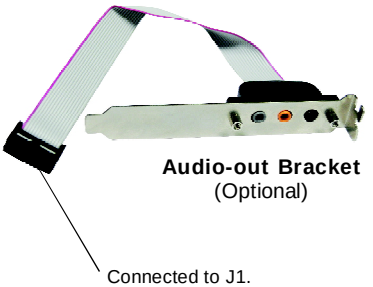
SPDIF Bracket (Optional)

Audio-out Connector: J1

The mainboard optionally provides a audio-out connector for you to attach a Audio-Out bracket. The Audio-Out bracket offers three audio-out jacks. Select the appropriate one to connect to the proper speaker.



J1



Audio-out Bracket
(Optional)

Connected to J1.

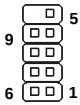
Pin Definition

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

Serial Port Header: JCOM1

The mainboard offers 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 device directly to it.

JCOM1



Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready)
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

IEEE 1394 Connectors: J1394_1 (Optional)

The mainboard provides one 1394 pin header 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

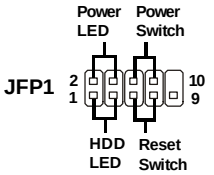


J1394_1



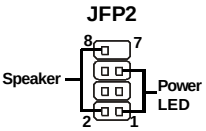
Front Panel Connector: JFP1/JFP2

The mainboard provides one front panel connector 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_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.



JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	BUZ-
7	NC	8	SPK+

IrDA Infrared Module Header: JIR1

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



Pin Definition

Pin	Signal
1	RX
2	TX
3	GND
4	VCC5
5	NC
6	NC

Front USB Connectors: JUSB1 / JUSB2

The mainboard provides two standard USB 2.0 pin headers *JUSB1 & JUSB2* . 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, JUSB2
(USB 2.0)

JUSB1 & JUSB2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB4-	4	USB5-
5	USB4+	6	USB5+
7	GND	8	GND
9	Key (no pin)	10	USBOC

Connected to JUSB1 or JUSB2 (yellow connectors)



USB 2.0 Bracket
(Optional)

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

Button

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

Clear CMOS Button: SW1

There is a CMOS RAM on board that has a power supply from external battery to keep the system configuration data. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the SW1 (Clear CMOS Button) to clear data. Press the button in the middle of the connector top side to clear the data.



SW1

Slots

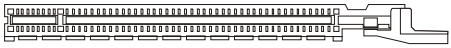
The motherboard provides one PCI Express x16 slot, one PCI Express x1 slot, and two 32-bit PCI bus slots.

PCI Express Slots

The PCI Express slot, as a high-bandwidth, low pin count, serial, interconnect technology.

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 AGP8x designs with transfer rates of 4.0 GB/s over a PCI Express x16 lane for graphics controllers.

You can insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first.



PCI Express x16 slot



PCI Express x1 slot

PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.



PCI Slots

PCI Interrupt Request Routing

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

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT E#	INT F#	INT G#	INT H#
PCI Slot 2	INT F#	INT G#	INT H#	INT E#

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.

MSI Reminds You...

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:

A7207NNG V1.0 151105 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.
2nd - 5th digit refers to the model number.
6th refers to the nVidia Chipset
7th - 8th digit refers to the customer as MS = all standard customers.
V1.0 refers to the BIOS version.
151105 refers to the date this BIOS was released.

Entering Setup

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

Press DEL to enter SETUP

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

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load Optimized defaults
<F7>	Load Fail-Safe
<F10>	Save all the CMOS changes and exit

Getting Help

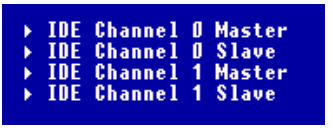
After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

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

Sub-Menu

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

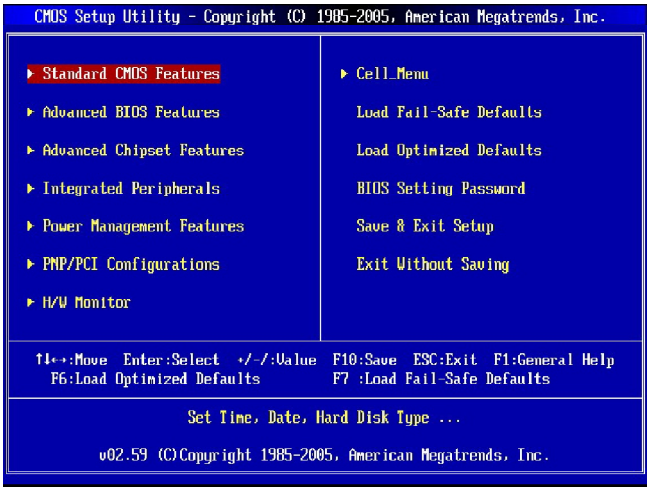


General Help <F1>

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

The Main Menu

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



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

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

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

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PNP/PCI Configurations
This entry appears if your system supports PnP/PCI.

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

Cell_Menu
This menu shows the frequency of CPU.

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.

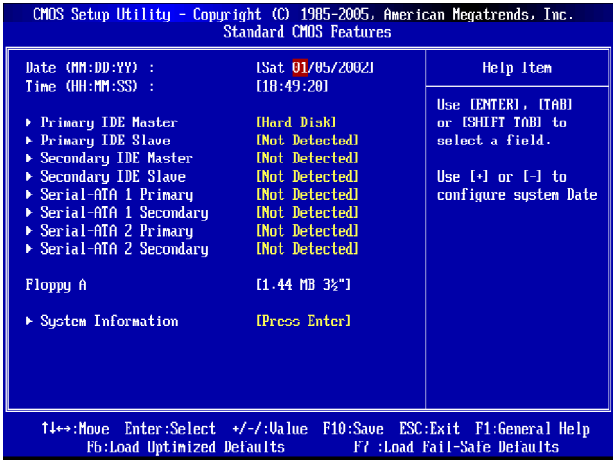
BIOS Setting Password
Use this menu to set the Password.

Save & Exit Setup
Save changes to CMOS and exit setup.

Exit Without Saving
Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date (MM:DD:YY)

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

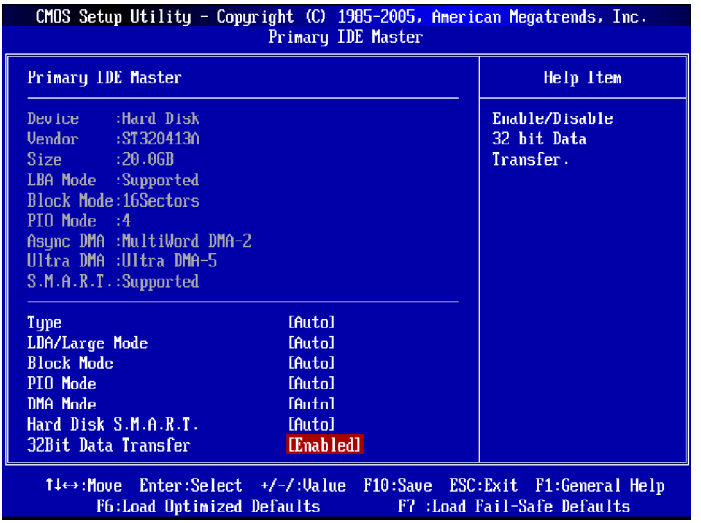
day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric function keys.
year	The year can be adjusted by users.

Time (HH:MM:SS)

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

Primary/Secondary IDE Master/ Slave, Serial-ATA 1/2 Primary/Secondary

Press <+> or <-> to select the hard disk drive type. The specification of hard d i s k drive will show up on the right hand according to your selection. Press <Enter> for the sub-menu of each item:



Device
This item shows the information about the specified item (Read-only).

Type
This item defines the HDD parameters.

LBA/Large Mode
This item allows you to enable or disable the LBA (Logical Block Address, the logical block size in hard disk) mode. Setting options: [Auto], [Disabled].

Block Mode
When the setting is Auto, it will read or write more sector at every circle to enhance the hard disk performance. Setting options: [Auto], [Disabled].

PIO Mode
The PIO (Programmed Input/Output) Mode let you set a PIO mode (0-4) for the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: [Auto], [Mode 0], [Mode 1], [Mode 2], [Mode 3], [Mode 4].

DMA Mode
This item allows you to enable or disable the DMA (Direct Memory Access) mode. Setting options: [Auto], [SWDMA0], [SWDMA1], [SWDMA2], [MWDMA0], [MWDMA1], [MWDMA2], [UDMA0], [UDMA1], [UDMA2], [UDMA3], [UDMA4], [UDMA5].

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

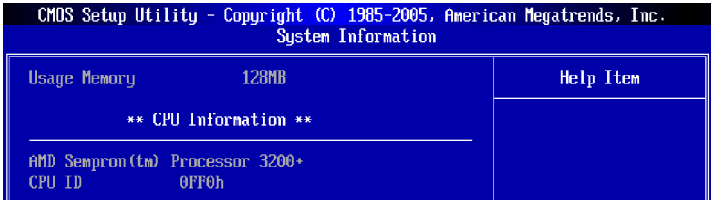
32Bit Data Transfer
This allows you to activate the 32bit data transfer to enhance the IDE hard disk performance.Settings options: [Enabled], [Disabled].

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

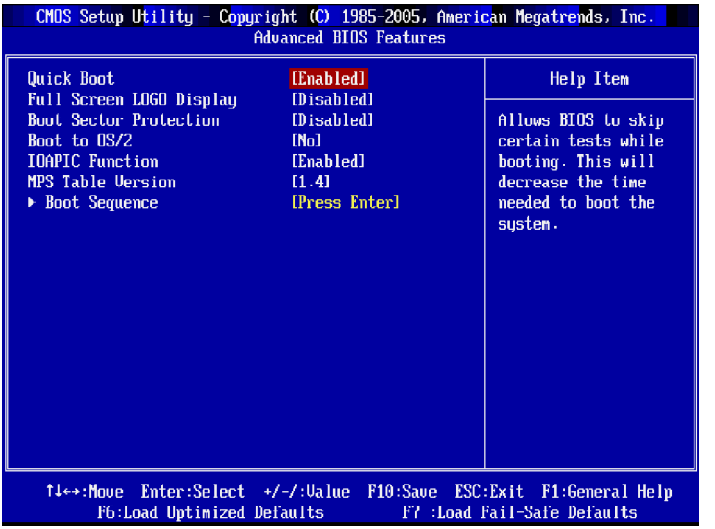
System Information
Press <Enter> to for the sub-menu of each item:

Usage Memory
This item shows the memory status (read only).

****CPU Information****
AMD Sempron(tm) Processor/CPU ID
The two items show the CPU related information of your system (read only).



Advanced BIOS Features



Quick Boot

Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. It is better to find a problem during POST than lose data during your work. Setting options: [Enabled], [Disabled].

Full Screen LOGO Display

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

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

Boot Sector Protection

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

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

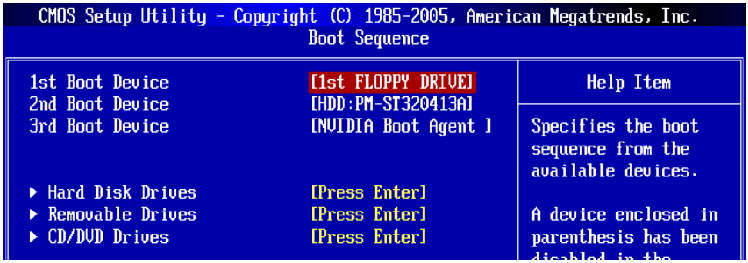
Boot to OS/2

This allows you to run the OS/2® operating system with DRAM larger than 64MB. When you choose [No], you cannot run the OS/2® operating system with DRAM larger than 64MB. But it is possible if you choose [Yes].

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. Setting options: [Enabled], [Disabled].

MPS Table Version
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Setting options: [1.4], [1.1].

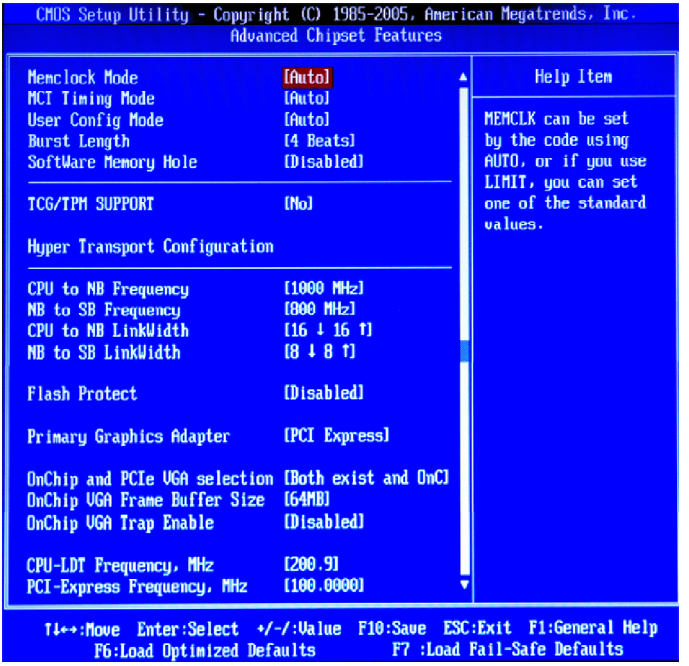
Boot Sequence
Press <Enter> to enter the sub-menu, and the following screen appears.



1st/2nd/3rd Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

Hard Disk Drives
This feature allows you to specify the hard disk boot priority.

Advanced Chipset Features



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

Memclock Mode
Users can place an artificial memory clock on the system. Please note that memory is prevented from running faster than this frequency. Setting options:[Auto], [Limit].

MCT Timing Mode
This field has the capacity to automatically detect all of the DRAM timing. The settings are: [Auto], [Manual].

User Config mode
This field has the capacity to automatically detect all of the following 4 fields default value.. If you set this field to [Manual], the following fields will be selectable. The settings are: [Auto], [Manual].

Burst Length
This setting allows you to set the size of Burst-Length for DRAM. Bursting feature is

a technique that DRAM itself predicts the address of the next memory location to be accessed after the first address is accessed. To use the feature, you need to define the burst length, which is the actual length of burst plus the starting address and allows internal address counter to properly generate the next memory location. The bigger the size, the faster the DRAM performance. Setting options: [8 Beats], [4 Beats] and [2 Beats].

Software Memory Hole
In order to improve performance, certain space in memory can be reserved for ISA peripherals. This memory must be mapped into the memory space below 16MB. When this area is reserved, it cannot be cached. Settings: [Disabled], [15MB-16MB].

TCG/TPM SUPPORT
Select YES if you have installed TCG/TPM units and you need to enable TCG/TPM function.

Hyper Transport Configuration
The following items are used for setting the frequency and the linkwidth from CPU to North Bridge and from North Bridge to South Bridge.

CPU to NB Frequemcy:	200/400/600/800/1000 MHz
NB to SB Frequemcy:	200/400/600/800/1000 MHz
CPU to NB LinkWidth:	8↓ 8↑ /16↓ 16↑
NB to SB LinkWidth:	4↓ 4↑ /8↓ 8↑ /16↓ 16↑

Flash Protect
This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you will need to disable this Flash Protection function. Setting options: [Enabled], [Disabled].

Primary Graphics Adapter
This setting specifies which VGA card is your primary graphics adapter. Setting options are:

[PCI Express] The system initializes the installed PCI Express card first. If an PCI Express card is not available, it will initialize the onboard VGA card.
[Onboard] The system initializes the onboard VGA card first.

OnChip and PCIe VGA selection
This setting allows you to enable both OnChip and PCIe VGA, or enable PCIe VGA only. Setting options: [Disbale Onchip VGA if have PCIe VGA], [Both exist and OnChip VGA by frame buffer select].

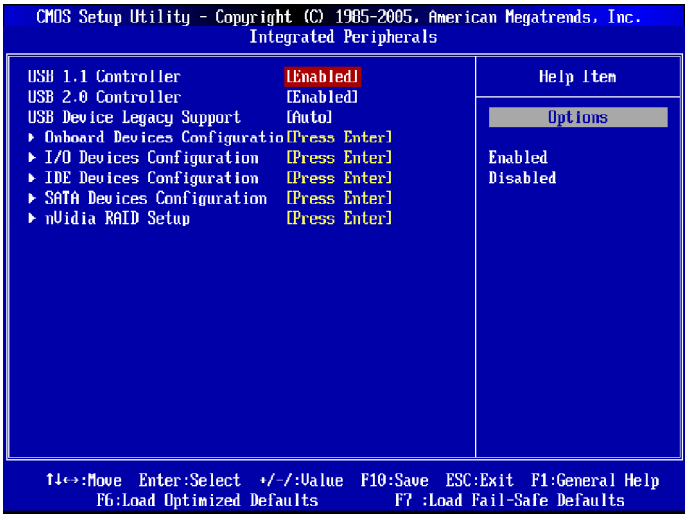
OnChip VGA Frame Buffer Size
Frame Buffer is the video memory that stores data for video display (frame). This field is used to determine the memory size for Frame Buffer. Larger frame buffer size increases video performance. Setting options: [Disabled], [16MB], [32MB], [64MB], [128MB].

OnChip VGA Trap Enable
Setting options: [Enabled] and [Disabled].

CPU-LDT Frequency, MHz
This setting shows the current CPU Front Side Bus clock frequency.

PCI-Express Frequency, MHz
This setting shows the current PCI-Express Front Side Bus clock frequency.

Integrated Peripherals

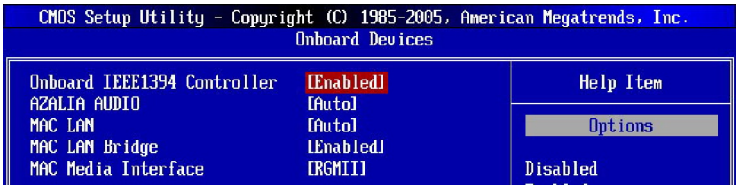


USB 1.1 Controller
This setting disables/enables the USB 1.1 controller. Setting options: [Enabled], [Disabled].

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

USB Device Legacy Support
Set to *Enabled* if your 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. Setting options: [Auto], [Disabled].

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



Onboard IEEE1394 Controller
This setting allows you to enable/disable the onboard IEEE 1394 controller. Setting options: [Enabled], [Disabled].

AZALIA AUDIO
Select Enabled to use the audio capabilities of your system. Setting options: [Auto], [Disabled].

MAC LAN
This setting controls the onboard LAN controller. Setting options: [Auto], [Disabled].

MAC LAN Bridge
This setting controls the onboard LAN bridge. Setting options: [Enabled], [Disabled].

MAC Media Interface
This setting controls the onboard LAN media interface. Setting options: [Pin Setup], [MII], [RGMII].

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



Onboard Floppy Controller
Select [Enabled] if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select [Disabled] in this field. The settings are: [Enabled], [Disabled].

COM Port 1
Select an address and corresponding interrupt for Serial Port 1. Setting options: [Disabled], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3].

IR Mode
This setting allows you to specify the operation mode for serial port 2. Setting options: [Disabled], [IrDA], [ASKIR].

[Disabled]	Disable RS-232C Serial Port
[IrDA]	IrDA-compliant Serial Infrared Port
[ASK IR]	Amplitude Shift Keyed Infrared Port

Parallel Port
This specifies the I/O port address and IRQ of the onboard parallel port. Setting options: [378], [278], [3BC], [Disabled].

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



PCI IDE BusMaster
This item allows you to enable/ disable the PCI IDE busmaster. Setting options: [Disabled], [Enabled].

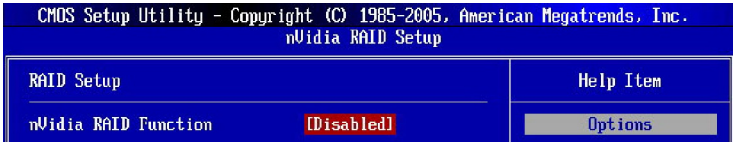
On-Chip IDE Controller
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose [Both] to activate the two channels. Setting options: [Disabled], [Primary], [Secondary], [Both].

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



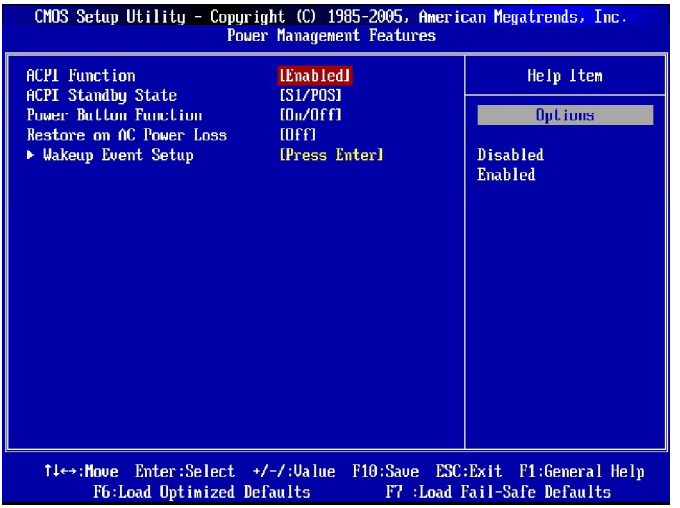
Serial-ATA 1/2
This field allows you to enable or disabled the SATA controllers. Settings options: [Enabled], [Disabled].

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



nVidia RAID Function
This field allows you to enable or disabled the nVidia RAID function. Settings options: [Enabled], [Disabled].

Power Management Features



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

ACPI Function
This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/ 2000/ME, select [Enabled]. Setting options: [Enabled] and [Disabled].

ACPI Standby State
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1/POS or S3/STR fashion through the setting of this field. Options are:

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

Power Button Function

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

[On/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.

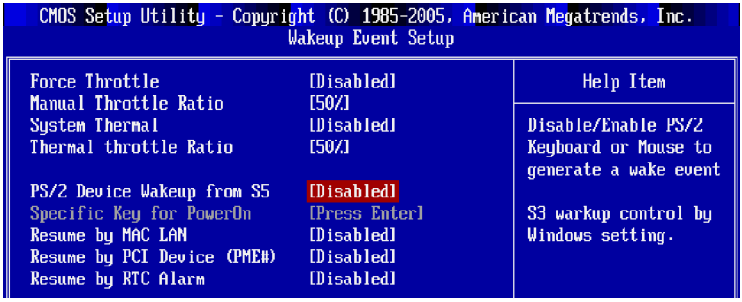
Restore on AC Power Loss

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

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

Wakeup Event Setup

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



Force Throttle

Enable this item will decrease the frequency of the CPU when the CPU is overheat. Setting options: [Disabled], [Enabled].

Manual Throttle Ratio

The item specifies the percentage of descreasing. Setting options: [87.5%], [75%], [62.5%], [50%], [37.5%], [25%], [12.5%].

System Thermal

Enable this item will decrease the frequency of the CPU when the system is overheat. Setting options: [Disabled], [Enabled].

Thermal throttle Ratio

The item specifies the percentage of descreasing. Setting options: [87.5%], [75%], [62.5%], [50%], [37.5%], [25%], [12.5%].

PS/2 Device Wakeup from S5
This controls how and whether the PS/2 keyboard is able to power on the system from S5. If you choose [Password], you must type the password to power on the system. The S3 wakeup function can be set up from Windows. Settings: [Disabled], [Enabled].

Specific Key for PowerOn
If ***PS/2 Device Wakeup*** is set to [Enabled], then you can set a key in the field for the PS/2 keyboard to power on the system.

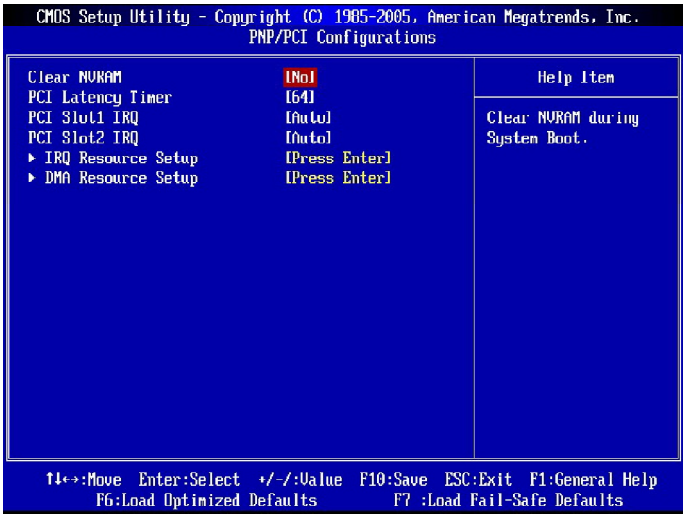
Resume by MAC LAN
An input signal from the LAN awakens the system from a soft off state. Setting options: [Disabled], [Enabled].

Resume by PCI Device (PME#)
When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event). Setting options: [Disabled], [Enabled].

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. Setting options: [Disabled], [Enabled].

PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or **P**eripheral **C**omponent **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



Clear NVRAM

The ESCD (Extended System Configuration Data) NVRAM (Non-volatile Random Access Memory) is where the BIOS stores resource information for both PNP and non-PNP devices in a bit string format. When the item is set to [Yes], the system will reset ESCD NVRAM right after the system is booted up and then set the setting of the item back to [No] automatically.

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. Setting options: [32], [64], [96], [128], [160], [192], [224], [248].

PCI Slot1/2 IRQ

These items specify the IRQ line for each PCI slot. Setting options: [4], [5], [7], [10], [11], [Auto]. Selecting [Auto] allows BIOS to automatically determine the IRQ line for each PCI slot.

IRQ Resource Setup

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



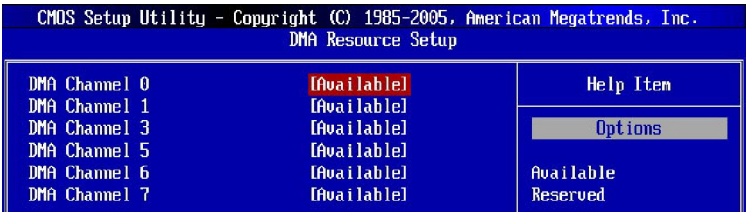
IRQ 3/4/5/7/9/10/11/14/15

These items specify the bus where the specified IRQ line is used.

The settings determine if BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an [Reserved] setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as [Available]. If all IRQs are set to [Reserved], and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices. Available settings: [Reserved] and [Available].

DMA Resource Setup

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



DMA Channel 0/1/3/5/6/7

These items specify the bus that the system DMA (Direct Memory Access) channel is using.

The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA.

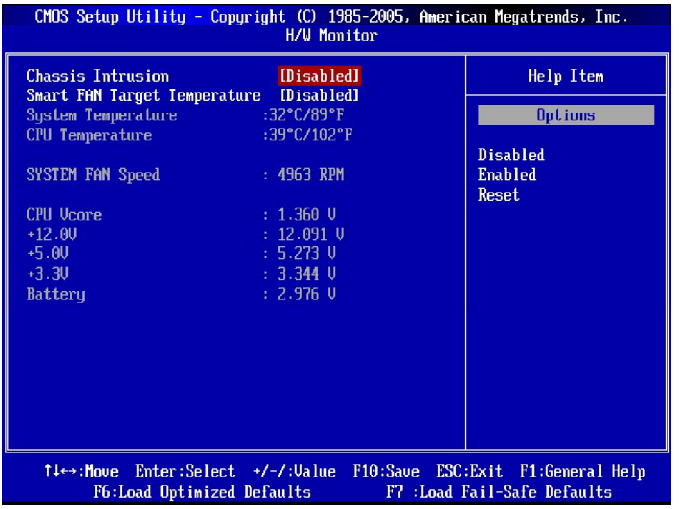


MSI Reminds You...

IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.

H/W Monitor

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.



Chassis Intrusion

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

Smart Fan Target Temperature

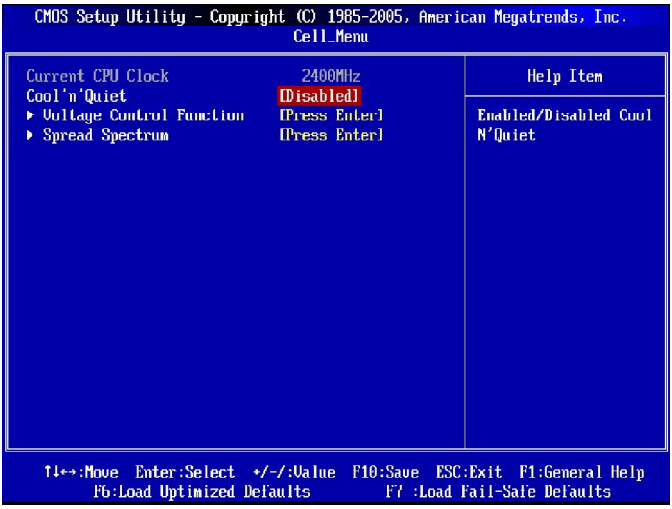
The mainboard provides the Smart Fan system which can control the fan speed automatically depending on the current temperature to keep it with in a specific range.

System/CPU Temperature, SYSTEM FAN Speed, CPU Vcore, +12.0V, +5.0V, +3.3V, Battery

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

Cell_Menu

The items in Cell Menu includes some important settings of CPU, PCIE, DRAM.



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

Current CPU Clock
This field shows the current clocks of CPU. Read-only.

Cool'n'Quiet
This feature is especially desiged for AMD Athlon processor, which provides a CPU temperature detecting function to prevent your CPU's from overheading due to the heavy working loading. Setting options: [Disabled], [Enabled].

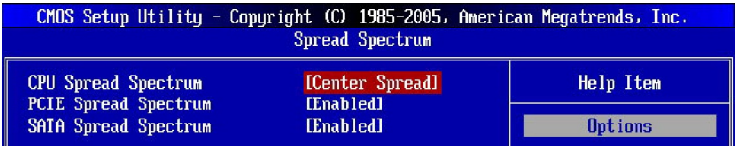
MSI Reminds You...
For the purpose of ensuring the stability of Cool'n'Quiet function, it is always recommended to have the memories plugged in DIMM1.

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



Adjust DDR Voltage (V)
Adjusting the DDR voltage can increase the DDR speed. Any changes made to this setting may cause a stability issue, so ***changing the DDR voltage for long-term purpose is NOT recommended***.

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



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.

CPU Spread Spectrum
Setting options: [Disabled], [Center Spread], [Down Spread].

PCIE Spread Spectrum
Setting options: [Disabled], [Enabled].

SATA Spread Spectrum
Setting options: [Disabled], [Enabled].

Load Fail-Safe/Optimized Defaults

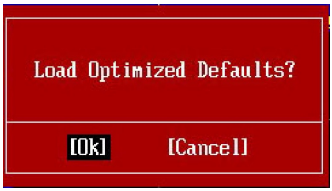
The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default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

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



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

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



Pressing [Y] loads the default factory settings for optimal system performance.

BIOS Setting Password

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



Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

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

4

Introduction to DigiCell

DigiCell, the most useful and powerful utility that MSI has spent much research and efforts to develop, helps users to monitor and configure all the integrated peripherals of the system, such as audio program, power management, MP3 files management and communication / 802.11g WLAN settings. Moreover, with this unique utility, you will be able to activate the MSI well-known feature 'Live Update', which makes it easier to update the BIOS/drivers online, and to monitor the system hardware status (CPU/Fan temperature and speed).

Once you have your DigiCell installed (locate the setup source file in the setup CD accompanying with your mainboard, path: **Utility --> MSI Utility --> MSI DigiCell**), it will have an icon in the system tray, a short cut icon on the desktop, and a short cut path in your "Start-up" menu. You may double-click on each icon to enable DigiCell.



short-cut icon in the system tray

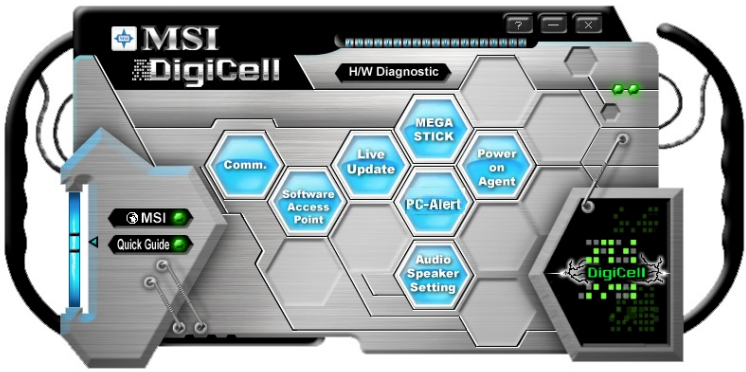


short-cut path in the start-up menu (path: Start-->Programs-->MSI-->DigiCell)

Main

Before using this utility, it is required to have all the integrated peripherals/cards (LAN card, Wireless LAN card, MegaStick... etc.) and all the necessary drivers (onboard LAN driver, audio driver, CoreCenter, Live Update... etc.) installed correctly.

The icon representing each item will be lit up if it is inserted/installed correctly and properly. Otherwise, the icon will remain gray and user is not able to view the functionality/connection of that item.



Introduction:

Click on each icon appearing above to enter the sub-menu to make further configuration.

MSI

Click on this button to link to MSI website:
http://www.msi.com.tw.

Quick Guide

Click on this button and the quick guide of **DigiCell** will be displayed for you to review.

H/W Diagnostic

In this sub-menu, it provides the information of each DigiCell button for you to check if the representing peripherals/cards/drivers are correctly installed.

Comm.

In this sub-menu, you can see the configuration details for communication products, including the status, strength, speed and channel of the connection of the Ethernet LAN & Wireless LAN.

Software Access Point
In this sub-menu, you can change your connection mode to different ones, and configure the advanced settings for each mode, such as the authentication encryption... etc.

Live Update
You can take advantage of **Live Update** to detect and update BIOS and drivers online.

PC Alert
You can take advantage of **PC Alert** to monitor the health status of your system.

MEGA STICK
If you have your MEGA STICK connected to your system, this icon will be lit up. Click this blue icon to turn DigiCell into a MP3 player, and then you can load media files from your MEGA STICK or the system, and edit the preferred playlist.

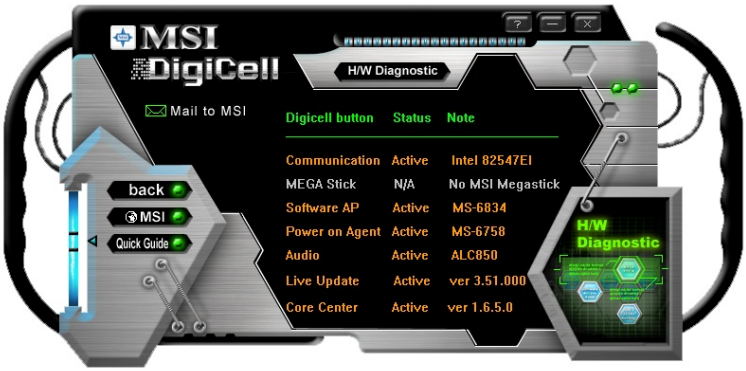
Power on Agent
In this sub-menu, you can configure date, time and auto-executed programs of the power-on, power-off and restarting features.



MSI Reminds You...
*Click on **back** button in every sub-menu and it will bring you back to the main menu.*

H/W Diagnostic

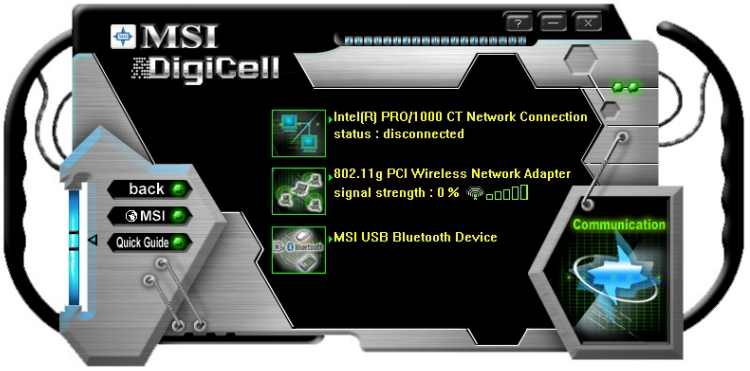
In the **H/W Diagnostic** sub-menu, you can see the information, status and note of each DigiCell. You may double check the connection and installation of the item marked as gray.



You may also click on the **Mail to MSI** button to send your questions or suggestions to MSI's technical support staff.

Communication

In the **Communication** sub-menu, you can see the status of all the LAN / WLAN / Bluetooth on the screen if the hardware is installed. The first icon indicates the onboard LAN on your system, the second icon indicates the wireless LAN status, and the third one is the information about the bluetooth on your system. Click on each item for details.





This icon indicates the information and connection status of onboard LAN, which is read-only.



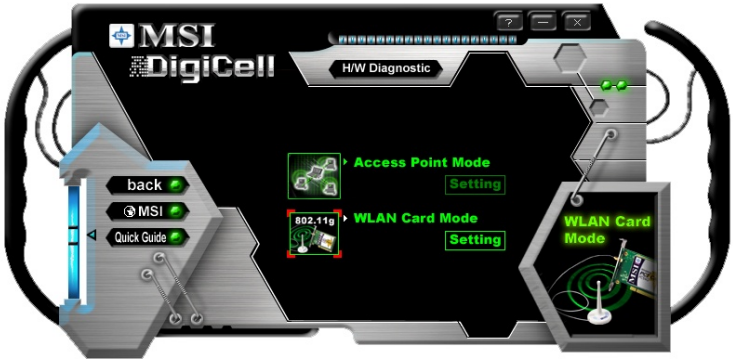
The second icon indicates the wireless connection. You may click this icon to configure the advanced settings in the **WLAN Card Mode** dialogue box (see the image on p.4-8). Please note that it is only available when the **Software Access Point** is set to **WLAN Card Mode**.



The third icon indicates the connection using bluetooth devices. If your system is connected to the bluetooth device, the icon will light up.

Software Access Point

In the **Software Access Point** sub-menu, you can see the communication status on your system and choose the desired software access point mode by clicking on the desired icon, in which the default settings are configured for your usage. The default software access point mode is set to **WLAN Card Mode**. For more advanced security settings and channels switching, click on **"Setting"** button to enter its sub-menu.



Terminology

Here are the introduction of WLAN / AP communication terminology.

WEP Key

In the wireless network environment, the administrator can set up password (Network Key) to protect the network from being attacked or unauthorized access. When building the network, you can set up 4 sets of WEP keys, which can be 5 characters (10 hex-adecimal digital) or 13 characters (26 hex-adecimal digital) and specify one of them to use.

Ad-hoc Mode

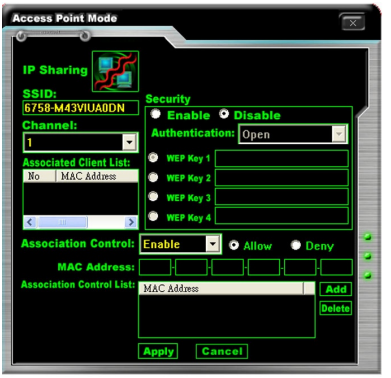
An Ad-hoc network is a local area network or other small network, especially one with wireless or temporary plug-in connections, in which some of the network devices are part of the network only for the duration of a communications session. Users in the network can share files, print to a shared printer, and access the Internet with a shared modem. In this kind of network, new devices can be quickly added; however, users can only communicate with other wireless LAN computers that are in this wireless LAN workgroup, and are within range.

Infrastructure Mode

The difference between Infrastructure network and Ad-hoc network is that the former one includes an Access Point. In an Infrastructure network, the Access Point can manage the bandwidth to maximize bandwidth utilization. Additionally, the Access Point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing. The scale and range of the Infrastructure networking are larger and wider than that of the Ad-hoc networking.

Access Point Mode

Click on **"Setting"** button of the **Access Point Mode** and the following screen will display.



IP Sharing

Click on this icon to enable/disable the IP sharing. The default of this setting is disabled.

 Disabled.

 Enabled.

Enabling/disabling IP sharing depends on the different situation. For example:

1. If your family and you are getting on Internet at home with multi computers, and your ISP only provides one IP for you, you may need to enable **IP Sharing** function in order to use this one IP to get on Internet with multi computers simultaneously.
2. If you are getting on Internet in office, usually the LAN card will automatically get the IP this computer uses. In this case you don't have to enable this function.

SSID

Means Service Set Identifier, a ***unique*** name shared among all points in a wireless network. It must be ***identical*** for all points in the network. Then the card will be able to connect to an access point with the same SSID.

Channel

Specifies the operating radio frequency channel in **Infrastructure mode**, which should be set to an available one (ex: with less traffic to ensure the stable and better connection).

Associated Client List

This option is to display information of stations that are currently associated to your wireless gateway.

Association Control

This option allows you to control which PC can connect to the wireless LAN. If you

enable this feature, only PCs with MAC address located in Association Control List can connect to the wireless LAN.

MAC Address
MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network.

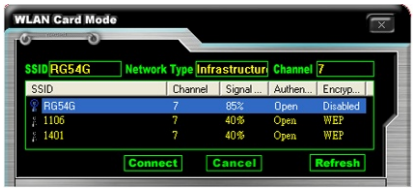
Security
This option allows you to enable/disable the authentication function.

Authentication
Open: Communicates the key across the network.
Shared: Devices must have identical WEP settings to communicate.

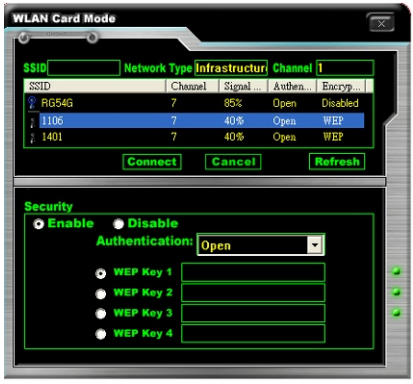
WLAN Card Mode

Click on **"Setting"** button of the **WLAN Card Mode** for the WEP status of your APs.

If the AP you are selecting (the highlighted one) is not encrypted (***Disabled*** shown in the **Encryption** column), the screen will display as below. You can click "**Connect**" to make connection to that AP, click "**Cancel**" to close this dialogue box, or click **"Refresh"** button to update the available WLAN connections.



If the network you are selecting is encrypted (***WEP*** shown in the **Encryption** column), the screen will display as below. You need to enter the correct WEP key defined by AP in the specified **WEP Key 1~4** fields to make the connection.

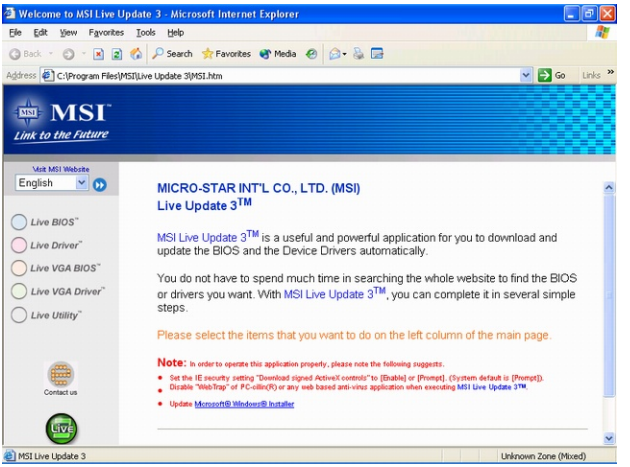


Live Update

Click on the **Live Update** icon in the main menu and the **Live Update** program will be enabled.

The Live Update 3™ is a tool used to detect and update your BIOS/drivers/VGA BIOS/VGA Driver/Utility online so that you don't need to search for the correct BIOS/driver version throughout the whole Web site. To use the function, you need to install the "MSI Live Update 3" application. After the installation, the "MSI Live Update 3" icon (as shown on the right) will appear on the screen. Double click the "MSI Live Update 3" icon, and the following screen will appear:





Several buttons are placed on the left column of the screen. Click the desired button to start the update process.

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

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

MEGA STICK

In the **MEGA STICK** sub-menu, you can configure the settings of MSI MEGA STICK and the media files (*.m3u, *.mp3, *.wav, *.cda, *.wma) on your system.



Basic Function

Here you can edit your own play list with the buttons **"load", "save", "delete", "shuttle", "repeat"** & **"print".**



Load To load media files or the playlist of mp3 files (*.m3u) on your system or on your MEGA STICK.

Save To save a loaded playlist of mp3 files (*.m3u) on your system or on your MEGA STICK.

Delete Click on the media files in the **Play List:** field and use **"Delete"** button to remove the media file from the play list. You may remove multi media files simultaneously by using "Ctrl" to select multi files.

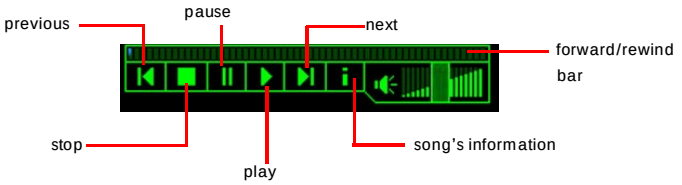
Shuffle To play the media file in the **Play List:** in a random order.

Repeat To repeat the selected files in the **Play List:**.

Print This button has 2 functions:

1. To print out the details of current play list through your printer with the following information:
   Song title --- Song length --- Singer name
2. To save the details of current play list and save the file in the plain text file format in the *\\Program files\MSI\DigiCell\MyMusic.txt* for your reference. The *MyMusic.txt* file is with the following information:
   Song title --- Song length --- Singer name

There is also a toolbar for you to execute some basic function, like play, stop, pause, previous/next song, song info and volume adjust. There is also a scroll bar on the top for you to forward/rewind**.**



Right-click on the MP3 file and choose **"Info"**, a **MP3 Info** dialogue will pop up to show the information of the file, including the title, artist, album, release year and others. You may also add your own comment in the **comment** field. Then click **"Save"** to save the change, click **"Cancel"** to discard the change, or click **"Remove"** to remove all this information.



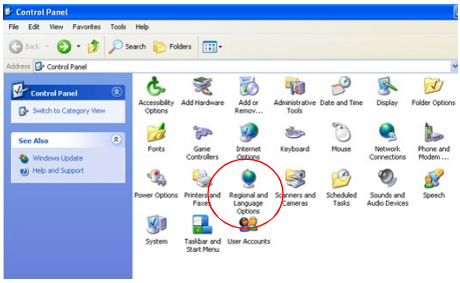


Non-Unicode programs supported

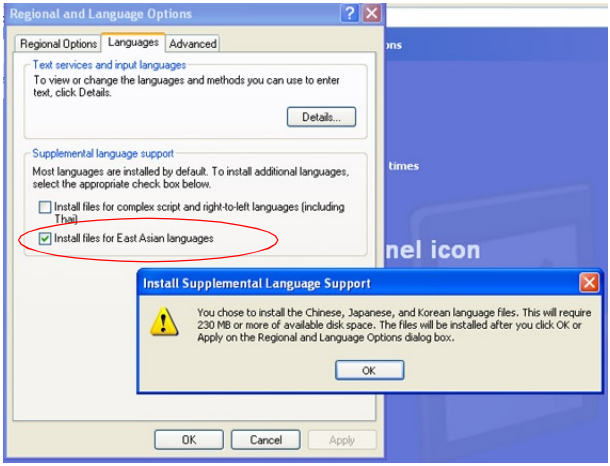
If you are using an operating system in European languages, and you'd like to play the media files in MEGA STICK with East-Asian languages (such as Chinese, Japanese... etc.), it is possible that the file names display incorrectly.

However, you can install the ***Supplemental Language Support*** provided by Microsoft to solve this problem. You need to have your Microsoft Setup CD prepared in the CD-ROM. The system will start to install the necessary components after the settings are configured here. Follow the steps described below.

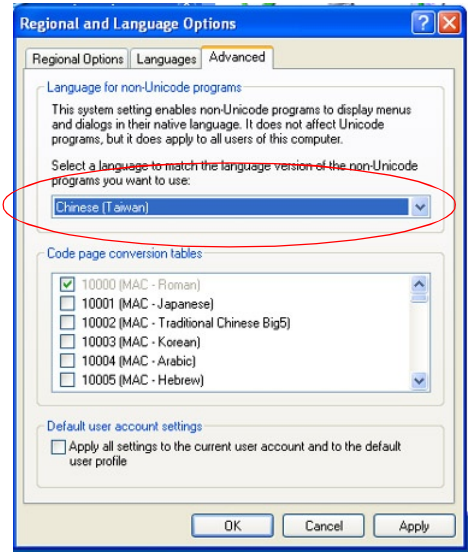
1. Go to [Control Panel] and choose [Regional and Languages Options].



2. Go to the [Languages] tab and enable the check box of [Install files for East Asian languages]. A dialogue box will pop up to remind you the above selection is chosen.



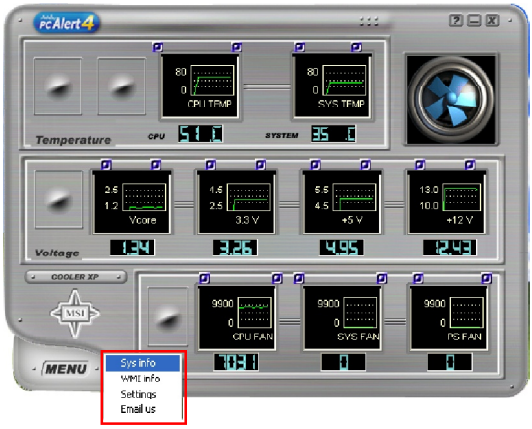
3. Then go to the [Advanced] tab and select ***the language you want to be supported*** (the language of the filename in the MegaStick) from the drop-down list in the [Language for non-Unicode programs], then click [Apply]. The system will install the necessary components from your Microsoft Setup CD immediately.



PC Alert

Click on the **PC Alert** icon in the main menu and the **PC Alert** program will be enabled.

PC Alert is just like your PC doctor that can detect and view the PC hardware and system status during real time operation.
On the top of the screen it shows the current PC hardware status such as the CPU & system temperatures. On the middle of the screen it shows the current system status includiing the Vcore, 3.3V, +5V and +12V. The under screen shows the current fan speeds.



When you click the MENU button, an menu list will appear for users to select. Click the Sys Info/ WMI Info, it will show the system/ peripheral informations. Click the Settings, you can select the period time for PC Alert to detect the temperatures, voltages and fan speeds.

Power on Agent

In the **Power on Agent** sub-menu, you can configure setting of power-on, power-off and restarting status.

In the screen below, you can set the date, time, start-up programs respectively for power-on, power-off and restarting.

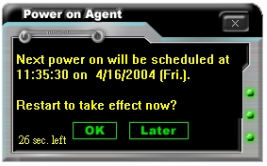


Power On

Here are the available settings for **Power On** function:

Date Use the drop-down list to select the date for power-on.

Time Use the arrow keys to select the hour/minute/second for power-on, power-off and restarting. Then click **"Apply"** to save the changes. As you click **"Apply"**, the following dialogue will appear to show you the next power-on schedule, and the system will start to count down to restart. Click **"OK"** to restart the computer right away or click **"Later"** to restart your computer later.



MSI Reminds You...

Please note that the new setting will not take effect until you restart your computer.

Power Off / Restart

You may configure the time (in the format hh:mm:ss) for the next power-off / restart.

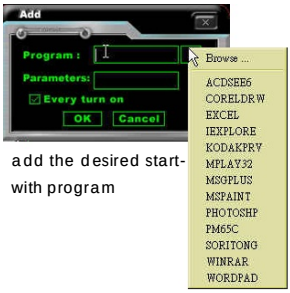
Start With

Use the button **"+Add"** to add the start-up programs as DigiCell is activated next time. For example, you may like to have Outlook activated or a specified website linked when you get to the office every morning.

Step 1: Click on the **Program:** field and click **">>"** button to browse for the path of Outlook or Internet Explorer.

Step 2: Click on **"OK"** to apply the setting.

Step 3: For specified file or specified website, you may enter the file name with the complete path or the website link in the **Parameters:** field.



add the desired start-with program

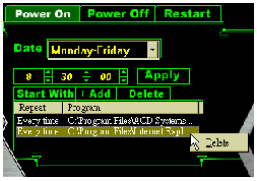


To activate Outlook as DigiCell is enabled next time



To activate a specified website as DigiCell is enabled next time

Of course you may use the button **"-Delete"** to remove the added programs, or you can right-click on the selected program and click **Delete**.



delete the added program

MSI Reminds You...

*You can also enable the **Every turn on** function, which will enable the specified program(s) and file(s) every time the Digi Cell utility runs.*

Auto Login



Since the **Power On** function allows the system to power on automatically, you may have to enable this **Auto Login** function in the following situations:

1. If you are using a computer belonging to a domain in office, and you need to enter your user name & password everytime when you boot up your computer.
2. If there are multi users using the same computer and you'd like to power on the computer automatically with one specific user.

Enable Auto Login
Enable this setting if you want to use the **Auto Login** feature. It supports the following operating systems: Win9X, Windows ME, Windows 2000 & Windows XP.

Default User Name
It is only available for Windows 2000 & Windows XP.

-- If you are using a computer belonging to a domain in office, please enter your login user name in this field.
-- If you are using a computer with multi users (for Windows XP operating system), please enter the user name you'd like to auto power-on in this field.

Default Password
It is only available for Windows 2000 & Windows XP.

-- If you are using a computer belonging to a domain in office, please enter your login password in this field.
-- If you are using a computer with multi-users (for Windows XP operating system), please enter the password for the user name you'd like to auto power-on in this field.



nVidia RAID Introduction

NVIDIA brings Redundant Array of Independent Disks (RAID) technology—which is used by the world's leading businesses—to the common PC desktop. This technology uses multiple drives to either increase total disk space or to offer data protection. For all levels, RAID techniques optimize storage solutions by using multiple disks grouped together and treating them as a single storage resource.

Introduction

System Requirement

Operating System Support

NVRAID supports the following operating systems:

Windows XP

Windows 2000 Professional

RAID Arrays

NVRAID supports the following types of RAID arrays described in this section:

RAID 0: RAID 0 defines a disk striping scheme that improves the disk read and write times for many applications.

RAID 1: RAID 1 defines techniques for mirroring data.

Summary of RAID Configurations

Array	Uses	Advantages	Drawbacks	# Hard Disks	Fault Tolerance
RAID 0	Non-critical data requiring high performance.	High data throughput.	No fault tolerance.	multiple	None
RAID 1	Small databases or any other small capacity environment requiring fault tolerance.	100% data redundancy.	Requires 2 drives for the storage space of 1 drive.	2	Yes

RAID Configuration

Basic Configuration Instructions

The following are the basic steps for configuring NVRAID:

Non-Bootable RAID Array

1. Choose the hard disks that are to be RAID enabled in the system BIOS. (To enable the ***nVidia RAID Function*** in **nVidia RAID Setup** of **Integrated Peripherals** in BIOS.)
2. Specify the RAID level, either Mirroring (RAID 1) or Striping (RAID 0) and create the desired RAID array.
3. Enter the Windows OS, run the Windows nForce Setup application and install the RAID software.(Check p.5-9 for details.)
4. Initialize the NVRAID Array Disks.

Bootable RAID Array

1. Choose the hard disks that are to be RAID enabled in the system BIOS. (To enable the ***nVidia RAID Function*** in **nVidia RAID Setup** of **Integrated Peripherals** in BIOS.)
2. Specify the RAID level, either Mirroring (RAID 1) or Striping (RAID 0),and create the desired RAID array.
3. Boot from the Windows CD, use the floppy disk that has the RAID driver to copy and install the nForce RAID software. (Check p.5-7 for details.)
4. Initialize the NVRAID Array Disks.

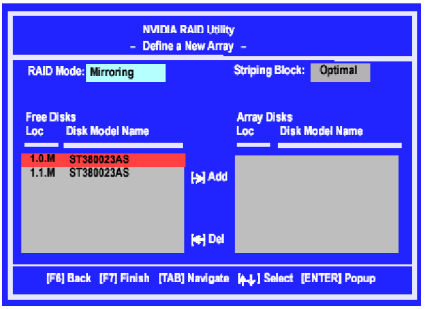
Setting Up the NVRAID BIOS

Be sure to enable the ***nVidia RAID Function*** in **nVidia RAID Setup** of **Integrated Peripherals** in BIOS before configuring the NVRAID BIOS. After that press F10 to save the configuration and exit. The PC will reboot right away. Then enter the RAID BIOS Setup by pressing **F10** when prompted, and follow the procedures described below to set up the NVRAID BIOS.

NVRAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

1. After rebooting your PC, wait until you see the RAID software prompting you to press **F10**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS.
2. Press **F10**, and the NVIDIA RAID Utility --- **Define a New Array** window will appear.
   The default **RAID Mode** is set to ***Mirroring*** and **Striping Block** is set to ***Optimal***.



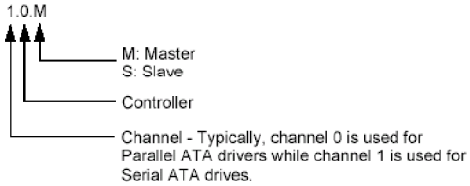
Understanding the "Define a New Array" Window

Use the Define a New Array window to

- Select the RAID Mode
- Set up the Striping Block
- Specify which disks to use for the RAID Array

Depending on the platform used, the system can have one or more channels. In a typical system there is usually one controller and multiple channels, and each channel has a slave and a master.

The channel/controller/master/slave status of each hard disk is given in the Loc (location) columns of the Free Disks and Array Disks lists.



In the example above, 1.0.M means the hard drive is attached to Channel 1, Controller 0, and the drive is set to Master. The following is a list of all possible combinations:

Parallel ATA

0.0.M	Channel 0, controller 0, Master
0.0.S	Channel 0, controller 0, Slave
0.1.M	Channel 0, controller 1, Master
0.1.S	Channel 0, controller 1, Slave

Serial ATA

1.0.M	Channel 1, controller 0, Master
1.1.M	Channel 1, controller 1, Master
2.0.M	Channel 2, controller 0, Master
2.1.M	Channel 2, controller 1, Master

MSI Reminds You...

There is no such thing as Slave drive in Serial ATA. All drives are considered to be Master since there is a one to one connection between the drive and the controller.

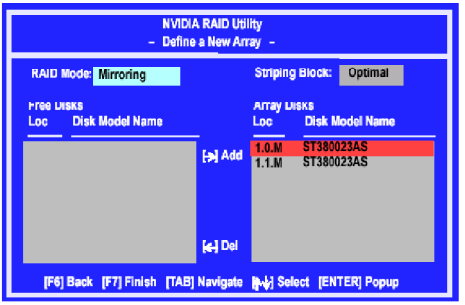
Using the Define a New Array Window
If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

• Selecting the RAID Mode
By default, this is set to [Mirroring]. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box—either [Mirroring], [Striping].

• Selecting the Striping Block Size
Striping Block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default [Optimal], which is 32KB, but the values can be between [4 KB] and [128 KB].

• Assigning the Disks
The disks that you enabled from the RAID Config BIOS setup page appear in the **Free Disks** block. These are the drives that are available for use as RAID array disks. To designate a free disk to be used as a RAID array disk,

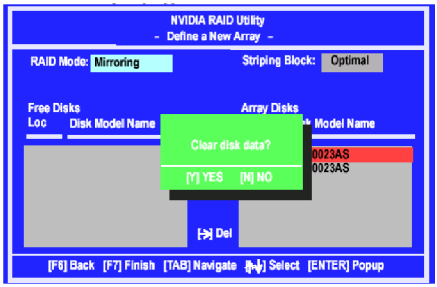
1. Tab to the **Free Disks** section. The first disk in the list is selected.
2. Move it from the Free Disks block to the Array Disks block by pressing the right arrow key (-->). The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
3. Continue pressing the right-arrow key (<--) until all the disks that you want to use as RAID array disks appear in the **Array Disks** block.



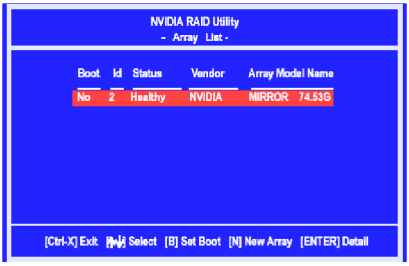
It shows that two disks have been assigned as RAID1 array disks in the figure above.

Completing the RAID BIOS Setup

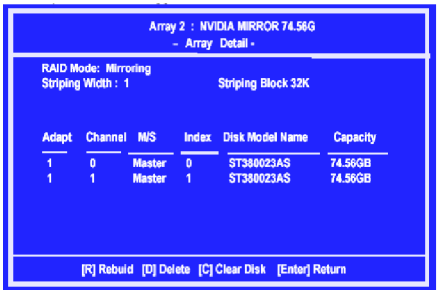
1. After assigning your RAID array disks, press **F7.** The Clear disk data prompt appears.



2. Press **Y** if you want to wipe out all the data from the RAID array, otherwise press **N**. You must choose **Yes** if the drives were previously used as RAID drives. The **Array List** window appears, where you can review the RAID arrays that you have set up.



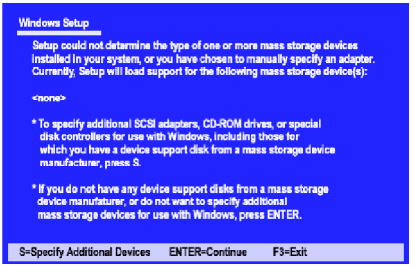
3. Use the arrow keys to select the array that you want to set up, then press **Enter.** The **Array Detail** window appears.



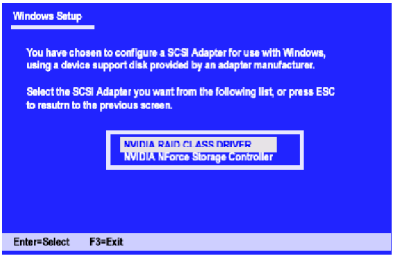
4. If you want to mark this disk as empty and wipe out all its contents then press **C**.
5. At the prompt, press **Y** to wipe out all the data, otherwise press **N**.
6. Press **Enter** again to go back to the previous window and then press **Ctrl+X** to exit the RAID setup. Now that the RAID setup has been configured from the RAID BIOS, the next step is to configure and load NVRAID drivers under Windows, as explained in “Installing the NVIDIA RAID Software Under Windows” on p5-9.

Installing the RAID Driver (for bootable RAID Array)

1. After you complete the RAID BIOS setup, boot from the Windows CD, and the Windows Setup program starts.
2. Press **F6** and wait for the Windows Setup screen to appear.



3. Specify the NVIDIA drivers:
   (1) Insert the floppy that has the RAID driver, press S, then press Enter. The Windows Setup screen appears as below:

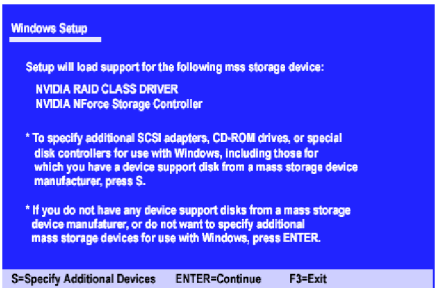


MSI Reminds You...

Please follow the instruction below to make an nVIDIA Serial ATA RAID driver for yourself.

1. *Insert the MSI CD into the CD-ROM drive.*
2. *Click the "Browse CD" on the Setup screen.*
3. *Copy all the contents in the :* ***\\nVidia\System\C51+MCP51\IDE\Win2k or XP\sataraid*** *to a formatted floppy disk.*
4. *The driver disk for nVIDIA RAID controller is done.*

   (2) Select "NVIDIA RAID CLASS DRIVER" and then press **Enter**.
   (3) Press **S** again at the Specify Devices screen, then press **Enter.**
   (4) Select "NVIDIA NForce Storage Controller" and then press **Enter.** The following Windows Setup screen appears listing both drivers:



4. Press **Enter** to continue with Windows XP Installation. Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.
5. Follow the instructions on how to install Windows XP. After Windows XP is completely installed, it is recommended that you install the the RAID management tool.

MSI Reminds You...

Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

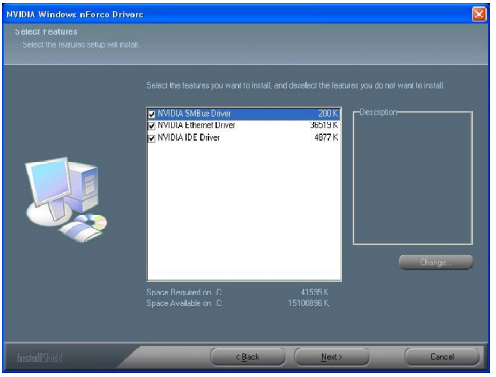
NVIDIA RAID Utility Installation

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

The existing Windows IDE Parallel ATA driver (as well as the Serial ATA driver if SATA is enabled) must be upgraded to use the NVIDIA IDE Parallel ATA driver (as well as the NV Serial ATA driver if SATA is enabled).

This section describes how to run the setup application and install the RAID software which will upgrade the Windows IDE driver and install the RAID software.

1. Start the NVIDIA C19 System Drivers installation program to open the NVIDIA Windows nForce Drivers page.



2. Select the modules that you want to install. Make sure that the “NVIDIA IDE Driver” is selected.

MSI Reminds You...
You must install the NVIDIA IDE driver in order to enable NVIDIA RAID. *If you do not install the NVIDIA IDE driver, NVIDIA RAID will not be enabled.*

3. Click **Next** and then follow the instructions.
4. After the installation is completed, be sure to reboot the PC.
5. After the reboot, initialize the newly created array.

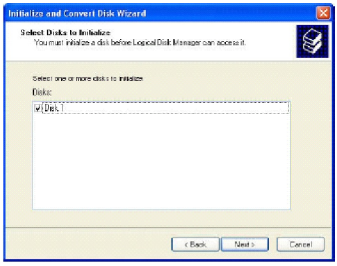
Initializing and Using the Disk Array

The RAID array is now ready to be initialized under Windows.

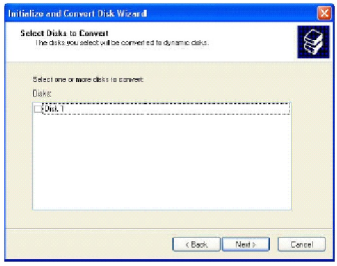
1. Launch Computer Management by clicking “Start” --> “Settings” --> “Control Panel” then open the “Administrative Tools” folder and double click on “Computer Management”.
2. Click “Disk Management” (under the “Storage” section). The Initialize and Convert Disk Wizards appears.



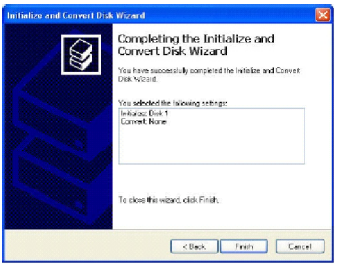
3. Click **Next**. The Select Disks to Initialize window appears. The disks listed depend on how many arrays you have configured.



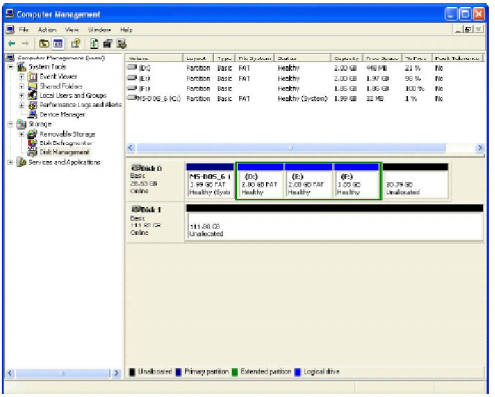
4. Click **Next**. The Select Disks to Convert window appears.



5. Check the disk in the list if you want to make the array a dynamic disk, then click **Next**. The Completing the Initialize and Convert Disk Wizard window appears.



6. Click **Finish**. The “Computer Management” window appears.



The actual disks listed will depend on your system, and the unallocated partition is the total combined storage of two hard disks. You must format the unallocated disk space in order to use it.

7. Format the unallocated disk space. Right click “Unallocated space”, select “New Partition…” and follow the wizard. After the drive has been formatted, it is ready for use.

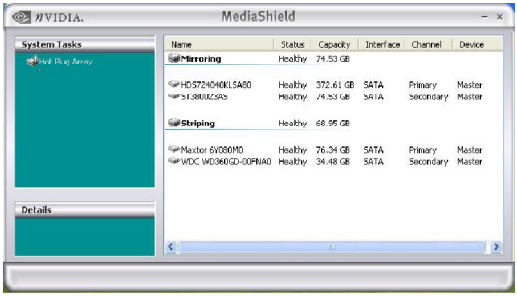
RAID Drives Management

There is an application called NVRAIDMAN which helps you perform the following tasks of nVDIA RAID.

- **Viewing RAID Array Configurations**
  View an array configuration (mirrored or striped)
- **Setting Up a Spare RAID Disk**
  - View free and/or dedicated free disks
  - Designate a free disk to a particular array
- **Creating RAID Arrays**
- **Deleting a RAID Array**
- **Morphing From One RAID Array to Another**
- **Hot Plug Array**
- **Initializing a RAID Array**
  - Erase the data on the array by writing all zeros to the sectors of each hard disk.
- **Rebuilding a RAID Mirrored Array**
  - Rebuild a broken mirrored array
  - Watch the progress of rebuilding an array
  - Only applies to RAID 1 arrays
- **Synchronizing a RAID Array**
  - Rebuild the redundancy in RAID 1 arrays (copy the data to the redundant disk—the same operation as rebuilding)

Viewing RAID Array Configurations

To view your RAID configuration from Windows, launch the NVRAID Management utility by double-clicking NvRaidMan.exe (the default location of NvRaidMan.exe is in \\nVidia\System\C51+MCP51\IDE\Win2k or XP\raidtool\ of the setup CD accompanied with your mainboard).
The RAID configuration information appears in the right-side pane, as shown below.



MSI Reminds You...
The information in the figures in this part may very from what it is shown in your system.

Setting Up a Spare RAID Disk

You can designate a hard drive to be used as a spare drive for a RAID 1 array. The spare drive can take over for a failed disk. NVRAID supports two types of spare drives:

• Free Disk

A free disk is a disk that is not part of any RAID array, but can be used by any available RAID 1 array that requires a particular disk when one of its disks crashes or becomes unusable. The process is automatic and doesn't require any user interaction.

For example, if you have a system with four hard disks where one disk is used to boot the OS, two hard drives are set up in a mirrored array, and a fourth hard disk is set up as a free disk, then if one of the mirrored array drives fails, the free disk will be automatically assigned to the mirrored array to be used instead of the failed disk.

• Dedicated Disk

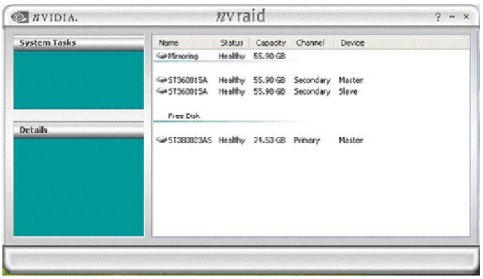
A dedicated free disk is a disk that is assigned to a RAID 1 array and that disk is used by that array only when needed, for example during a system crash where a RAID mirrored drive is broken. The dedicated disk can be used only by the array that it is assigned to and not by any other array, unlike a free disk which can be used by any available RAID 1 array.

Note: You must have at least two RAID arrays to use this feature.

Assigning a Free Disk

To mark a disk as free, or not a part of any array,

1. Enter the system BIOS setup and make sure that the drive that you want to mark as free is RAID enabled.
2. Enter the RAID BIOS and make sure that the drive is not part of any array (if one exists).
3. Boot into Windows and run the NVRAIDMAN program. The drive appears under the Free Disk section. The figure below shows an example of the NVRAIDMAN display if you have a mirror array and one free disk.

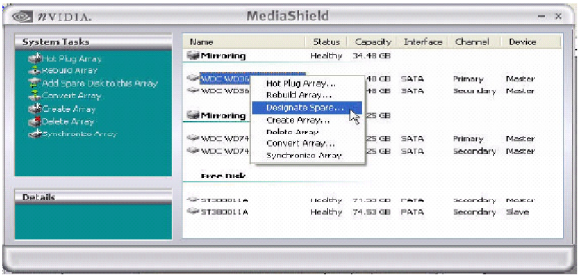


Assigning a Dedicated Disk
To mark a disk as dedicated, or reserve it for use by a specific array,

Step 1: Mark the Disk as a Free Disk
1. Enter the system BIOS setup and make sure that the drive that you want to mark as free is RAID enabled.
2. Boot into Windows and run the NVRAIDMAN program.
If the disk is not part of any RAID array, then it will appear under the Free Disk section of the RAID GUI.

Step 2: Dedicate the Free Disk to an Array
While running NVRAIDMAN, dedicate the free disk to an array by doing the following:

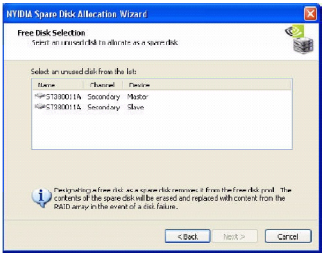
1. Right click one of the two Mirrored arrays as shown below.



2. Select **Designate Spare** from the menu to launch the Spare Disk Allocation Wizard.

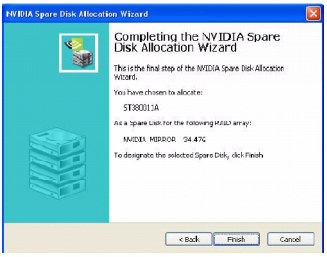


3. Click **Next**.
The RAID Array Selection page appears.

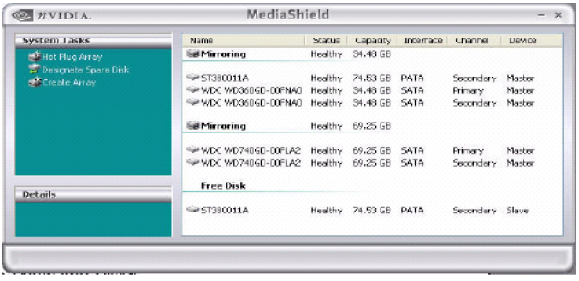


4. From the Free Disk Selection page, select one of the two free disks available. This would be the disk that will be designated to the mirror array.

5. Click **Next**.
The Completing the NVIDIA Spare Disk Allocation page appears.

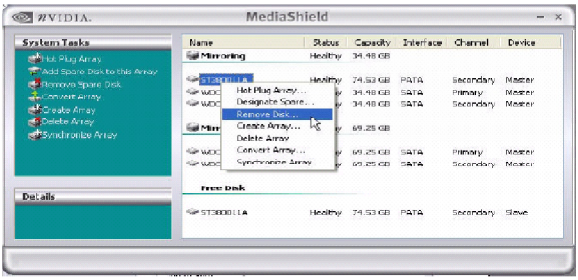


6. Click **Finish**.
As shown in figure below, the ST380011A drive is now a dedicated free disk in the mirrored array. If a system crash occurs that causes any of the two WD360GD drives to fail, the ST380011A hard drive will take over and be used in the newly formed mirrored array.



Removing a Dedicated Disk

Once a dedicated disk has been assigned to a particular array, it can be removed at any time. To remove the disk, right click on the dedicated disk and select “Remove Disk...” to remove it. In the previous example, simply right click on the ST380011A drive and select “Remove Disk...”. as shown in the screen shot below:



Morphing From One RAID Array to Another

In a traditional RAID environment, when a user wants to change the current state of a disk or a current array to a new RAID configuration, the process of reconfiguring the new array involves multiple steps. The user must back up the data, delete the array, re-boot the PC, and then reconfigure the new array.
NVIDIA RAID allows the end user to change the current state of the disk or array to another with a one-step process called .Morphing.. This section describes the NVIDIA Morphing process and explains how to use Morphing to convert from one RAID array type to another.

General Morphing Principles

NVIDIA RAID includes extensive support for morphing, a process of converting from one RAID mode to another RAID mode.

General Requirements and Limitations

• The new array capacity must be equal to or greater than the previous array.
For example, it is possible to morph from a RAID 1 array to a RAID 0 array as long as the RAID 0 array is the same size as (or larger than) the RAID 1 array.
• You can't morph from RAID 1 to RAID 1

Specific Morphing Requirements

The following table lists the disk requirements for a new RAID array for various morphing combinations.

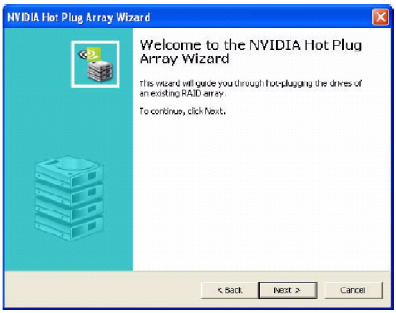
From	To	New Array Disk Requirements
RAID 0	**RAID 0**	m > n Number of disks in the new array must be greater than the original array.
	RAID 1	m =2, n =1 RAID 1 array must include two disks, converted from a one disk RAID 0 array.
RAID 1	**RAID 0**	No additional restrictions.
	RAID 1	**** Not a valid combination ****

Hot Plug Array

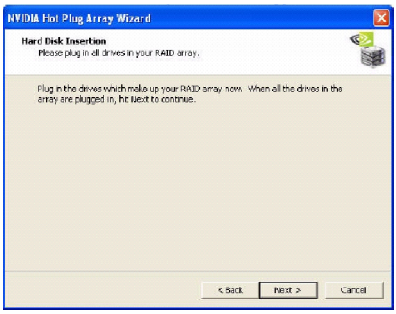
With respect to RAID, hot plugging is the ability to add a disk to a system safely and without causing problems for the RAID software. For example, when a drive in a mirrored array fails, the user can launch the Hot Plug Array Wizard which instructs the user as to when a drive can be safely added to the system. As soon as the drive is added, the user can then finish running the RAID wizard and the drive becomes usable by the system. Hot Plug Array allows the user to add or remove an entire array without degrading the array in the process.

NVRAIDMAN can be used to hot plug a RAID disk. To hot plug a disk, simply do the following:

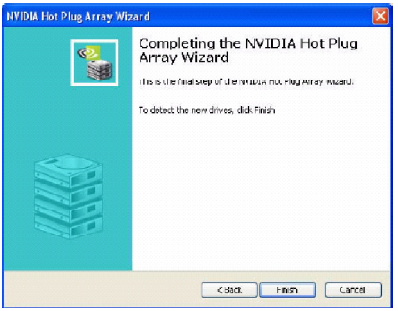
1 Launch NVRAIDMAN and click on “Hot Plug Array” and the following screen shot will appear:



2 Click **Nex**t and the following screen shot will appear:



3 Connect the RAID disk that you want to use with any given RAID array.
4 Click **Next** and the following screen shot will appear:

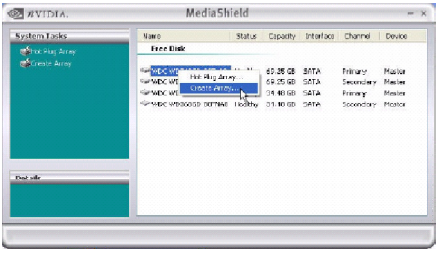


5 Click **Finish**.

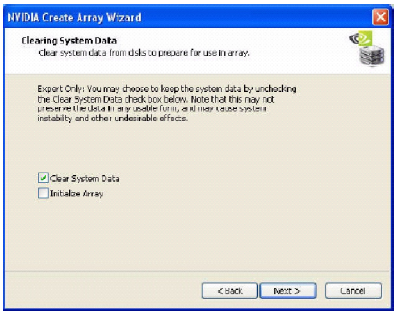
Initializing a RAID Array

Initializing a RAID array erases all the data that is stored on that array, and writes all zeros to the disks. Initialization of newly configured RAID arrays is recommended to ensure consistency and reliable performance on any supported fault tolerant array such as RAID 0. Use this feature only if you are absolutely sure that you want to wipe out all the data on *that array*.
Initialization of a fault tolerant array can only be done when the array is being created. To initialize an array, perform the following steps:
Note: In this example, a mirror array is initialized.

1 From the NVRAIDMAN window, right click on any available free disk and select **Create Array** as show in Figure below.



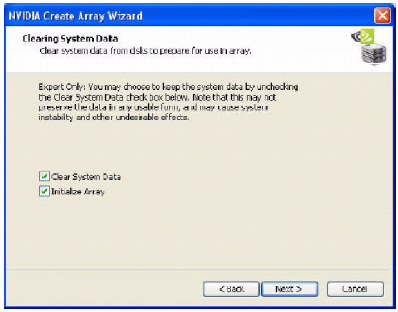
2 The Create Array Wizard opens. Follow the Wizard to create a Mirror array.
3 At the Create Array Wizard Welcome screen, click **Next**.
4 At the RAID Array Selection page, make sure that RAID Mode is set to "**Mirroring**" and Stripe Size is set to its default value of 64K, then click **Next**.
5 At the Free Disk Selection page, select the two drives that you want to Mirror and click **Next**.
6 Click **Next** again and the following screen shot will appear:



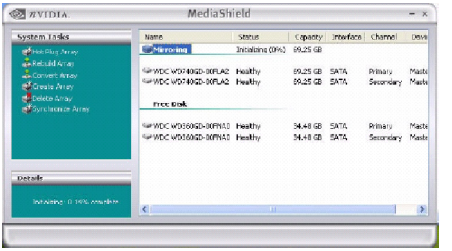
7 Check "Intialize Array" and then click **Next**. The Initialization Warning dialog appears.



8 Click **OK**. The Clearing System Data screen appears again with the Initialize Array check box checked as shown below.



9 Click **Next**, then click **Finish** at the Completing the NVIDIA Create Array Wizard screen. The NVRAIDMAN windows shows the created RAID array as shown below.

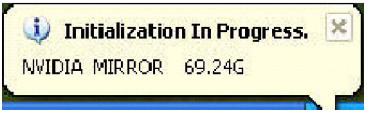


The Initialization Process

As you can see from the screen shot above, the initialization process has started and it will be completed in a short period of time. As soon as the Initialization process starts, a popup window similar to the following will appear:



followed by the following pop-up window:



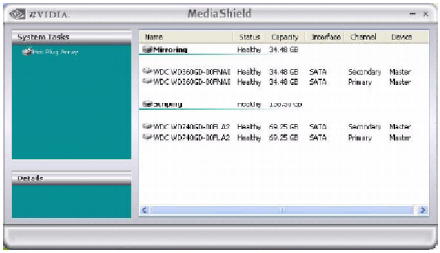
Rebuilding a RAID Array

Rebuilding is the process of restoring data to a hard drive from other drives in the array. This applies only to fault tolerant arrays such as RAID 1. For example, assuming you have a two disk RAID 1 array, and one of the drives fail, then you need the lost data on the newly added drive.

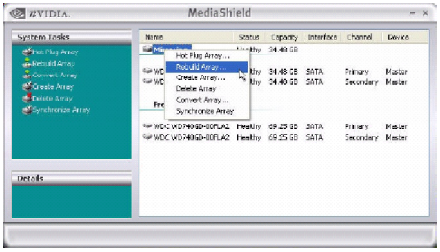
Rebuilding Instructions

After creating a mirrored array, you can rebuild the array using the following steps:

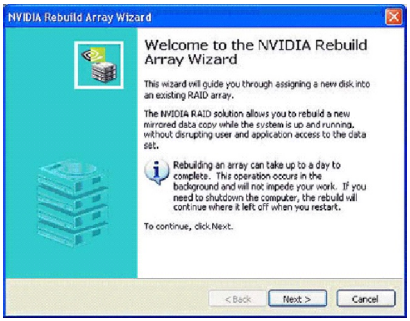
1 Go to Windows and run the NVIDIA RAID Management utility.
The picture below shows an example of a system with one mirrored array and two free disks.



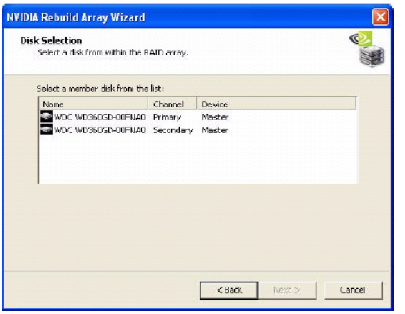
2. Right-click on Mirroring. The popup menu appears.



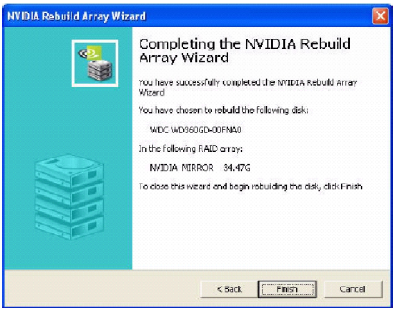
3. From the popup menu, click **Rebuild Array**. The NVIDIA Rebuild Array Wizard appears.



4. Click **Next.** The Disk Selection page appears.



5. Select the drive that you want to rebuild by clicking it from the list, then click **Next**. The Completing the NVIDIA Rebuild Array page appears.



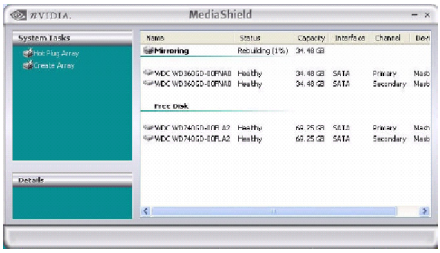
6. Click **Finish**. The array rebuilding starts after a few seconds, and a small pop-up message appears towards the bottom right corner of the screen as shown in the figure below.



When the rebuilding process is finished you will see the pop up box shown in Figure below.



During the rebuilding process, the NVRAID Management utility screen shows the status under the System Tasks and Details sections.



More About Rebuilding Arrays

• ***Rebuilding Occurs in the Background***

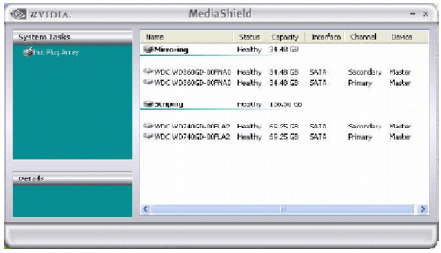
The rebuilding process is very slow (it can take up to a day) and occurs in the background so as not to affect the performance of the system.

• ***Rebuilding Applies Only to RAID 1 Array***

Rebuilding an array works only when using RAID 1. Rebuilding does not apply to RAID 0.

• ***Rebuilding applies to a degraded fault tolerant array***

You can rebuild a degraded mirrored array using any available Free Disk or Dedicated Disk. For example, Figure below shows a mirrored array using two 34.48 GB drives while having two Free Disks each 55.90 GB large.



To use one of these available free disks to rebuild your array, follow the same steps as explained in “Rebuilding a RAID Array” on p.6-22, except when prompted to select a disk, choose one of the two available free disks.

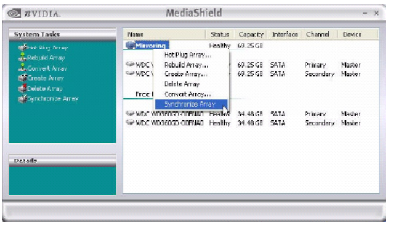
Synchronizing a RAID Array

Synchronizing an array will force a rebuild of redundancy or parity. The operation is applicable to any fault tolerant array such as RAID 1.

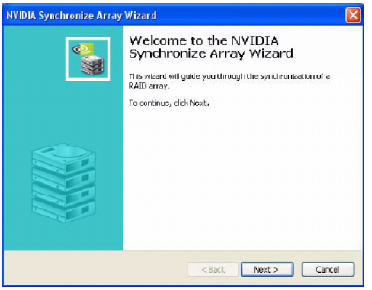
• For RAID1, “sync” results in copying the data to the redundancy disk,

To sync an array, do the following (This example assumes you have already created a fault tolerant array such as RAID 1):

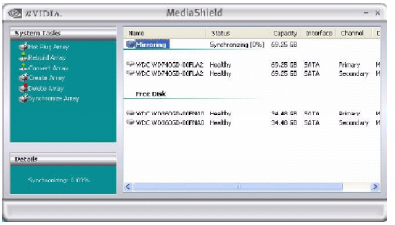
1 Right click on “Mirroring” and select **Synchronize Array** as shown in Figure below.



2 The Synchronize Array Wizard Welcome screen appears.



3 Click on **Next** and then click **Finish** at the Wizard Completion screen. The NVRAIDMAN window indicates that the array is synchronizing, as shown in Figure below.



As you can see from the screen shot above, the synchronization process has started and it will be completed in a short period of time.

Usind Disk Alert

The RAID manager application includes a disk alert feature that provides a graphical indication of the status of the hard disks in the system.
When the RAID manager application detects a failure condition of an attached drive, a pop-up box appears in the clock area of the Windows system tray. Click the pop-up box to view the manufacturer-provide bitmap image of the system motherboard. The image shows the hard drive connector ports and provides a visual indication of the location and status of the drives as follows:

- ***Red rectangle:*** A red rectangle will flash around the port connector that is attached to the failed drive.

- ***Green rectangle:*** Ports that have a drive attached, and are in a healthy state, are indicated with a green rectangle around the port connector.

- ***Yellow rectangle:*** Ports that have a drive attached, are members of a failed RAID array, but are not the cause of the failure have a yellow rectangle around the port connector.

Unconnected ports have no visual indication.

Appendix A: Introduction to Realtek ALC880

The mainboard is equipped with Realtek ALC880 chip, which provides support for 8-channel audio output, including 2 Front, 2 Rear, 2 Side, 1 Center and 1 Subwoofer channel. ALC880 allows the board to attach 2, 4, 6 or 8 speakers for better surround sound effect. The section will tell you how to install and use 2-, 4-, 6- or 8-channel audio function on the board.

Installing the Audio Driver

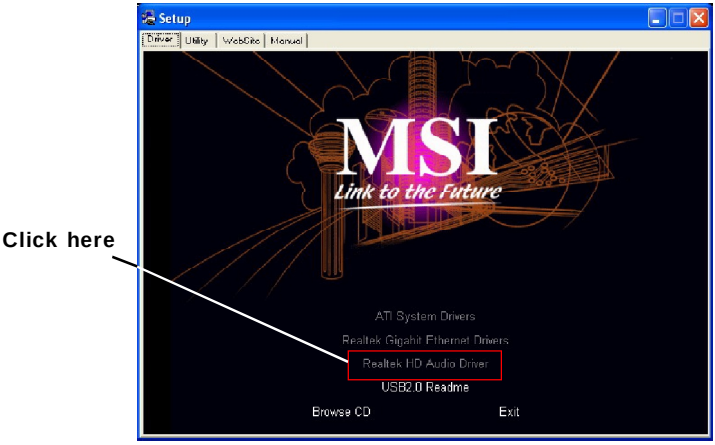
You need to install the driver for Realtek ALC880 codec to function properly before you can get access to 2-, 4-, 6- or 8- channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

Installation for Windows 2000/XP

For Windows® 2000, you must install Windows® 2000 Service Pack4 or later before installing the driver. And 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.

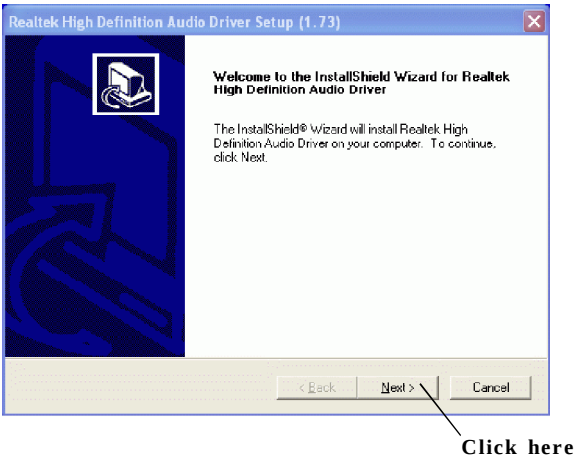
1. Insert the companion CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click **Realtek HD Audio Driver**.



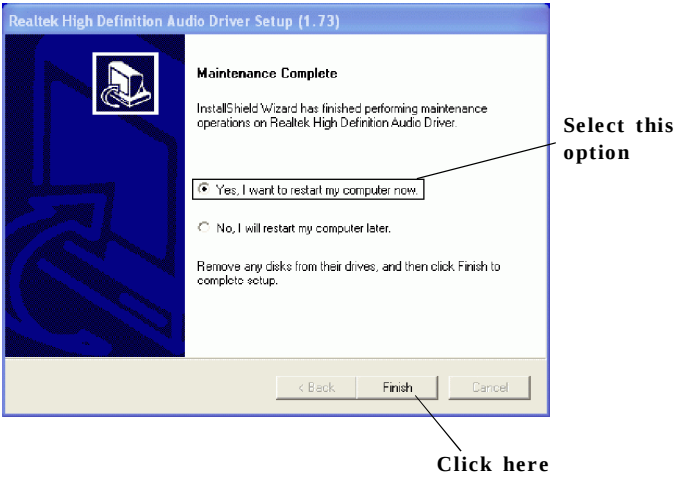
MSI Reminds You...

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

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



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

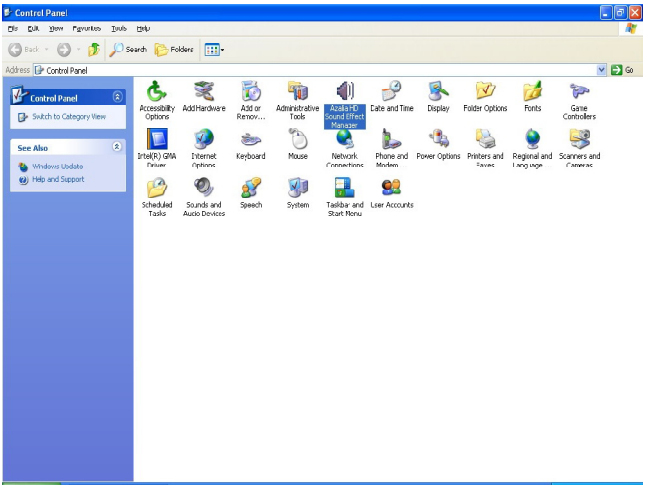


Software Configuration

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

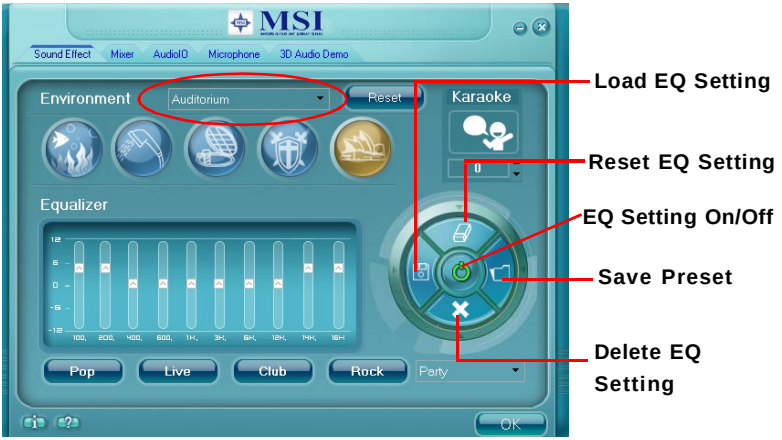


Double click



Sound Effect

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



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 a new equalizer setting to save as a 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.

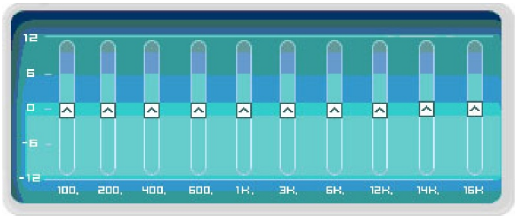
Environment Simulation

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.

Equalizer Selection

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

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



Save
The settings are saved permanently for future use.

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



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

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

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

Frequently Used Equalizer Setting

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

[How to Use It]

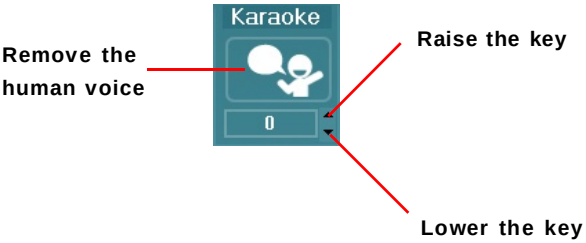
Other than the buttons “Pop” “Live” “Club” & “Rock” shown on the page, to pull down the arrow in “Others” , you will find more optimized settings available to you.

Karaoke Mode

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

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

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



Mixer

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

1. Volume

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



MSI Reminds You...

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

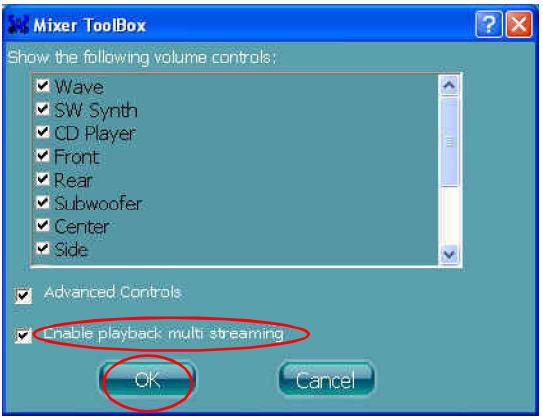
2. Multi-Stream Function

ALC880 supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated real panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

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

MSI Reminds You...

*We **strongly** recommend you to plug the speakers into the audio jacks on the back & front panel before enable the multi-stream function.*

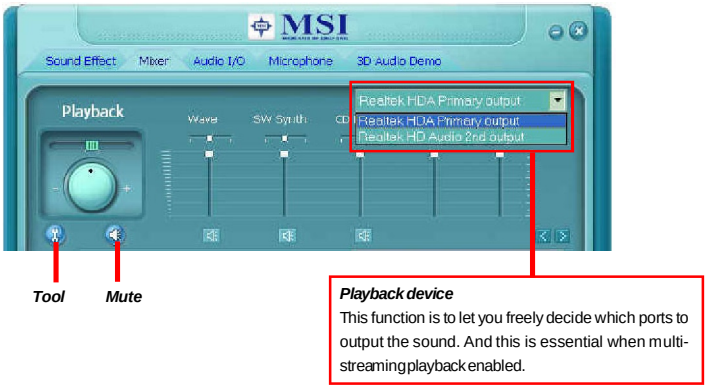


When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

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



3. Playback control



Mute

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

Tool

Show the following volume control

This is to let you freely decide which volume control items to be displayed, total 13 items to be chosen.

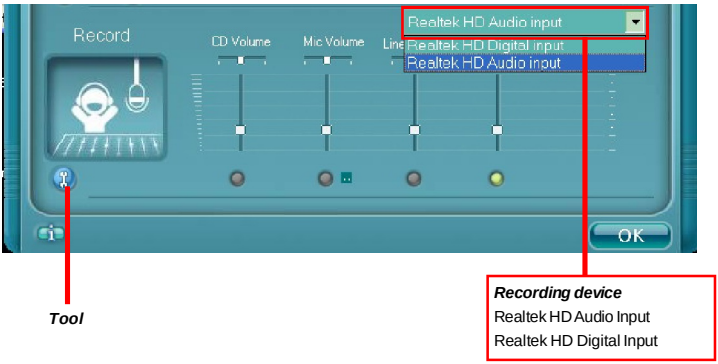
Advanced controls

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



Tool

Show the following volume controls

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

Advanced controls.

Advanced control is a “Microphone Boost” icon.

Once this item is checked, you will find “advanced” icon beside “Front Pink In” & “Mic Volume”. With this, the input signal into “Front Pink In” & “Mic Volume” will be strengthen.

Enable recording multi-streaming

At any given period, you can have maximum 2 streams operating simultaneously.



If you want to use microphone to record, usually the microphone is connected to the MIC jack (the pink one) in the rear panel. You can start recording in this case. If you’d like to connect your microphone to the front audio panel. You may control the microphone volume by **Mic Volume** or **front mic-in** on the mixer.

MSI Reminds You...

Only the speakers that plugged into the Line-Out jack (the green ne) on the back panel will be functional when you intend to listen to the audio that has been recorded from the microphone.

AudioIO

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 (default setting)
c. **4CH Speaker** for 4-Speaker Output
d. **6CH Speaker** for 5.1-Speaker Output
e. **8CH Speaker** for 8-Speaker Output



Realtek HD Audio Manager frees you from default speaker settings. Different from before, for each jack, they are not limited to perform certain functions. Instead, now each jack is able to be chosen to perform either output (i.e. playback) function or input (i.e. Recording) function, we call this “Retasking”.[1]
Audio I/O aims to help you set jacks right. Moreover, other than blue to blue, pink to pink, the way that you used to do, Audio I/O would guide you to other right jacks that can also serve as microphone / speaker / headphone.

Speaker Configuration

Step 1: Plug in the device in any available jack.

Step 2: Dialogue “connected device” will pop up for your selection. Please select the device you are trying to plug 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.

Correct Message

Assume to plug a headphone in the Green jack at back panel. The icon beside green jack become visible and the dialogue “connected device” pops up. Check the headphone, then click OK. As soon as OK is clicked, the icon beside green jack becomes “headphone” as your selection.



Error Message

Assume to plug a headphone in the Blue jack at back panel. The icon beside Blue jack becomes visible and the dialogue “connected device” pops up (the default setting of blue jack is “Line-in”. Check the **headphone** anyway, then click OK. You should notice the icon beside blue jack remains the same without any change and the error message pops.

Pop-screen check list

2CH Speakers configutaion - check the **Front Speaker Out** anyway.

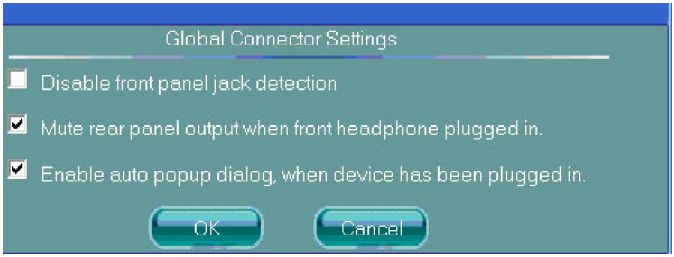
4CH Speakers configuration - check the **Front Speaker Out** & **Rear Speaker Out** anyway.

6CH Speakers configuraion - check the **Front Speaker Out** / **Rear Speaker Out** & **Center/ Subwoofer Speaker out** anyway.

8CH Speakers configuraion - check the **Front Speaker Out** / **Rear Speaker Out** / **Center/Subwoofer Speaker out** & **Side Speaker Out** anyway.

Global Connector Settings

Click  to access global connector settings.



1. Mute rear panel when front headphone plugged in

Once this item is checked, whenever front headphone is plugged, the music that is playing from the back panel, will be stopped.

2. Disable front panel jack detection (option)

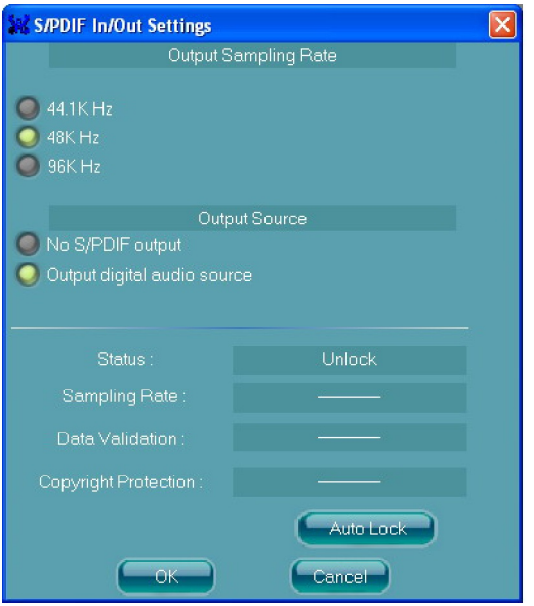
Find no function on front panel jacks? Please check if front jacks on your system are so-called AC'97 jacks. If so, please check this item to disable front panel jack detection.

3. 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

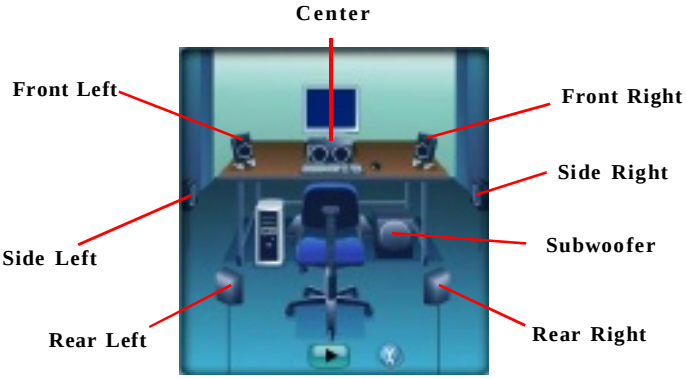
44.1KHz: This is recommend while playing CD
48KHz: This is recommended while playing DVD or Dolby.
96KHz: This is recommended while playing DVD-Audio.

Output Source

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

Test Speakers

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



Microphone

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



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.



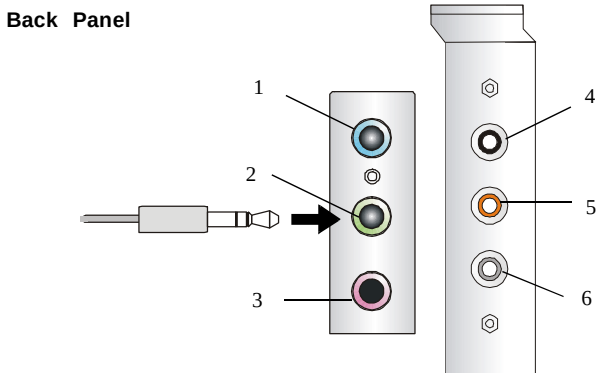
Using 2-, 4-, 6- & 8- Channel Audio Function

Connecting the Speakers

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

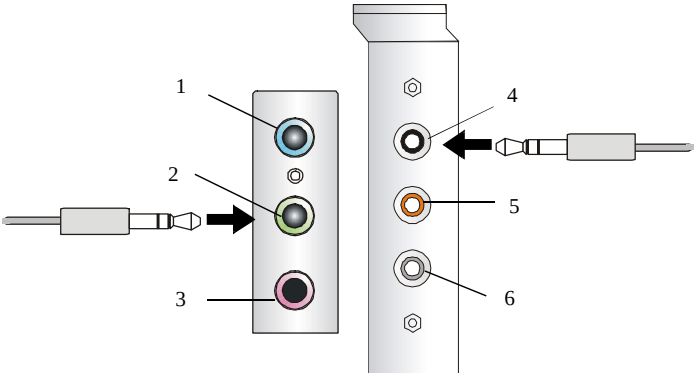
n 2-Channel Mode for Stereo-Speaker Output

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



1 Line In
2 Line Out *(Front channels)*
3 MIC
4 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

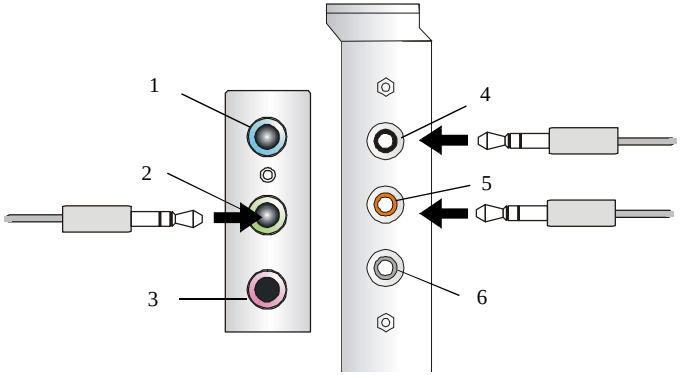


Description:
Connect two speakers to back panel's Line Out connector and two speakers to the real-channel Line Out connector.

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

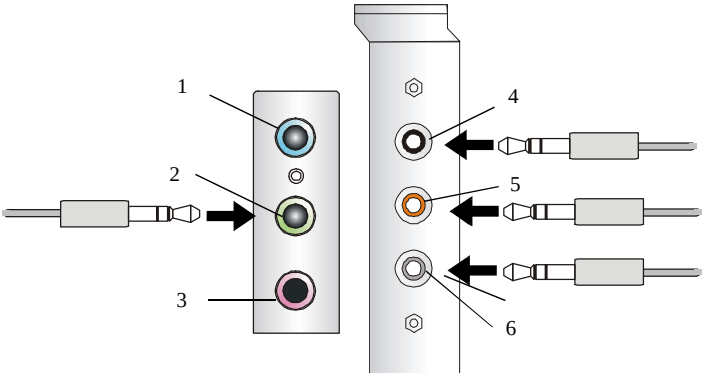


Description:
Connect two speakers to back panel's Line Out connector, two speakers to the rear-channel and two speakers to the center/subwoofer-channel Line Out connectors.

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)*