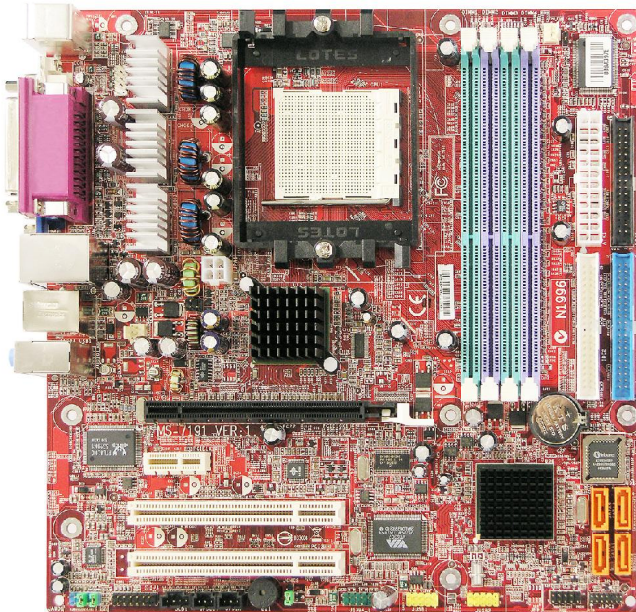# RS482M4/ RX480M4 Series
MS-7191 (v1.X) Micro-ATX Mainboard

G52-M7191X5

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.

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

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

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

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

Micro-Star International
MS-7191
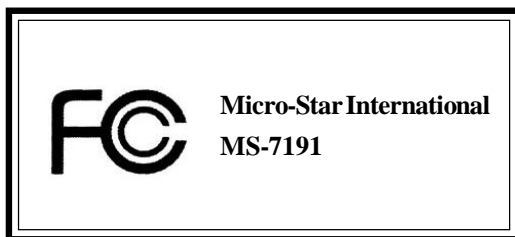
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation

Copyright Notice

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PCMCIA and CardBus are registered trademarks of the Personal Computer Memory Card International Association.

Revision History

Revision	Revision History	Date
V1.0	First release for PCB 1.X with ATi RS482/ RX480 & SB450	Aug. 2005
V1.2	Revise for PCB 1.X with ATi RS482/ RX480 & SB450	December 2005

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: **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 60⁰ C (140⁰F), 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

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

Getting Started

Thank you for choosing the RS482M4/RX480M4 Series (MS-7191 v1.X) Micro ATX mainboard. The RS482M4/RX480M4 Series mainboards are based on **ATi® RS482/ RX480 & ATi® SB450** chipsets for optimal system efficiency. Designed to fit the advanced **AMD® K8 Athlon 64 FX** processor, the RS482M4/ RX480M4 Series deliver a high performance and professional desktop platform solution.

Mainboard Specifications

CPU
† Supports 64-bit AMD® Athlon 64 and Athlon 64 FX/ Athlon 64 X2 (dual core) proc-
   essor (Socket 939)
† Supports up to 4000+ Athlon 64/ 64 FX, or higher CPU
   (For the latest information about CPU, please visit http://www.msi.com.tw/pro-
   gram/products/mainboard/mbd/pro_mbd_cpu_support.php)

Chipset
† ATI® RS482/ RX480 Chipset
   - HyperTransport™ connection to AMD K8 Athlon64 processor
   - 8 or 16 bit control/address/data transfer both directions
   - 1000/800 MHz "Double Data Rate" operation both direction
   - Compliant with PCI Express 1.0a specifications (one x16 graphics interface,
     which can be divided into two smaller links for use by other devices)
   - Graphic integrated (for RS482 only)
† ATI® SB450 Chipset
   - Supports dual channel native SATA controller up to 150MB/s with RAID 0 or 1
   - Supports HD Audio
   - Ultra DMA 66/100/133 master mode PCI EIDE controller
   - ACPI & PC2001 compliant enhanced power management
   - Supports USB2.0 up to 8 ports

Main Memory
† Supports dual channel, eight memory banks DDR 333/400, using four 184-pin
   DDR DIMMs
† Supports a maximum memory size up to 4GB without ECC
† Supports 2.5v DDR SDRAM DIMM
   (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 x16 slot (supports PCI Express Bus specification v1.0a compliant)
† One PCI Express x1 slot (supports PCI Express Bus specification v1.0a compliant)
† Two 32-bit Master 3.3V/5V PCI Bus slots

Onboard IDE
† An IDE controller on the ATI® SB450 chipset provides IDE HDD/CD-ROM with PIO,
   Bus Master and Ultra DMA 133/100/66 operation modes
† Can connect up to 4 IDE devices

Onboard Serial ATA
† Supports 4 SATA ports with up to 150MB/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
† Realtek® 8100C or 8110S LAN chip
   - Integrated Fast Ethernet MAC and PHY in one chip
   - Supports 10Mb/s, 100Mb/s and 8110S supports up to 1000Mb/s.
   - Compliance with PCI v2.2
   - Supports ACPI Power Management

IEEE 1394 (Optional)
† VIA® 6307 IEEE 1394 controller
   - Supports up to two 1394 ports (rear panel x 1, pinheader x 1).
   - Transfer rate is up to 400Mbps

Audio
† Azalia link controller integrated in SB450 chipset.
† 8-channel audio codec Realtek ALC880
   - Compliance with HD Audio (Azalia) 1.0 spec

On-Board Peripherals
† On-Board Peripherals include:
   - 1 floppy port supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
   - 1 serial pinheader (Optional)
   - 1 VGA port (for RS482 only)
   - 1 DVI port (for RS482 only) (optional)
   - 1 JTV1 pinheader (for RS482 only)

- 1 parallel port supporting SPP/EPP/ECP mode
- 8 USB2.0 ports (Rear*4/Front*4)
- 1 Audio (Line-In/Line-Out/MIC 3 in 1) connector
- 1 RJ-45 LAN Jack
- 2 IEEE1394 Ports (Rear * 1 / Front * 1) (Optional)

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.
† Supports boot from LAN, USB Device 1.1 & 2.0, and SATA HDD.

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

Top : mouse
Bottom: keyboard

JCOM2

Top :
Parallel Port

Bottom:
DVI port (for RS482) (optional)
VGA port (for Rs482)

Top: LAN jack
Bottom: USB ports

JPW1

Top: 1394 port (optional)
Bottom: USB ports

JTV1 (for RS482)

SYS_FAN

T:Line-In
M:Line- Out
B:Mic-In

PCIE16X1

LAN
Chip

PCIE1X1

PCI1

ALC880

PCI 2

JAUD1   J1   JCD1 SPDOUT SPDIN   JCMOS

(optional)
J1394_1   JUSB1   JUSB2   JFP1   JLPC1

CPU_FAN   JCI2

DIMM1   DIMM2   DIMM3   DIMM4

SOCKET 939

ATX1

FDD1

IDE2   IDE1

BATT +

BIOS

ATI
RS482/ RX480

ATI
SB450

VIA
VT6307

SATA4   SATA3

SATA2   SATA1

RS482M4/ RX480M4 Series (MS-7191 v1.X)
M-ATX Mainboard

Packing Checklist
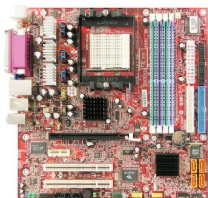
MSI motherboard

MSI Driver/Utility CD

SATA Cable (Optional)

Power Cable

Standard Cable for Floppy Disk

Standard Cable for IDE Devices

1394 Bracket (Optional)

USB Bracket (Optional)

Back IO Shield

User's Guide

TV-out Bracket (Optional)

Audio-out Bracket (Optional)

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

2

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.

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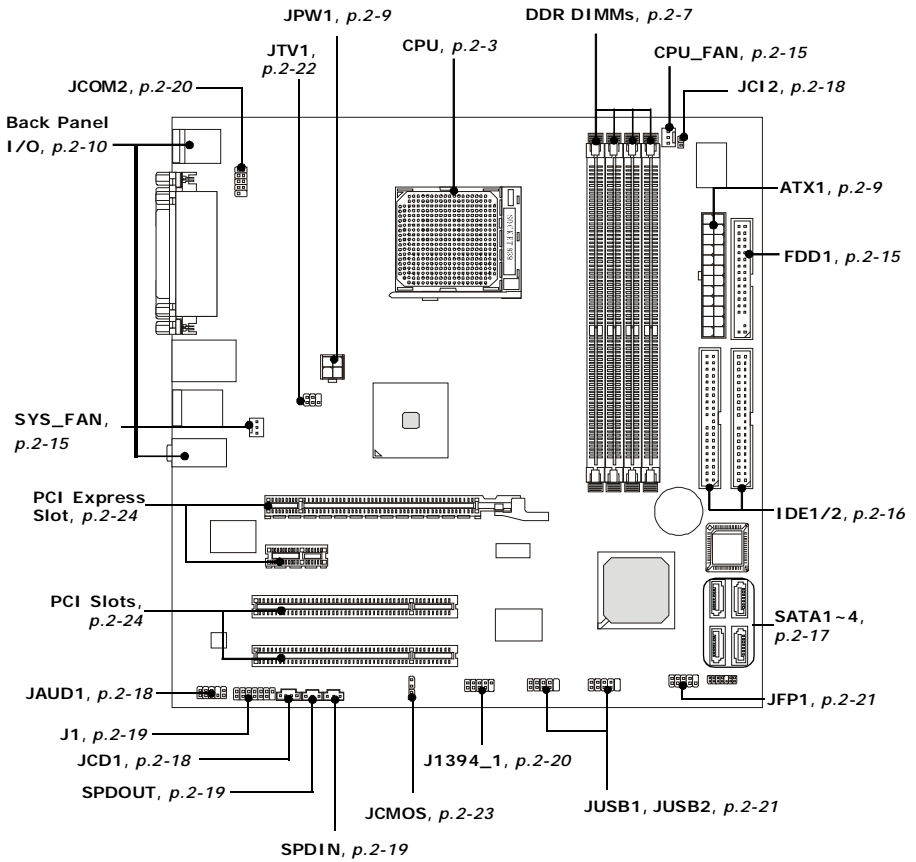
Central Processing Unit: CPU

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

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.

Open Lever

Sliding Plate   90 degree

Gold arrow

Correct CPU placement

Gold arrow   O

Incorrect CPU placement

Gold arrow   X

Press down the CPU

Close Lever
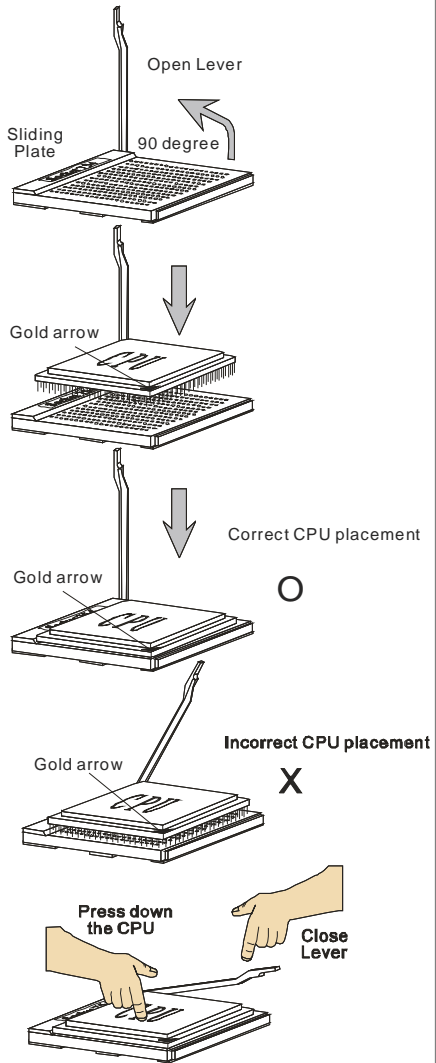
Installing AMD Athlon64 CPU Cooler Set

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

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.
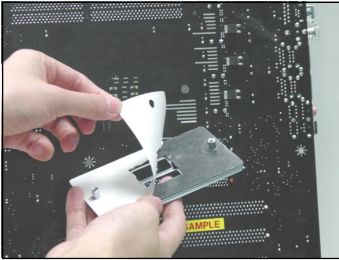
2. Turn over the mainboard, and install the backplate to the proper position.
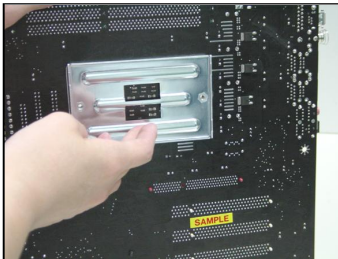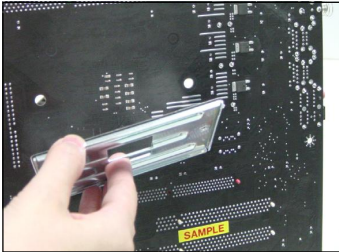
3. Turn over the mainboard again, and place the mainboard on the flat surface. Locate the two screw holes of the mainboard.
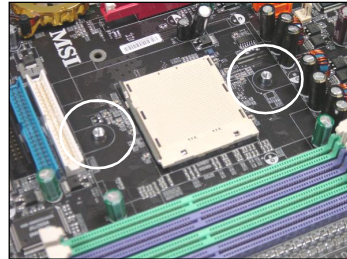
4. Align the retention mechanism and the backplate.

   Fix the retention mechanism and the backplate with two screws.
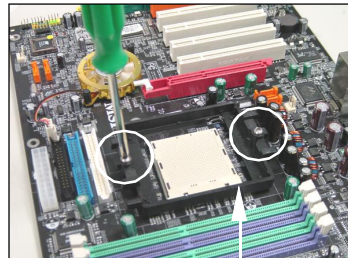
retention mechanism

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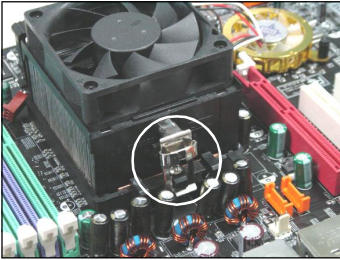
6. Locate the Fix Lever, Safety Hook and the Fixed Bolt.

   Lift up the intensive fixed lever.

Safety Hook

Fixed Lever   Fixed Bolt
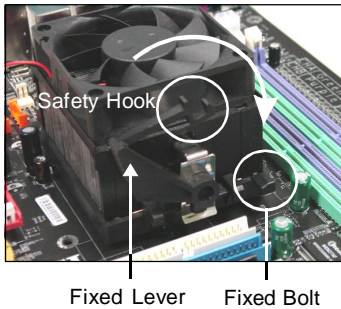
7. Fasten down the lever.
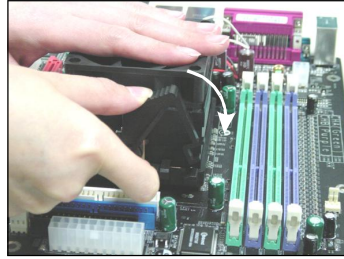
8. Make sure the safety hook completely clasps the fixed bolt of the retention mechanism.
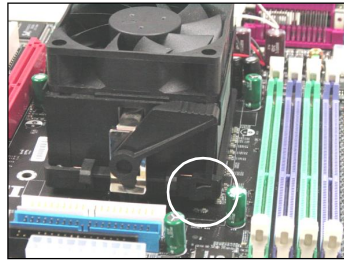
9. Attach the CPU Fan cable to the CPU fan connector on the mainboard.
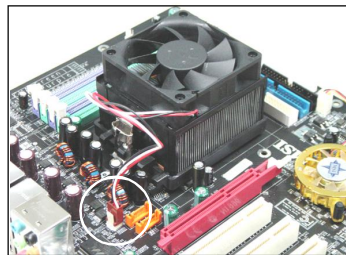
MSI **MSI Reminds You...**
While disconnecting the Safety Hook from the fixed bolt, it is necessary to keep an eye on your fingers, because once the Safety Hook is disconnected from the fixed bolt, the fixed lever will spring back instantly.

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.*

Recommended Memory Combination List

DIMM Slots				Max Speed
Green	Purple	Green	Purple	
DIMM1	DIMM2	DIMM3	DIMM4	
S	-	-	-	DDR 400
-	-	S	-	DDR 400
D	-	-	-	DDR 400
-	-	D	-	DDR 400
S	-	S	-	DDR 400
D	-	D	-	DDR 333
S	S	-	-	DDR 400
-	-	S	S	DDR 400
D	D	-	-	DDR 400
-	-	D	D	DDR 400
S	S	S	S	DDR 400
D	D	D	D	DDR 333

S: Single Side   D: Double Side

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.

Volt   **Notch**
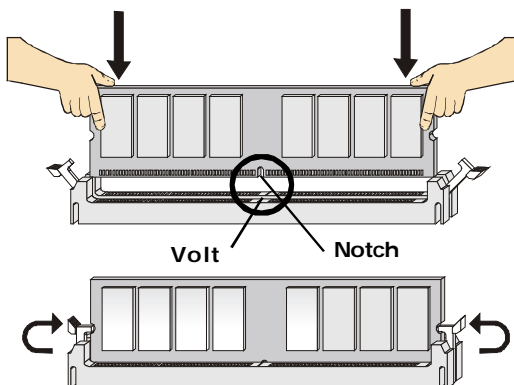
Power Supply

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.

pin 13

pin 12

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

Pin Definition

ATX1

PIN	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	PWR OK	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

JPW1

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.

Back Panel

| Mouse | Parallel | | LAN | 1394 Port (Optional) | L-In |
| Keyboard | DVI Port (for RS482) (optional) | VGA Port (for RS482) | USB Ports | USB Ports | L-Out Mic |
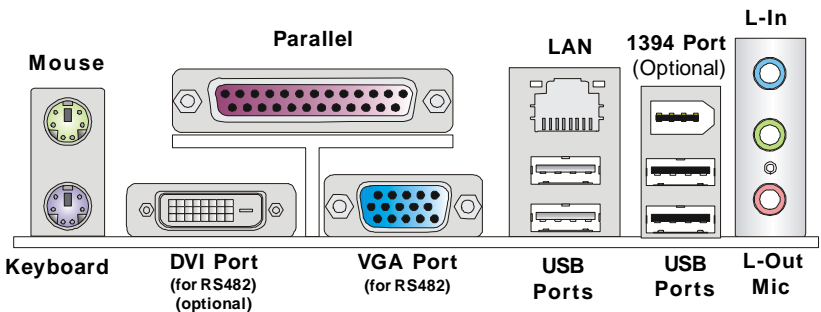
Mouse/Keyboard Connector

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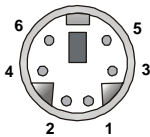
PS/2 Mouse / Keyboard (6-pin Female)

Pin Definition

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

VGA Connector (for RS482 only)

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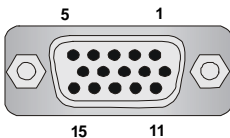
VGA Connector
(DB 15-pin)

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 (for RS482 only) (optional)

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.)
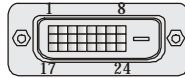
DVI Connector			
Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S.* Data2-	13	T.M.D.S. Data3+
2	T.M.D.S. Data2+	14	+5V
3	T.M.D.S. Data2/4 Shield	15	GND (for +5V)
4	T.M.D.S. Data4-	16	Hot Plug Detect
5	T.M.D.S. Data4+	17	T.M.D.S. Data0-
6	DDC Clock	18	T.M.D.S. Data0+
7	DDC Data	19	T.M.D.S. Data0/5 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 Port Description
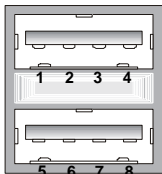
PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

USB Ports

LAN (RJ-45) Jack:10/100 LAN (8100C) or Giga-bit LAN (8110S => optional)

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/ 100Mbps or (1000Mbps => for 8110S only). You can connect a network cable to it.

Activity Indicator ← → Link Indicator

8   1
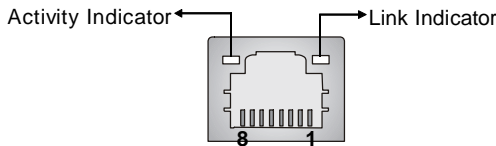
RJ-45 LAN Jack

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.

Line In

Line Out

MIC

Rear Out

Center and Subwoofer Out

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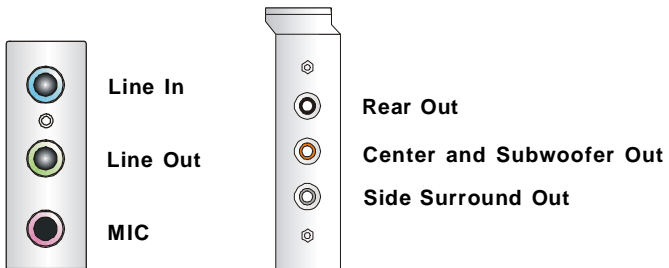
> **MSI Reminds You...**
> *For the advanced functions of the audio codec, please refer to **Appendix A: Introduction to Realtek ALC880 Audio Codec** for details.*

IEEE 1394 Port (optional)

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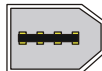
1394 port

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.
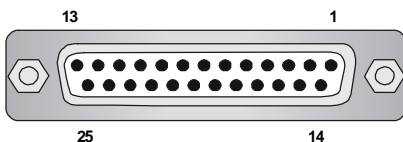
Pin Definition

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: CPU_FAN / SYS_FAN

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.

SENSOR
+12V
GND
CPU_FAN

GND
+12V
SENSOR
SYS_FAN

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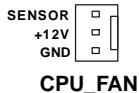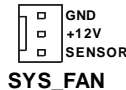
MSI Reminds You...
Please refer to the recommended CPU fans at AMD® official website or consult the vendors for proper CPU cooling fan.

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.
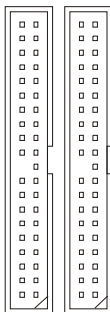
IDE2   IDE1

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

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 ATA Connectors: SATA1~SATA4

The ATI SB450 SouthBridge supports four serial ATA connectors SATA1~SATA4. SATA1~SATA4 are high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150MB/s and is fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device.
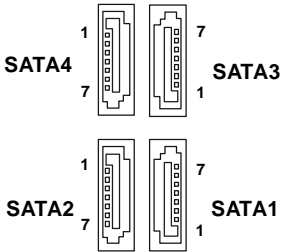
Pin Definition

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

Serial ATA cable

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

Connect to SATA1/2/3/4
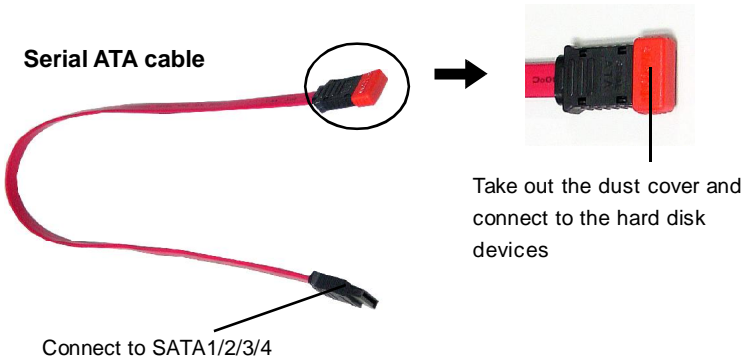
MSI Reminds You...
Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

CD-In Connector: JCD1

This connector is provided for CD-ROM audio.

JCD1

R GND L
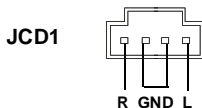
Front Panel Audio Connector: JAUD1

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

2 □□□□□ 10
1 □□□□□ 9

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	PORT 1L	Analog Port 1 - Left channel
2	GND	Ground
3	PORT 1R	Analog Port 1 - Right channel
4	PRESENCE#	Active low signal - signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE# = 0 when a High Definition Audio dongle is connected.
5	PORT 2R	Analog Port 2 - Right channel
6	SENSE1_RETIRN	Jack detection return from front panel JACK1
7	SENSE_SEND	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	KEY	ConnectorKey
9	PORT 2L	Analog Port 2 - Left channel
10	SENSE2_RETIRN	Jack detection return from front panel JACK2

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.

CINTRU □ 1
GND □ 2

JCI1

SPDIF-Out/ SPDIF-In Connector: SPDOUT/ SPDIN (SPDIF-In is optional)

These connectors are used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission. The JSPD1 is for SPDIF-Out and the JSPD2 is for SPDIF-In.

SPDIF-Out   GND   NC

SPDOUT

SPDIF-In   GND   NC
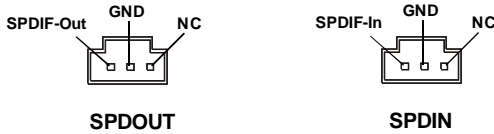
SPDIN

Connected to SPDOUT or SPDIn is by your desire.

SPDIF Bracket (Optional)
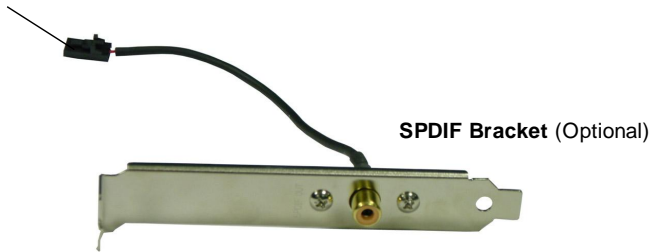
Audio-out Connector: J1

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.

2
1   **J1**   14
13
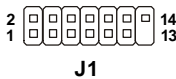
Pin Definition

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

Audio-out Bracket
(Optional)

Connected to J1.

Serial Port Header: JCOM1 (Optional)

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

1 □□ 6
□□
□□ 9
5 □

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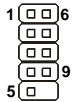
PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready)
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

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

2 □□□□□ 10
1 □□□□□ 9
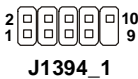
J1394_1

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

Connected to J1394_1
(Green connector)
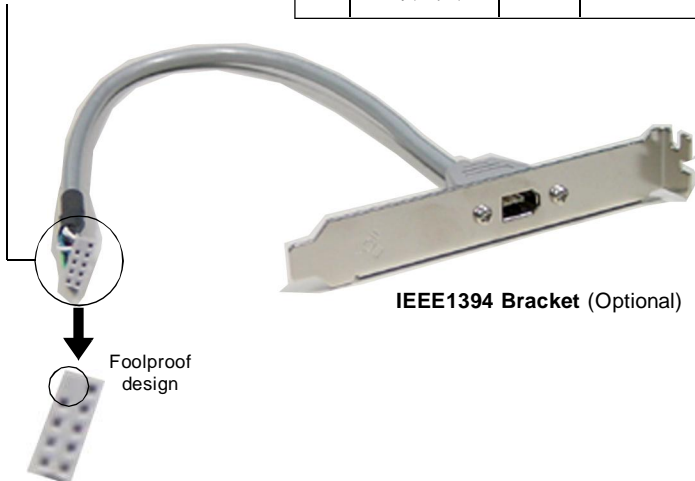
IEEE1394 Bracket (Optional)

Foolproof design

Front Panel Connector: JFP1

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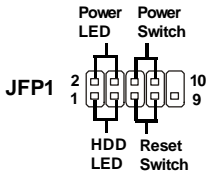
PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N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

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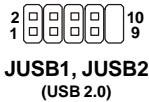
PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC

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.

TV-Out Connector: JTV1 (Optional)

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

4 5

1   3

JTV1
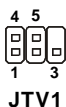
Pin Definition

Pin	Description	Pin	Description
1	GND	4	COMP
2	Yout	5	GND
3	Cout		

Connected to JTV1

TV-Out Bracket (Optional)

TV-Out Connector
(RCA Composite)

TV-Out Connector
(S-Video)
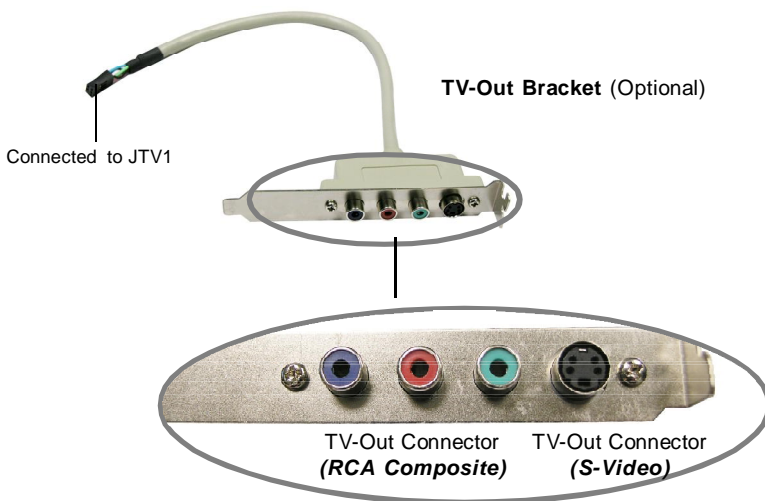
MSI Reminds You...
1. *Please note that the TV-Out bracket supports to connect one TV only. Meanwhile you can not connect two TVs to this bracket. Otherwise, the TVs will not be functional.*
2. *Please refer to **Appendix D: Using the TV-Out Function (HDTV-Out Integrated)** for details.*

Jumpers

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

Clear CMOS Jumper: JCMOS

There is a CMOS RAM onboard that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the JCMOS1 (Clear CMOS Jumper) to clear data.

JCMOS

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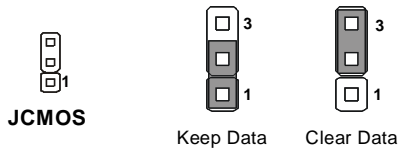
MSI Reminds You...
You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Slots

The motherboard provides one PCI Express x16 slot and three 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.
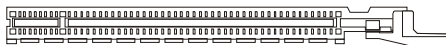
PCI Express x16 slot

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.
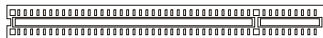
PCI Slots

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:

- ² An error message appears on the screen during the system booting up, and requests you to run SETUP.
- ² You want to change the default settings for customized features.

MSI

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:

W7191AMS V1.0 150705 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 ATi Chipset
7th - 8th digit refers to the customer as MS = all standard customers.
V1.0 refers to the BIOS version.
150705 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 >.

▸ IDE Channel 0 Master
▸ IDE Channel 0 Slave
▸ IDE Channel 1 Master
▸ IDE Channel 1 Slave

General Help <F1>

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

The Main Menu

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.

```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.

 ▶ Standard CMOS Features        ▶ Cell Menu

 ▶ Advanced BIOS Features          Load Fail-Safe Defaults

 ▶ Advanced Chipset Features       Load Optimized Defaults

 ▶ Integrated Peripherals          BIOS Setting Password

 ▶ Power Management Features        Save & Exit Setup

 ▶ PNP/PCI Configurations          Exit Without Saving

 ▶ H/W Monitor


  ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
    F6:Load Optimized Defaults          F7 :Load Fail-Safe Defaults

              Set Time, Date, Hard Disk Type ...

       v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.
```

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.

```
    CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                            Standard CMOS Features

    Date (MM:DD:YY) :        [Thu 08/04/2005]          Help Item
    Time (HH:MM:SS) :        [17:11:23]
                                                 Use [ENTER], [TAB]
    ▶ Primary IDE Master     [Hard Disk]         or [SHIFT-TAB] to
    ▶ Primary IDE Slave      [Not Detected]      select a field.
    ▶ Secondary IDE Master   [ATAPI CDROM]
    ▶ Secondary IDE Slave    [Not Detected]      Use [+] or [-] to
    ▶ Third IDE Master       [Not Detected]      configure system Date.
    ▶ Fourth IDE Master      [Not Detected]
    ▶ Fifth IDE Master       [Not Detected]
    ▶ Sixth IDE Master       [Not Detected]

    Floppy A                 [1.44 MB 3½"]

    Halt on                  [All, But Keyboard]



    ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
            F6:Load Optimized Defaults      F7 :Load Fail-Safe Defaults
```

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

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

[Access Mode]	The settings are [CHS], [LBA], [Large], [Auto].
[Capacity]	The formatted size of the storage device.
[Cylinder]	Number of cylinders.
[Head]	Number of heads.
[Precomp]	Write precompensation.
[Landing Zone]	Cylinder location of the landing zone.
[Sector]	Number of sectors.

Drive 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.].

Halt On
The setting determines whether the system will stop if an error is detected at boot. Available options are:

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

Advanced BIOS Features
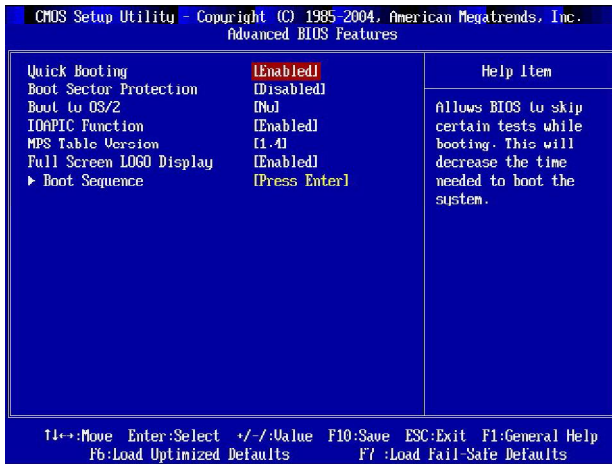
```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                        Advanced BIOS Features

 Quick Booting                [Enabled]              Help Item
 Boot Sector Protection       [Disabled]
 Boot to OS/2                 [No]              Allows BIOS to skip
 IOAPIC Function              [Enabled]         certain tests while
 MPS Table Version            [1.4]            booting. This will
 Full Screen LOGO Display     [Enabled]         decrease the time
 ▶ Boot Sequence              [Press Enter]     needed to boot the
                                                system.



 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
           F6:Load Optimized Defaults      F7 :Load Fail-Safe Defaults
```

Quick Booting
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].

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].

Full Screen LOGO Show
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 Sequence
Press <Enter> to enter the sub-menu, and the following screen appears.

> CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
> Boot Sequence
>
> | | | Help Item |
> |---|---|---|
> | 1st Boot Device | [1st FLOPPY DRIVE] | |
> | 2nd Boot Device | [HDD:PM-Maxtor 6Y08] | Specifies the boot |
> | 3rd Boot Device | [CD/DVD:SM-MSI CD-R] | sequence from the |
> | Boot From Other Device | [Yes] | available devices. |
> | ▶ Hard Disk Drives | [Press Enter] | A device enclosed in |
> | ▶ Removable Drives | [Press Enter] | parenthesis has been |
> | ▶ CD/DVD Drives | [Press Enter] | disabled in the |
> | | | corresponding type |
> | | | menu. |

    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.

    Removable Device Priority
    This feature allows you to specify the priority of removable devices.

    Boot From Other Device
    Setting the option to <Yes> allows the system to try to boot from other device if the system fails to boot from the First/ Second/ Third boot device.

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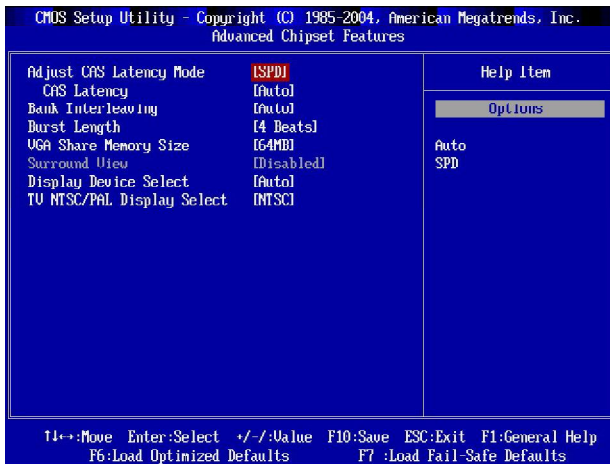
    Removable Drives
    This feature allows you to specify the removable device boot priority.

    CD/DVD Drives
    This feature allows you to specify the CD/DVD device boot priority.

Advanced Chipset Features

```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                          Advanced Chipset Features
 Adjust CAS Latency Mode      [SPD]                    Help Item
   CAS Latency                [Auto]
 Bank Interleaving            [Auto]                 ┌─ Options ─┐
 Burst Length                 [4 Beats]
 VGA Share Memory Size        [64MB]                   Auto
 Surround View                [Disabled]               SPD
 Display Device Select        [Auto]
 TV NTSC/PAL Display Select   [NTSC]


 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
         F6:Load Optimized Defaults       F7 :Load Fail-Safe Defaults
```

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

Adjust CAS Latency Mode
This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: [Auto], [SPD].

CAS# Latency (Tcl)
This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: [Auto], [2.0], [2.5], [3.0]. [2.0] increases the system performance the most while [3.0] provides the most stable performance.

Bank Interleave
This field selects 2-bank or 4-bank interleave for the installed SDRAM. Setting options: [Auto], [Disabled].

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].

VGA Share Memory Size
The system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card. Setting options: [32MB], [64MB], [128MB], [256MB].

Surroundview
SURROUNDVIEW™ provides the power and convenience of multi-adapter, multi-monitor support for computers that use an AGP- or PCI Express®-based graphics card in conjunction with ATI integrated graphics processors (IGPs). Setting options: [Enabled], [Disabled].
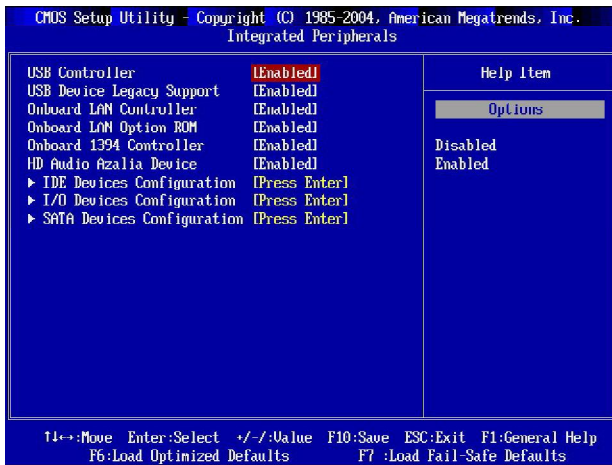
Display Device Select
This item allows you to select an display device to display. Setting options: [Auto], [CRT First], [TV First].

TV NTSC/PAL Display Select
This item allows you to select the TV display mode. Setting options: [NTSC], [PAL].

Integrated Peripherals

```
        CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                                Integrated Peripherals

         USB Controller                [Enabled]              Help Item
         USB Device Legacy Support     [Enabled]
         Onboard LAN Controller        [Enabled]                Options
         Onboard LAN Option ROM        [Enabled]
         Onboard 1394 Controller       [Enabled]            Disabled
         HD Audio Azalia Device        [Enabled]            Enabled
       ▶ IDE Devices Configuration     [Press Enter]
       ▶ I/O Devices Configuration     [Press Enter]
       ▶ SATA Devices Configuration    [Press Enter]




         ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
              F6:Load Optimized Defaults        F7 :Load Fail-Safe Defaults
```

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

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: [Disabled], [Enabled].

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

Onboard Lan Boot ROM
This item is used to decide whether to invoke the Boot ROM of the Onboard LAN Chip. Setting options: [Enabled], [Disabled].

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

HD Audio Azalia Device
This item allows you to enable/ disable the HD audio. Disable the function if you want to use other controller cards to connect an audio device. Setting options: [Enabled], [Disabled].

IDE Device Configuration

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

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: [Both], [Primary], [Secondary], [Disabled].

PCI IDE BusMaster

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

IO Device Configuration

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

COM Port 1

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

Parallel Port

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

Parallel Port Mode

This setting specifies the parallel port mode.

Setting options: [Normal], [Bi-Directional], [ECP].

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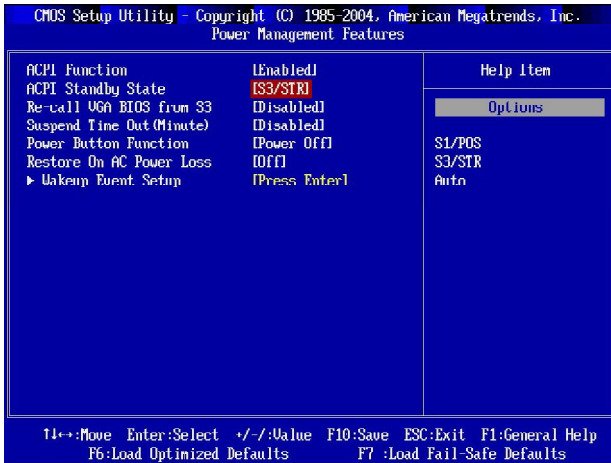Press <Enter> to enter the sub-menu and the following screen appears.

```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                      SATA Devices Configuration

OnChip SATA Channel      [Both]                  Help Item
OnChip SATA Type         [Enable SATA As IDE]
                                                 Options
```

OnChip SATA Channel
This field allows you to enable or disabled the SATA controllers. Settings options:
[Both], [Disabled], [Single].

OnChip SATA Type
This allows you to specify the function type for SATA devices. Settings options:
[SATA As RAID], [SATA As Storage], [Enable SATA As IDE].

Power Management Setup

```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                      Power Management Features

   ACPI Function                  [Enabled]              Help Item
   ACPI Standby State             [S3/STR]
   Re-call VGA BIOS from S3        [Disabled]              Options
   Suspend Time Out(Minute)       [Disabled]
   Power Button Function          [Power Off]         S1/POS
   Restore On AC Power Loss       [Off]               S3/STR
 ▶ Wakeup Event Setup             [Press Enter]       Auto




   ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
         F6:Load Optimized Defaults         F7 :Load Fail-Safe Defaults
```

MSI

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.

Re-Call VGA BIOS from S3
When *ACPI Standby State* is set to [S3/STR], users can select the options in this field. Selecting [Enabled] allows BIOS to call VGABIOS to initialize the VGA card when system wakes up (resumes) from S3 sleep state. The system resume time is shortened when you disable the function, but system will need an AGP driver to initialize the VGA card. Therefore, if the AGP driver of the card does not support the initialization feature, the display may work abnormally or not function after resuming from S3. Setting options: [Enabled], [Disabled].

Suspend Time Out (Minute)
If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings: [Disabled], [1 minute], [2 minutes],[3 minutes], [4 minutes], [5 minutes], [10 minutes], [15 minutes], [32 minutes], [64 minutes].

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

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

Restore on AC/Power Loss
This 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.

Resume From S3 by USB Device
The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state. Setting options: [Disabled], [Enabled].

Resume By PS/2 Keyboard
The item specifies how the system will be awakened from power saving mode when input signal of the PS2 keyboard is detected. Use the <PageUp> & <PageDown> keys to select the options. When selecting [Password], enter the desired password. Setting options: [Password], [Any Key], [Disabled].

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

Resume By PS/2 Mouse
This setting only works *Resume By PS/2 KB* is set to [Hot Key]. This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected. 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 PCIE 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].

Date (of Month)
When *Resume by RTC Alarm* set to [Enabled], the field specifies the date for *Resume by RTC Alarm*.

Time (HH:MM:SS)
You can choose what hour, minute and second the system

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.

```
CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                        PNP/PCI Configurations

  Clear ESCD              [No]                    Help Item
  Primary Graphic's Adapter  [Auto]
  PCI Latency Timer       [64]               Clear NVRAM during
  ▶ IRQ Resource Setup    [Press Enter]      System Boot.
  ▶ DMA Resource Setup    [Press Enter]




  ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
           F6:Load Optimized Defaults        F7 :Load Fail-Safe Defaults
```

Clear ESCD
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.

Primary Graphics Adapter
This setting specifies which VGA card is your primary graphics adapter. Setting options are:
[Auto]   The system will automatic detect the current graphic card.
[PCI Mode]   The system initializes the installed PCI VGA card first.

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].

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 AMIBIOS 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].

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.

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

```
 CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                          DMA Resource Setup

   DMA Channel 0          [Available]           Help Item
   DMA Channel 1          [Available]
   DMA Channel 3          [Available]             Options
   DMA Channel 5          [Available]
   DMA Channel 6          [Available]          Available
   DMA Channel 7          [Available]          Reserved
```

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.

PC Health Status

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.

```
     CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
                                   H/W Monitor
  ┌─────────────────────────────────────────────────┬──────────────────────┐
  │ CPU Shutdown Temperature       [75°C]            │      Help Item       │
  │ CPU FAN Failure Warning        [Enabled]         │                      │
  │ Chassis Intrusion              [Enabled]         │       Options        │
  │ Smart Fan                      [40°C]            │                      │
  │ Smart Fan Tolerance            [3°C]             │   Disabled           │
  │ ▶ PC Health Status             [Press Enter]     │   75°C               │
  │                                                  │   80°C               │
  │                                                  │   85°C               │
  │                                                  │                      │
  │                                                  │                      │
  │                                                  │                      │
  │                                                  │                      │
  │                                                  │                      │
  ├─────────────────────────────────────────────────┴──────────────────────┤
  │ ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help │
  │        F6:Load Optimized Defaults      F7 :Load Fail-Safe Defaults       │
  └─────────────────────────────────────────────────────────────────────────┘
```

CPU Shutdown Temperature
If the CPU temperature reaches the upper limit preset in this setting, the system will be shut down automatically. This helps you to prevent the CPU overheating problem. This item is available only when your OS supports this function, such as Windows ME/XP. Setting options: [75°C], [80°C], [85°C], [Disabled].

CPU Fan Failure Warning
When enabled, the system will automatically monitor the CPU fan during boot-up. If it detects that the CPU fan is not rotating, the system will show an error message on the screen and halt the boot-up process. The function is **built with CPU fan power connector (CPU_FAN) only** and enables you to protect the CPU form possible overheating problem. If you don't connect the CPU fan to the CPU fan power connector, we recommend disabling the feature. Setting options: [Enabled], [Disabled].

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
W83627THF provides the Smart Fan system which can control the fan speed auto-matically depending on the current temperature to keep it with in a specific range.

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

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

CPU/System Temperature, CPU/SYSTEM FAN Speed, Vcore, +3.3 V, +5. 0 V, +12.0V, +5VSB, 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.
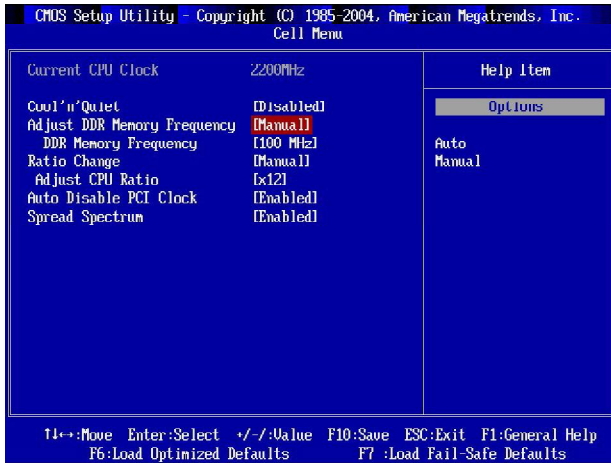
> **MSI Reminds You...**
> *Change these settings only if you are familiar with the chipset.*

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.*

Adjust DDR Memory Frequency
Setting to *Auto*, the system will auto detect the memory clock. Setting to *Manual*, the "DDR Memory Frequency" item will appear and allows you to select the memory clockk. Setting options: [Auto], [Manual].

DDR Memory Frequency
When the Adjust DDR Memory Frequency is set to *Manual*, this field is selectable. Setting options: [100 MHz], [133 MHz], [166 MHz], [200 MHz].

Ratio Change
This field allows you to select the CPU Ratio. Setting to [Auto] enables CPU Ratio automatically to be determined by SPD. Setting options: [Auto], [Manual].

Adjust CPU Ratio
When the *Ratio Change* is set to [Manual], the field is adjustable. This item allows you to adjust the CPU ratio. It is available only when the processor supports this function.

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

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

Load Fail-Safe Defaults (Y/N)? Y

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:

Load Optimized Defaults (Y/N)? Y

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:

Enter Password:

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.

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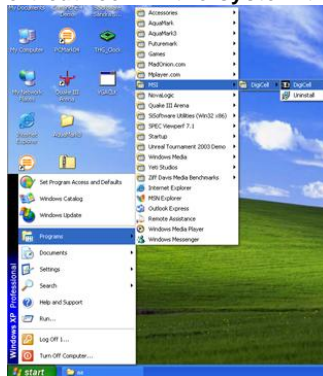
**short-cut path in the start-up menu
(path: Start-->Programs-->MSI-->DigiCell)**

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.
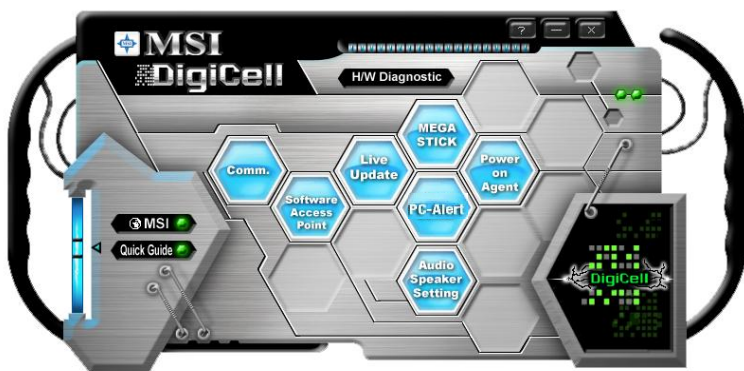
Introduction:

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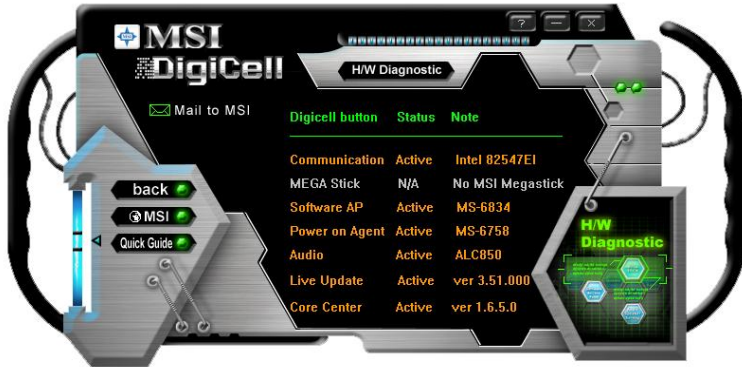
You may also click on the **Mail to MSI** button to send your questions or suggestions to MSI's technical support staff.

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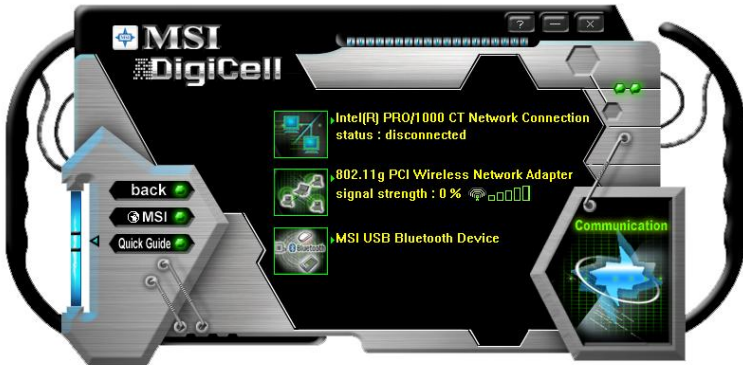
This icon indicates the information and connection status of onboard LAN, which is read-only.

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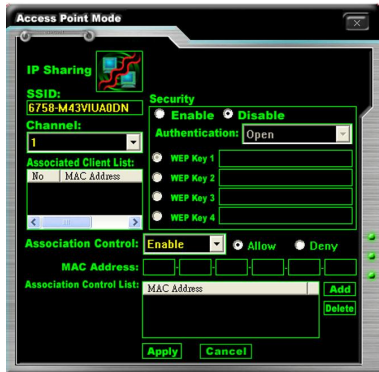
IP Sharing
Click on this icon to enable/disable the IP sharing. The default of this setting is disabled.

 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.
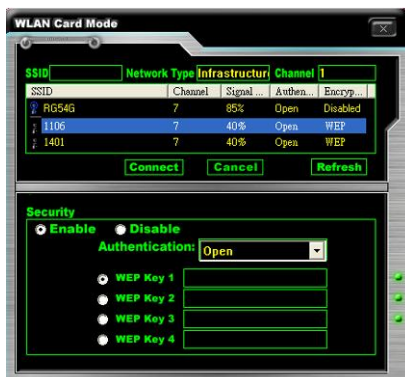
Live Update

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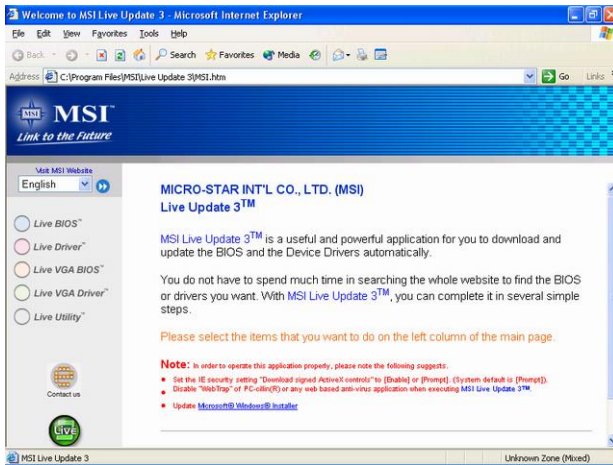
Several buttons are placed on the left column of the screen. Click the desired button to start the update process.

> **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**.**
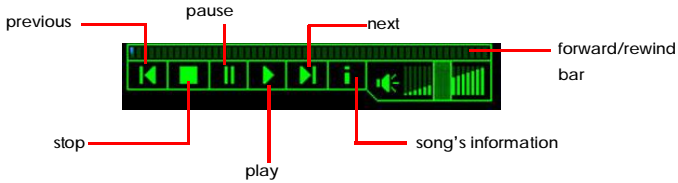
Right-click on the MP3 file and choose **"Info"**, a **MP3 Info** dialogue will pop up to show the information of the file, including the title, artist, album, release year and others. You may also add your own comment in the **comment** field. Then click **"Save"** to save the change, click **"Cancel"** 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].
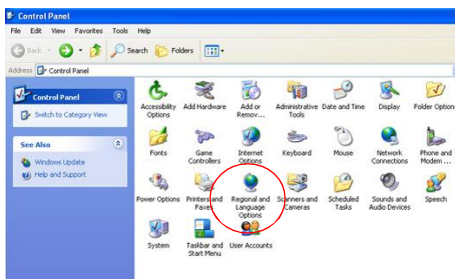
    2. Go to the [Languages] tab and enable the check box of [Install files for East Asian languages]. A dialogue box will pop up to remind you the above selection is chosen.
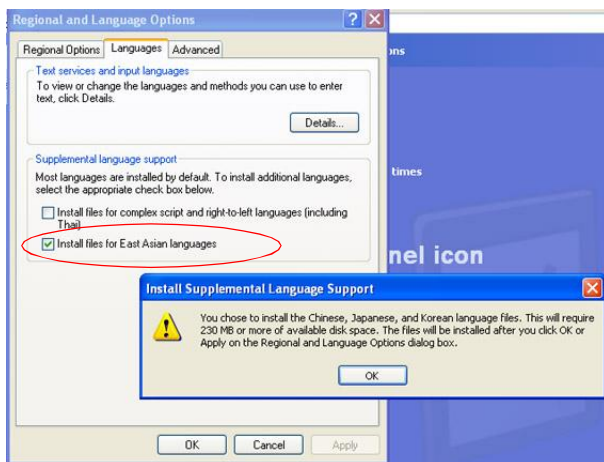
3. Then go to the [Advanced] tab and select ***the language you want to be supported*** (the language of the filename in the MegaStick) from the drop-down list in the [Language for non-Unicode programs], then click [Apply]. The system will install the necessary components from your Microsoft Setup CD immediately.
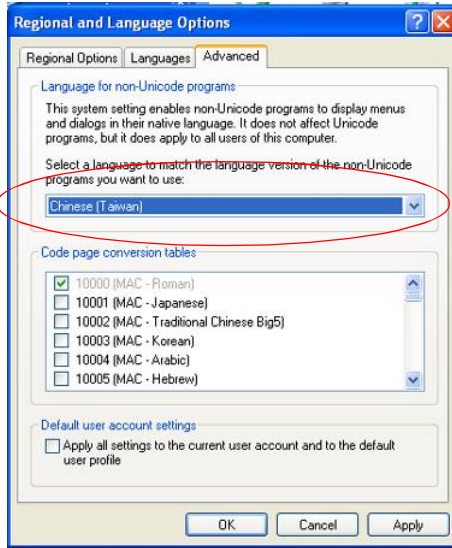
PC Alert

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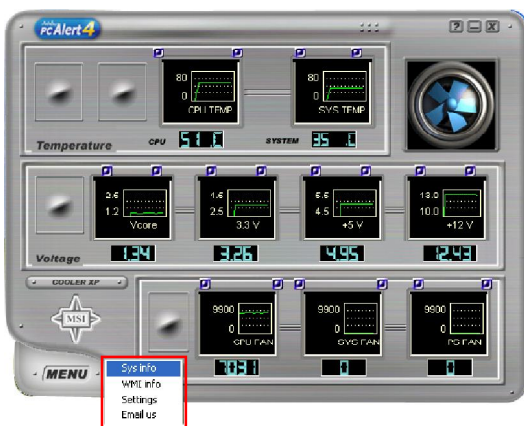
When you click the MENU button, an menu list will appear for users to select. Click the Sys Info/ WMI Info, it will show the system/ peripheral informations. Click the Settings, you can select the period time for PC Alert to detect the temperatures, voltages and fan speeds.

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.
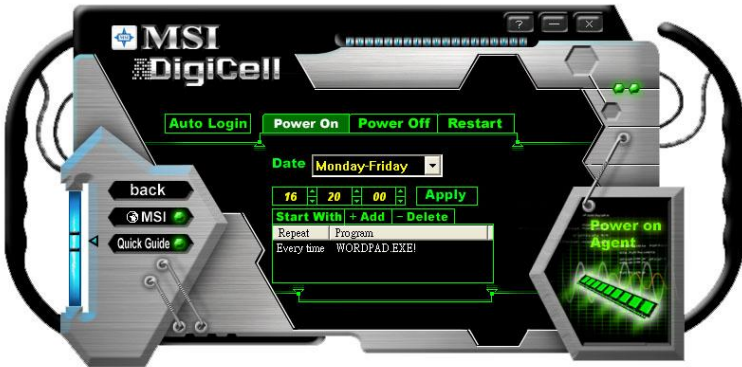
Power On

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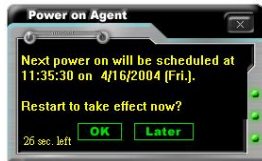
MSI Reminds You...
Please note that the new setting will not take effect until you restart your computer.

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 pro-grams as DigiCell is activated next time. For example, you may like to have Outlook activated or a speci-fied 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 Out-look 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 com-plete path or the website link in the **Parameters:** field.
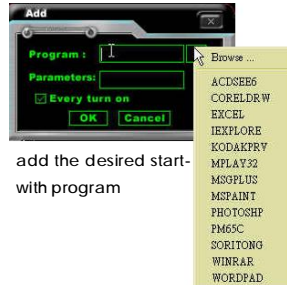
add the desired start-with program

To activate Outlook as DigiCell is enabled next time
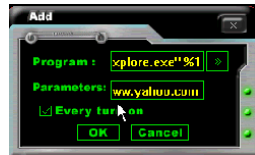
To activate a specified website as DigiCell is enabled next time

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.

Appendix A: Using 2-, 4-, 6- & 8- Channel Audio Function

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**.

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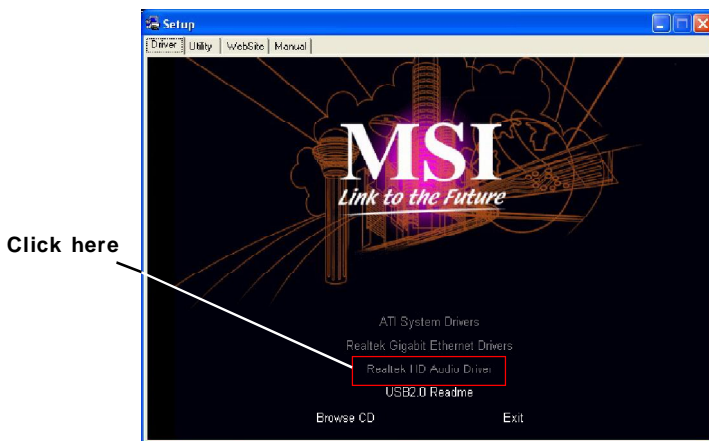
> **MSI Reminds You...**
> *The **HD Audio Configuration** 🔊 software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this appendix may be slightly different from the latest software utility and shall be held for reference only.*

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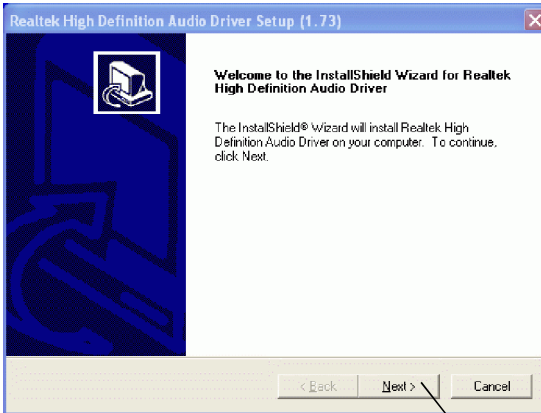
Click here

4. Click **Finish** to restart the system.
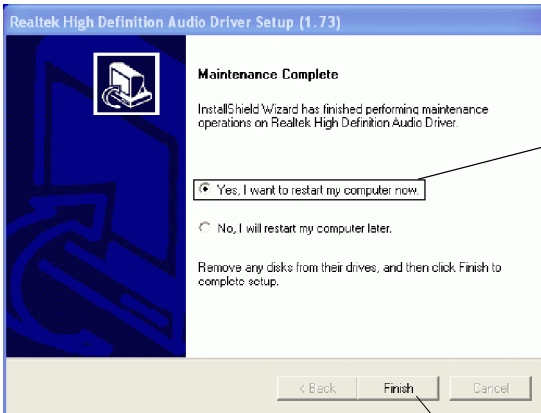
Select this option

Click here

Software Configuration

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

Double click
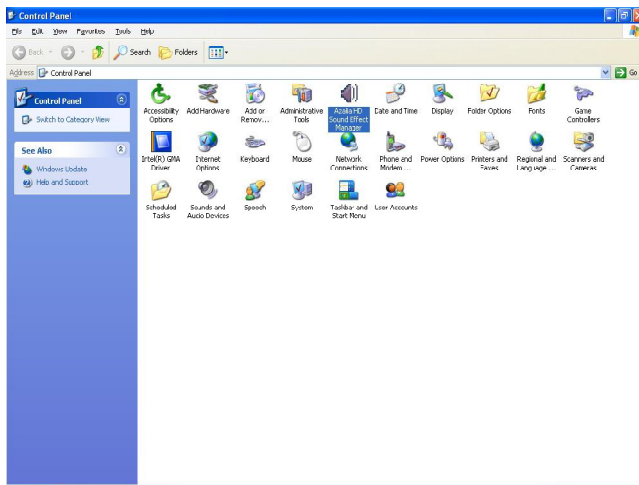
Sound Effect

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

Load EQ Setting

Reset EQ Setting

EQ Setting On/Off

Save Preset

Delete EQ Setting
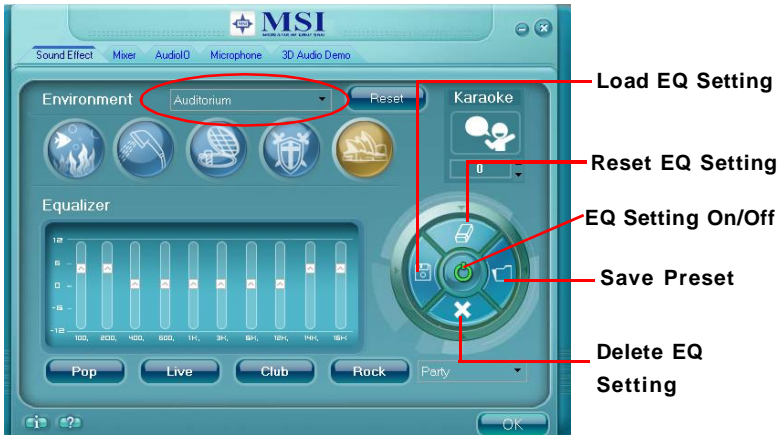
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make a new equalizer setting to save as a new one by using the "**Load EQ Setting**" and "**Save Preset**" button, click "**Reset EQ Setting**" button to use 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.
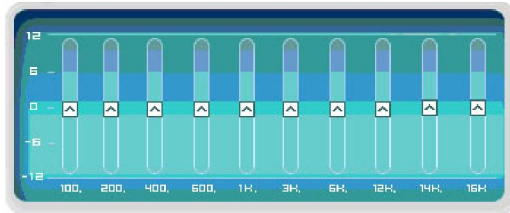
Save
The settings are saved permanently for future use.

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.

Remove the human voice

Raise the key

Lower the key

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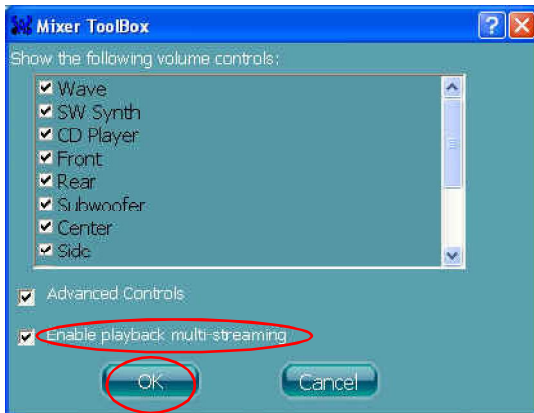
When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

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

Tool   **Mute**

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

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.
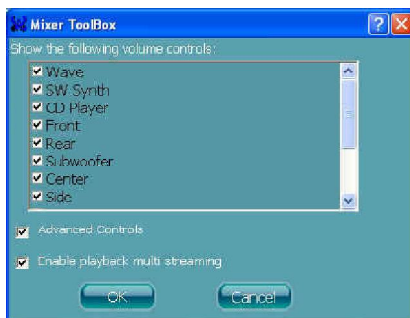
4. Recording control
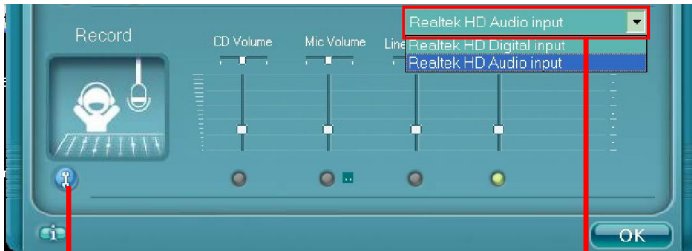
Tool

Recording device
Realtek HD Audio Input
Realtek HD Digital Input

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** **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

      c. **4CH Speaker** for 4-Speaker Output

      d. **6CH Speaker** for 5.1-Speaker Output

      e. **8CH Speaker** for 8-Speaker Output (default setting)

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.
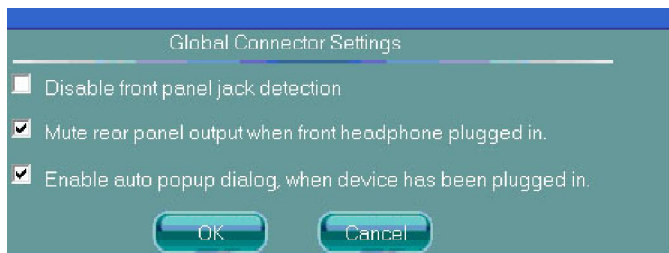
1. Mute rear panel when front headphone plugged in

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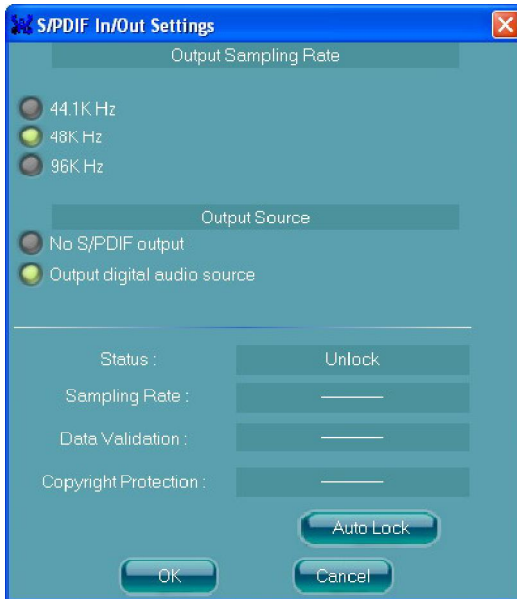
Output Sampling Rate
  44.1KHz: This is recommend while playing CD
  48KHz: This is recommended while playing DVD or Dolby.
  96KHz: This is recommended while playing DVD-Audio.

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.
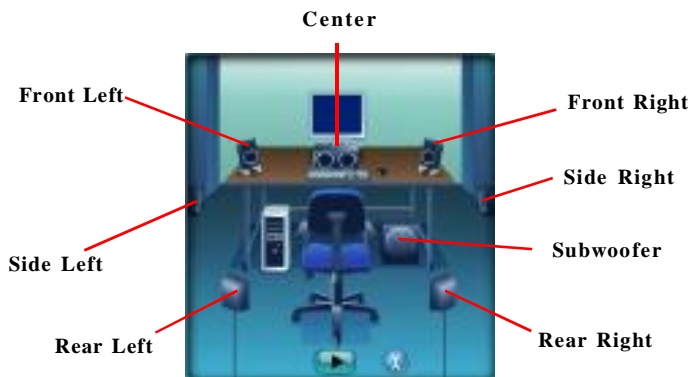
Microphone

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.

Back Panel

1 Line In

2 Line Out *(Front channels)*

3 MIC
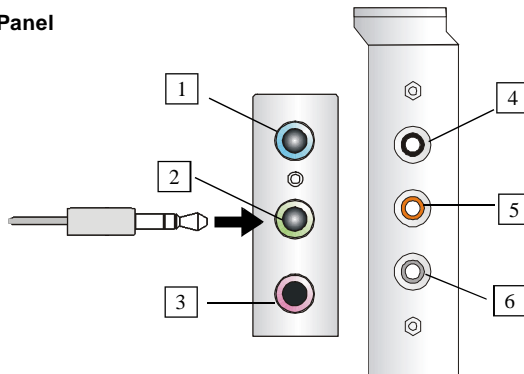
4 Line Out *(Rear channels, but no functioning in this mode)*

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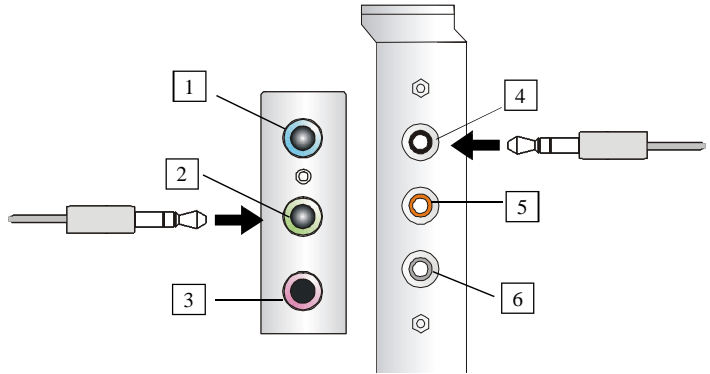
Description:
Connect two speakers to back panel's Line Out connector and two speakers to the real-channel Line Out connector.

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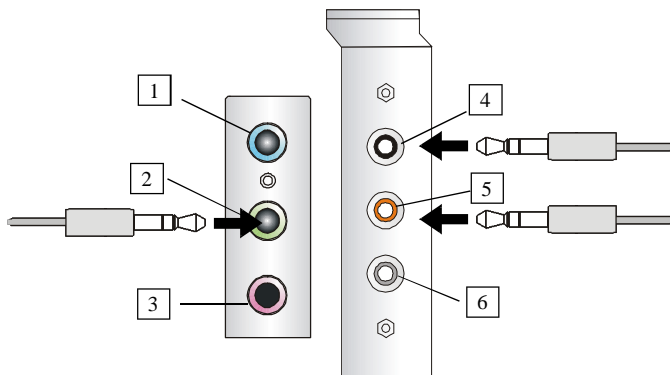
Description:
Connect two speakers to back panel's Line Out connector, two speakers to the rear-channel and two speakers to the center/subwoofer-channel Line Out connectors.

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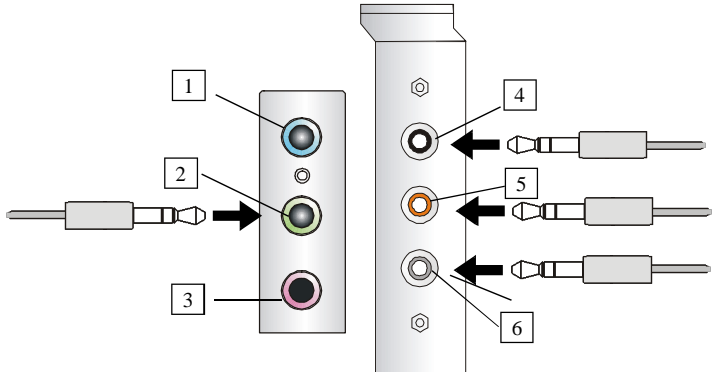
Description:
Connect two speakers to back panel's Line Out connector, two speakers to the rear-channel, two speakers to the center/subwoofer-channel Line Out connectors, and two speakers to the side-channel Line Out connectors.

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)*

Appendix B: ATI SATA RAID Setup Guide

Two major challenges facing the storage industry today are (1): keep pace with increasing performance demands of computer systems by improving disk I/O throughput, and (2): provide data accessibility in the event of hard disk failure.

To meet these two challenges, ATI south bridge SB450 supports four SATA ports and incorporates Silicon Image's SiI 3112 Serial ATA host controller, together with Silicon Image's Serial ATA RAID Management Software (SATARaid™).

SATARaid software provides support for RAID Striping and RAID Mirroring. RAID Striping greatly improves hard disk I/O performance by concurrently striping data across multiple drives. RAID Mirroring makes sure data is not lost if a drive fails as data is simultaneously written to two drives. Drives configured for RAID Striping are said to form a RAID 0 set, while drives configured for RAID Mirroring are said to form a RAID 1 set.

The SATARaid software includes a Graphical User Interface (GUI) that provides continuous monitoring of the RAID set(s) supported.

SATA RAID Features

u RAID 0 and RAID 1
u On-line Mirror Rebuilding
u RAID GUI Monitoring Utility:
    - Displays/Logs/Alerts Users to Vital RAID Set Information
    - Manages RAID Set Functions (configures, rebuilds, etc.)
u RAID Set accommodates multiple size HDDs
u HDDs function normally when not in RAID Sets
u Adjustable stripe size for RAID 0
u Automatically selects highest available transfer speed for all ATA and ATAPI devices
u Supports:
    - UDMA up to 150MB/Sec.
    - All UDMA and PIO Modes
    - Up to 4 SATA devices
    - ACPI and ATA/ATAPI6

RAID (Redundant Array of Independent Disks) technology manages multiple disk drives to enhance I/O performance and to provide redundancy in order to withstand the failure of any individual member, without loss of data.

SATARaid™ provides two RAID Set types: Striped Set (RAID 0) and Mirrored Set (RAID 1).

Disk Striping (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. It does not provide fault tolerance. With modern SATA and ATA bus mastering technology, multiple I/O operations can be performed in parallel, enhancing performance. Striping arrays use multiple disks to form a larger virtual disk.

Disk Mirroring (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive.
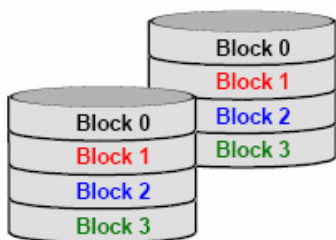
Creating RAID Sets

Creating and deleting RAID sets and performing other RAID setting up operations are done in the BIOS. During bootup, a screen similar to the one below will appear for about 5 seconds. Press CTRL+S or the F4 key to enter the BIOS RAID Utility.

```
SiI 3112A SATARaid BIOS Version 4.2.43x
Copyright © 1997-2003 Silicon Image, Inc.


Press <Cntl+S> or F4 to enter RAID utility
0   Samsung SP1614C                    1522627MB
1   Samsung SP0812C                      76319MB

SiL Stripped Set      Samsung SP1614C
                      Samsung SP0812C
```
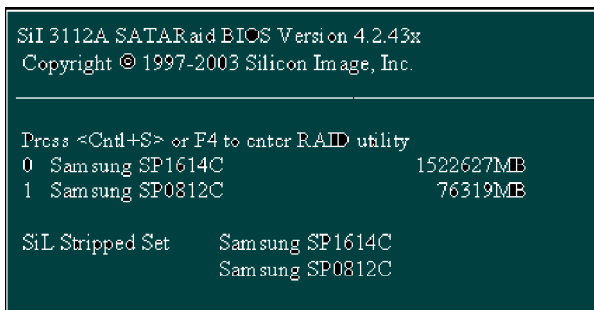
The BIOS RAID Utility menu screen will appear. A brief description of each item on the screen is given on the next page.
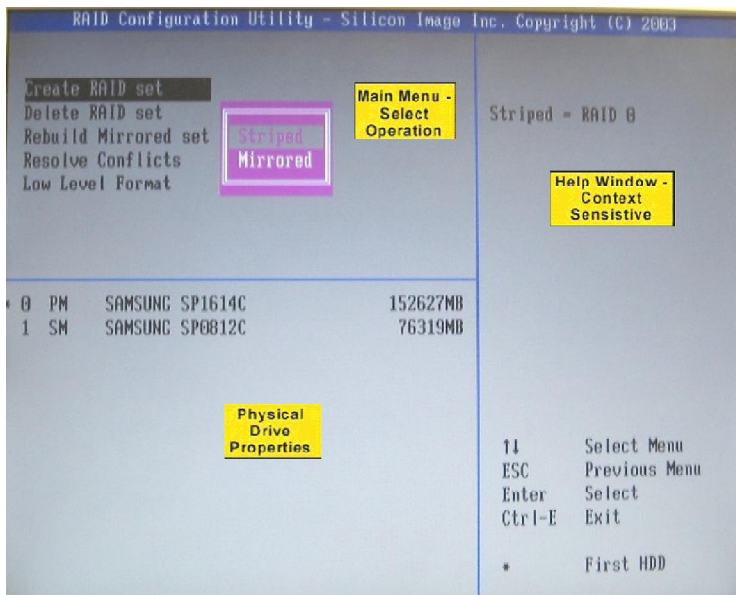
BIOS RAID Utility Screen Description

ᴗ Main Menu

The Main Menu in the upper left corner is used to choose the operation to be performed.
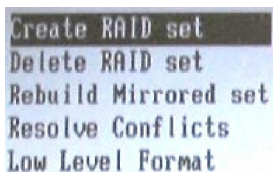
The selections are:

1. **Create RAID Set** is used to create a new RAID Set (RAID 0 or RAID 1).
2. **Delete RAID Set** is used to delete a RAID Set.
3. **Rebuild Mirrored Set** is used to initiate the rebuild of a RAID 1 set after, for example, a drive in the Set has been replaced.
4. **Resolve Conflicts** is used to automatically find the member drives of a RAID set which has been disrupted (physical drives swapped around, for example) and restore the Set to proper operation.
5. **Low Level Format** allows a single drive to have its data completely wiped out. Drives assigned to Sets cannot be low level formatted.

These operations are described in the pages that follow.

ᴗ Help Window

This window displays context-sensitive help and status messages.

ᴗ Physical Drive Properties

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

Description of RAID Setup Operations

ᴗ Creating RAID Sets

As previously discussed, the SATA host controller supports RAID 0 and RAID 1 configurations. The selection of the RAID configuration should be based upon factors including performance, data security, and the number of drives available. It is best to carefully consider the long-term role of the system and plan the data storage strategy. RAID sets can be created either automatically, or to allow the greatest flexibility, manually.

1. Select "Create RAID Set."
2. Choose a RAID 0 Striped, or a RAID 1 Mirrored set.
3. Select if you want the utility to Automatically Configure or if you want to manually configure the RAID Set.
4. If you chose manual configuration, for Striped Sets, you can change the chunk size. For Mirrored Sets, you assign which drive is the Source and which is the Target.
5. The message "Are You Sure?" will display before completing the configuration. Answer "N" to abort the creation of the new RAID set, or "Y" to proceed with the RAID set creation.

ʊ Deleting RAID Sets

1. To remove one or more RAID sets, select "Delete RAID Set."
2. Select the desired set and press Enter.
3. Press "Y" when asked "Are You Sure?"
4. The drives will be returned to the selection of logical drives from which a new RAID set can be created

ʊ Rebuild RAID 1 Set

This menu selection is used to initiate the copying of data from an existing drive to a replacement drive that has been installed in a RAID 1 set after the failure of one of the members.

1. Select "Rebuild RAID1 set."
2. Select the desired set and press Enter.
3. Press "Y" when asked "Are You Sure?"
4. The set will be rebuilt. The status of the rebuild is displayed in the MAIN MENU window.

ʊ Resolving Conflicts

When a RAID set is created, the metadata written to the disk includes drive connection information including the channel on the host controller to which it is connected. If after a drive failure the replacement drive was previously part of a RAID set or used in another system, it may have conflicting metadata, specifically in reference to the drive connection information. If so, this will prohibit the RAID set from being either created or rebuilt. In order for the RAID set to function properly, this old metadata must be first overwritten with the new metadata. To correct this, select "Resolve Conflict", and the correct metadata, including the correct drive connection information, will automatically be written to the replacement drive.

1. Select "Resolve Conflicts"
2. Select the "Invalid RAID drive" entry in the Logical Drive Status window and press Enter.
3. Follow the prompts to resolve the conflict.

Note that some conflict resolutions may result in the drive letter assignment changing; for example the RAID set may have been drive D: but after the conflict resolution, it may become drive E:. To maintain the same drive lettering, you may need to swap the SATA cable connected to the drive, or in the case of a SATA-based removable drive unit, you may need to change the order of the drives within the chassis.

␣ Low Level Formatting

The Low Level Format item selection allows you to completely erase the data on a hard drive. However this is a very drastic process and not typically needed. Formatting the drive under Windows is usually sufficient to delete the data.

Installing RAID Drivers (for Windows 2000/XP only)

Installing RAID Drivers during OS Install

Follow the instructions in this section if you are performing a new installation of the OS (Windows 2000/XP), and wish to boot from a RAID drive connected to the SATA ports.

1. Install the new SATA drives
   a. Power off the system.
   b. Connect the hard drives to the RAID controller ports.
   c. Insert your Windows 2000/XP CD into the CD-ROM/DVD drive, or the 2000/XP boot diskette #1 in the floppy drive if your system cannot boot from the CD.
   d. Power up the system.
2. Install the driver during OS boot
   a. Press F6 for third party SCSI or driver installation at the beginning of the text mode installation.
   b. Press 's' when setup asks if you want to specify an additional device, and insert the diskette or CD labelled 'ATI SATARaid Driver Installation Disk'. (You'll have to remove the OS installation CD first.)
   c. Press 'Enter' and select 'ATI Serial ATA Controller'
   d. Press 'Enter' to continue with text mode setup.

3. Partition and format the Master RAID drive
   a. Follow the setup instructions to select your choice of partition and file system.
4. Install OS on the Master RAID drive
   a. After setup has examined your drives, it will copy files to Windows installation folders and restart the system.
   b. The setup program will continue and finish the installation after restart.
   c. Wait until Windows 2000/XP finishes installing devices, regional settings, networking settings, components, and final set of tasks, reboot the system if it is required.
5. Verify driver installation under Windows 2000 and XP
   a. Right click on 'My Computer' icon, select 'Properties', left click on 'Hardware' tab, and then on 'Device Manager' button.
   b. Double click on 'SCSI and RAID Controllers', If there is no yellow '! ' or ' ? ' in front of 'ATI Serial ATA Controller', the driver is installed correctly.

Updating Previously Installed RAID Drivers

1. Insert the driver CD that bundled with the mainboard into the CD-ROM/DVD drive. Then click the "ATI System Drives to start the installation.
2. Follow the setup instructions to complete the driver installation.

The following screen shots are taken from the ATI driver installation wizard.
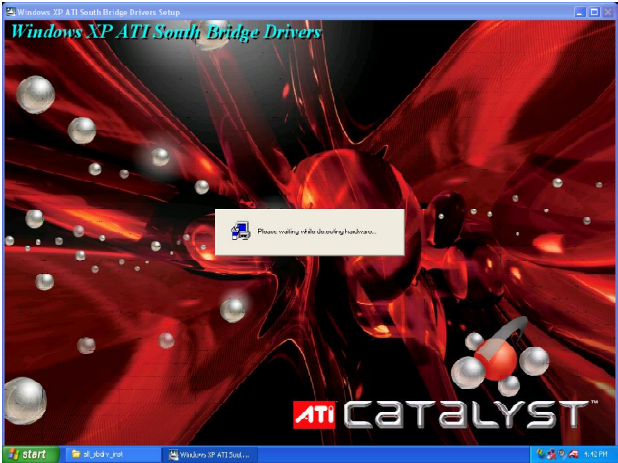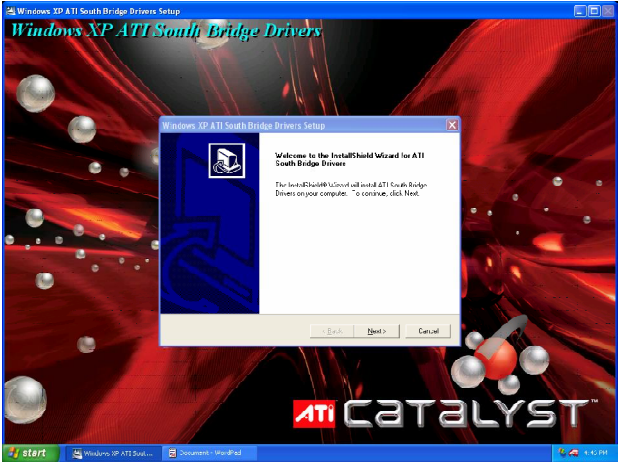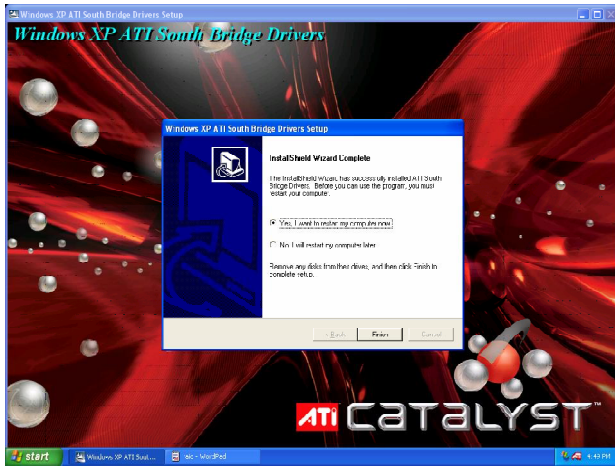
Installing SATARaid Utility

Insert your driver CD that bundled with the mainboard into the CD-ROM/DVD drive. Click the Utility tab to enter the utility screen. Then click the Utility to enter the next screen as below. Click the "Silicon Image SATA Raid Utility" and follow the setup instructions to complete the installation.
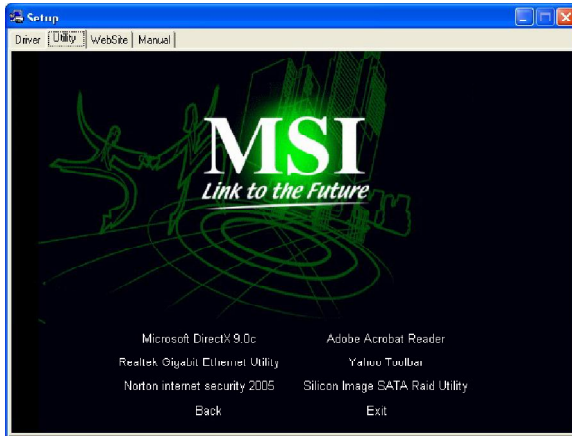
The following screen shots are taken from the installation of SATARaid.
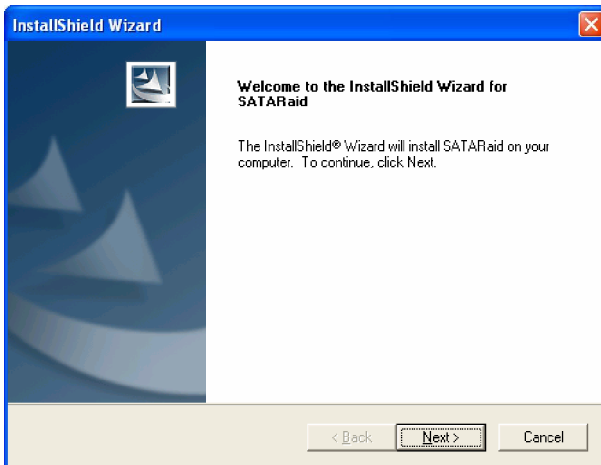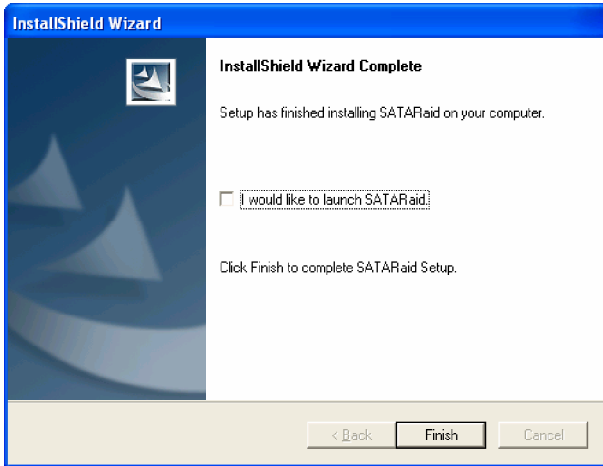
SATARaid GUI can be launched from the Task Bar

SATARaid GUI

The SATARaid GUI offers the user the ability to easily monitor the RAID Set. To launch the GUI, simply double-click on the icon located in the bottom right hand corner of the Desktop. If the icon does not appear in the bottom right hand corner of the desktop, find where the SATARaid application was saved and launch from there. Upon launching the GUI, the main window, which identifies the computer running SATARaid, should look the following:

Note: You must have created RAID set(s) in the BIOS as described earlier before you can see the set(s) in the GUI.
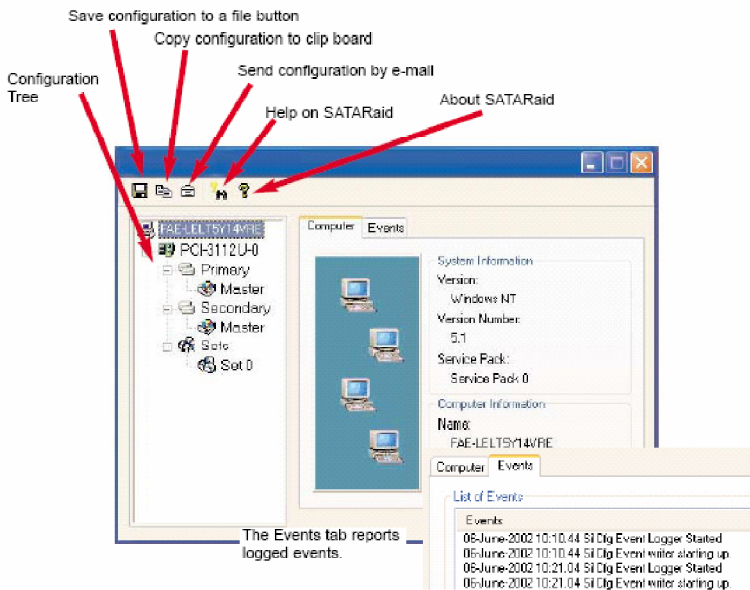
Use Help to find out about the features offered by SATRaid.

The main function of SATARaid is to monitor and report activities of RAID devices. The settings for monitoring and reporting are performed under the item SATARaid Configuration. The following screen shots show some of the settings performed through SATARaid GUI.
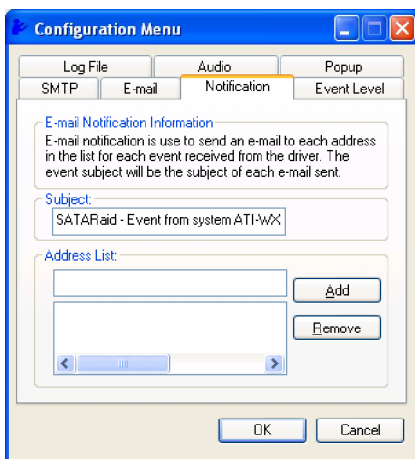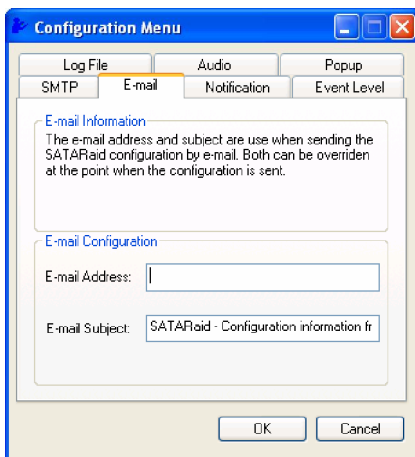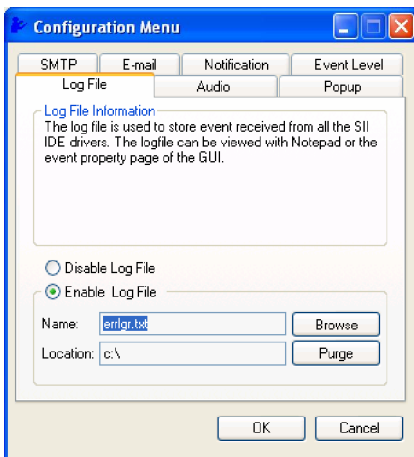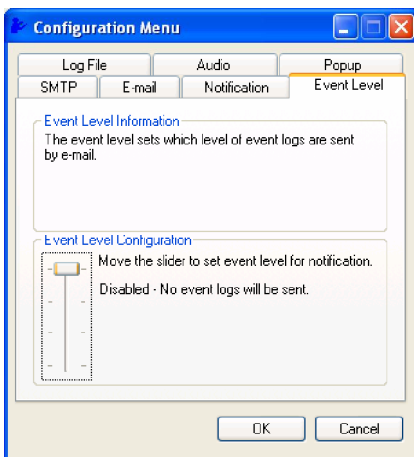
A RAID 1 Set Monitoring Example
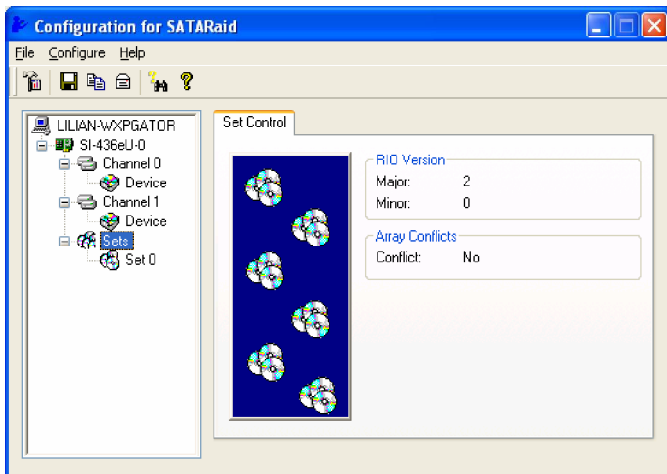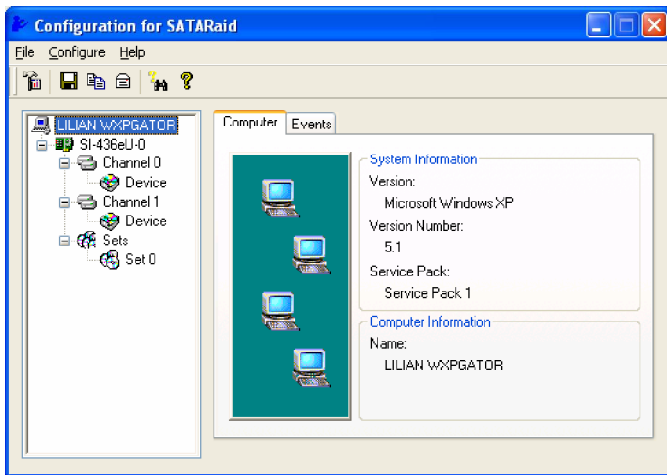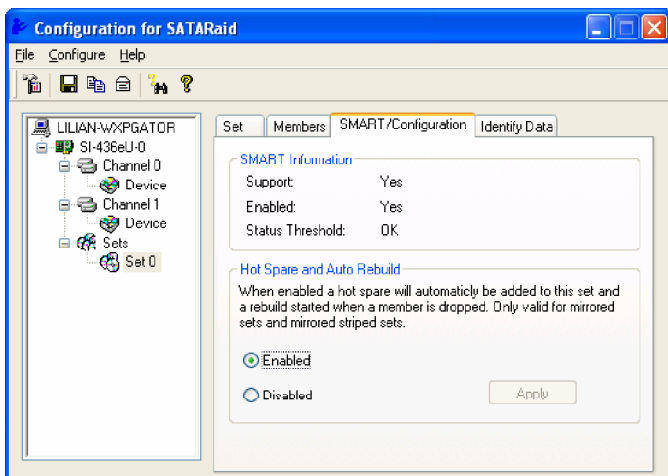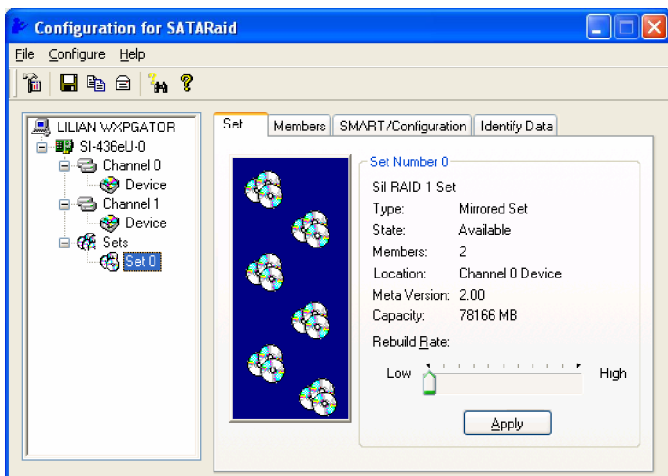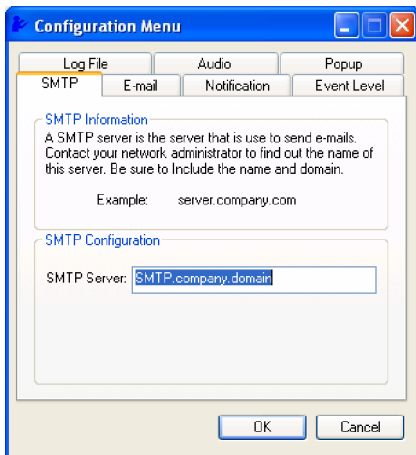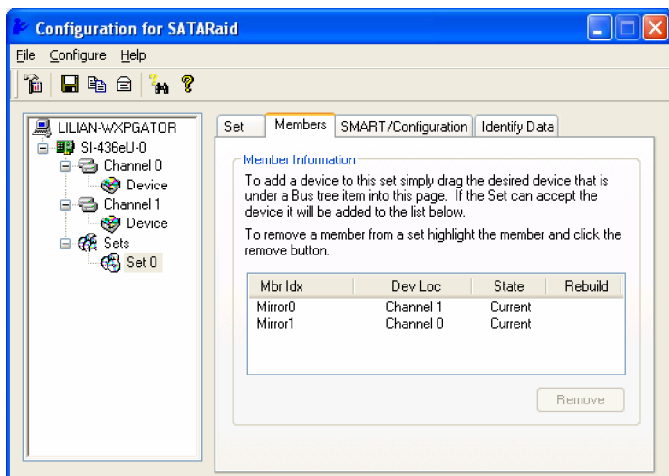
A RAID 0 Set Monitoring Example

Configuration Menu

| Log File | Audio | Popup |
| SMTP | E-mail | Notification | Event Level |

Event Level Information

The event level sets which level of event logs are sent by e-mail.

Event Level Configuration

Move the slider to set event level for notification.

Disabled - No event logs will be sent.

OK   Cancel

Configuration Menu

| SMTP | E-mail | Notification | Event Level |
| Log File | Audio | Popup |

Log File Information

The log file is used to store event received from all the SII IDE drivers. The logfile can be viewed with Notepad or the event property page of the GUI.

○ Disable Log File

◉ Enable Log File

Name: errlgr.txt   Browse

Location: c:\   Purge

OK   Cancel

Configuration Menu

SMTP | E-mail | Notification | Event Level
Log File | Audio | Popup

Audio Notification Information
Audio notification is use to alert the system administrator or user that an event occured.

Audio Notification Configuration
Select the sound to play by clicking the browse button or click the disable button for no sound notification.
Informational Event:
Disabled | Browse | Disable
Warning Event:
Disabled | Browse | Disable
Error Event:
Disabled | Browse | Disable

OK | Cancel

Configuration Menu

SMTP | E-mail | Notification | Event Level
Log File | Audio | Popup

Popup Window Information
The popup window is a visual notification that an event occured. This popup windows can be disabled or set to popup for only certain event levels.

Popup Window Event Level Configuration
Move the slider to set event level for notification.

Informational - The popup window will be displayed for the following events:
- Informational
- Warnings
- Errors

OK | Cancel

Configuring RAID 0 Set(s) with Windows Disk Manager

Note: This section is only applicable to non-initiated drives. It is not applicable if the drives have been set up as RAID 0 with the BIOS utility.

The Windows XP built-in Disk Manager can be used to set up installed SATA drives in Disk Striping (RAID 0) configuration.

The difference between using the Disk Manager and using the BIOS utility is that the former can select the size of the Striped Disk, while the latter assigns the entire volume of the SATA drives to RAID 0.

Right clicking on the My Computer icon will access Computer Management. The following screen will appear when Computer Management is started. Select Disk Management under the Storage tree.
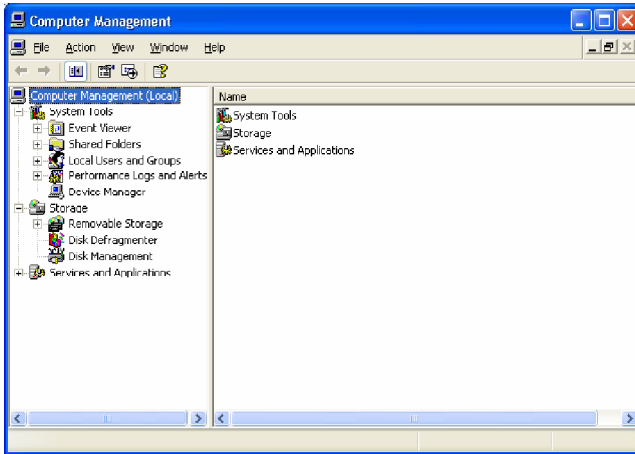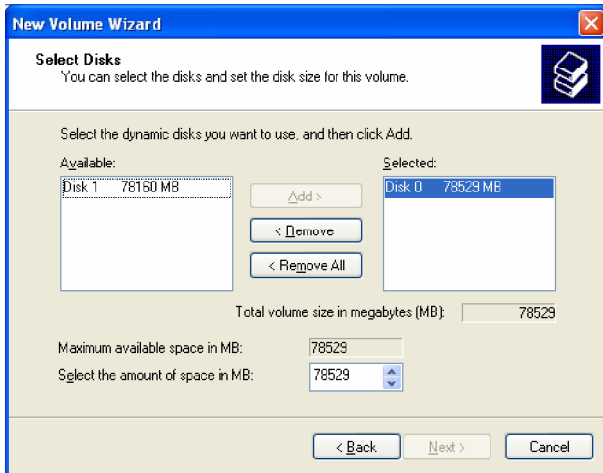
If SATA drives had not been initialized, initialize the disk as Dynamic.
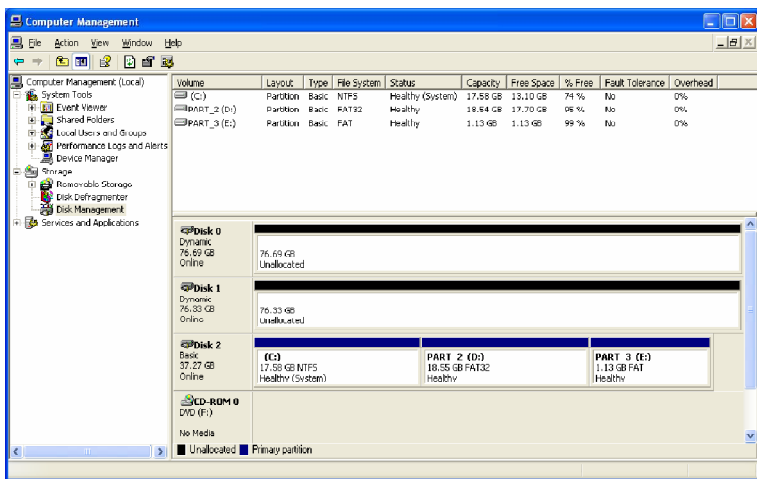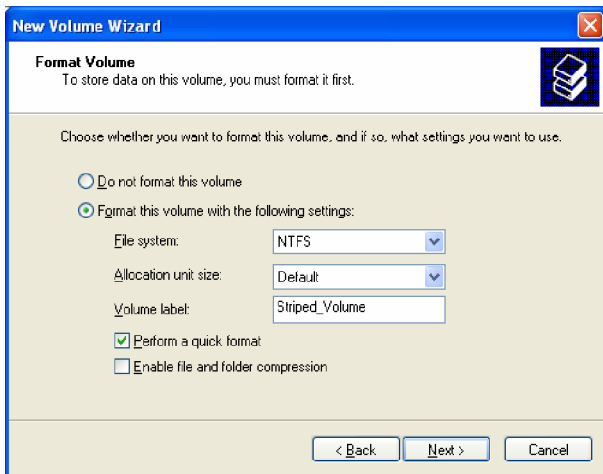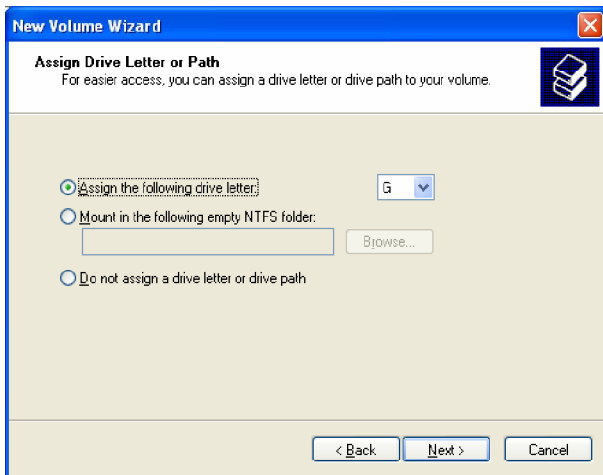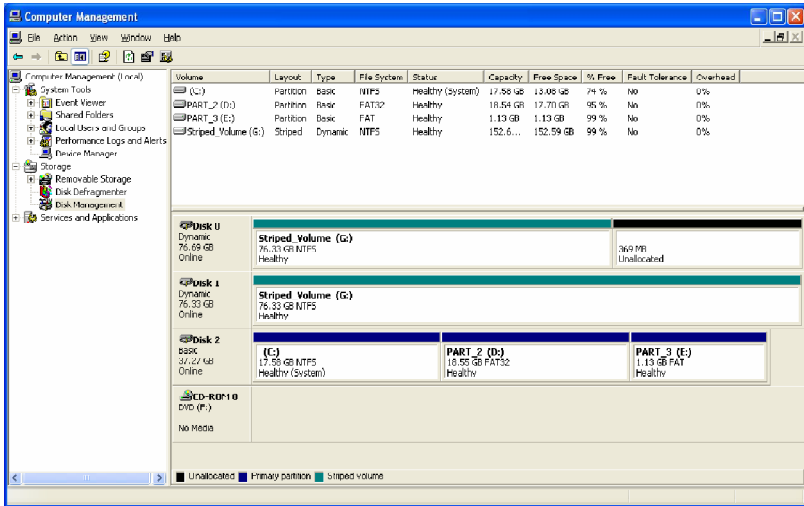

Right click on Disk 0 and select 'New Volume'. At 'New Volume Wizard' select Striped for type of volume.
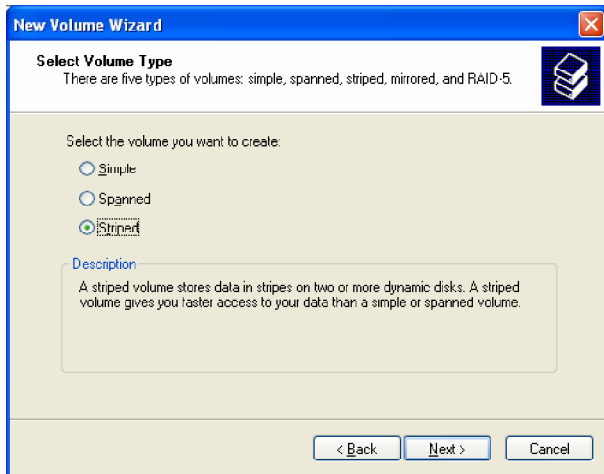
Total size of disk set for striping is set next.
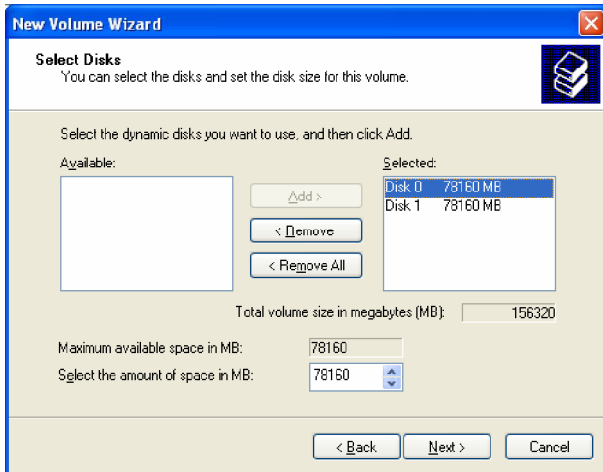
Appendix C: ATI SURROUNDVIEW™

ATI SURROUNDVIEW™ (for RS482 only) is an integrated feature supported by the onboard ATI northbridge chipset. It provides the power and convenience of multi-adapter, multi-monitor support for computers that use an PCI Express®-based graphics card in conjunction with specific ATI integrated graphics processors (IGPs).

Getting Started

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

      u RADEON® XPRESS 200

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

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

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

Enabling the SURROUNDVIEW™ feature requires only a few steps:

1. Installing a graphics card in the motherboard's PCIe™ slot.

2. Enabling the integrated graphics processor (if necessary).

3. Enabling SURROUNDVIEW™ in the BIOS.

System Requirements

Supported ATI Products	Integrated graphics processors (enabled by system BIOS);
	l RADEON® XPRESS 200
	PCIe™ graphics cards;
	l RADEON® X800 series
	l RADEON® X700 series
	l RADEON® X600 series
	l RADEON® X300 series
Expansion Slot	**l** PCIe™ x 16
Operating System	**l** Windows® 2000
	l Windows® XP (Home or Pro)
CPU	AMD® Socket-939 recommended
System Memory	1 GB minimum
UMA Frame Buffer	64 MB minimum, 128 MB recommended

Installing a Graphics Card

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

Before You Begin

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

1. Record any serial numbers printed on the card itself.

2. Update your PCIe™ chipset drivers to the latest version. Consult your motherboard manual or manufacturer's Web site for more information.

3. Uninstall the graphics drivers for any previously installed graphics card if you are installing a new ATI graphics card.

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

Basic Graphics Card Installation

u To install a graphics card

1. Turn off the computer, monitor, and other peripheral devices.

2. Unplug the computer's power cord and disconnect all cables from the back of your computer.

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

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

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

4. Unscrew or unfasten and remove any existing graphics card from your computer.

5. Locate the appropriate slot and, if necessary, remove the metal back-plate cover.

6. Align your graphics card with the slot and press it in firmly until the card is fully seated.

7. Screw in or fasten the graphics card securely and replace the computer cover.

8. Reconnect any cables you have disconnected and plug in the computer's power cord.

9. Turn on the monitor and then your computer. If you have properly installed your graphics card, operating system messages will appear once the boot procedure is finished.

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

Enabling SURROUNDVIEW™

Enabling SURROUNDVIEW™

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

1. Restart your system, and enter CMOS setup. CMOS is part of your system's BIOS (Basic Input/Output System). When restarting, press **DEL** key to enter Setup. The CMOS Setup screen appears.
2. Use the arrow keys to navigate to **Advanced Chipset Features**, and then press Enter. The Advanced Chipset Features screen appears.
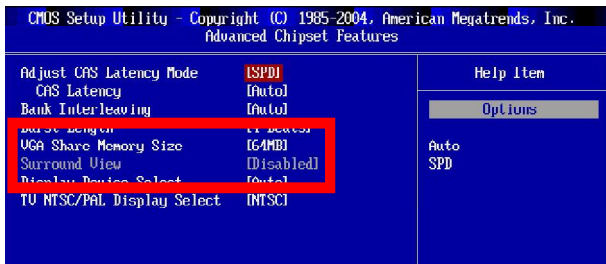
3. Use the arrow keys to navigate to **VGA Share Memory Size** and set it to **64MB**.
4. Use the arrow keys to navigate to **Surroundview** and set it to **Enabled**.
5. Press **F10** to Save your changes. When the **Save to CMOS and Exit** prompt appears, press **Y**.

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

Frequently Asked Questions

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

Using Multiple Displays

Setting Up Multiple Displays

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

There will normally be three or four connections:

l Four connections mode
  - two from the IGP and two from the graphics card.

l Three connections mode
  - one from the TV-out and two from the graphics card;
  - one from the IGP and two from the graphics card;
  - two from the IGP and one from the graphics card.

∪ **To connect your monitors**
  1. **Power off** your computer and monitors.
  2. **Plug** the monitor cables into their appropriate connectors.
  3. **Power on** your monitors first, and then restart your computer so that Windows® can detect the new hardware settings.

Once your monitors are connected, you can configure them for a multi-monitor display using SURROUNDVIEW™.
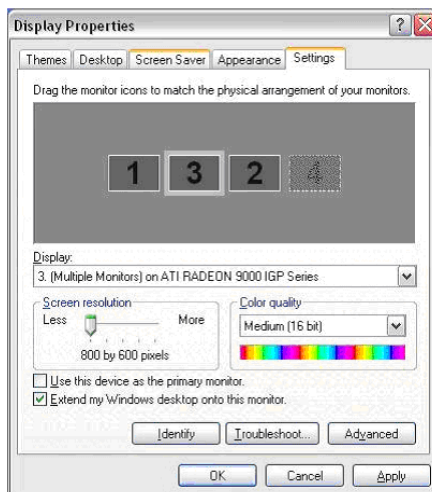
Windows® Display Properties Dialog with Multiple Monitors

ʊ **To set up a multi-monitor display**

1. Right-click on a clear area of your desktop and choose **Properties**. The Display Properties dialog opens.

2. Select the **Settings** tab.

3. Click the **Identify** button to display a large number on each monitor.

4. Right-click the display icon in the Display Properties dialog that you wish to be your primary (main) monitor, and choose **Primary**.

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

5. Select the display icon identified by the number **2**.

6. Click **Extend my Windows desktop onto this monitor**.

7. Right-click the display icon and choose **Attached**, if necessary.

8. Set the **Screen Resolution** and **Color Quality** as appropriate for the second monitor. Click **Apply** or **OK** to apply these new values.

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

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

9. Repeat steps 5 through 7 for the display icon identified by the number three.

10. Click and drag the display icons to positions that represent the physical setup of your monitors that you wish to use. The placement of display icons determines how you move items from one monitor to another.

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

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

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

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

1. Install the TV-out bracket to the mainboard.

2. Connect the TV to the TV-out bracket.

3. Power on the computer. (Be sure you had install the "ATi System Drivers" already, if not please install it.)

4. Click the "ATI Catalyst Control Center" icon on the desktop.

5. Click the "Display Options" from the left side on the CATAYST™ Control Center.

6. Check the "Force TV detection" in the Display Detection Option part. Then click "Apply" and "OK".

The system will detect the TV after the configuration.
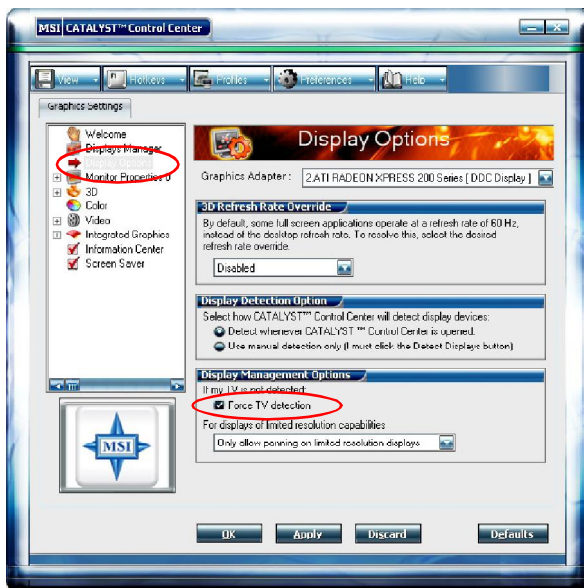
Using SURROUNDVIEW™

Business Applications

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

⊔ To enable SURROUNDVIEW™ for business applications

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

Identifying your screens

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

Launching a spreadsheet in your primary monitor

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

Web browser displayed on monitor 2

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

Another Web browser displayed on monitor 3

Games

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

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

MSI Reminds You...
*For best results, in the **Flight Simulator Settings Display** dialog, set the full screen resolution for each video adapter to match the desktop resolution for the corresponding display.*
Because the simulation creates additional information that is sent to the video hardware and monitors, running multiple displays always affects performance compared to a single-display configuration.

υ **To enable SURROUNDVIEW™ for Microsoft® Flight Simulator**

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

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

     Your displays will look like the following:

Initial Start Up Screen for Microsoft® Flight Simulator

  υ   **Monitor 2**

  ν   **Monitor 1 (Primary)**

  w   **Monitor 3**

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

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

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

Microsoft® Flight Simulator with both Primary and Monitor 2 running

MSI

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

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

Microsoft® Flight Simulator using all three monitors

Appendix D: Using the TV-Out Function (HDTV-Out Integrated)

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

Installing the TV-Out Bracket

1. Take out the TV-Out bracket.

TV-Out Bracket

Foolproof
design

TV-Out Connector
(RCA Composite)

TV-Out Connector
(S-Video)
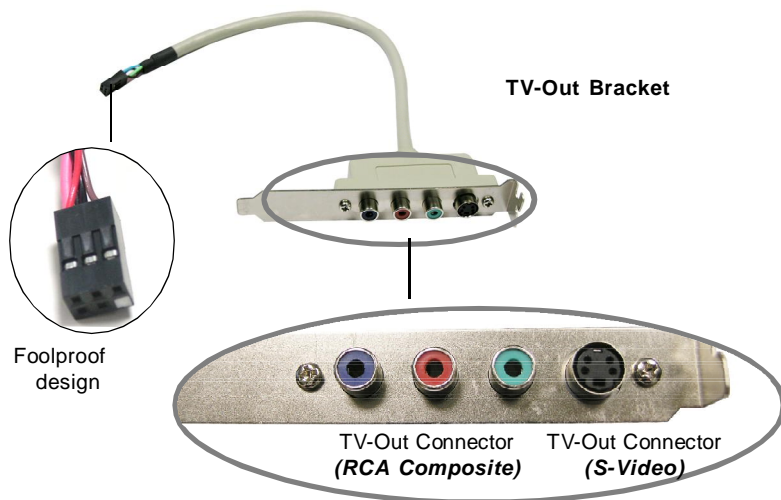
2. Locate the TV-out connector (JTV1) on the mainboard.

3. Connect the TV-Out bracket to the connector. Align the foolproof design with the pin layout of the connector to avoid mis-inserting.

4. Place the TV-Out bracket into the first slot of your system case.

MSI Reminds You...
If you intend to use the TV-out function, please note that the TV-Out bracket supports to connect one TV only. Meanwhile you can not connect two TVs to this bracket. Select one type of the TV-out connectors to connect to appropriate TV.

Connecting S-Video/ RCA & HDTV Cables

Connecting S-Video cable

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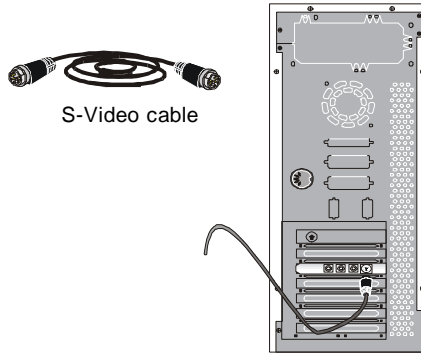
S-Video cable

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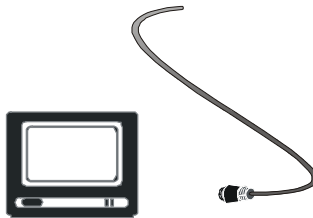
Connecting RCA cable

1. Connect one end of the RCA cable to the blue connector of the TV-Out cable. The RCA cable usually comes with three connecotrs on both ends. The white or red connector is for audio while the yellow one is for video.
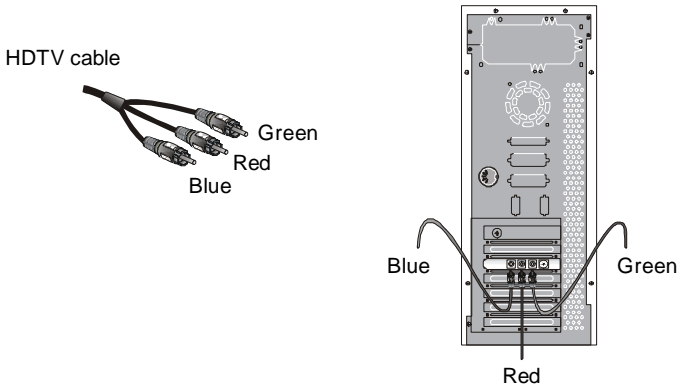
RCA cable

White (Audio)
Red (Audio)
Yellow (Video)

Yellow (Video)
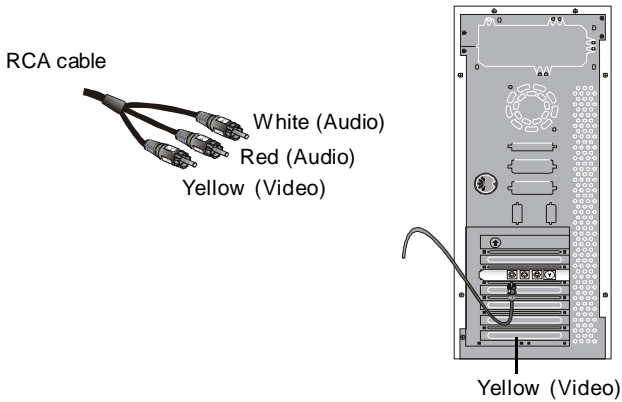
2. Connect the other end of the RCA cable to the TV.

Yellow (Video)
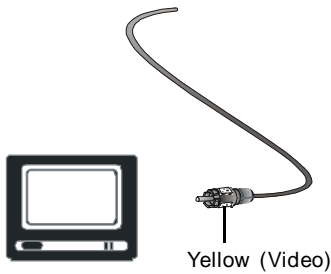
Connecting HDTV cable

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

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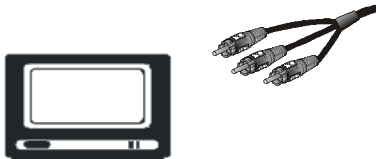
Display Setup

The following procedures describe display setup using Windows XP. Windows 2000/ME/9X screens are slightly different but the procedures are the same as described.

Before to enable the TV-Out function, you have to select the TV-out mode in BIOS (refer to the "TV NTSC/PAL Display Select" item of **Advance Chipset Features** for details.).

To enable the TV-Out function, follow this procedure:
1. After install the "ATi System Drivers" that bundled in the driver CD for the mainboard. Restart the computer. Click the "ATI Catalyst Control Center" icon on the desktop.


click here
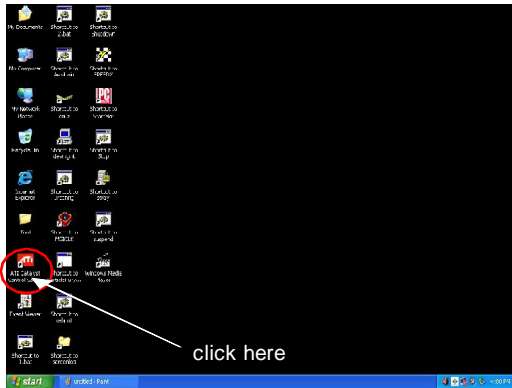
2. On the next screen, click the "Wizard..." icon to open the displays manager wizard for step-by-step assistance in setting up your display configuration.

click here
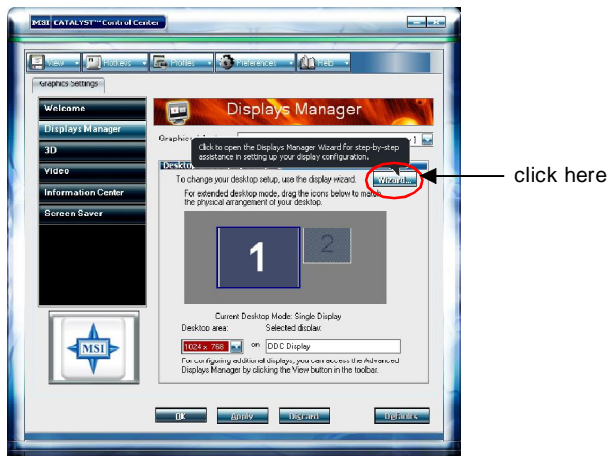
3. On the next screen, to select the display that you would like to enable. Then click "Next" to enter the next screen.
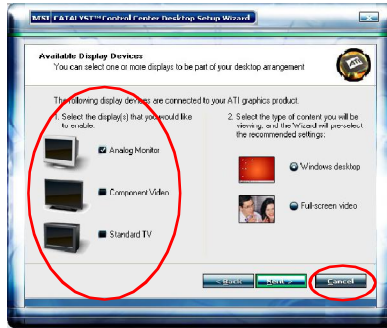
4. If you enabled a HDTV in step 3 and you have to access this step. If not, skip this step and go to the step5. On this step, select the HDTV fromat that your monitor supports, To determine the supported formats, refer to the monitor manufacturer's specifications. Then click "Next" . On the next screen, to select the proper format for your display and click "Apply" and "Finish".
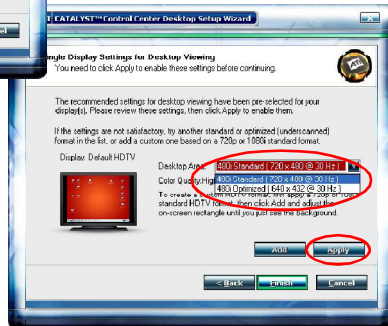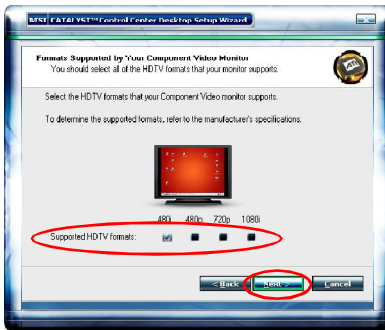
5. Finally, click the Yes to complete the configuration.