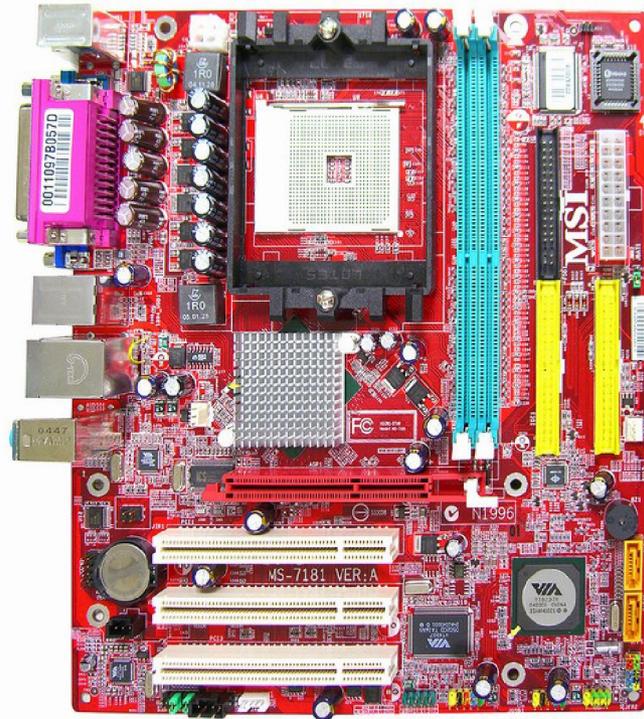




K8MM2

MS-7181 (v1.X) Micro-ATX Mainboard



G52-M7181X1

Manual Rev: 1.0

Release Date: May 2005



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 when the equipment is operated in a commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

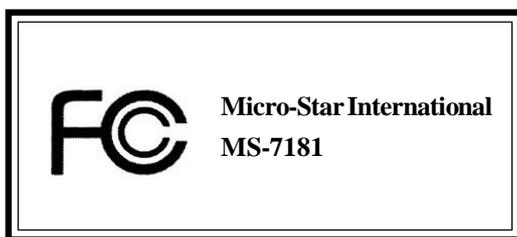
Notice 1

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

Notice 2

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

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



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation

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Revision History

Revision	Revision History	Date
V1.0	First release for PCB 1.X with VIA K8M800 & VT8237R	May 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 60° C (140°F), it may damage the equipment.**



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



廢電池請回收

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

CONTENTS

FCC-B Radio Frequency Interference Statement	ii
Copyright Notice	iii
Revision History	iii
Technical Support	iv
Safety Instructions	iv
Chapter 1. Getting Started	1-1
Mainboard Specifications	1-2
Mainboard Layout	1-4
Packing Contents	1-5
Chapter 2. Hardware Setup	2-1
Quick Components Guide	2-2
Central Processing Unit: CPU	2-3
Memory Speed/CPU FSB Support Matrix.....	2-3
CPU Installation Procedures for Socket 754	2-4
Installing AMD Athlon64 CPU Cooler Set	2-5
Memory	2-6
Introduction to DDR SDRAM	2-6
DDR DIMM Module Combination	2-7
Installing DDR Modules	2-7
Power Supply	2-8
ATX 20-Pin Power Connector: JWR1	2-8
ATX 12V Power Connector: JPW1	2-8
Back Panel	2-9
View of the Back Panel	2-9
Serial Port: COM1	2-9
Mouse Connector	2-10
Keyboard Connector	2-10
VGA Connector	2-10
USB Ports	2-11
RJ-45 LAN Jack	2-11
IEEE 1394 Port	2-12
Audio Port Connectors	2-12
Parallel Port	2-13
Connectors	2-14
Floppy Disk Drive Connector: FDD1	2-14
Fan Power Connectors: CPUFAN1, SFAN1	2-14

Hard Disk Connectors: IDE1 & IDE2	2-15
Serial Port Header: JCOM1 (Optional)	2-15
Serial ATA/Serial ATA RAID Connectors controlled by VT8237R: SATA1 & SATA2	2-16
Front Panel Connectors: JFP1 & JFP2	2-17
Chassis Intrusion Switch Connector: JCI1	2-17
Aux Line-In Connector: JAUX1	2-18
CD-In Connector: JCD1	2-18
Front USB Connectors: JUSB1 & JUSB2.....	2-18
Front Panel Audio Connector: JAUD1	2-19
IrDA Infrared Module Header: JIR1	2-19
IEEE 1394 Connector: J1394_1	2-20
SPDIF-Out Connector: JSP1	2-20
Jumpers	2-21
Clear CMOS Jumper: JBAT1	2-21
Slots	2-22
AGP (Accelerated Graphics Port) Slot	2-22
PCI (Peripheral Component Interconnect) Slots	2-22
PCI Interrupt Request Routing	2-22
Chapter 3. BIOS Setup	3-1
Entering Setup	3-2
Selecting the First Boot Device	3-2
Control Keys	3-3
Getting Help	3-3
The Main Menu	3-4
Standard CMOS Features	3-6
Advanced BIOS Features	3-8
Advanced Chipset Features	3-10
Integrated Peripherals	3-14
Power Management Setup	3-17
PNP/PCI Configurations	3-20
H/W Monitor	3-22
Load Optimized Defaults	3-24
BIOS Setting Password	3-25
Chapter 4. Introduction to DigiCell	4-1
Main	4-2
Introduction:	4-2
H/W Diagnostic	4-4

Communication	4-5
Software Access Point	4-6
Terminology	4-6
Access Point Mode	4-7
WLAN Card Mode	4-8
Live Update	4-9
MEGA STICK	4-10
Basic Function	4-10
Non-Unicode programs supported	4-12
PC Alert	4-14
Audio Speaker Setting	4-15
Power on Agent	4-17
Power On	4-17
Power Off / Restart	4-18
Start With	4-18
Auto Login	4-19
Chapter 5. VIA VT8237R Serial ATA RAID Introduction	5-1
Introduction	5-2
RAID Basics	5-2
RAID 0 (Striping)	5-2
RAID 1 (Mirroring)	5-2
BIOS Configuration	5-3
Create Disk Array	5-4
Delete Disk Array	5-6
Create and Delete Spare Hard Drive	5-7
View Serial Number of Hard Drive	5-7
Duplicate Critical RAID 1 Array	5-8
Rebuild Broken RAID 1 Array	5-8
Installing RAID Software & Drivers	5-10
Install Driver in Windows OS	5-10
Installation of VIA SATA RAID Driver and Utility	5-11
Using VIA RAID Tool	5-13
Chapter 6. Using 2-, 4- & 6-Channel Audio Function	6-1
Installing the Audio Driver	6-2
Installation for Windows 98SE/ME/2000/XP	6-2
Special Notice during Installation	6-2
Software Configuration	6-4

Speaker	6-4
Mixer	6-5
Recording	6-5
SPDIF	6-6
Speaker Test	6-6
Information	6-7
Using 2-, 4- & 6- Channel Audio Function	6-8



Getting Started

Thank you for purchasing the K8MM2 (MS-7181 v1.x) series, an excellent Micro-ATX mainboard from MSI. Based on the innovative **VIA K8M800** and **VIA VT8237R** chipsets for optimal system efficiency, the K8MM2 series mainboard accommodates latest AMD K8 processor in the 754-pin lidded ceramic micro PGA package, and supports up to 2 DIMMs to provide the maximum of 2 GB memory capacity. This mainboard provides a high professional desktop platform solution.

Mainboard Specifications

CPU

- † Supports 64-bit AMD® K8 Athlon 64/ Sempron processor (Socket 754).
- † Supports 3700+ or higher CPU.

Chipset

- † VIA K8M800 Chipset
 - HyperTransport™ connection to AMD K8 Athlon64/ Sempron processor
 - 8 or 16 bit control/address/data transfer both directions
 - 800/600/400/200 MHz "Double Data Rate" operation both direction
 - AGP v3.0 compliant with 8x transfer mode
 - Graphic integrated
- † VIA VT8237R Chipset
 - Integrated Hardware Sound Blaster/Direct Sound AC97 audio
 - Ultra DMA 66/100/133 master mode PCI EIDE controller
 - ACPI& PC2001 compliant enhanced power management
 - Supports dual channel native SATA controller up to 150MB/s
 - Supports SATA RAID 0 or RAID 1
 - Supports 8 USB2.0 ports

Main Memory

- † Supports DDR266/333/400 DDR SDRAM, and unbuffered DIMMs for two 184- pin DDR DIMMs.
- † Supports DIMM sizes up to 2GB of memory in total.

Slots

- † One AGP 8x/4x slot.
- † Three 32-bit/33 MHz PCI slots.

On-Board IDE

- † An IDE controller on the VT8237R chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA133/100/66 operation modes.
 - Can connect up to four Ultra ATA drives.
- † Serial ATA/150 controller integrated in VT8237R.
 - Up to 150MB/sec transfer speeds.
 - Can connect up to two Serial ATA drives.
 - Supports RAID 0 or 1

On-Board Peripherals

- † On-Board Peripherals include:
 - 1 floppy port supports 1 FDDs with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
 - 2 serial ports (Rear * 1/ Front * 1)
 - 1 VGA port onboard
 - 1 parallel port supports SPP/EPP/ECP mode
 - 1 IrDA pinheader (optional)
 - 1 CD-In pinheader
 - 1 Aux-In pinheader
 - 1 SPDIF out pinheader (optional)
 - 1 audio port (Line-in/Line-out/MIC)
 - 8 USB 1.1/2.0 ports (Rear * 4/ Front * 4)

IEEE 1394 (Optional)

- † Supports up to 2 * 1394 ports (Rear * 1/ onboard header * 1).
Transfer rate is up to 400Mbps
- † Controlled by VIA 6307 chipset

Audio

- † AC'97 link controller integrated in VIA VT8237R.
- † 6 channels software audio codec VIA VT1617A
 - Compliance with AC97 v2.3 Spec.
 - Meet PC2001 audio performance requirement.

LAN

- † VIA VT8237R MAC + VIA 6103 Ethernet PHY
 - Supports 10/100Mb/s auto-negotiation operation.
 - Compliant with PCI v2.2 and PC99 standard.
 - Supports ACPI Power Management.

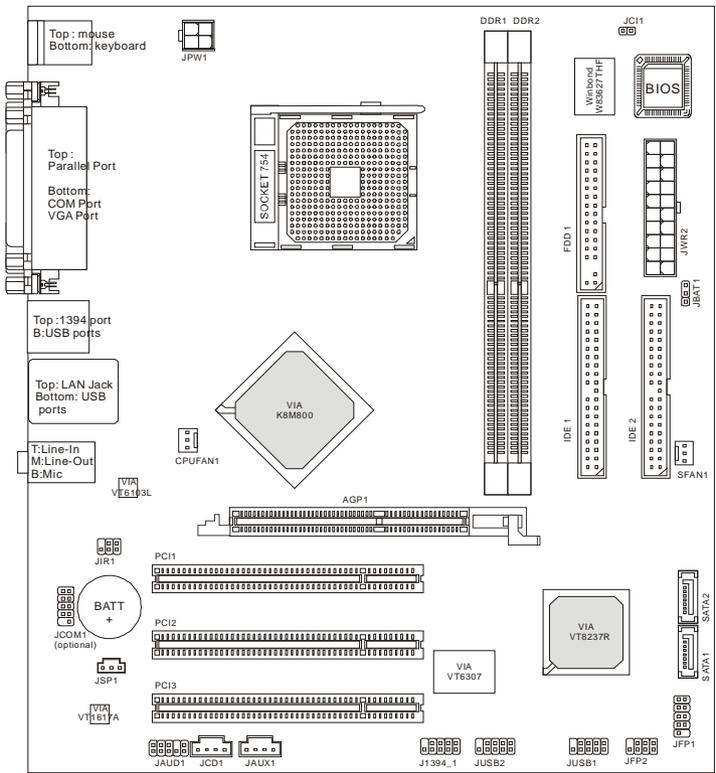
BIOS

- † The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- † The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

Dimension and Mounting

- † Micro-ATX Form Factor: 24.4 cm (L) x 21.5 cm (W).
- † 6 mounting holes

Mainboard Layout



K8MM2 (MS-7181 v1.X) Mainboard

Packing Contents



MSI motherboard



MSI Driver/Utility CD



SATA RAID Driver
Diskette



SATA Cable/
Power Cable (Optional)



Flat Cable of
Floppy Disk



Flat Cable of
IDE Devices



1394 Cable
(Optional)



Back IO Shield



User's Guide



SPDIF-Bracket
(Optional)



USB Bracket
(Optional)

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

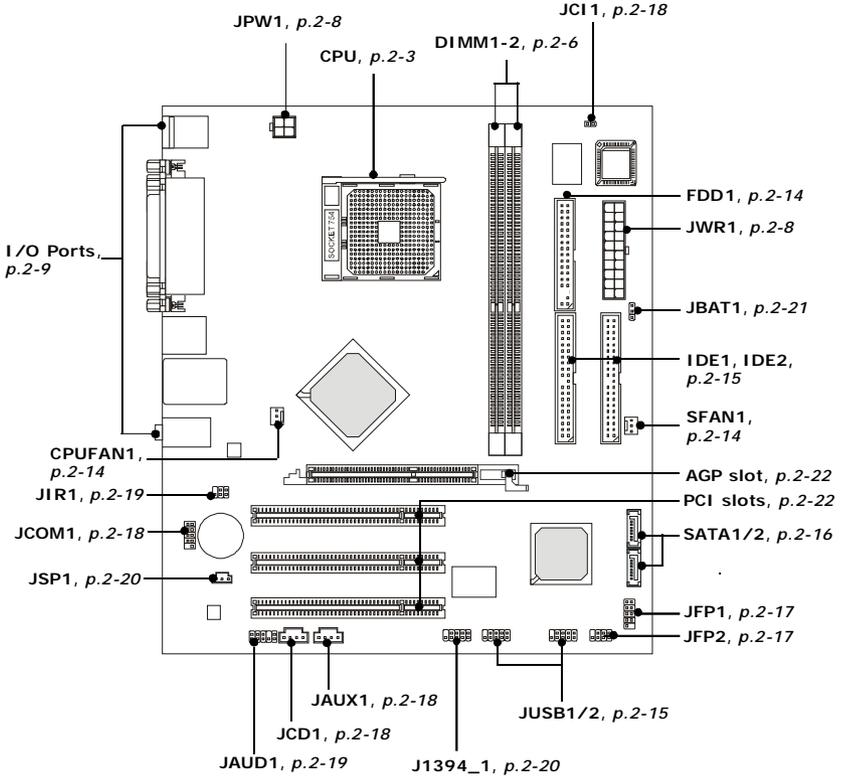
2

Hardware Setup

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

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

Quick Components Guide



Central Processing Unit: CPU

The mainboard supports AMD® Athlon64/ Sempron processor. The mainboard uses a CPU socket called Socket-754 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.

Memory Speed/CPU FSB Support Matrix

	DDR266	DDR333	DDR400
FSB 800	OK	OK	OK



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Overheating

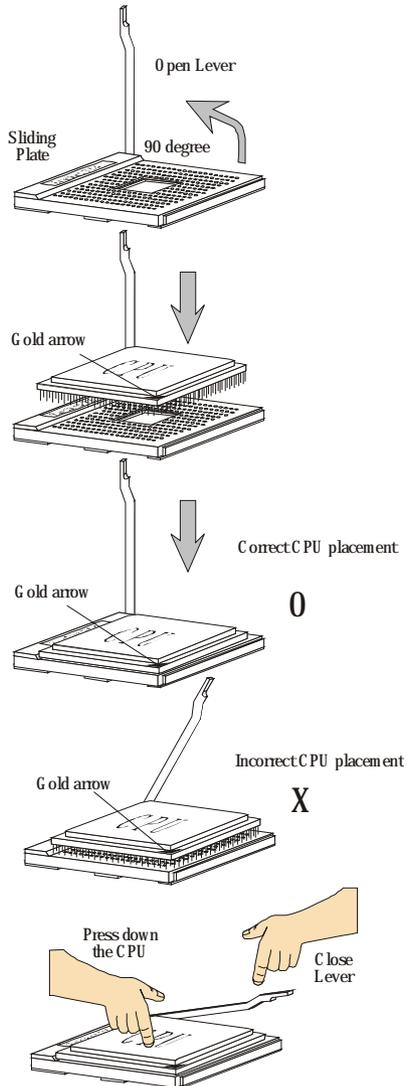
Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.

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 754

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. The gold arrow should point as picture shown. The CPU can only fit in the correct orientation.
4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.
5. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



Installing AMD Athlon64 CPU Cooler Set

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

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



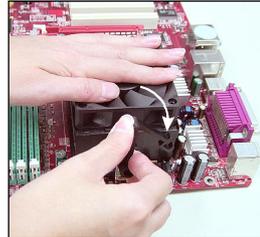
2. Press down the other end of the clip to fasten the cooling set on the top of the retention mechanism.



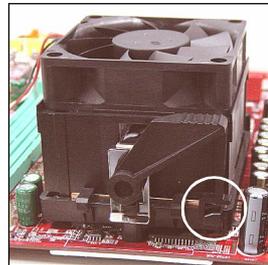
3. Locate the Fix Lever, Safety Hook and the Fixed Bolt. Lift up the intensive fixed lever.



4. Fasten down the lever.



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



6. Connect the fan power cable from the mounted fan to the CPUFAN1 connector on the board



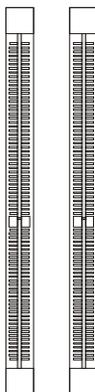
MSI Reminds You...

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 two slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports up to 2GB memory size. You can install PC3200/DDR400, PC2700/DDR333 & PC2100/DDR266 modules on the DDR DIMM slots (DDR 1~2).

For the updated supporting memory modules, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php.



**DDR DIMM Slots
(DIMM1~2)**

Introduction to DDR SDRAM

DDR (Double Data Rate) SDRAM is similar to conventional SDRAM, but doubles the rate by transferring data twice per cycle. It uses 2.5 volts as opposed to 3.3 volts used in SDR SDRAM, and requires 184-pin DIMM modules rather than 168-pin DIMM modules used by SDR SDRAM. High memory bandwidth makes DDR an ideal solution for high performance PC, workstations and servers.

DDR DIMM Module Combination

Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs.

Memory modules can be installed in any combination as follows:

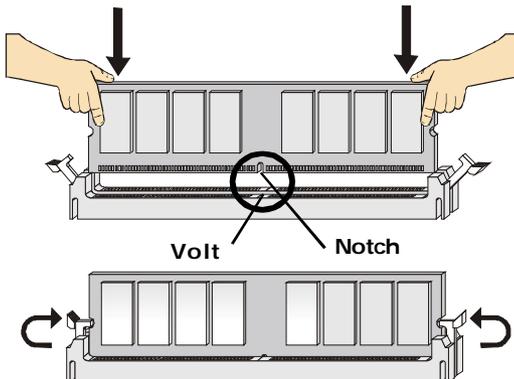
Slot	Memory Module	Total Memory
DIMM 1 (Bank 0 & 1)	S/D	64MB~1GB
DIMM 2 (Bank 2 & 3)	S/D	64MB~1GB
Maximum System Memory Supported		64MB~2GB

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.



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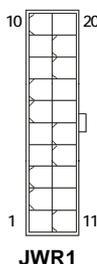
You can barely see the golden finger if the module is properly inserted in the socket.

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 20-Pin Power Connector: JWR1

This connector allows you to connect to an ATX power supply. To connect to the ATX 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.

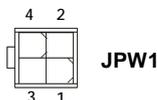


JWR1 Pin Definition

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

ATX 12V Power Connector: JPW1

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



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

JPW1 Pin Definition



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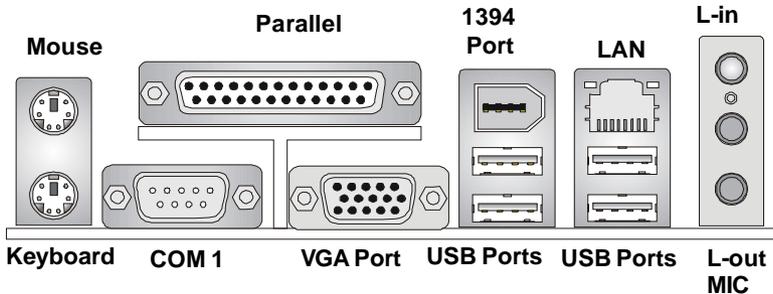
There is a mechanism of this mainboard to protect it from being damaged. The power will shut down automatically in two conditions: the temperature of CPU reaches 100°C, or the low voltage occurs during booting up. Please follow the instructions below for this issue:

- 1. The power LED will blink continuously. You should unplug the power cord or turn off the power switch.*
- 2. After the power LED stop blinking, plug on the power cord or turn on the power switch, then you can reboot your system again.*

Back Panel

View of the Back Panel

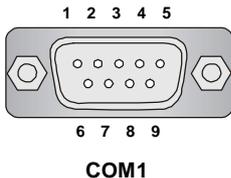
The back panel provides the following connectors:



Serial Port: COM1

The mainboard provides one 9-pin male DIN connector as serial port COM1. The serial 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.

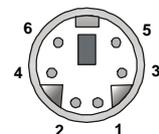
Pin Definition



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

Mouse Connector

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



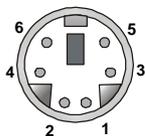
**PS/2 Mouse
(6-pin Female)**

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse Data	Mouse data
2	NC	Noconnection
3	GND	Ground
4	VCC	+5V
5	MouseClock	Mouse clock
6	NC	Noconnection

Keyboard Connector

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



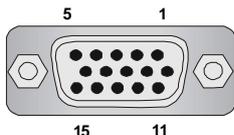
**PS/2 Keyboard
(6-pin Female)**

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Keyboard Data	Keyboard data
2	NC	Noconnection
3	GND	Ground
4	VCC	+5V
5	KeyboardClock	Keyboardclock
6	NC	Noconnection

VGA Connector

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



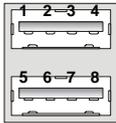
**VGA Connector
(DB 15-pin)**

Pin Definition

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

USB Ports

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



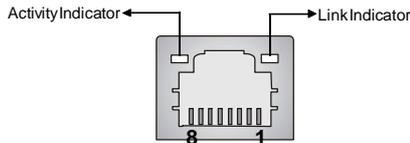
USB Ports

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data 0	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

RJ-45 LAN Jack

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



RJ-45 LAN Jack

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

IEEE 1394 Port

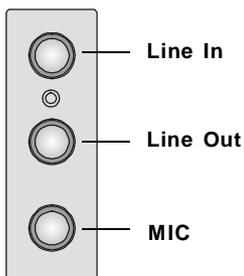
The back panel provides one standard IEEE 1394 port. The IEEE1394 high-speed serial bus complements USB by providing enhanced PC connectivity for a wide range of devices, including consumer electronics audio/video (A/V) appliances, storage peripherals, other PCs, and portable devices.



IEEE1394 Port

Audio Port Connectors

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.

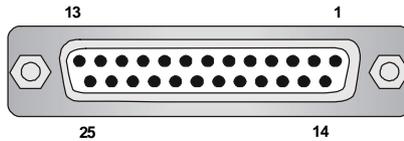


MSI Reminds You...

*For advanced audio application, VIA VT1617 audio chip is provided to offer support for **6-channel audio operation** and can turn rear audio connectors from 2-channel to 4-/6-channel audio.*

Parallel Port

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

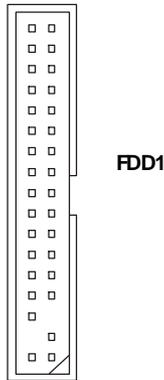
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	PaperEnd
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select 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

The mainboard provides connectors to connect FDD, IDE HDD, front panel of the system case, audio ports, USB Ports, and CPU/System FANs.

Floppy Disk Drive Connector: FDD1

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



Fan Power Connectors: CPUFAN1, SFAN1

The CPUFAN1 (processor fan) and SFAN1 (system fan) support system cooling fan with +12V. It supports 3-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CPUFAN1



SFAN1

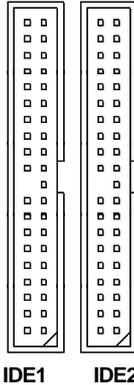
Fan Connector
Pin Definition

MSI Reminds You...

1. Always consult the vendors for proper CPU cooling fan.
2. CPUFAN1 supports Smart Fan control, you may set up the smart fan control functions in the BIOS setup.

Hard Disk Connectors: IDE1 & IDE2

The mainboard provides a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that supports PIO mode 0 ~ 4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROM drives, 120MB floppy disk drive (reserved for future BIOS), and other devices.



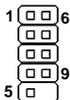
MSI Reminds You...

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 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.

Pin Definition



JCOM1

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 SetReady
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

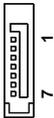
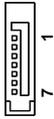
Serial ATA/Serial ATA RAID Connectors controlled by VT8237R:

SATA1 & SATA2

The Southbridge of this mainboard is VIA VT8237R which supports two serial connectors SATA1& SATA2.

SATA1 & SATA2 are dual high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device. Please refer to *VIA VT8237 Serial ATA RAID Introduction* for detail software installation procedure.

SATA2



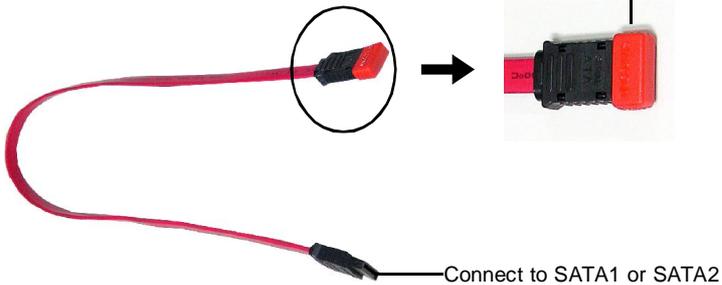
SATA1

SATA1 & SATA2 Pin Definition

Pin	Signal	Pin	Signal
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Optional Serial ATA cable

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



Connect to SATA1 or SATA2

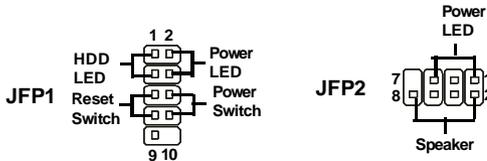


MSI Reminds You...

Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

Front Panel Connectors: JFP1 & JFP2

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



JFP1 Pin Definition

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

JFP2 Pin Definition

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

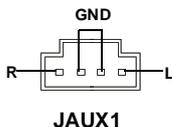
Chassis Intrusion Switch Connector: JCI1

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.



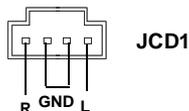
Aux Line-In Connector: JAUX1

The connector is for DVD add-on card with Line-in connector.



CD-In Connector: JCD1

This connector is provided for CD-ROM audio.



Front USB Connectors: JUSB1 & JUSB2

The mainboard provide two front Universal Serial Bus connectors for users to connect to USB ports.



Pin Definition

Pin	Description	Pin	Description
1	USBPWR	2	USBPWR
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	GND	8	GND
9	NC	10	OC#

Connected to JUSB1
or JUSB2



MSI Reminds You...

Note that the pins of VCC and GND must be connected correctly, or it may cause some damage.

Front Panel Audio Connector: JAUD1

The mainboard provides one front audio connector for users to connect the optional audio cable.



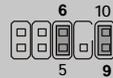
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	HP_ON	Reserved for future use to control headphone amplifier
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel



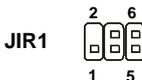
MSI Reminds You...

If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



IrDA Infrared Module Header: JIR1

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

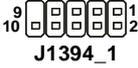


JIR1 Pin Definition

Pin	Signal
1	NC
2	NC
3	VCC5
4	GND
5	IRTX
6	IRRX

IEEE 1394 Connector: J1394_1

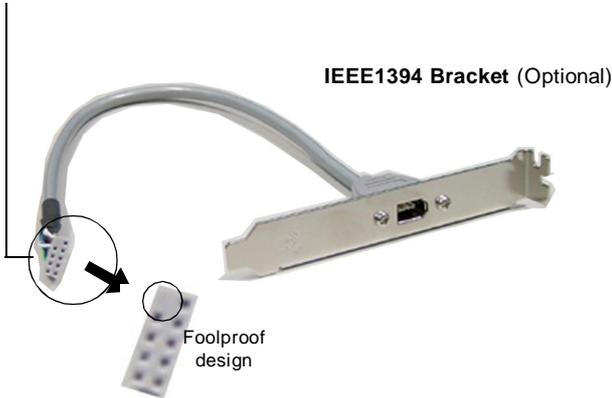
The mainboard provides one IEEE1394 pin header that allows you to connect IEEE 1394 port via an external IEEE1394 bracket (optional).



Pin Definition

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

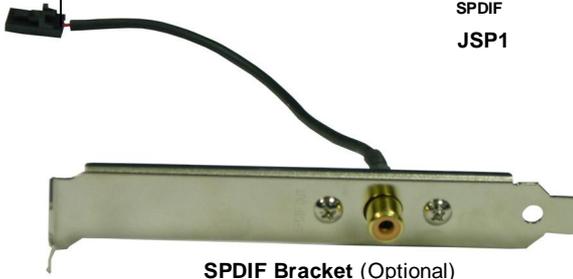
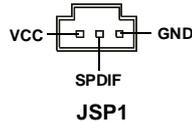
Connected to J1394_1



SPDIF-Out Connector: JSP1

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

Connected to JSP1

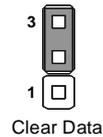
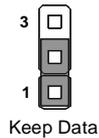


Jumpers

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

Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board 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, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



MSI Reminds You...

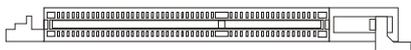
You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Slots

The motherboard provides one AGP slot and three 32-bit PCI bus slots.

AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory. The slot supports 8x/4x AGP card.



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 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 INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#

3

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use. You may need to run the Setup program when:

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



MSI Reminds You...

1. *The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
2. *While booting up, the BIOS version is shown in the 1st line appearing after the memory count. It is usually in the format:
example: W7181VMS V1.0 050105*

where:

1st digit refers to BIOS maker as A=AMI(R); W=AWARD(R)

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

6th digit refers to VIA chipset.

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

V1.0 refers to the BIOS version.

050105 refers to the date this BIOS is 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 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.

Selecting the First Boot Device

You are allowed to select the 1st boot device without entering the BIOS setup utility by pressing <F11>. When the same message as listed above appears on the screen, press <F11> to trigger the boot menu.

The POST messages might pass by too quickly for you to respond in time. If so, restart the system and press <F11> after around 2 or 3 seconds to activate the boot menu similar to the following.

Select First Boot Device		
Floppy	:	1st Floppy
IDE-0	:	IBM-DTLA-307038
CDROM	:	ATAPI CD-ROM DRIVE 40X M
[Up/Dn] Select	[RETURN] Boot	[ESC] cancel

The boot menu will list all the bootable devices. Select the one you want to boot from by using arrow keys, then press <Enter>. The system will boot from the selected device. The selection will not make changes to the settings in the BIOS setup utility, so next time when you power on the system, it will still use the original first boot device to boot up.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F6>	Load Fail-Safe Defaults
<F7>	Load Optimized Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

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

Main Menu

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

Sub-Menu

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

```

▶ IDE Channel 0 Master
▶ IDE Channel 0 Slave
▶ IDE Channel 1 Master
▶ IDE Channel 1 Slave

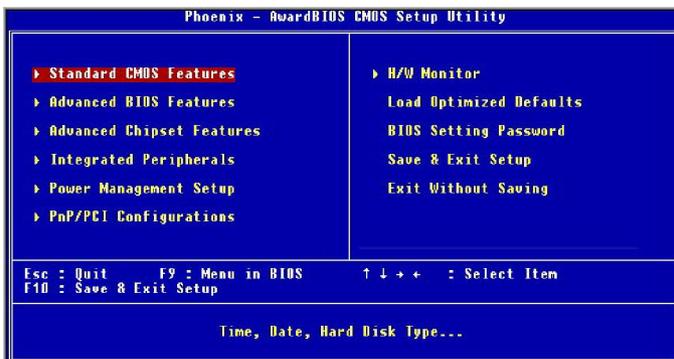
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General Help <F1>

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



Standard CMOS Features

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

Advanced BIOS Features

Use this menu to setup the items of AWARD® 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 the status of your CPU, fan, warning for overall system status.

Load Optimized Defaults

Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

BIOS Setting Password

Use this menu to set the password for BIOS.

Save & Exit Setup

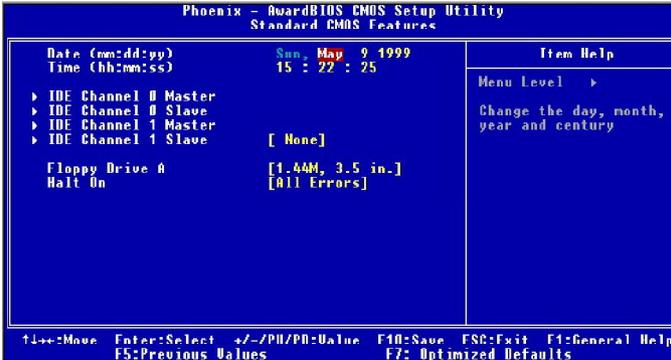
Save changes to CMOS and exit setup.

Exit Without Saving

Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu includes some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

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

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

IDE Channel 0/1/2/3 Master/Slave

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 drive 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:

- | | |
|---------------------|--|
| [All Errors] | The system stops when any error is detected. |
| [No Errors] | The system doesn't stop for any detected error. |
| [All, But Keyboard] | The system doesn't stop for a keyboard error. |
| [All, But Diskette] | The system doesn't stop for a disk error. |
| [All, But Disk/Key] | The system doesn't stop for either a disk or a keyboard error. |

Advanced BIOS Features



Quick Boot

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

Boot Sequence

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



1st/2nd/3rd Boot Device

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



MSI Reminds You...

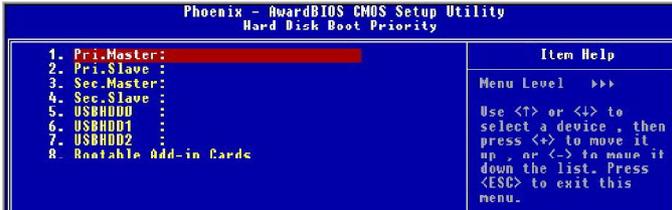
Available settings for "1st/2nd/3rd Boot Device" vary depending on the bootable devices you have installed.

Boot from Other Device

Setting the option to [Enabled] allows the system to try to boot from other device if the system fails to boot from the 1st/2nd/3rd boot device.

Hard Disk Boot Priority

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



In the sub-menu, it shows the hard disks information that was installed in the system, and you can set the hard disk boot priority.

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. Settings: [Enabled], [Disabled].

MPS Table Version

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

Boot to OS/2

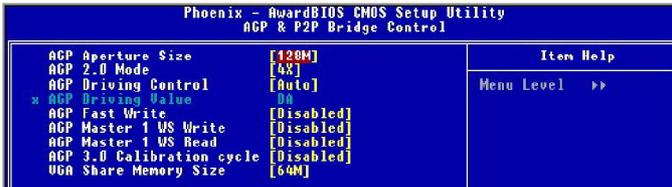
This allows you to run the OS/2® operating system with DRAM larger than 64MB. When you choose [No], you cannot run the OS/2® operating system with DRAM larger than 64MB. But it is possible if you choose [Yes]. Setting options: [Yes], [No].

Advanced Chipset Features



AGP & P2P Bridge Control

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



AGP Aperture Size

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The option allows the selection of an aperture size of 32MB, 64MB, 128MB, 256 MB, 512MB and 1GB.

AGP 2.0 Mode

The item sets an appropriate mode for the installed AGP 2.0 card. Selects [4x] only if your AGP 2.0 card supports it. Setting options: [1x], [2x], [4x].

AGP Driving Control

This field is used to adjust the AGP driving force. Selecting [Manual] allows you to select an AGP driving force in **AGP Driving Value**. It is strongly suggested to select [Auto] to avoid causing any system error. Setting options: [Manual], [Auto].

AGP Driving Value

This item specifies an AGP driving force.

AGP Fast Write

This option enables or disables the AGP Fast Write feature. The Fast Write technology allows the CPU to write directly to the graphics card without passing anything through the system memory and improves the AGP 4X speed. Select *Enabled* only when the installed AGP card supports this function. Setting options: [Enabled], [Disabled].

AGP Master 1 W/S Read

When [Enabled] is selected, one wait state is inserted in the AGP read cycle. Setting options: [Enabled], [Disabled].

AGP Master 1 W/S Write

When [Enabled] is selected, writing to the AGP bus are executed with one wait state inserted. Setting options: [Enabled], [Disabled].

AGP 3.0 Calibration cycle

This setting disables/enables the AGP auto calibration. Setting options: [Disabled], [Enabled].

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: [Disabled], [16M], [32M], [64M].

DRAM Configuration

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



Timing Mode

This field has the capacity to automatically detect all of the DRAM timing. If you set this field to [Manual], the following fields will be selectable. Setting options: [Auto], [Manual].

Memclock index value (Mhz)

When it is set to *Manual* in “Timing Mode”, user can place an artificial memory clock on the system. Setting options: [100MHz], [133MHz], [166MHz], [200MHz].

CAS# Latency (Tcl)

When the *Timing Mode* is set to [Manual], the field is adjustable. This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Setting options: [2.0], [2.5], [3.0]. [2.0] increases the system performance the most while [3.0] provides the most stable performance.

Min RAS# Active Time (Tras)

When the **Timing Mode** is set to [Manual], the field is adjustable. This setting determines the time RAS takes to read from and write to a memory cell. Setting options: [Auto], [5T~15T].

RAS# to CAS# Delay (Trcd)

When the **Timing Mode** is set to [Manual], the field is adjustable. When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance. Setting options: [Auto], [2T~7T].

Row Precharge Time (Trp)

When the **Timing Mode** is set to [Manual], the field is adjustable. This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refreshing may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Setting options: [Auto], [2T~7T].

Row to Row delay (Trrd)

When the **Timing Mode** is set to [Manual], the field is adjustable. Specifies the active-to-active delay of different banks. Setting options: [Auto], [2T], [3T], [4T].

1T/2T Memory Timing

This setting controls the SDRAM command rate. Selecting [Auto] allows SDRAM signal controller to run at 1T (T=clock cycles) rate. Selecting [1T] makes SDRAM signal controller run at 2T rate. 1T is faster than 2T. Setting options: [1T], [2T].

LDT & PCI Bus Control

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

**Upstream / Downstream LDT Bus Width**

These two item control the utilized widths of the HyperTransport link. Setting options: [8 bit], [16 bit].

LDT Bus Frequency

This item specifies the maximum operating frequency of the link's transmitter clock. Setting options: [Auto], [800 MHz], [600 MHz], [400 MHz], [200 MHz].

PCI1/2 Master 0 WS Write

When [Enabled], writes to the PCI bus are executed with zero wait states. Setting options: [Enabled], [Disabled].

PCI1/PCI2 Post Write

You can enable or disable the ability of the chipset to use a buffer for posted writes initiated on the PCI bus. Setting options: [Disabled], [Enabled].

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select [Enabled] to support compliance with PCI specification version 2.1.

VLink Data Rate

Use this item to select the VLink Data Rate. Setting options: [8X], [4X].

Integrated Peripherals



AC97 Controller

Select [Enabled] if you intend to use the onboard audio AC97 controller. Disable the controller if you want to use other controller cards to connect an audio device. Setting options: [Enabled], [Disabled].

Onboard LAN Control

This setting controls the onboard Intel LAN controller. Setting options: [Enabled], [Disabled].

Onboard LAN Option ROM

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

Onboard 1394 Controller

This setting controls the onboard 1394 device. Setting options: [Enabled], [Disabled].

USB Controller

Select [Enabled] if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. Setting options: [All Enabled], [All Disabled].

USB Device Legacy Support

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

IDE Devices Configuration

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



OnChip SATA

This setting controls the onchip SATA. Setting options: [Enabled], [Disabled].

SATA Mode

This item specify the mode for SATA devices. Setting options: [RAID], [IDE].

IDE DMA transfer access

Setting to [Enabled] will open DMA bus master and execute DMA action in DOS, which will make the data transferring faster. Setting options: [Disabled], [Enabled].

OnChip IDE Channel 0/1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose [Enabled] to activate each channel separately. Settings: [Enabled], [Disabled].

IO Devices Configuration

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



Onboard FDC Controller

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

COM Port1/ 2

Select an address and corresponding interrupt for the serial port1/ 2. Setting options: [3F8/IRQ4], [2E8/IRQ3], [3E8/IRQ4], [2F8/IRQ3], [Disabled], [Auto].

UART Mode Select

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

Normal RS-232C Serial Port

IrDA IrDA-compliant Serial Infrared Port

ASKIR Amplitude Shift Keyed Infrared Port

RxD, TxD Active

This setting controls the receiving and transmitting speed of the IR peripheral in use. Setting options: [Hi,Hi], [Hi,Lo], [Lo,Hi], [Lo,Lo].

IR Transmission Delay

This setting determines whether the IR transmission rate will be delayed while converting to receiving mode. Setting options: [Disabled], [Enabled].

UR2 Duplex Mode

This setting controls the operating mode of IR transmission/reception. Setting options: [Full], [Half]. Under [Full] Duplex mode, synchronous, bi-directional transmission/reception is allowed. Under [Half] Duplex mode, only asynchronous, bi-directional transmission/reception is allowed.

Use IR Pins

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

Parallel Port

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

[Disabled]

[3BC/IRQ7] Line Printer port 0

[278/IRQ5] Line Printer port 2

[378/IRQ7] Line Printer port 1

Parallel Port Mode

This field selects the operation mode for the onboard parallel port. Setting options:

[SPP] Standard Parallel Port

[EPP] Enhanced Parallel Port

[ECP] Extended Capability Port

[ECP+EPP] Extended Capability Port + Enhanced Parallel Port

[Normal]

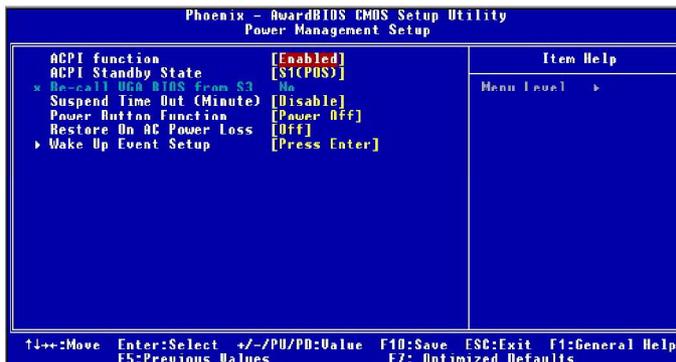
EPP Mode Select

The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either [EPP 1.7] spec or [EPP 1.9] spec can be chosen.

ECP Mode Use DMA

The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA." At this time, the user can choose between DMA channel [3] or [1].

Power Management Setup



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 2000/XP, 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, Windows 2000 and Windows XP, you can choose to enter the Standby mode in S1(POS) or S3(STR) fashion through the setting of this field. Setting 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 information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

[Auto] System auto arrange for ACPI function.

Re-Call VGA BIOS from S3

When **ACPI Standby State** is set to [S3/STR], users can select the options in this field. Selecting [Yes] 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. Options: [Auto], [Yes], [No].

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], [2], [4], [8], [10], [20], [30], [40], [50], [60].

Power Button Function

This feature sets the function of the power button. Settings are:

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

Restore on AC/Power Loss

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

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

Wakeup Event Setup

Press <Enter> and the following sub-menu 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 From S3 By PS/2 KB

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], [Hot Key].

Resume By PS/2 Keyboard

This setting only works **Resume From S3 By PS/2 KB** is set to [Hot Key]. This setting specifies how the system will be awakened from power saving mode when input signal of the keyboard is detected. Setting options: [Disable], [Ctrl+F1], [Ctrl+F2], [Ctrl+F3], [Ctrl+F4], [Ctrl+F5], [Ctrl+F6], [Ctrl+F7], [Ctrl+F8], [Ctrl+F9], [Ctrl+F10], [Ctrl+F11], [Ctrl+F12], [Power], [Wake], [Any Key].

Resume By PS/2 Mouse

The 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 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 power off state. Setting options: [Disabled], [Enabled].

Date (of Month) Alarm

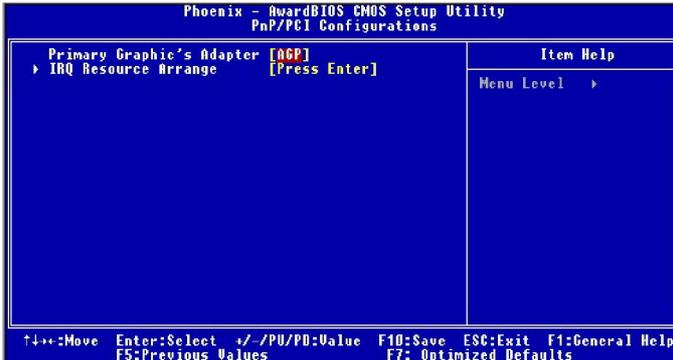
The field specifies the date for *Resume by RTC Alarm*. Settings: [0]~[31].

Time (hh:mm:ss) Alarm

The field specifies the time for *Resume by RTC Alarm*. Format is <hour><minute><second>.

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.



Primary Graphics Adapter

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

- [AGP] The system initializes the installed AGP card first. If an AGP card is not available, it will initialize the PCI VGA card.
- [PCI Slot] The system initializes the installed PCI VGA card first. If a PCI VGA card is not available, it will initialize the AGP card.

Wakeup Event Setup

Press <Enter> and the following sub-menu 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.

H/W Monitor

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



Cool'n'Quiet control

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

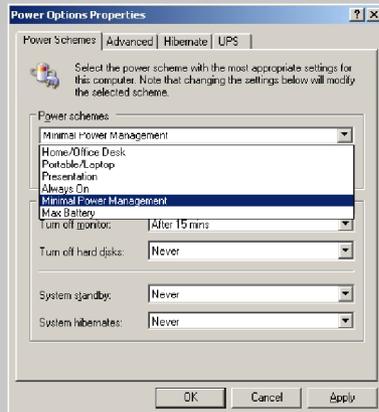


MSI Reminds You...

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

2. To ensure that Cool'n'Quiet function is activated and will be working properly, it is required to double confirm that:
- Run BIOS Setup, and select **H/W Monitor**. Under **H/W Monitor**, find **Cool'n'Quiet control**, and set this item to "Auto."

- Enter Windows, and select [Start]->[Settings]->[Control Panel]->[Power Options]. Enter **Power Options Properties** tag, and select **Minimal Power Management** under **Power schemes**.



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 CPU Fan

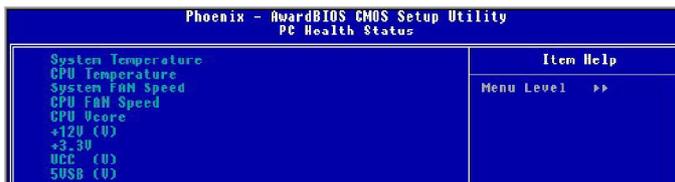
The mainboard provides the Smart Fan system which can control the fan speed automatically depending on the current temperature to keep it with in a specific range. Setting options: [Disabled],[40°C/104°F],[50°C/122°F],[60°C/144°F].

Smart Fan Tolerance

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

PC Health Status

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



System/CPU Temperature, System/CPU Fan Speed, CPU Vcore, +12V, +3.3V, VCC (V), 5VSB

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

Load Optimized Defaults

The option on the main menu allows users to restore all of the BIOS settings to the Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

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



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

BIOS Setting Password

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



Type the password, up to eight 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 features, Live Update and PC Alert, 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, PC Alert, 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.

Audio Speaker Setting

In this sub-menu, you can configure and test the multi-channel audio function, speakers, sound effect and environment.

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

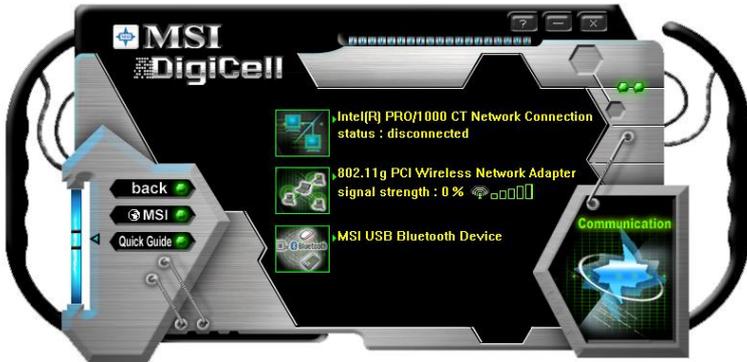
In the **H/W Diagnostic** sub-menu, you can see the information, status and note of each DigiCell. You may double check the connection and installation of the item marked as gray.



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.

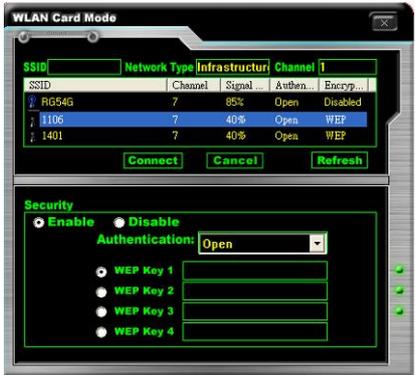
WLAN Card Mode

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.

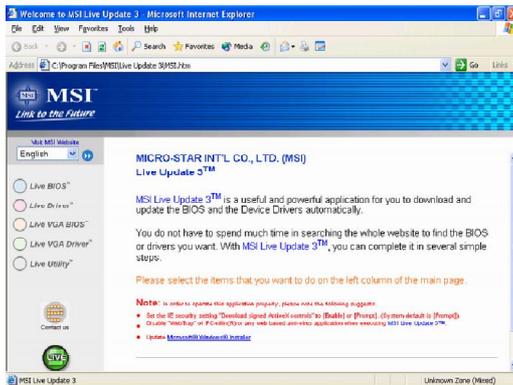


Live Update

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.

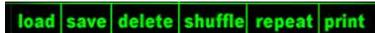
MEGA STICK

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.



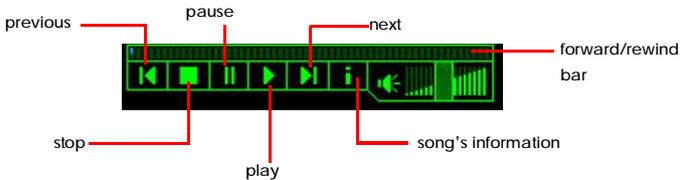
Basic Function

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

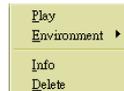


- | | |
|----------------|--|
| Load | To load media files or the playlist of mp3 files (*.m3u) on your system or on your MEGA STICK. |
| Save | To save a loaded playlist of mp3 files (*.m3u) on your system or on your MEGA STICK. |
| Delete | Click on the media files in the Play List: field and use “Delete” 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: <ol style="list-style-type: none"> 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 <i>MyMusic.txt</i> 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.

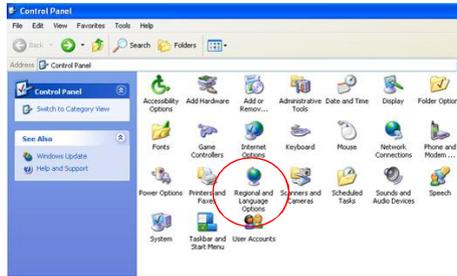


Non-Unicode programs supported

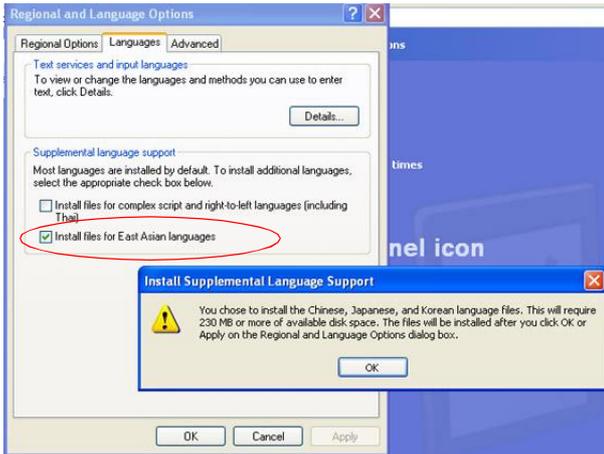
If you are using an operating system in European languages, and you'd like to play the media files in MEGA STICK with East-Asian languages (such as Chinese, Japanese... etc.), it is possible that the file names display incorrectly.

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.

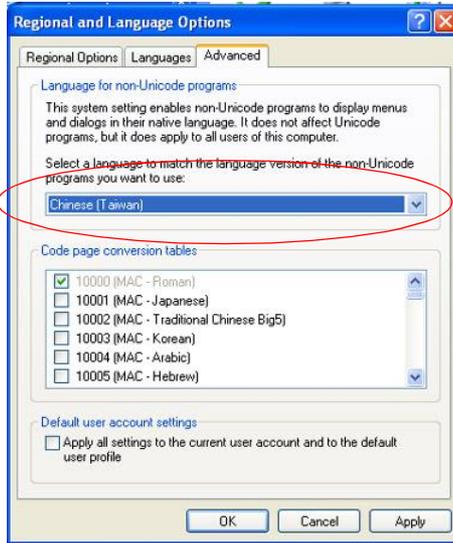
1. Go to [Control Panel] and choose [Regional and Languages Options].



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.



- 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 including the Vcore, 3.3V, +5V and +12V. The under screen shows the current fan speeds.



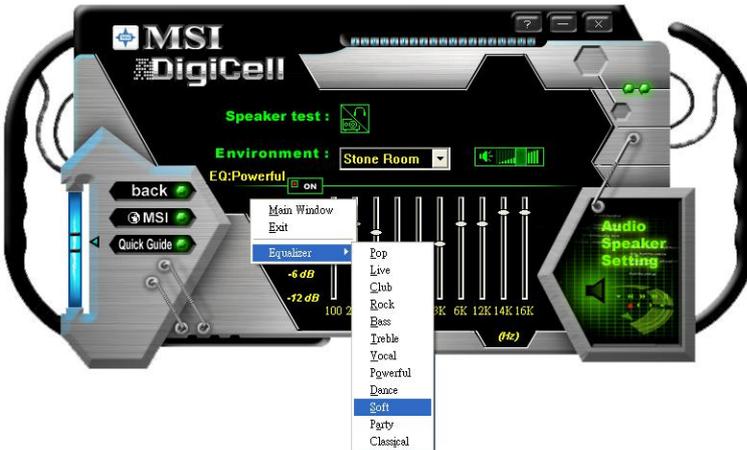
When you click the MENU button, an menu list will appear for users to select. Click the Sys Info/ WMI Info, it will show the system/ peripheral informations. Click the Settings, you can select the period time for PC Alert to detect the temperatures, voltages and fan speeds.

Audio Speaker Setting

In the **Audio Speaker Setting** sub-menu, you can configure the multi-channel audio operation, perform speaker test, and choose the environment you prefer while enjoying the music.

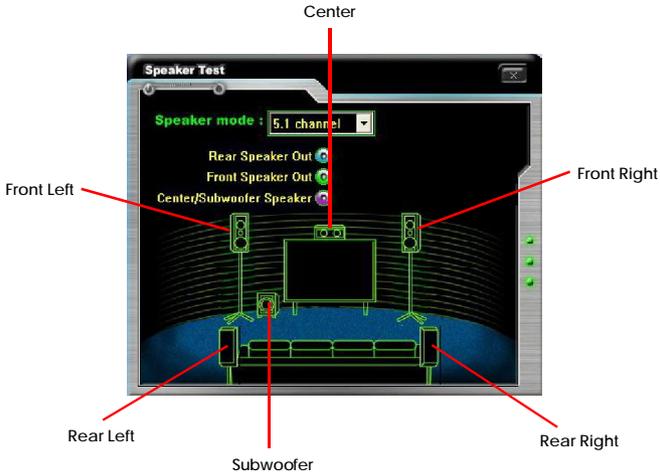


You can scroll the bar of each equalizer to regulate the current playing digital sound source. Also you may click on the “on” button to enable/disable the equalizer function. Once the equalizer function is enabled, you can choose several preset equalizers for your preference. You may also right-click anywhere to execute this function. After you have chosen one equalizer, it will be indicated next to the “on” button in yellow.



The **Environment** setting lets you select the environment you like, such as *Cave* or *Convert Hall*.

Click on the “**Speaker test**” button and the following screen will appear:

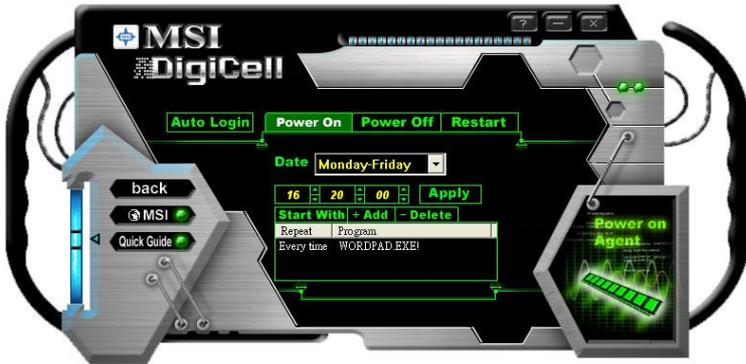


In this **Speaker Test** dialogue box, first select the correct item from the **Speaker mode** drop-down list, and then click on each connected speaker to ensure if Headphone, 2-, 4-, or 5.1- channel audio operation is working properly. If any speaker fails to make sound, then check whether the cable is inserted firmly to the connector, or replace the bad speakers with good ones.

Power on Agent

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

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



Power On

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

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



MSI Reminds You...

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

Power Off / Restart

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

Start With

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

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

Step 2: Click on “OK” to apply the setting.

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



add the desired start-up 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.



VIA VT8237R Serial ATA RAID Introduction

The Southbridge VT8237R provides a hybrid solution that combines two independent SATA ports for support of up to two Serial ATA (Serial ATA RAID) drives.

Serial ATA (SATA) is the latest generation of the ATA interface. SATA hard drives deliver blistering transfer speeds of up to 150MB/sec. Serial ATA uses long, thin cables, making it easier to connect your drive and improving the airflow inside your PC.

The key features of VT8237R SATA RAID are:

1. Support two SATA + two PATA hard disk drives.
2. Only SATA supports RAID.
3. Supports ATA 133 high performance hard disk drive.
4. Dual independent ATA channels and maximum connection of four hard disk drives allowed.
5. Supports Ultra DMA mode 6/5/4/3/2/1/0, DMA mode 2/1/0, and PIO mode 4/3/2/1/0.
6. Supports RAID 0 and RAID 1.
7. 4 KB to 64 KB striping block size support.
8. Bootable disk or disk array support.
9. Windows-based RAID configure and management software tool. (Compatible with BIOS)
10. Supports hot-swap failed disk drive in RAID 1 array.
11. ATA SMART function support.
12. Microsoft Windows 98, Me, NT4.0, 2000, XP operating systems support.
13. Event log for easy troubleshooting.

Introduction

This section gives a brief introduction on the RAID-related background knowledge and a brief introduction on VIA SATA RAID Host Controller. For users wishing to install their VIA SATA RAID driver and RAID software, proceed to **Driver and RAID Software Installation** section.

RAID Basics

RAID (Redundant Array of Independent Disks) is a method of combining two or more hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called "members". The configuration information of each member is recorded in the "reserved sector" that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the VIA VT8237R SATA RAID Host Controller supports are RAID 0 and RAID 1. The table below briefly introduced these RAID levels.

RAID Level	No. of Drives	Capacity	Benefits
RAID 0 (Striping)	2	Number drives * 2	Highest performance without data protection
RAID 1 (Mirroring)	2	Smallest size	Data protection

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the spare drive. can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

BIOS Configuration

When the system powers on during the POST (Power-On Self Test) process, press <Tab> key to enter the BIOS configuration.

```
VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility V1.10
Copyright (C) VIA Technologies, Inc. All Right reserved.

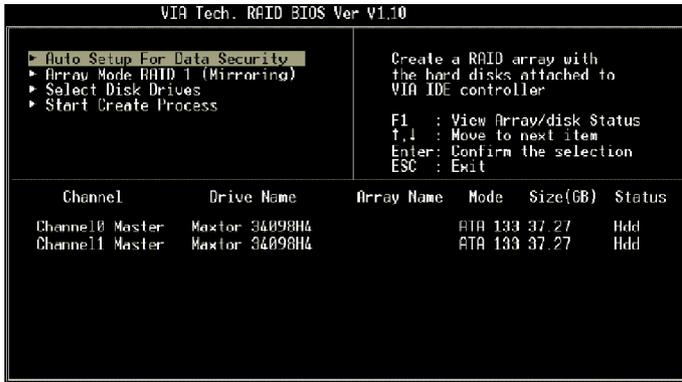
Press < Tab > key into User Window!
Scan Devices, Please wait...
Channel 0 Master: Maxtor 34098H4
Channel 1 Master: Maxtor 34098H4
```

The Serial ATA RAID volume may be configured using the VIA Tech. RAID BIOS. Always use the arrow keys to navigate the main menu, use up and down arrow key to select the each item and press <Enter> to call out the list of creation steps. The main screen of BIOS configuration utility is as below:

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	Maxtor 34098H4		ATA 133	37.27	Hdd
Channel1 Master	Maxtor 34098H4		ATA 133	37.27	Hdd

Create Disk Array

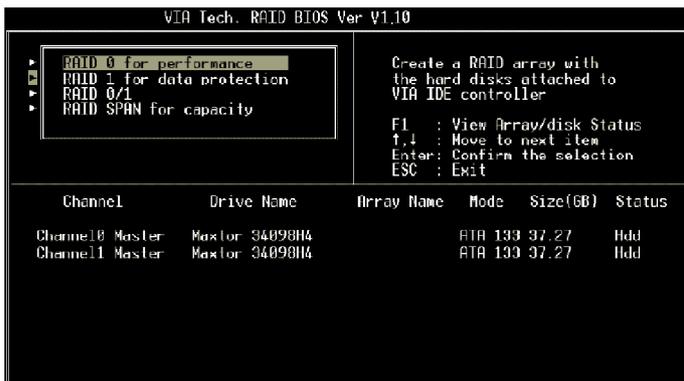
Use the up and down arrow keys to select the **Create Array** command and press <Enter>.



MSI Reminds You...

The “Channel”, “Drive Name”, “Mode” and “Size (GB)” in the following example might be different from your system.

Select **Array Mode** and press <Enter>, a list of array modes will appear. Highlight the target array mode that you want to create, and press <Enter> to confirm the selection. If RAID 1 is selected, an option list will popup and enable the users to select **Create only** or **Create and duplicate**. **Create only** will allow BIOS to only create an array. The data on the mirroring drive may be different from the source drive. **Create and duplicate** lets BIOS copy the data from the source to the mirroring drive.



After array mode is selected, there are two methods to create a disk array. One method is “**Auto Setup**” and the other one is “**Select Disk Drives**”. **Auto Setup** allows BIOS to select the disk drives and create arrays automatically, but it does not duplicate the mirroring drives even if the user selected **Create and duplicate** for RAID 1. It is recommended all disk drives are new ones when wanting to create an array. **Select Disk Drives** lets the user select the array drives by their requirements. When using **Select Disk Drives**, the channel column will be activated. Highlight the target drives that you want to use and press <Enter> to select them. After all drives have been selected, press <Esc> to go back to the creation steps menu.



If user selects a RAID 0 array in step 2, the block size of the array can also be selected. Use the arrow key to highlight **Block Size** and press <Enter>, then select a block size from the popup menu. The block size can be 4KB to 64KB.





MSI Reminds You...

Even though 64KB is the recommended setting for most users, you should choose the block size value which is best suited to your specific RAID usage model.

4KB: For specialized usage models requiring 4KB blocks

8KB: For specialized usage models requiring 8KB blocks

16KB: Best for sequential transfers

32KB: Good for sequential transfers

64KB: Optimal setting

Use the arrow key to highlight **Start Create Process** and press <Enter>. A warning message will appear, Press **Y** to finish the creation, or press **N** to cancel the creation. Important note: All existing content in the hard drive will be destroyed after array creation.

Delete Disk Array

A RAID can be deleted after it has been created. To delete a RAID, use the following steps:

1. Select **Delete Array** in the main menu and press <Enter>. The channel column will be activated.
2. Select the member of an array that is to be deleted and press <Enter>. A warning message will show up, press **Y** to delete or press **N** to cancel.



Deleting a disk array will destroy all the data on the disk array except RAID 1 arrays. When a RAID is deleted, the data on these two hard disk drives will be reserved and become two normal disk drives.

Create and Delete Spare Hard Drive

If a RAID 1 array is created and there are drives that do not belong to other arrays, the one that has a capacity which is equal to or greater than the array capacity can be selected as a spare drive for the RAID 1 array. Select **Create/Delete Spare** and press <Enter>, the channel column will then be activated. Select the drive that you want to use as a spare drive and press <Enter>, the selected drive will be marked as **Spare**. The spare drive cannot be accessed in an OS.

To delete a spare drive, highlight **Create/Delete Spare** and press <Enter>. The spare drive will be highlighted, press <Enter> to delete the spare drive.



View Serial Number of Hard Drive

Highlight **Serial Number View** and press <Enter>. Use arrow key to select a drive, the selected drive's serial number can be viewed in the last column. The serial number is assigned by the disk drive manufacturer.

Press the **F1** key to show the array status on the lower screen. If there are no disk arrays then nothing will be displayed on the screen.



Duplicate Critical RAID 1 Array

When booting up the system, BIOS will detect if the RAID 1 array has any inconsistencies between user data and backup data. If BIOS detects any inconsistencies, the status of the disk array will be marked as critical, and BIOS will prompt the user to duplicate the RAID 1 in order to ensure the backup data consistency with the user data.



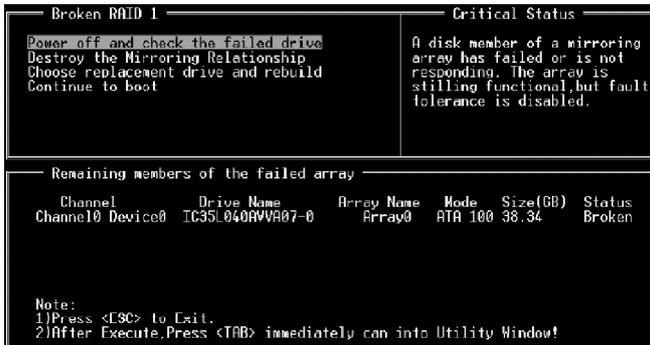
If user selects **Continue to boot**, it will enable duplicating the array after booting into OS.

Rebuild Broken RAID 1 Array

When booting up the system, BIOS will detect if any member disk drives of RAID has failed or is absent. If BIOS detects any disk drive failures or missing disk drives, the status of the array will be marked as broken.

If BIOS detects a broken RAID 1 array but there is a spare hard drive available for rebuilding the broken array, the spare hard drive will automatically become the mirroring drive. BIOS will show a main interface just like a duplicated RAID 1. Selecting **Continue to boot** enables the user to duplicate the array after booting into operating system.

If BIOS detects a broken RAID 1 array but there is no spare hard drive available for rebuilding the array, BIOS will provide several operations to solve such problem.



1. Power off and Check the Failed Drive:

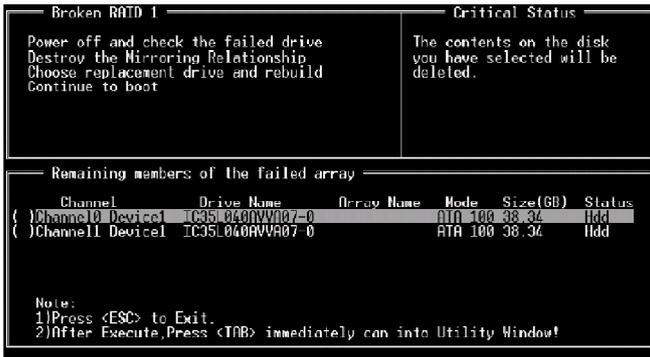
This item turns off the computer and replaces the failed hard drive with a good one. If your computer does not support APM, you must turn off your computer manually. After replacing the hard drive, boot into BIOS and select **Choose replacement drive and rebuild** to rebuild the broken array.

2. Destroy the Mirroring Relationship:

This item cancels the data mirroring relationship of the broken array. For broken RAID 1 arrays, the data on the surviving disk will remain after the destroy operation. However, **Destroy the Mirroring Relationship** is not recommend because the data on the remaining disk will be lost when the hard drive is used to create another RAID 1 array.

3. Choose Replacement Drive and Rebuild:

This item enables users to select an already-connected hard drive to rebuild the broken array. After choosing a hard drive, the channel column will be activated.



Highlight the target hard drive and press <Enter>, a warning message will appear. Press **Y** to use that hard drive to rebuild, or press **N** to cancel. Please note selecting option **Y** will destroy all the data on the selected hard drive.

4. Continue to boot:

This item enables BIOS to skip the problem and continue booting into OS.

Installing RAID Software & Drivers

Install Driver in Windows OS

† **New Windows OS (2000/XP/NT4) Installation**

The following details the installation of the drivers while installing Windows XP.

1. Start the installation:
Boot from the CD-ROM. Press **F6** when the message "Press F6 if you need to install third party SCSI or RAID driver" appears.
2. When the Windows Setup window is generated, press **S** to specify an Additional Device(s).
3. Insert the driver diskette **VIA VT8237R Disk Driver** into drive A: and press <Enter>.



MSI Reminds You...

Please follow the instruction below to make a VIA Serial ATA RAID driver for yourself.

1. Insert the MSI CD into the CD-ROM drive.
2. Ignore the Setup screen and use "Explorer" to browse the CD.
3. Copy all the contents (including the sub-folders) in the **WDE\VIA\Floppy** to a formatted floppy disk.
4. The driver disk for VIA Serial ATA driver is done.

4. Depending on your operation system, choose **VIA RAID Controller (Windows XP)**, **VIA RAID Controller(Windows 2000)** or **VIA RAID Controller (Windows NT4)** from the list that appears on Windows XP Setup screen, press the <Enter> key.

5. Press <Enter> to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, press <Enter> to continue with installation.

6. From the Windows XP Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP installation

† **Existing Windows XP Driver Installation**

1. Insert the MSI CD into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
3. Under the Driver tab, click on **VIA SATA RAID Drivers**.
4. The drivers will be automatically installed.

† **Confirming Windows XP Driver Installation**

1. From Windows XP, open the **Control Panel** from **My Computer** followed by the System icon.

2. Choose the **Hardware** tab, then click the **Device Manager** tab.

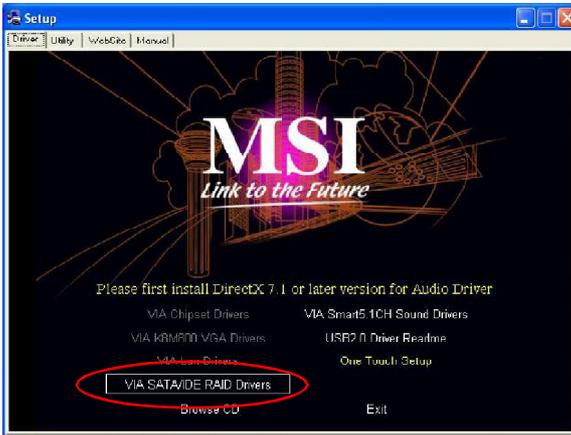
3. Click the "+" in front of the **SCSI and RAID Controllers** hardware type. The driver **VIA SATA RAID Controller** should appear.

Installation of VIA SATA RAID Driver and Utility

The VIA SATA RAID Driver is the software package that enables high-performance RAID 0 arrays in the Windows® XP operating system. This version of VIA SATA RAID Driver contains the following key features:

- † Serial ATA RAID driver for Windows XP
- † VIA SATA RAID utility
- † RAID0 and RAID1 functions

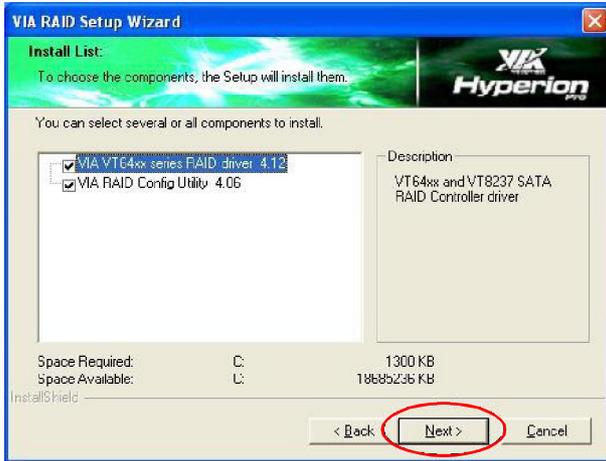
Insert the MSI CD and click on the **VIA SATA/IDE RAID Drivers** to install the software.



The **InstallShield Wizard** will begin automatically for installation. Click on the **Next** button to proceed the installation in the welcoming window.



Put a check mark in the check box to install the feature you want. Then click **Next** button to proceed the installation.



Finally, click "Finish" to complete the installation.



Using VIA RAID Tool

Once the installation is complete, go to **Start** ---> **Programs** ---> **VIA** ---> **RAID** ---> **raid_tool.exe** to enable **VIA RAID Tool**.



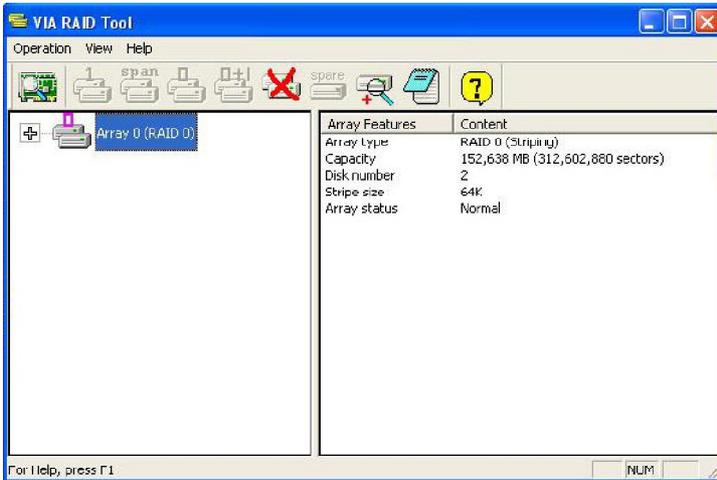
After the software is finished installation, it will automatically started every time Windows is initiated. You may double-click on the  icon shown in the system tray of the tool bar to launch the **VIA RAID Tool** utility.



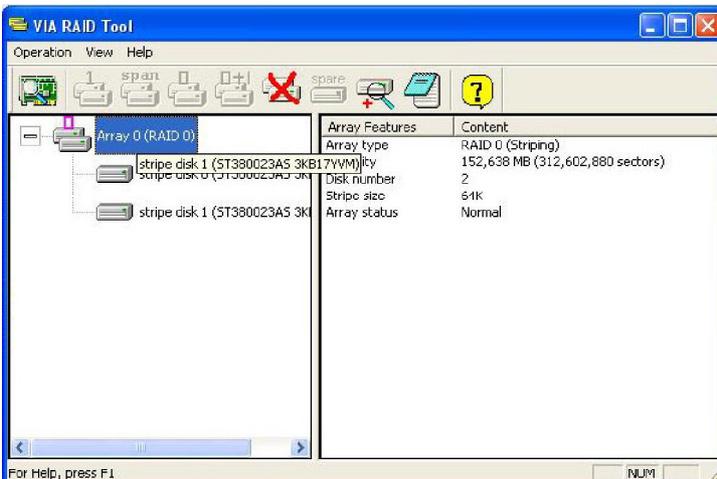
The main interface is divided into two windows and the toolbar above contain the main functions. Click on these toolbar buttons to execute their specific functions. The left windowpane displays the controller and disk drives and the right windowpane displays the details of the controller or disk drives. The available features are as following:

-  View by Controller
-  View by Devices
-  View Event log
-  Help Topics

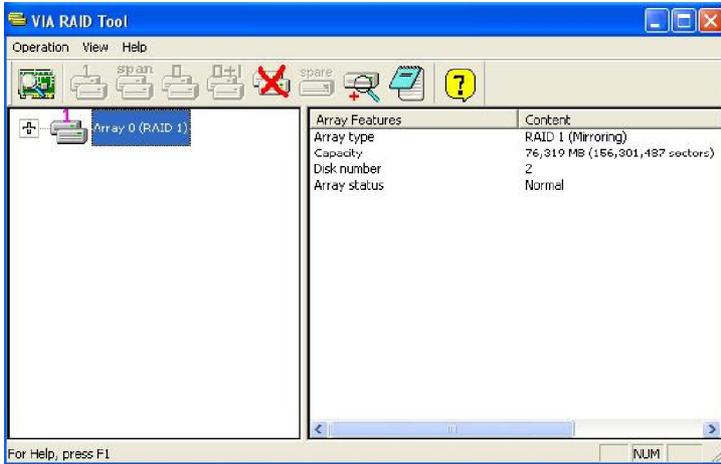
Click on  or  button to determine the viewing type of left window pane. There are two viewing types: By controllers and by device. Click on the object in the left window pane to display the status of the object in the right windowpane. The following screen shows the status of Array 0---RAID 0.



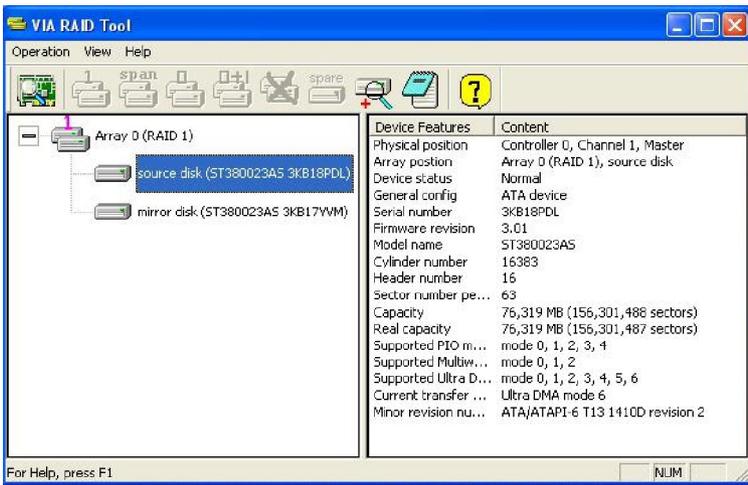
Click on the plus (+) symbol next to Array 0---RAID 0 to see the details of each disk.



You may also use the same  or  button to view the statuses of Array 0--RAID 1.



Click on the plus (+) symbol next to Array 0---RAID 1 to see the details of each disk.





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

The mainboard is equipped with VIA VT1617A chip, which provides support for 6-channel audio output, including 2 Front, 2 Rear, 1 Center and 1 Subwoofer channel. VT1617A allows the board to attach 4 or 6 speakers for better surround sound effect. The section will tell you how to install and use 4-/6-channel audio function on the board.

Installing the Audio Driver

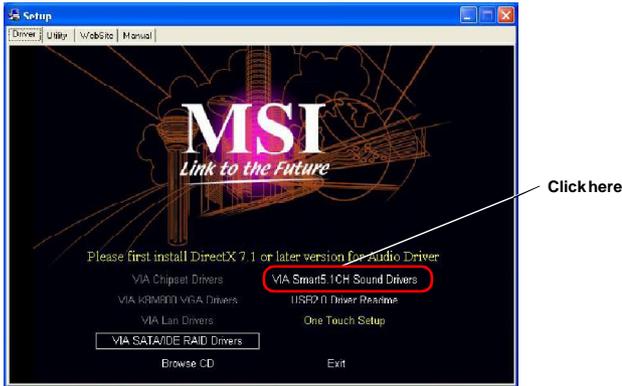
You need to install the driver for VIA VT1617 chip to function properly before you can get access to 4-/6-channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

Installation for Windows 98SE/ME/2000/XP

For Windows® 2000, you must install Windows® 2000 Service Pack2 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 **VIA Smart5.1CH Sound Drivers**.



Special Notice during Installation

Once you are finishing the installation of your system, please right-click on [My Computer] on the desktop, and choose [Properties] ---> [Hardware] - --> [Device Manager]. If you can see the question mark (?) next to the <Other devices> & <Multimedia Audio Controller>, it means the system detects the audio codec in your system item and the **VIA Smart5.1CH Sound Drivers** will appear on your CD.



3. Click **Next** to install the AC'97 Audio software, and click **Finish** to restart the system.
4. You will find the  icon in the system tray and on the desktop. Double-click the icon on the desktop or right-click on the icon in the system tray. Also, you can right-click on the icon in the system tray and choose **VIA Audio Deck**, and the following screen will appear to show some basic settings about the audio configuration.



Software Configuration

After installing the audio driver, you are able to use the 4-/6-channel audio feature now. Click the audio icon  from the window tray at the lower-right corner of the screen to activate the **VIA Audio Deck Configuration**.

Speaker

Here you can select the channels you would like to use here.

For the expander and Center/Subwoofer speaker exchange, please check the **Exchange Center/LFT** check boxes.



You have to check the “Enable Stereo Sound Expander” check box in Effect tab and the “Enable Smart51 plus (blue jack for side surround and red jack for center/LEF speakers output)” check box in PhoneJack tab, if you intend to use 4 or 5.1 channel sound effect.



Mixer

In the **Mixer** part, you may adjust the volumes individually.

Playback

Here you can regulate the volume of each output. Click the allow button to the right for more outputs.



Recording

Here you can choose the preferred recording input. Choosing **Mic** allows you to record the audio through the connected microphones, **Line In** allows you to record to record through the connected line-in device, and etc. Choosing **Stereo Mixer** allows you to record the audio through all inputs.



SPDIF

Here you can configure and enable the functions related to S/PDIF. Move between the items in **S/PDIF Control** and **Advanced control** and the representing description and illustrations will display.

If you'd like to use the S/PDIF function for digital audio transmission, please check the **S/PDIF Enable** and/or **Analog in to S/PDIF Out** check boxes as wished.



Speaker Test

Here you can click on each speaker to test its function, and increase/decrease the volume.



Information

Here it provides the information about Vinyl Deck, including the driver version, codec type, and OS version... etc.



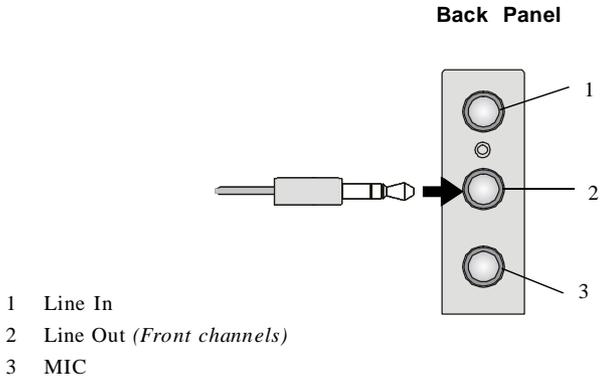
Using 2-, 4- & 6- Channel Audio Function

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

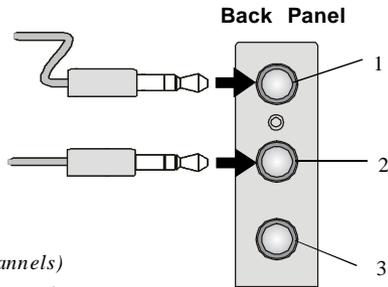
Refer to the following diagram and caption for the function of each phone jack on the back panel when 2-Channel Mode is selected.



n 4-Channel Mode for 4-Speaker Output

The audio jacks on the back panel always provide 2-channel analog audio output function, however these audio jacks can be transformed to 4- or 6-channel analog audio jacks by selecting the corresponding multi-channel operation from **No. of Speakers**.

Refer to the following diagram and caption for the function of each jack on the back panel when 4-Channel Mode is selected.



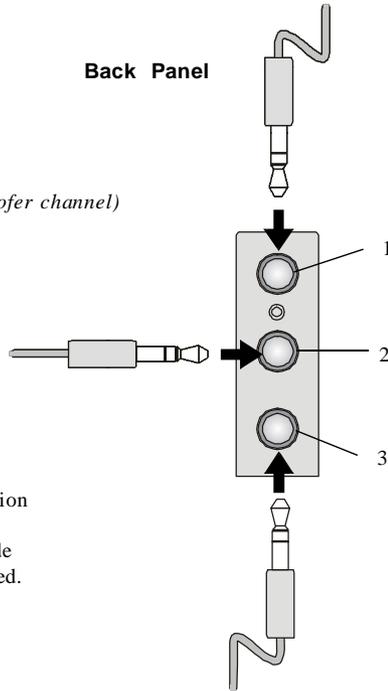
- 1 *Line Out (*Rear channels*)
- 2 Line Out (*Front channels*)
- 3 MIC

* Line In function is converted to Line Out function when 4-Channel Mode for 4-Speaker Output is selected.

n 6-Channel Mode for 6-Speaker Output

Refer to the following diagram and caption for the function of each jack on the back panel when 6-Channel Mode is selected.

- 1 * Line Out (Rear channels)
- 2 Line Out (Front channels)
- 3 * Line Out (Center and Subwoofer channel)



* Both Line In and MIC function are converted to Line Out function when 6-Channel Mode for 6-Speaker Output is selected.



MSI Reminds You...

If the audio signals coming from the Center and Subwoofer speaker are swapped when you play video or music on the computer, a converter may be required to exchange center and subwoofer audio signals. The converter can be purchased from a speaker store.