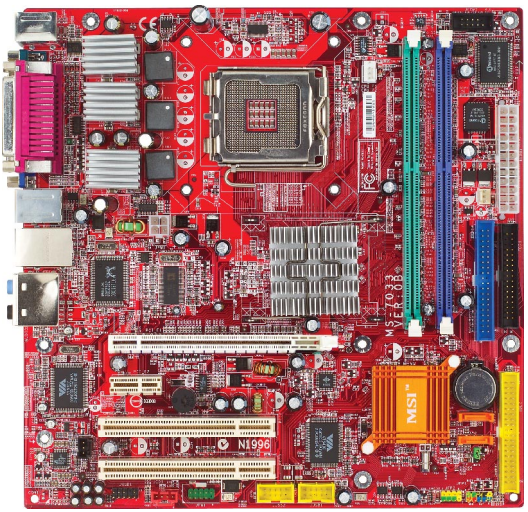
# 915PM/915GM/915GVM/910GLM

## MS-7033 (v1.X) M-ATX Mainboard



**G52-M7033X1**

Manual Rev: 1.0
Release Date: June 2004

CE N1996

**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.**

FC **Micro-Star International**
**MS-7033**

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

## Copyright Notice



## Trademarks



## Revision History

| Revision | Revision History | Date |
|---|---|---|
| V1.0 | First release for PCB 1.X with Intel 915P/915G/915GV/910GL & ICH6 | June 2004 |

## 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$^0$C (140$^0$F), it may damage the equipment.**

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

# CONTENTS

# Getting Started

Thank you for choosing the **915PM/915GM/915GVM/910GLM** (MS-7033) v1.X M-ATX mainboard. The **915PM/915GM/915GVM/910GLM** mainboard is based on **Intel® 915P/G/GV/GL** and **Intel® ICH6** chipset for optimal system efficiency. Designed to fit the advanced **Intel® Pentium 4 Prescott (LGA775)**processor, the **915PM/915GM/915GVM/910GLM** mainboard delivers a high performance and professional desktop platform solution.

# Mainboard Specifications

**CPU**

- Supports Intel® Pentium 4 Prescott (LGA775) processors in LGA775 package
- Supports 533MHz, 800MHz FSB
- Supports 2004 Performance FMB CPU VR Design
- Supports 3 or 4 pin CPU Fan Pin-Header with Fan Speed Control

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

**Chipset**

- Intel® 915P/915G/915GV/910GL Chipset
  - Supports 533/800MHz Intel NetBurst micro-architecture bus (910GL supports 533 MHz only)
  - Supports PCI Express x16 interface (not available for 915GV/910GL)
  - Supports DDR 333/400 memory interface
  - Integrated Intel GMA 900 graphic controller with ADD2 interface support (not available for 915P)
- Intel® ICH6 chipset (609 mBGA)
  - High Definition Audio interface
  - Supports PCI Express x1 interface
  - 2 Serial ATA Host Controllers
  - 1 channel Ultra ATA 100 bus Master IDE controller
  - 8 USB 2.0/1.1 ports
  - Supports SMBus 2.0

**Main Memory**

- Supports two 64-bit wide DDR data channels
- Available bandwidth up to 3.2GB/s (DDR 400) for single-channel mode and 6.4 GB/s (DDR 400) for dual-channel mode
- Supports 128MB, 256MB or 512MB DDR technologies
- Supports only x8, x16 DDR devices with 2-bank

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

**Slots**

- One PCI Express x16 slot (supports PCI Express Bus specification v1.0a compliant) (not available for 915GV/910GL)
- One PCI Express x1 slot (supports PCI Express Bus specification v1.0a compliant)
- Two 32-bit v2.2 Master PCI bus slots (support 3.3v/5v PCI bus interface)

**On-Board IDE**

- One IDE controller on the ICH6 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA66/100 operation modes
- An IDE controller on the VIA VT6410 chipset with a channel (supports 2 IDE devices) provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA66/100/133 operation modes. (With Raid 0,1 support) (optional)

➤ Support 2 Serial ATA ports

**On-Board Peripherals**

➤ On-Board Peripherals include:
- 1 floppy port supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
- 2 serial ports, Com1 on Rear IO, Com2 via pin header(IO bracket is optional)
- 1 parallel port supports SPP/EPP/ECP mode
- 1 Line-In / Line-Out / MIC-In / Surround Speaker Out / Center-Subwoofer Speaker Out / Surround Back Speaker Out
- 8 USB ports (Rear * 4/ Front * 4)
- 1 RJ-45 LAN jack (optional)
- 2 * 1394 ports (optional)

**On-board LAN (optional)**

➤ Realtek 8100C / 8110S / 8110SB (optional)
- Integrated Fast Ethernet MAC and PHY in one chip
- Supports 10Mb/s, 100Mb/s and 1000Mb/s (1000Mb/s for 8100S/SB only)
- Compliance with PCI 2.2
- Supports ACPI Power Management

**Audio**

➤ 8 channels (HDA) audio codec
- Meet PC2001 audio performance requirement
- Can support SPDIF Out via bracket only (optional)

**1394 (optional)**

➤ Supports up to 2 * 1394 ports, one 6-pin 1394 connector on rear I/O, the other is supported by onboard pinheader. Transfer rate is up to 400Mbps

➤ Controlled by VIA 6307 chipset

**BIOS**

➤ 4Mb FWH

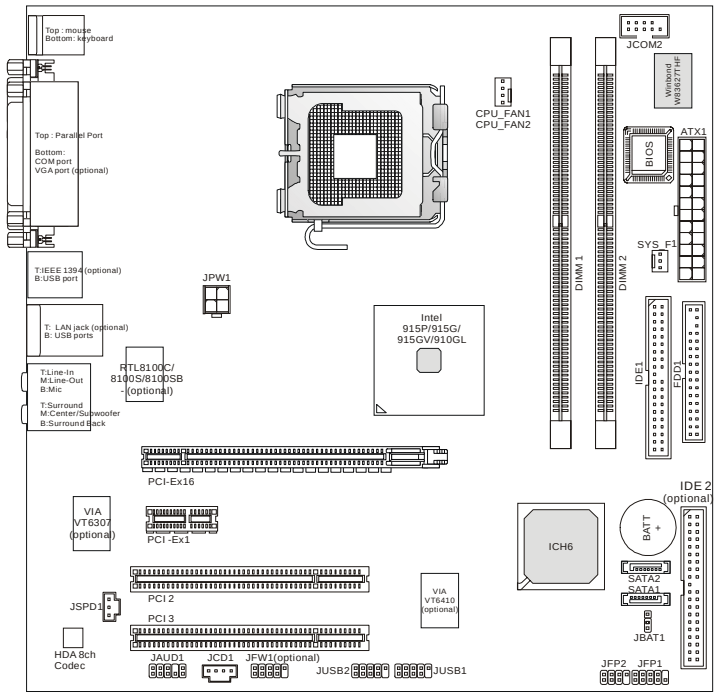
➤ Provides DMI2.0, WfM2.0, WOL, WOR, and SMBus for system management

**Mounting and Dimension**

➤ M-ATX Form Factor: 24.5 cm (W) x 24.5 cm (L)

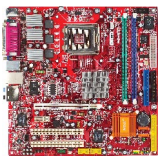
➤ 6 mounting holes

# Mainboard Layout

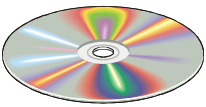



## 915PM/915GM/GVM/910GLM
## (MS-7033) v1.X M-ATX Mainboard

# Packing Contents



MSI motherboard



MSI Driver/Utility CD

Back IO Shield

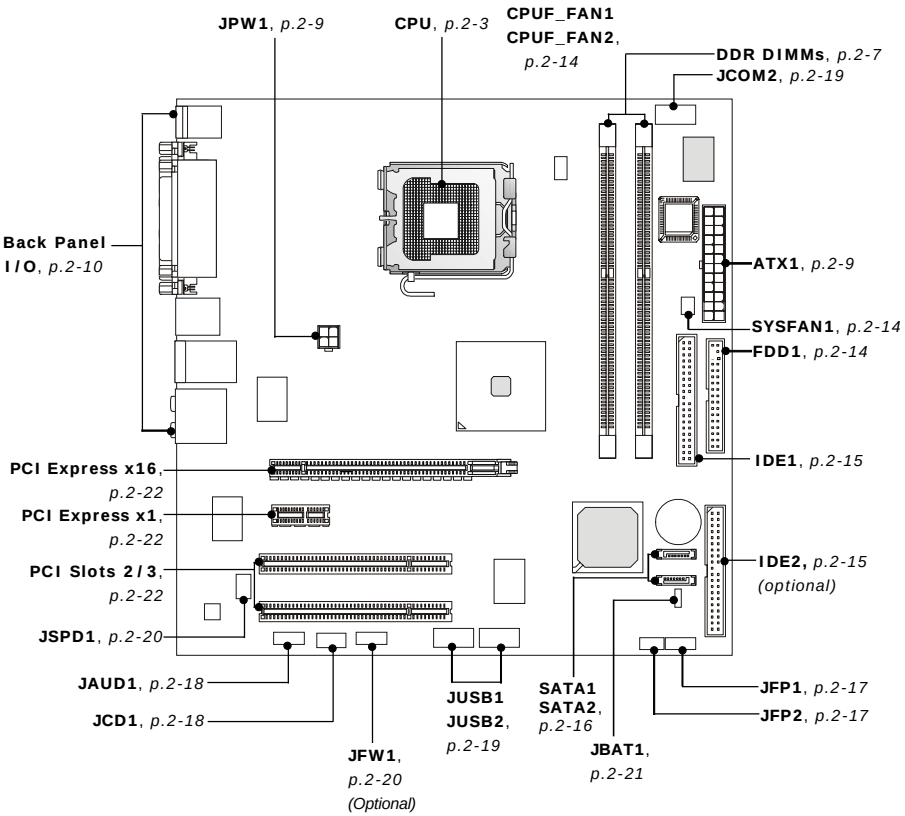
User's Guide

# Hardware Setup

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

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

# Quick Components Guide



# Central Processing Unit: CPU

The mainboard supports Intel® Pentium 4 / Celeron D™ (LGA775) processor. The mainboard uses a CPU socket called LGA775. When you are installing the CPU, **make sure to install the heat sink/cooler to prevent overheating.** If you do not have the CPU, contact your dealer to purchase and install them before turning on the computer.

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

**MSI Reminds You...**

***Overheating***

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

***Replacing the CPU***

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

***Overclocking***

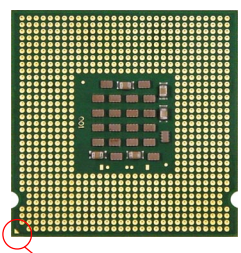
*This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended.* ***We do not guarantee the damages or risks caused by inadequate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

## Introduction of LGA 775 CPU

The surface of LGA 775 CPU. Remember to apply some silicone heat transfer compound on it for better heat dispersion.

Yellow triangle is the Pin 1 indicator

The pin-pad side of LGA 775 CPU.



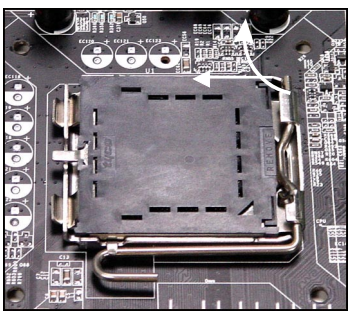
Yellow triangle is the Pin 1 indicator

## CPU, Heatsink & Fan Installation

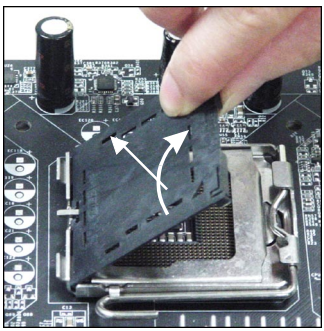
When you are installing the CPU, **make sure the CPU has a heat sink/ cooler fan attached on the top to prevent overheating.** If you do not have the heat sink/cooler fan, contact your dealer to purchase and install them before turning on the computer. Meanwhile, do not forget to apply some silicon heat transfer compound on CPU before installing the heat sink/cooler fan for better heatsinking.

Follow the steps below to install the CPU & cooling fan correctly. Wrong installation will cause the damage of your CPU & mainboard.

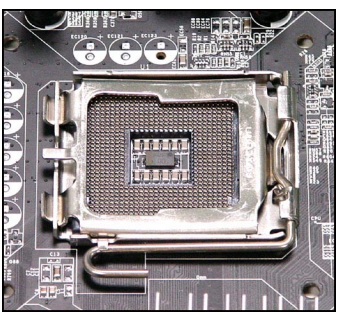
1. The CPU has a plastic cap on it to protect the contact from damage. Always cover it to protect the socket pin until you are going to install the CPU.



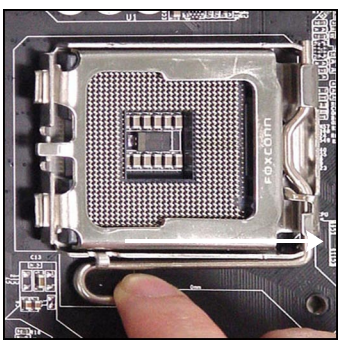
2. Remove the cap from lever hinge side (as the arrow shows).



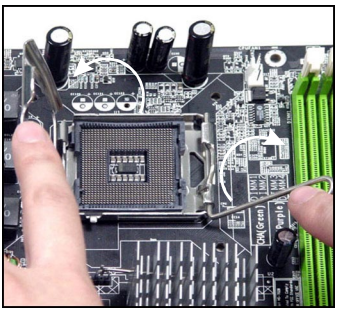
3. The pins of socket reveal.



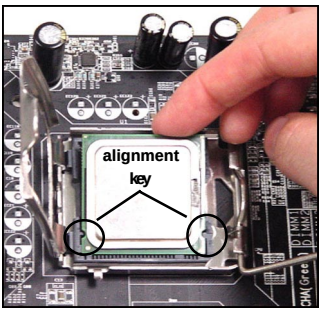
4. Open the load lever.



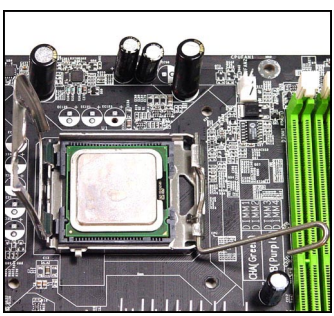
5. Lift the load lever up and open the load plate.



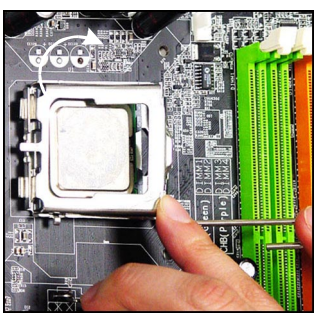
6. After confirming the CPU direction for correction mating, put down the CPU in the socket housing frame. Be sure to grape on the edge of the substrate. Note that the alignment keys are matched.



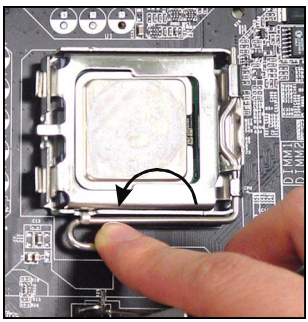

7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with purely vertical motion and reload it again.



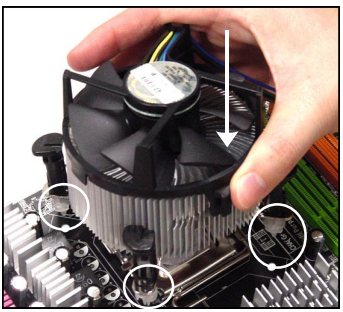
8. Rotate the load plate onto the package.



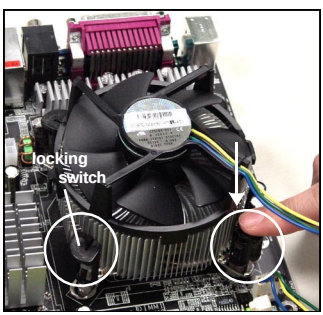
9. Engage the load while pressing down lightly onto the load plate, and then secure the lever with the hook under retention tab.



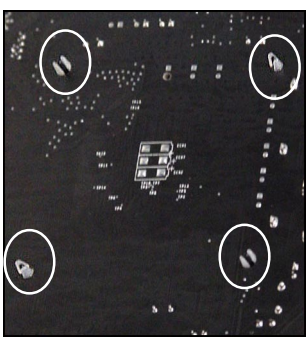
10. Align the holes on the mainboard with the heatsink first. Pull down the fan/heatsink until its four clips get wedged in the holes of the mainboard.



11. Press the four hooks down to fasten the fan. Then rotate the locking switch (refer to the correct direction marked on it) to lock the hooks again.




12. Turn over the mainboard to confirm that the clip-ends are corrected inserted.



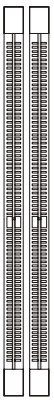
**MSI Reminds You...**

1. *Confirm if your CPU heatsink/cooler is firmly installed before turning on your system.*
2. *Check the information in **PC Health Status** of **H/W Monitor** in BIOS (refer to p.3-20 for details) for the CPU temperature.*
3. *Make sure that the CPU socket pins are not turned up or pressed down.*

# Memory

The mainboard provides 2 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports the memory size up to 2GB. You can install DDR266/ 333/400 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**
**(DDR 1~2)**

## 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.

## DIMM Module Combination

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

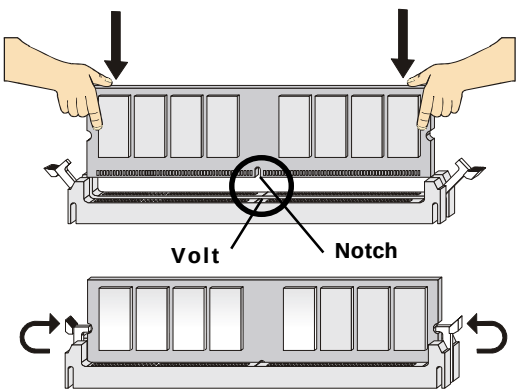
Memory modules can be installed in any combination as follows:

| Slot | Memory Module | Total Memory |
|---|---|---|
| DDR 1<br>(Bank 0 & 1) | S/D | 64MB~1GB |
| DDR 2<br>(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.




**MSI Reminds You...**

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

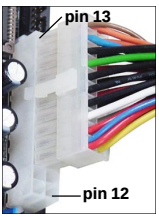
# Power Supply

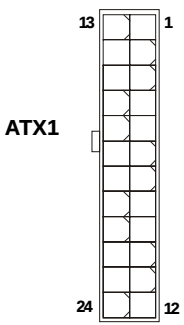
The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

## ATX 24-Pin Power Connector: ATX1

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

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



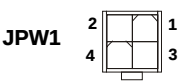




**Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | +3.3V | 13 | +3.3V |
| 2 | +3.3V | 14 | -12V |
| 3 | GND | 15 | GND |
| 4 | +5V | 16 | PS-ON# |
| 5 | GND | 17 | GND |
| 6 | +5V | 18 | GND |
| 7 | GND | 19 | GND |
| 8 | PWR OK | 20 | Res |
| 9 | 5VSB | 21 | +5V |
| 10 | +12V | 22 | +5V |
| 11 | +12V | 23 | +5V |
| 12 | NC | 24 | GND |

## ATX 12V Power Connector: JPW1

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




**JPW1 Pin Definition**

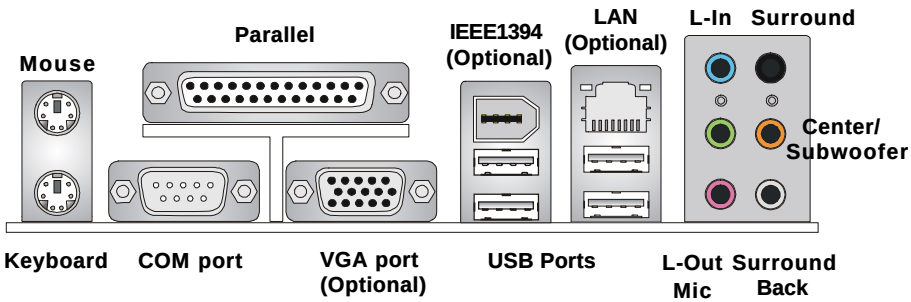
| PIN | SIGNAL |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | 12V |
| 4 | 12V |

**MSI Reminds You...**

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

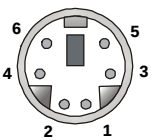
# Back Panel

The back panel provides the following connectors:




## Mouse/Keyboard Connector

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



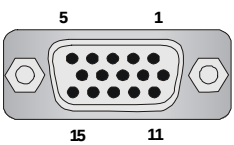

**PS/2 Mouse / Keyboard (6-pin Female)**

**Pin Definition**

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

## VGA Connector (optional)

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

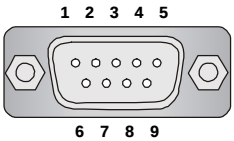



**VGA Connector**
(DB 15-pin)

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

## Serial Port Connector

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



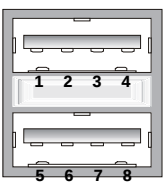

**9-Pin Male DIN Connector**

**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 |

## USB Connectors

The mainboard provides an EHCI Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.



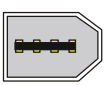

**USB Ports**

**USB Port Description**

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

## IEEE 1394 Port (optional)

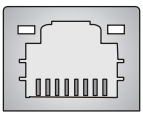
The back panel provides one standard IEEE 1394 port. The standard IEEE 1394 port connects to IEEE 1394 devices without external power. The IEEE 1394 high-speed serial bus complements USB by providing enhanced PC connectivity for a wide range of devices, including consumer electronics audio/video (A/V) appliances, storage peripherals, other PCs, and portable devices.



**1394 Port**

## LAN (RJ-45) Jack (optional)

The mainboard provides 1 standard RJ-45 jack for connection to single Local Area Network (LAN). This Giga-bit LAN enables data to be transferred at 1000, 100 or 10Mbps. You can connect a network cable to it.



**RJ-45 LAN Jack**

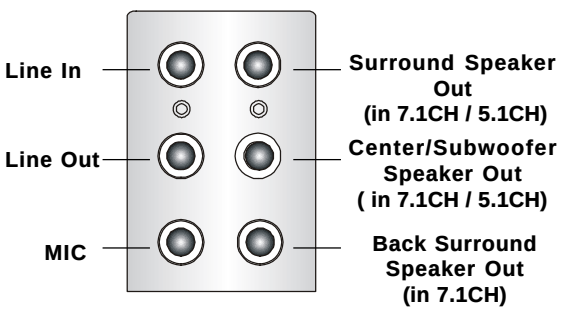
**Giga-bit LAN Pin Definition**

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

## Audio Port Connectors

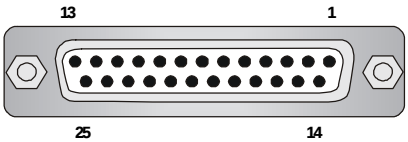
The left 3 audio jacks are for 2-channel mode for stereo speaker output: **Line Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones.

However, there is an advanced audio application provided by Realtek CMI9880L to offer support for **7.1-channel audio operation** and can turn rear audio connectors from 2-channel to 4-/5.1-/7.1- channel audio.



## Parallel Port Connector: LPT1

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




**Pin Definition**

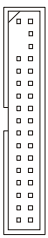
| PIN | SIGNAL | DESCRIPTION |
|---|---|---|
| 1 | STROBE | Strobe |
| 2 | DATA0 | Data0 |
| 3 | DATA1 | Data1 |
| 4 | DATA2 | Data2 |
| 5 | DATA3 | Data3 |
| 6 | DATA4 | Data4 |
| 7 | DATA5 | Data5 |
| 8 | DATA6 | Data6 |
| 9 | DATA7 | Data7 |
| 10 | ACK# | Acknowledge |
| 11 | BUSY | Busy |
| 12 | PE | PaperEnd |
| 13 | SELECT | Select |
| 14 | AUTO FEED# | 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 to FDD, IDE HDD, case, LAN, USB Ports, IR module and CPU/System FAN.

## Floppy Disk Drive Connector: FDD1

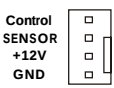
The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



FDD1

## Fan Power Connectors: CPU_FAN1 CPU_FAN2/SYS_FAN1

The CPU_FAN1 CPU_FAN2 (processor fan) and SYS_FAN1 (system fan1) support system cooling fan with +12V. It supports four/three-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.




CPU_FAN1
CPU_FAN2

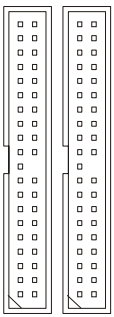

SYSFAN1

**MSI Reminds You...**

*1. Always consult the vendors for proper CPU cooling fan.*
*2. CPUFAN2 supports the fan control. Fan/heatsink with 3 or 4 fins are both available. Meanwhile, you can install **Core Center** utility (refer to Chapter 4 for details) that will automatically control the CPU fan speed according to the actual CPU temperature.*
*3. Please refer to the recommended CPU fans at Intel® official website.*

## Hard Disk Connectors: IDE1 & IDE2 (optional)

The mainboard has 2 IDE ports and support the following function in the list.



**IDE2 IDE1**
**(optional)**

**IDE1/2 Definition**

| IDE | VDMA | Controller | RAID | ATAPI |
|---|---|---|---|---|
| 1 | 66/100 | Intel ICH6 | N/A | Yes |
| 2 | 66/100/133 | VIA VT6410 | 0/1 | Yes |

**IDE1** (Primary IDE Connector)

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

**IDE2** (Secondary IDE Connector)(optional)

IDE2 can also connect a Master and a Slave drive.

The default setting of IDE2 is standard IDE. RAID function can be enabled by BIOS setting.

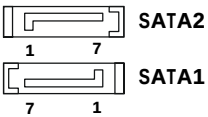
**MSI Reminds You...**

*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.*

*If you want to use RAID function, please make a RAID driver from Driver CD-ROM before installing OS.*

## Serial ATA HDD Connectors: SATA1 & SATA2

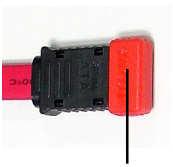
The mainboard provides dual high-speed Serial ATA interface ports. The ports support 1st generation Serial ATA data rates of 150MB/s and are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk drive.




**SATA1/SATA2 Pin Definition**

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

**Serial ATA cable**



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

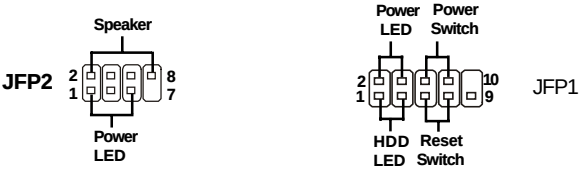
Connect to serial ATA ports

**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**

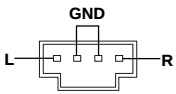
| PIN | SIGNAL | DESCRIPTION |
|---|---|---|
| 1 | HD_LED_P | Hard disk LED pull-up |
| 2 | FP PWR/SLP | MSG LED pull-up |
| 3 | HD_LED_N | Hard disk active LED |
| 4 | FP PWR/SLP | MSG LED pull-up |
| 5 | RST_SW_N | Reset Switch low reference pull-down to GND |
| 6 | PWR_SW_P | Power Switch high reference 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+ |

## CD-In Connector: JCD1

The connector is for CD-ROM audio connector.




JCD1

## Front Panel Audio Connector: JAUD1

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

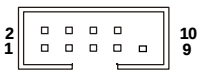

**JAUD1**

**JAUD2 Pin Definition**

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

## Serial Port Connector: JCOM2

The mainboard offers one serial port JCOM2. It is 16550A high speed communication ports that senda/receivea/ 16 bytes FIFOs. You can attach a serial mouse or other serial device directly to it.




**JCOM2**

**Pin Definition**

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

## Front USB Connectors: JUSB1 & JUSB2

The mainboard provides two standard USB 2.0 pin headers *JUSB1 & JUSB2* . USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.


**JUSB1, JUSB2**
**(USB 2.0)**

**JUSB1 & JUSB2 Pin Definition**

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

**USB 2.0 Bracket**

Connected to JUSB1
or JUSB2

## SPDIF Connector: JSPD1

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


**JSPD1 Pin Definition**

| PIN | SIGNAL |
|---|---|
| 1 | VCCS |
| 2 | SPDIF0 |
| 3 | GND |

Connected to JSPD1

The JSPD1 supports SPDIF output only and can be connected to an external SPDIF Bracket for digital audio transmission.

**SPDIF Bracket (Optional)**

## IEEE 1394 Connectors: JFW1 (optional)

The mainboard provides one 1394 pin headers that allow you to connect IEEE 1394 ports via an external IEEE1394 bracket.


**JFW1**

**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 |

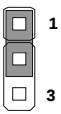
# Jumpers

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

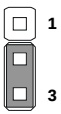
## Clear CMOS Jumper: JBAT1

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


JBAT1




Keep Data




Clear Data

**MSI Reminds You...**

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

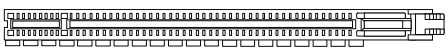
# Slots

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

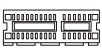
## PCI Express Slots

The PCI Express slots, as a high-bandwidth, low pin count, serial, interconnect technology, support Intel highest performance desktop platforms utilizing the Intel Pentium 4 processor with HT Technology with these platform benefits. You can insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first.

PCI Express architecture provides a high performance I/O infrastructure for Desktop Platforms with transfer rates starting at 2.5 Giga transfers per second over a PCI Express x1 lane for Gigabit Ethernet, TV Tuners, 1394 controllers, and general purpose I/O. Also, desktop platforms with PCI Express Architecture will be designed to deliver highest performance in video, graphics, multimedia and other sophisticated applications. Moreover, PCI Express architecture provides a high performance graphics (PDF, 166Kb) infrastructure for Desktop Platforms doubling the capability of existing AGP8x designs with transfer rates of 4.0 GB/s over a PCI Express x16 lane for graphics controllers, while PCI Express x1 supports transfer rate of 250 MB/s.



**PCI Express x16 slot**



**PCI Express x1 slot**

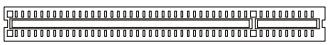
**MSI Reminds You...**

*1. The PCI Express x16 slot also supports ADD2 interface card when it is presented on PCI Express x16 slot.*

*2. PCI Express x16 is not available with 915GV/910GL. But the slot will be available for ADD2 interface card with 915G/915GV/910GL.*

## PCI (Peripheral Component Interconnect) Slots

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



**PCI Slots**

## PCI Interrupt Request Routing

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

| | Order 1 | Order 2 | Order 3 | Order 4 |
|---|---|---|---|---|
| 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 the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

**MSI Reminds You...**

*1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*

*2. While booting up, the BIOS version is shown in the 1st line appearing after the memory counting. It is usually in the format:*
*example: W7030MS V1.1 040104*

*where:*

*1st digit refers to BIOS maker as A=AMI(R); W=AWARD(R)*
*2nd - 5th digit refers to the model number.*
*6th - 7th digit refers to the customer, MS=all standard customers.*
*V2.0 refers to the BIOS version.*
*040104 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 <DEL> key to enter Setup.

Press DEL to enter SETUP

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

**Control Keys**

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

### Getting Help

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

### Main Menu

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

### Sub-Menu

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


### General Help <F1>

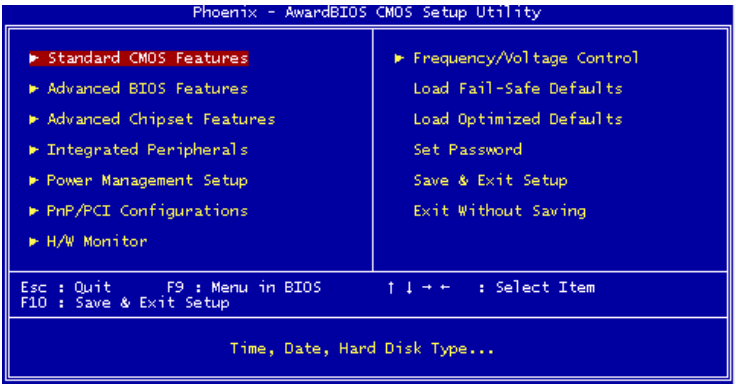
The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

**MSI Reminds You...**

*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.*

# The Main Menu

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




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

**Advanced BIOS Features**
Use this menu to setup the items of 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 information of your CPU, fan and overall system status.

**Frequency/Voltage Control**
Use this menu to specify your settings for frequency/voltage control.

**Load Fail-Safe Defaults**
Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

**Load Optimized Defaults**
Use this menu to load factory default settings into the BIOS for stable system performance operations.

**Set Supervisor Password**
Use this menu to set Supervisor Password.

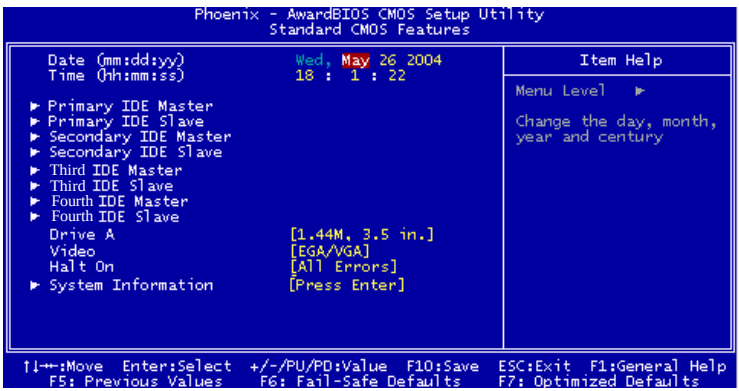
**Set User Password**
Use this menu to set User Password.

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

**Exit Without Saving**
Abandon all changes and exit setup.

# Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 11 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.




**Date**
The date 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**
The time format is <hour> <minute> <second>.

**IDE Primary/Secondary/Third/Fourth 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. |

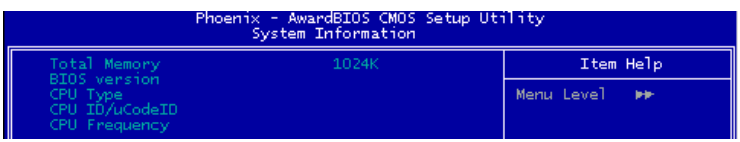
**Drive A**
This item allows you to set the type of floppy drive installed. Setting options: [None], [360K, 5.25 in.], [1.2M, 5.25 in.], [720K, 3.5 in.], [1.44M, 3.5 in.], [2.88M, 3.5 in.]

**Video**
The setting controls the type of video adapter used for the primary monitor of the system. Setting options: [EGA/VGA], [CGA 40], [CGA 80], [MONO].

**Halt On**
The setting determines whether the system will stop if an error is detected at boot. Setting 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. |

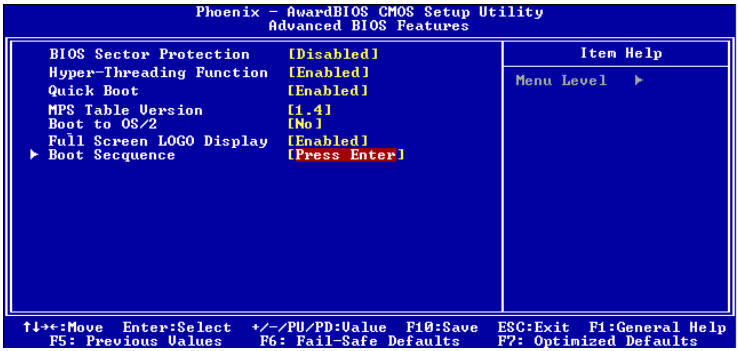
**System Information**
Press <Enter> to for the sub-menu of each item:




**Total Memory/BIOS Version**
This item shows the memory status and BIOS version of your system (read only).

****CPU Information****
**CPU Type/CPU ID/uCode ID/CPU Frequency**
The four items show the CPU related information of your system (read only).

# Advanced BIOS Features




**BIOS Sector Protection**

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

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

**Hyper-Threading Technology**

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Settings: [Enabled], [Disabled].

**MSI Reminds You...**

*Enabling the functionality of Hyper-Threading Technology for your computer system requires ALL of the following platform Components:*

* ***CPU:*** *An Intel® Pentium® 4 Processor with HT Technology;*
* ***Chipset:*** *An Intel® Chipset that supports HT Technology;*
* ***BIOS:*** *A BIOS that supports HT Technology and has it enabled;*
* ***OS:*** *An operating system that supports HT Technology.*

*For more information on Hyper-threading Technology, go to: www.intel.com/info/hyperthreading*

**Quick Boot**

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

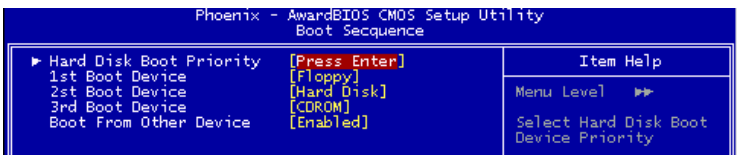
**MPS Table Version**
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Setting options: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

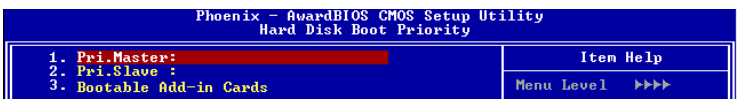
**Full Screen LOGO Display**
This item enables you to show the company logo on the bootup screen. Settings are:

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

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




**Hard Disk Boot Priority**
Press <Enter> and the following sub-menu appears.



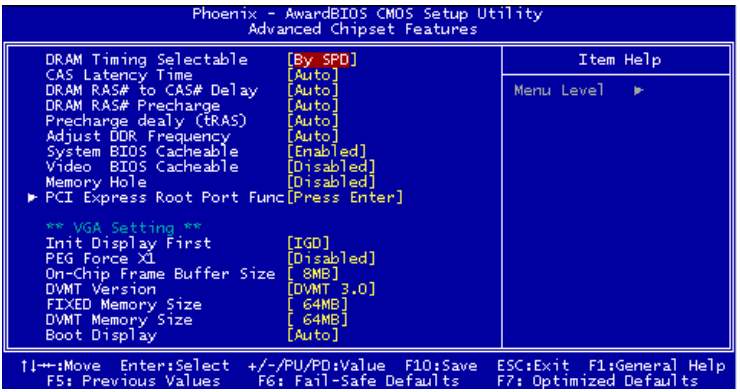

**Pri.Master/Slave, Bootable Add-in Cards**
You can see a list of the current status of Pri.Master/Slave, (Sec,Master/Slave, USBHDD0/1/2), Bootabls Add-in Cards.

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


**MSI Reminds You...**
*Available settings for "**1st/2nd/3rd Boot Device**" vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting "Floppy" will not show up.*

**Boot From Other Devices**
Setting the option to [Yes] allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device. Settings are: [Yes], [No].

# Advanced Chipset Features




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

**DRAM Timing Selectable**
Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto By SPD] enables DRAM timings and the following related items to be determined by BIOS based on the configurations on the SPD. Selecting [Manual] lets users configure the DRAM timings and the following related items manually. Setting options: [Manual], [Auto By SPD], [Turbo], [Ultra].

**CAS Latency Time**
When the ***DRAM Timing Control*** is set to [Manual], this field is adjustable. The field controls the CAS latency, which determines the timing delay before SDRAM starts a read command after receiving it. Setting options: [2T], [2.5T], [3T]. [2T] increases system performance while [3T] provides more stable system performance.

**DRAM RAS# to CAS# Delay (tRCD)**
When the ***DRAM Timing Control*** is set to [Manual], this 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: [2T] to [5T].

**DRAM RAS# Precharge (tRP)**

When the ***DRAM Timing Control*** is set to [Manual], this field is adjustable. This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, 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: [2T] to [5T].

**Precharge dealy (tRAS)**

When the ***DRAM Timing Control*** is set to [Manual], this field is adjustable. This setting determines the time RAS takes to read from and write to a memory cell. Setting options: [4T] to [9T].

**Adjust DDR Memory Frequency**

Whenthe ***DRAM Timing Control*** is set to [Manual], user can place an artificial memory clock limit on the system. Please note that memory is prevented from running faster than this frequency. Setting options: [Auto], [333 MHz], [400 MHz], [533 MHz].

**System BIOS Cacheable**

Selecting [Enabled] allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Setting options: [Enabled], [Disabled].

**Video BIOS Cacheable**

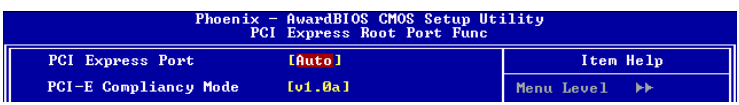
Selecting [Enabled] allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result. Setting options: [Disabled], [Enabled].

**Memory Hole**

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

**PCI Express Port Func**

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



**PCI Express Port**
You can set PCI Express port. Setting options: [Disabled], [Enabled], [Auto].

**PCI-E Compliancy Mode**
It allows you select the PCI-E compliant mode. Setting options: [v1.0], [v1.0a].

**** VGA Setting ** (Not for 915P)**

**Init Display First**
This item specifies which VGA card is your primary graphics adapter. Setting options: [IGD], [PEG].

**PEG Force X1**
This item enables or disables the PEG (PCI Express Graphic) port function. Setting options: [Enabled], [Disabled].

**On-Chip Frame Buffer Size**
Frame Buffer is the video memory that stores data for video display (frame). This field is used to determine the memory size for Frame Buffer. Larger frame buffer size increases video performance. Settings: [1MB], [4MB], [8MB], [16MB], [32MB].

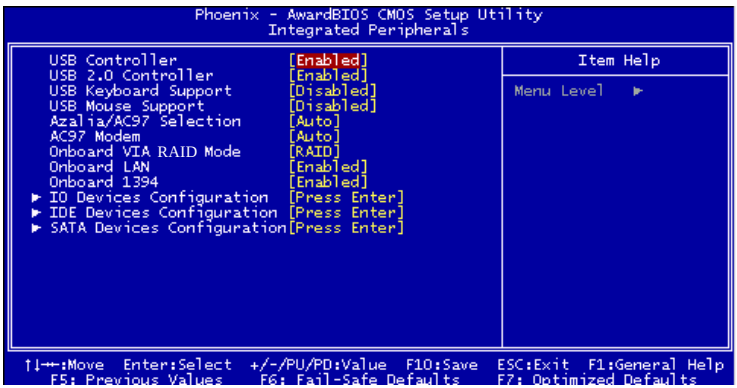
**DVMT Version**
It shows the current DVMT version.

**FIXED Memory Size**
Specify the size of system memory to allocate for video memory, Settings: [64MB], [128MB].

**DVMT Memory Size**
Specify the size of DVMT memory to allocate for video memory, Settings: [64MB], [128MB].

**Boot Display**
Use the field to select the type of device you want to use as the display(s) of the system. Setting options: [Auto], [CRT], [TV], [EFP]. The option [EFP] refers to the LCD display.

# Integrated Peripherals




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

**USB 2.0 Controller**
This item is used to [Enabled] / [Disabled] the USB 2.0 Support. Setting options: [Enabled], [Disabled].

**USB Keyboard/Mouse Support**
Set to [Enabled] if you need to use a USB keyboard/mouse in the operating system that does not support or does not have any USB driver installed, such as DOS and SCO Unix.

**Azalia/AC97 Audio**
[Auto] allows the mainboard to detect whether an audio device is used. If an audio device is detected, the onboard Azalia/AC97 (Audio Codec'97) controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect an audio device. Setting options: [Auto], [Disabled].

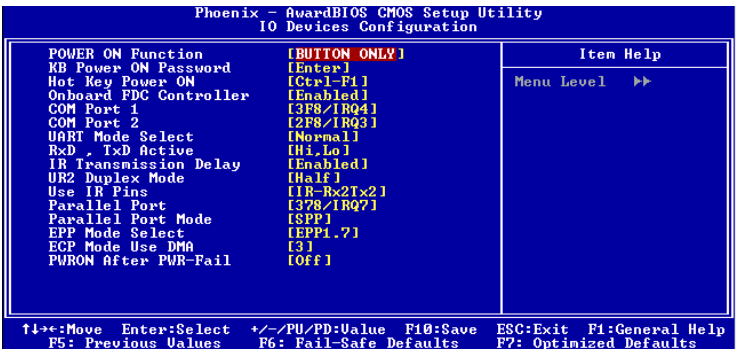
**AC'97 Modem**
[Auto] allows the mainboard to detect whether a modem is used. If a modem is used, the onboard MC'97 (Modem Codec'97) controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect to a modem. Settings: [Auto], [Disabled].

**Onboard VIA RAID Mode**
This allows you to enable onboard IDE or RAID controller. The field is optional. It appears only when your mainboard supports IDE or RAID function. Setting options: [IDE], [RAID].

**Onboard LAN**
The item enables or disables the onboard LAN controller. Setting options: [Enabled], [Disabled].

**OnBoard 1394 (optional)**
This setting is used to enable/disable the onboard IEEE 1394 controller. Setting options: [Enabled], [Disabled].

**IO Devices Configuration**
Press <Enter> and the following sub-menu appears:




**POWER ON Function**
This controls how the PS/2 mouse or keyboard can power on the system. Settings: [Password], [Hot KEY], [Mouse Left], [Mouse Left], [Mouse Right], [any KEY], [BUTTON ONLY], [Keyboard 98].

**KB Power ON Password**
If POWER ON Function is set to *Password*, then you can set a password in the field for the PS/2 keyboard to power on the system.

**Hot Key Power ON**
If ***POWER ON Function*** is set to [Hot KEY], you can assign a hot key combination in the field for the PS/2 keyboard to power on the system. Settings: [Ctrl-F1] through [Ctrl-F12].

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

**Onboard COM Port 1/COM Port 2**
This item specifies the base I/O port address and IRQ for the onboard Serial Port 1 (LPT1B)/Serial Port 2 (JCOM1). Selecting [Auto] allows BIOS to automatically determine the correct base I/O port address. Setting options: [Disabled], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3], [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**
In an infrared port mode, this field appears. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. Select the value required by the IR device connected to the IR port. Setting options: [Full], [Half].

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

**Parallel Port**
This specifies the I/O port address and IRQ of the onboard parallel port. Setting options: [378/IRQ7], [278/IRQ5], [3BC/IRQ7], [Disabled].

**Parallel Port Mode**
This item selects the operating mode for the parallel port: [Normal], [SPP], [EPP], [ECP], or [ECP+EPP].

| | |
|---|---|
| [SPP] | Standard Parallel Port |
| [EPP] | Enhanced Parallel Port |
| [ECP] | Extended Capability Port |
| [ECP+EPP] | Extended Capability Port + Enhanced Parallel Port |
| [Normal] | Standard Parallel Port + Bi-Directional Mode. |

**EPP Mode Select**
This item selects the EPP mode. Setting options: [EPP1.9], [EPP1.7].

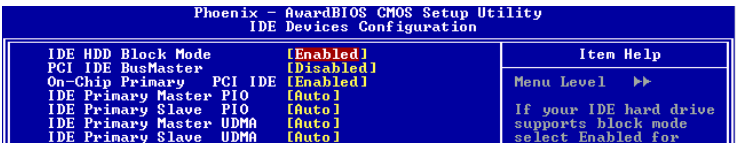
**ECP Mode Use DMA**
The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA." At this time, the user can choose between DMA channel [3] or [1].

**PWRON After PWR-fail**
This item specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

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

## IDE Devices Configuration

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




**IDE HDD Block Mode**
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select [Enabled] for automatic detection of the optimal number of block read/ writes per sector the drive can support. Settings: [Enabled], [Disabled].

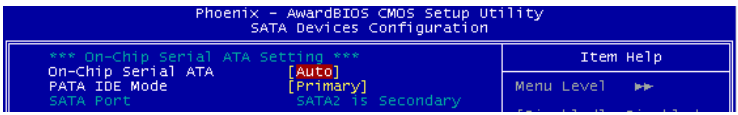
**PCI IDE BusMaster**
Set this option to [Enabled] to specify that the IDE controller on the PCI local bus has bus mastering capability. Settings options: [Disabled], [Enabled].

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

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

**IDE Primary Master/Slave Ultra DMA**
Ultra DMA 33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows ME, XP or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, Ultra DMA/66, Ultra DMA/100 and Ultra DMA/133, select [Auto] to enable BIOS support. Setting options: [Auto], [Disabled].

**SATA Devices Configuration**
Press <Enter> and the following sub-menu appears:



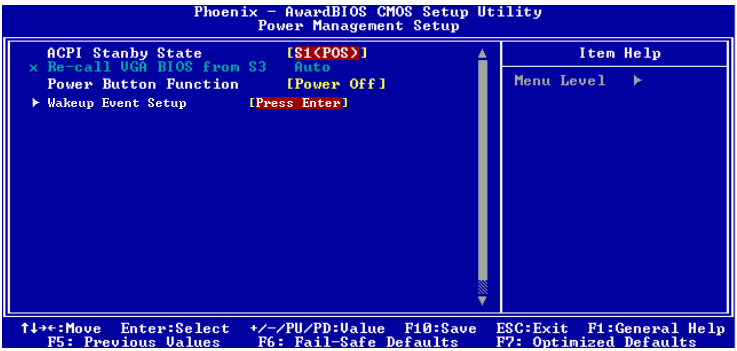

**On-Chip Serial ATA**
This setting is used to specify the SATA controller. The settings are:

| | |
|---|---|
| [Disabled] | Disable the SATA controller. |
| [Auto] | PATA and SATA will be arranged by BIOS, and you will be able to see the IDE Device status listed in **Standard COMS Features**. |
| [Combined] | PATA and SATA will be combined. Max. of 2 IDE drives in each channel are available. |
| [Enhanced] | PATA and SATA will both be enabled. Max. of 6 IDE drives are supported. |
| [SATA only] | Only SATA is operating in legacy mode. |

**PATA IDE Mode**
This item is available for you to select the parallel ATA channel. Setting options: [Primary], [Secondary].

**SATA Port**
This allows you to set the boot sequence of serial ATA port.

# Power Management Setup




**ACPI Standby State**

This item specifies the power saving modes for ACPI function. 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.

**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].

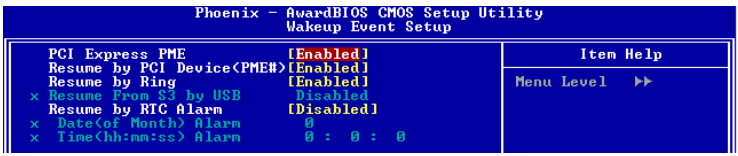
**Power Button Function**

This feature allows users to configure the Power Button function. Setting options:

[Power Off] The power button functions as a normal power-on/-off button.

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

**Wake Up Event Setup**
Press <Enter> and the following sub-menu appears:




**PCI Express PME**
You can enable/disable PCI Express PME function. Setting options: [Enabled], [Disabled].

**Resume by PCI Device (PME#)**
This controls how and whether the system can be powered on by the devices installed on PCI slots. Setting options: [Disabled], [Enabled].

**Resume by Ring**
This field specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected. Setting options: [Enabled], [Disabled].

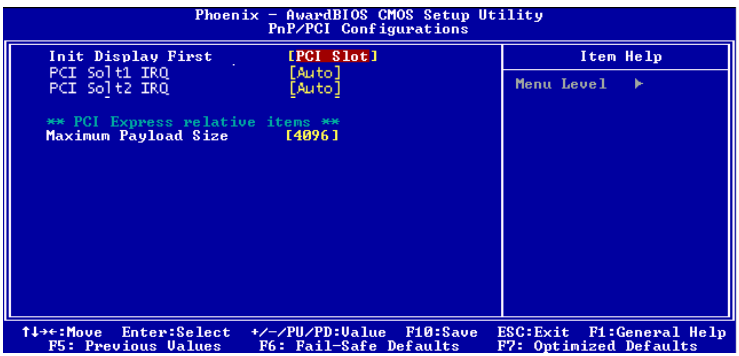
**Resume By Alarm**
The field is used to enable or disable the function of Resume By Alarm. Setting options: [Disabled], [Enabled].

**Date of Month Alarm**
When Resume By Alarm is set to Enabled, the field specifies the date for ***Resume By Alarm***. Setting options: [0]~[31].

**Time (hh:mm:ss) Alarm**
When Resume By Alarm is set to Enabled, the field specifies the time for ***Resume By Alarm***. Format is <hour><minute><second>.

# PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Peripheral Component Interconnect, 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.



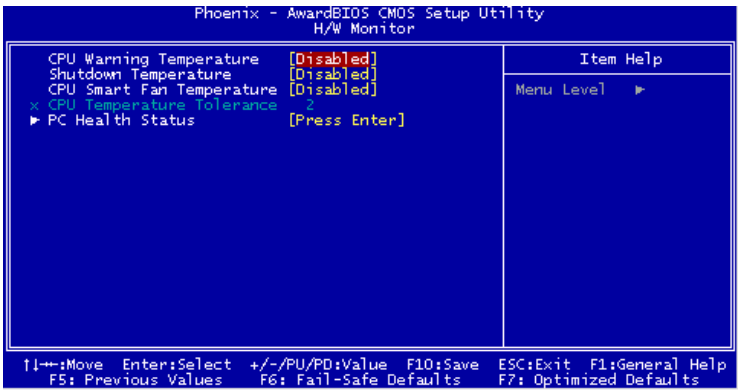

**Init Display First**
This item specifies which VGA card is your primary graphics adapter. Setting options: [PCI Slot], [PCI Ex].

**PCI Slot1/2 IRQ**
These items specify the IRQ line for each PCI slot. Setting options: [3], [4], [5], [7], [9], [10], [11], [12], [14], [15], [Auto]. Selecting [Auto] allows BIOS to automatically determine the IRQ line for each PCI slot.

**** PCI Express relative items ****
**Maximum Payload size**
It allows you to set the maximum TLP payload size for the PCI Express devices. Setting options: [128 bytes], [256 bytes], [512 bytes], [1024 bytes], [2048 bytes], [4096 bytes].

# 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.



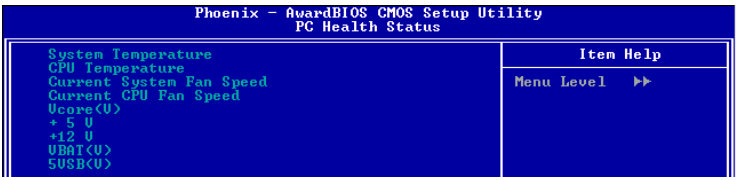

**CPU Warning Temperature**
This item is used to specify a thermal limit for CPU. If CPU temperature reaches the specified limit, the system will issue a warning and allows you to prevent the CPU overheating problem. Settings: [Disabled], [50°C/122°F], [53°C /127°F], [56°C /133°F], [60°C /140°F], [63°C /145°F], [66°C /151°F] and [70°C /158°F].

**Shutdown Temperature**
If the CPU temperature reaches the limit preset in this setting, the system will shotdown automatically.

**CPU Smart Fan Target Temp. (ºC)**
W83697HF 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: Min: [0](ºC), Max: [100](ºC).

**CPU Temperature Tolerance**
You can select a fan tolerance value here for the specific range for the “CPU Smart Fan Target Temp. (ºC)” item. If the current temperature of the fan reaches to the maximum threshold (the temperature set in the “CPU Smart Fan Target Temp.(ºC)” 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 temperature minus the tolerance value), the fan will slow down to keep the temperature stable. Setting options: Min: [0](ºC), Max: [15](ºC).

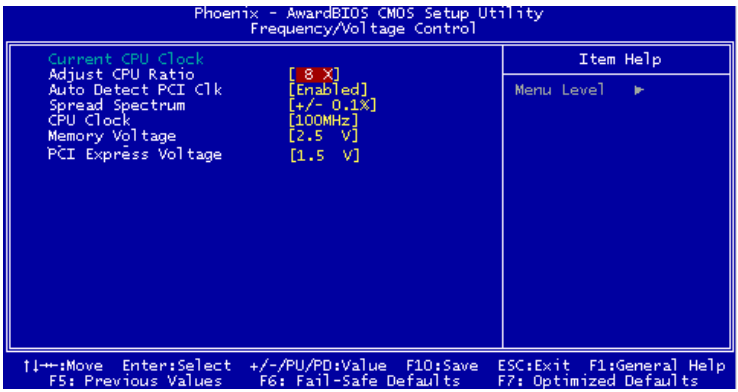
**PC Health Status**
Press <Enter> and the following sub-menu appears.




**CPU/System Temperature, CPU/System/Power FAN Speed, Vcore, +5.0V, +12.0V, VBAT (V), +5VSB**
These items display the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and all fans' speeds.

# Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.




**Current CPU Clock**
It shows the current clock frequency of CPU. (Read-only)

**Adjust CPU Ratio**
End users can overclock the processor (only if the processor supports so) by specifying the CPU ratio (clock multiplier) in this field. Setting options: Min: [8], Max: [50].

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

**Spread Spectrum**
When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, set to [Enabled] for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up. Setting options: [Enabled], [Disabled].

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

**PCI Express Voltage**
PCI Express voltages are adjustable in the field, allowing you to increase the performance of your AGP/PCI Express display card when overclocking, but the stability may be affected.

# Load Fail-Safe/Optimized Defaults

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

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


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

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


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

# Set Supervisor/User 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.

Additionally, when a password is enabled, you can also have BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required in the ***Security Option*** of the Advanced BIOS Feature menu. If the ***Security Option*** is set to [System], the password is required both at boot and at entry to Setup. If set to [Setup], password prompt only occurs when you try to enter Setup.

**MSI Reminds You...**

***About Supervisor Password & User Password:***

| | |
|---|---|
| *Supervisor password:* | *Can enter and change the settings of the setup menu.* |
| *User password:* | *Can only enter but do not have the right to change the settings of the setup menu.* |

# Introduction to VIA VT6410 IDE RAID

The VIA IDE RAID solution uses the VT6410 chip (a one-channel ATA 133 solution) as a RAID controller. The RAID software is a Windows-based software utility. Its graphical user interface provides an easy way to configure and manage disk drives or disk arrays connected to the VT6410 controller. Listed below are the main features and benefits of VIA IDE RAID:

1. Supports ATA 133 high performance hard disk drive.
2. Supports hard disk drive larger than 137 GB (48-bits LBA).
3. An ATA channels and maximum connection of two hard disk drives allowed.
4. Supports Ultra DMA mode 6/5/4/3/2/1/0, DMA mode 2/1/0, and PIO mode 4/3/2/1/0.
5. Supports PCI Plug and Play. PCI interrupt sharing and coexists with mainboard IDE controller.
6. Supports IDE bus master operation.
7. Supports RAID 0, 1 and JBOD.
8. 4 KB to 64 KB striping block size support.
9. Bootable disk or disk array support.
10. Windows-based RAID configuration and management software tool. (Compatible with BIOS)
11. Real-time monitoring of device status and error alarm with popup message box and beeping.
12. Supports hot-swap failed disk drive in RAID 1.
13. Mirroring automatic background rebuilds support.
14. ATA SMART function support.
15. Event log for easy troubleshooting.
16. On-line help for easy operation for RAID software.

# Introduction

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

**Note: RAID option supports only one IDE channel with RAID 0/1 configuration.**

## 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 VT6410 SATA RAID Host Controller supports are RAID 0, RAID 1 & JBOD. The table below briefly introduce these RAID levels.

| RAID Level | No. of Drives | Capacity | Benefits |
|---|---|---|---|
| RAID 0 (Striping) | 2 | Number drives * Smallest size | Highest performance without data protection |
| RAID 1 (Mirroring) | 2 | Smallest size | Data protection |
| JBOD (Spanning) | 2 | Sum of all drives | No data protection and performance improvement, but disk capacity is fully used. |

## 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.

## JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

# BIOS Configuration

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

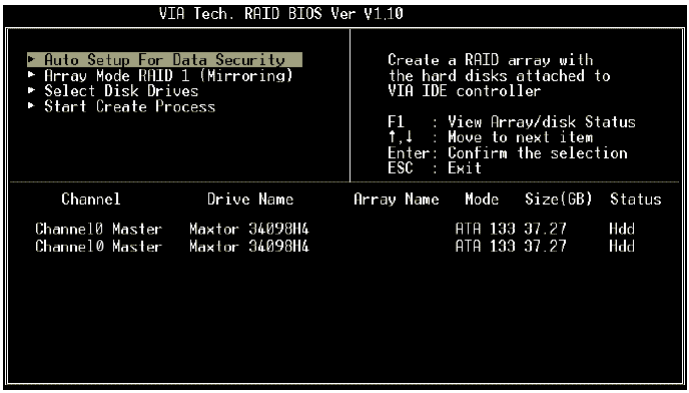

The VIA IDE RAID volume may be configured using the VIA Tech. RAID BIOS. Always use the arrow keys to navigate the main menu, use up and down arrow key to select the each item and press <Enter> to call out the list of creation steps. The main interface of BIOS configuration utility is as below:

**MSI Reminds You...**

1. *The default setting of VIA IDE is standard IDE. It requires user to change BIOS setting to support RAID function.*
2. *This RAID option supports only one channel.*

## Create Disk Array

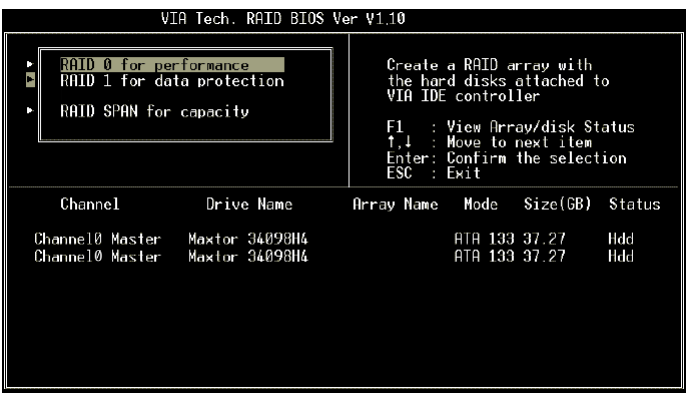
Use the up and down arrow keys to select the **Create Array** command and press <Enter>.



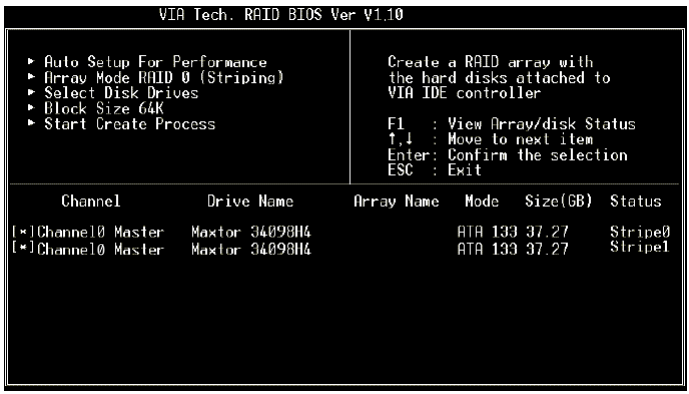

**MSI Reminds You...**

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

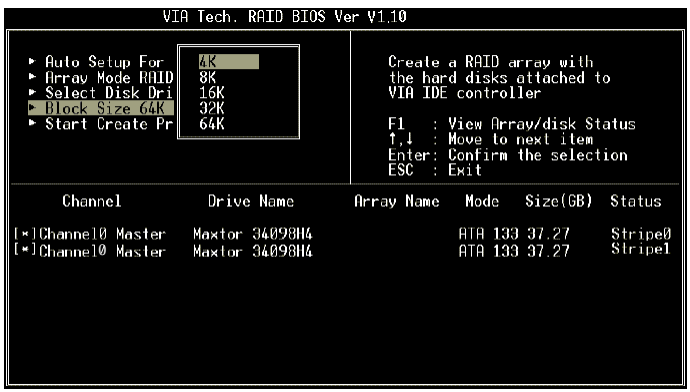
Select **Array Mode** and press <Enter>, a list of array modes will appear. Highlight the target array mode that you want to create, and press <Enter> to confirm the selection. If RAID 1 is selected, an option list will popup and enable the users to select **Create only** or **Create and duplicate**. **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.



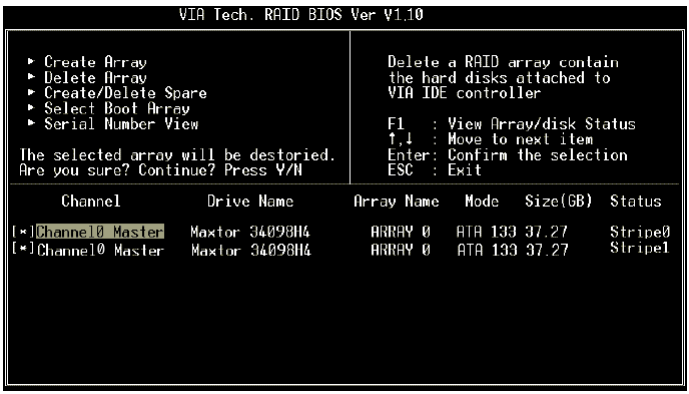
**MSI Reminds You...**
*Even though 64KB is the recommended setting for most users, you should choose the block size value which is best suited to your specific RAID usage model.*
***4KB**: For specialized usage models requiring 4KB blocks*
***8KB**: For specialized usage models requiring 8KB blocks*
***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.

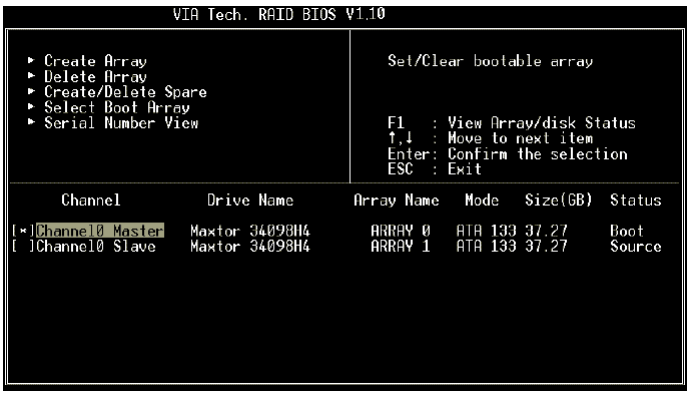
## Create and Delete Spare Hard Drive

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.

## Select Boot Array

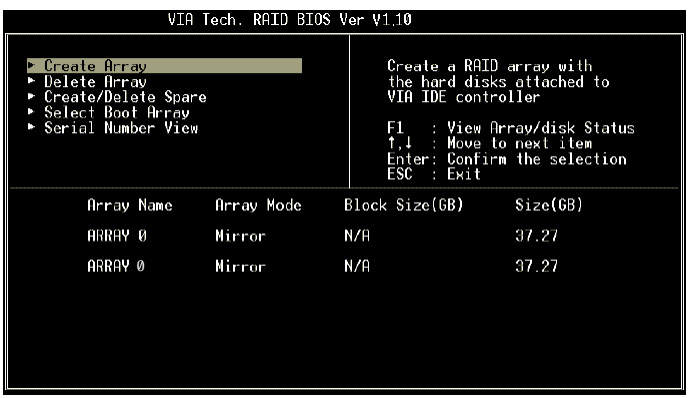
User can select a disk array as boot device if user wants to boot operating system from an array. Boot disk array cannot be selected if the operating system does not boot from the disk array. Highlight the **Select Boot Array** item; press <Enter> and the channel column will be activated. Then highlight the target disk array and press <Enter>. If user selects a disk array that has a boot mark and press <Enter>, its boot setting will be canceled.




## View Serial Number of Hard Drive

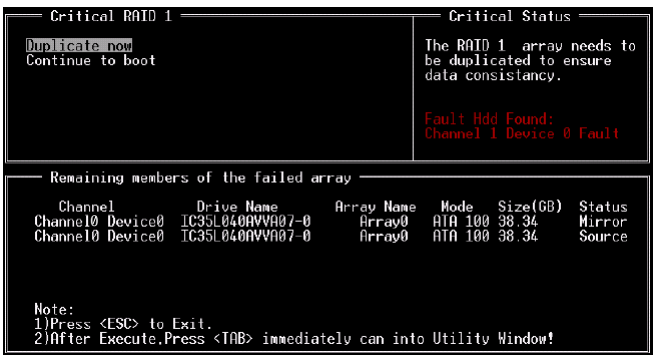
Highlight **Serial Number View** and press <Enter>. Use arrow key to select a drive, the selected drive's serial number can be viewed in the last column. The serial number is assigned by the disk drive manufacturer.

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.



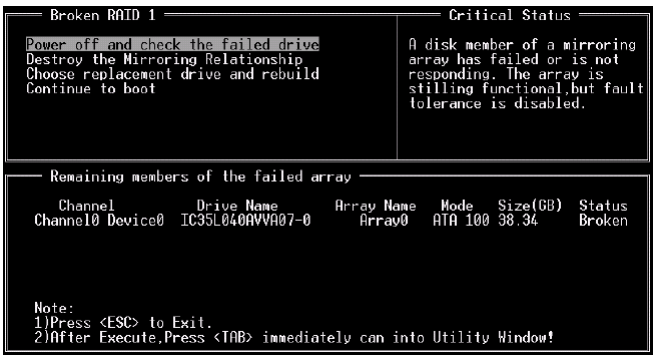

If user selects **Continue to boot,** it will enable duplicating the array after booting into OS.

## Rebuild Broken RAID 0 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 main interface. **Continue to boot** will enable duplicating the array after booting into operating system.

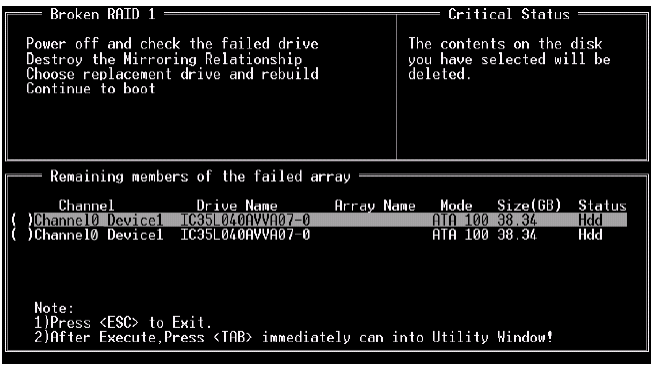
If BIOS detects a broken RAID 1 array but there is no spare hard drive available for rebuilding the array, BIOS will provide several operations to solve such problem.




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 Software

## Install Driver in Windows XP/2000

***Before installing the OS, please copy MS-7033 VT6410 floppy driver path (in your MSI Driver/Utility CD of the package) \IDE\VIA\Floppy\driver to your floppy. Then your floppy will include \PIDE\ and \RAID\ folders and TXTSETUP.OEM files.***

➤ **New Windows XP/2000 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 ***Intel ICH6/VIA VT6410 Disk Driver*** into drive A: and press <Enter>.
4. Depending on your operation system, choose the driver ***VIA RAID Controller (Windows XP), VIA RAID Controller (Windows 2000)*** which matches to your OS.
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/2000 Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP installation

➤ **Existing Windows XP/2000 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 IDE RAID Drivers***.
4. The drivers will be automatically installed.

➤ **Confirming Windows XP/2000 Driver Installation**

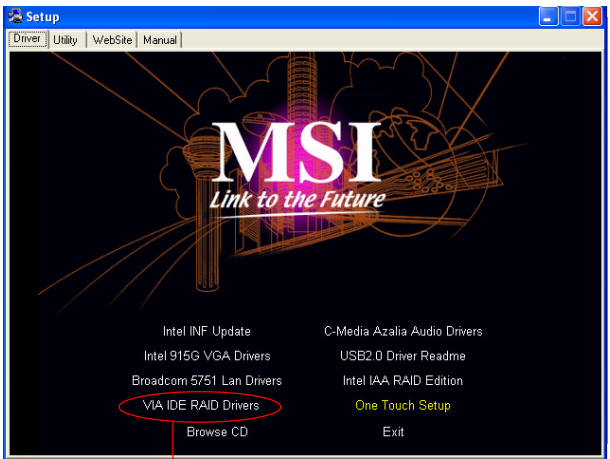
1. From Windows XP/2000, open the **Control Panel** from **My Computer** followed by the System icon.
2. Choose the **Hardware** tab, then click the **Device Manager** tab.
3. Click the "**+**" in front of the **SCSI and RAID Controllers** hardware type. The driver ***VIA VT6410 RAID Controller*** should appear.

## Installation of VIA IDE RAID Utility

The VIA IDE RAID Utility is the software package that enables high-performance in the Windows XP/2000 operating system. This version of VIA IDE RAID Utility contains the following key features:

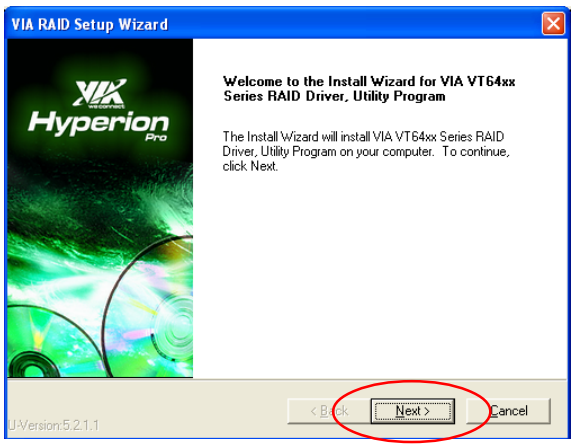
- IDE RAID driver
- VIA IDE RAID utility
- RAID0, RAID1 & functions

Insert the MSI CD and click on the **VIA IDE RAID Utility** to install the software.

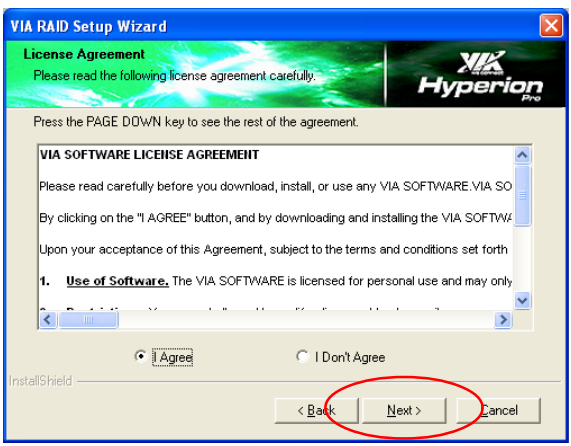



**Click on this item**

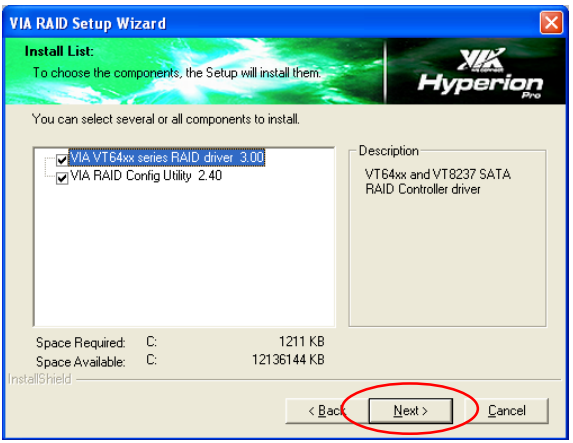
The **InstallShield Wizard** will begin automatically for installation. Click on the **Next** button to proceed the installation in the welcoming window.



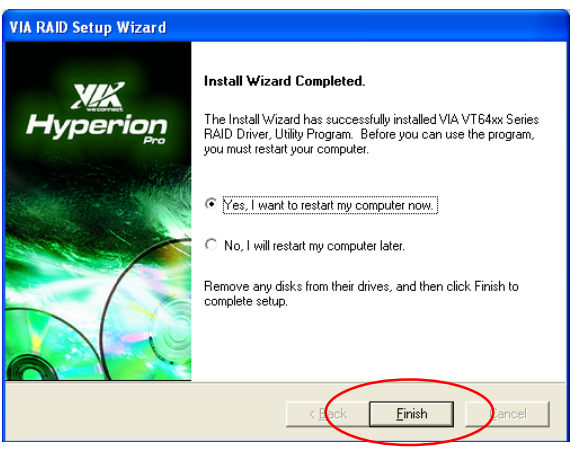

Select **I Agree** to accept the VIA Software License Agreement, and click on the **Next** button to continue.



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

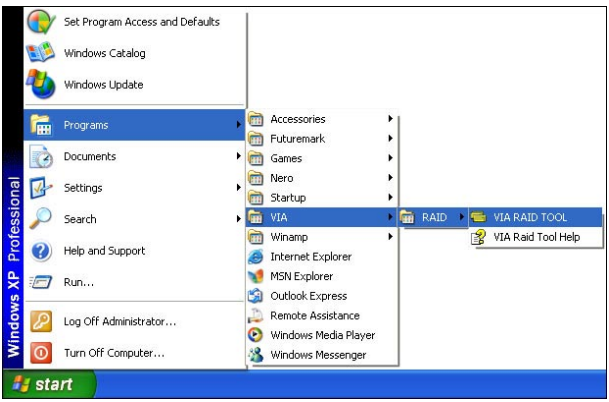



Remember to restart your computer before using this newly installed program.

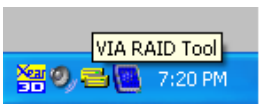


# Using VIA RAID Tool

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




After the software has finished installation, it will automatically start 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 window pane displays the controller and disk drives. The right window pane displays the details of the controller or disk drives. In this model, the available features are as following:

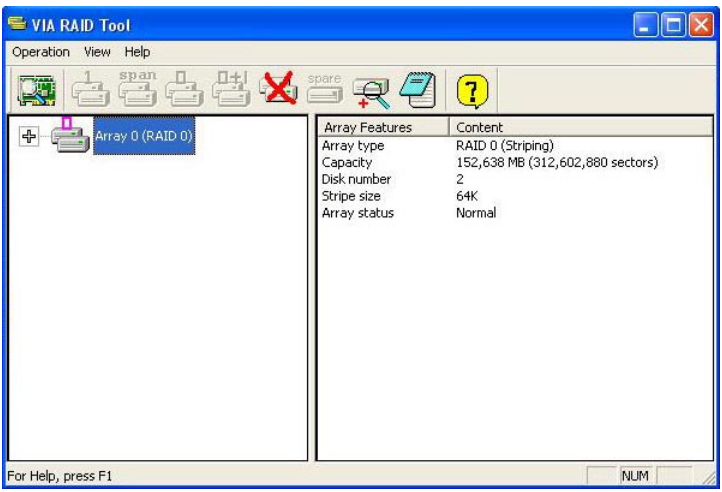

View by Controllers


Check All Disks

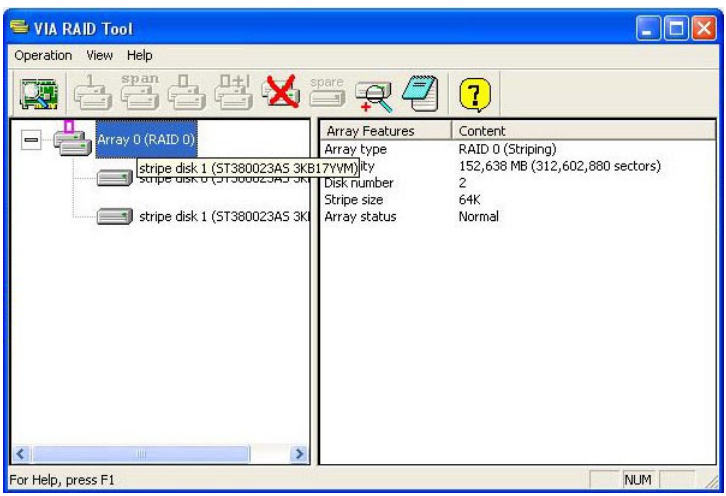

View Event log


Help Topics

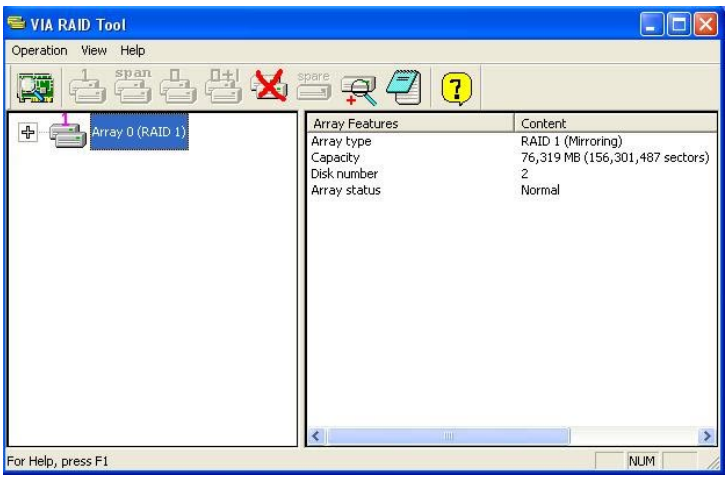
Click on  or  button to determine the viewing type of left window pane. There are two viewing types: By controllers and by device. Click on the object in the left window pane to display the status of the object in the right window pane. The following screen shows the status of Array 0---RAID 0.



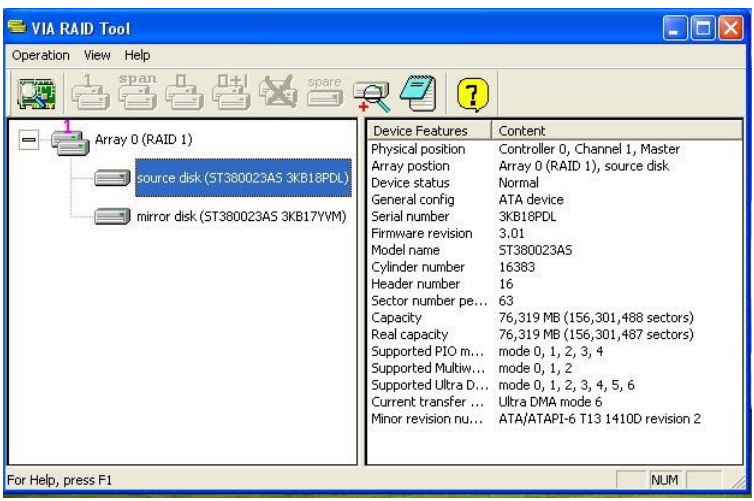

Click on the plus (+) symbol next to Array 0---RAID 0 to see the details of each disk.

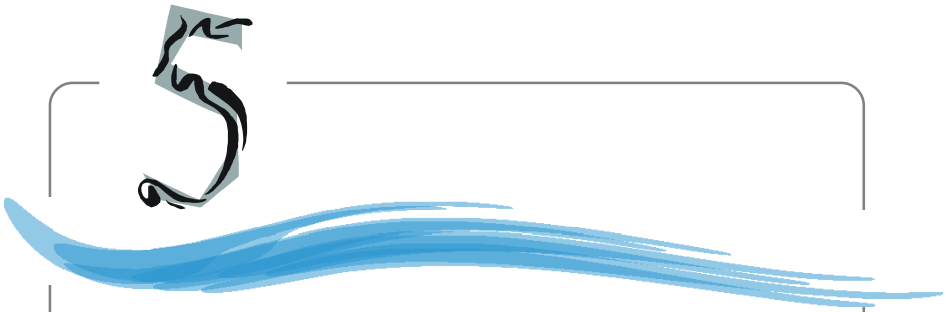


You may also use the same  or  button to view the statuses of Array 0---RAID 1.




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





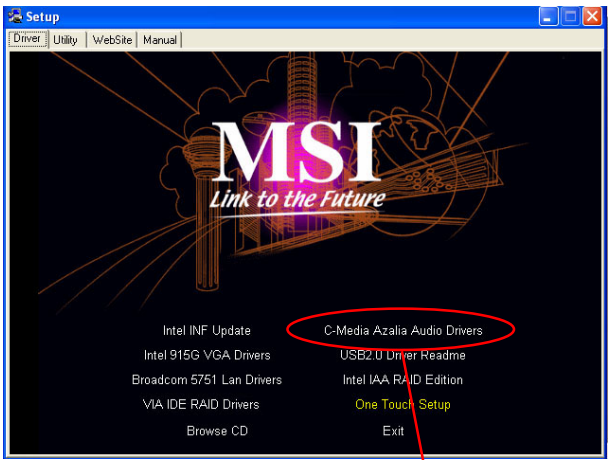
# *Introduction to CMI 9880L Audio Codec*

The motherboard comes with CMI9880L audio chip, which supports the brand new Azalia specification. In addition, C-Media designs a multi-stream function which allows the rear audio & front panel to play different audio sources simultaneously. CMI 9880L also allows the board to attach 4, 6, and 8 speakers for better surround sound effect. The section will guide you to experience the powerful features of this audio chip.

# Installing the Audio Codec Driver

**To install C-Media drivers:**

1. Insert the MSI CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click on **C-Media Azalia Audio Driver**.
3. Follow the on-screen instructions to complete installation.
4. Restart the system.




Click the **C-Media Azalia Audio Driver**

# Software Configuration

To have your 4-/6-/8-channel audio work, you must set appropriate configuration in the C-Media software application. Click the C-Media Mixer icon from the window tray on the bottom, and choose **Open**.

Then the **C-Media 3D Audio Configuration** dialogue will appear. Click on the **Main Setting** tab to start the configuration of the audio.

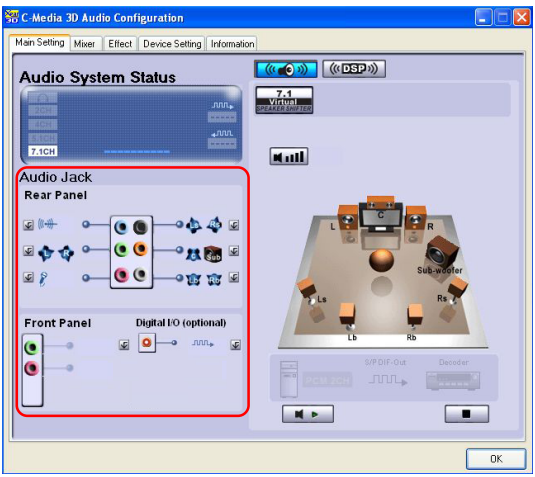
## Main Setting

### 1. Audio System Status

This menu shows you the current audio system status of channel (for example: 7.1CH), S/PDIF out and S/PDIF in . The status will change as you change the settings in the following audio jack (it includes rear panel/front panel/digital IO (optional)).

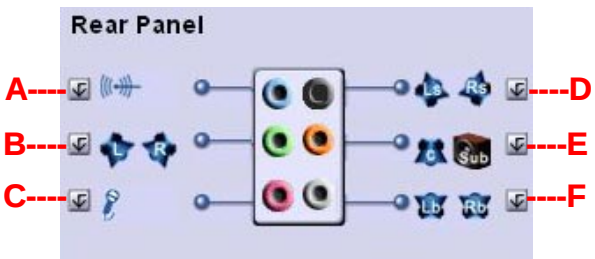
## 2. Audio Jack

This part shows the audio jack on your mainboard and indicates each function.




### (1) Rear Panel

The audio configuration shown here should be identical to the audio jacks on your mainboard. Follow the indication on it to connect the audio output devices correctly.




**A.** Blue connector. Click the icon in the left side and you can bring up two options to choose: “Line Input Audio Device” and “Unused/Undefined”. The connector’s function depends on your selection.

**B.** Green connector. Click the icon in the left side and you can bring up two options to choose: “Front Speaker (L/R)” and “Unused/Undefined”. The connector’s function depends on your selection.

**C.** Pink connector. Click the icon in the left side and you can bring up two options to choose: “Microphone” and “Unused/Undefined”. The connector’s function depends on your selection.

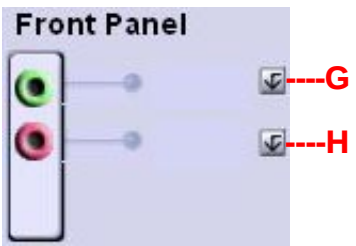
**D.** Black connector. Click the icon in the right side and you can bring up two options to choose: “Surround Speaker (Ls/Rs)” and “Unused/Undefined”. The connector’s function depends on your selection.

**E.** Orange connector. Click the icon in the right side and you can bring up two options to choose: “Center/Subwoofer Speakers (C/Sub)” and “Unused/Undefined”. The connector’s function depends on your selection.

**F.** Grey connector. Click the icon in the right side and you can bring up two options to choose: “Back Surround Speaker (Lb/Rb)” and “Unused/Undefined”. The connector’s function depends on your selection.

**(2) Front Panel**

For the front panel audio jack, usually the green one is connected to Line-Out device while the pink one is for MIC.

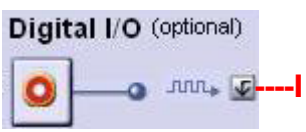



**G.** Green connector. Click the icon in the right side and you can bring up three options to choose: “Earphone/Headset”, “Microphone” and “Unused/Undefined”. The connector’s function depends on your selection.

**H.** Pink connector. Click the icon in the right side and you can bring up three options to choose: “Earphone/Headset”, “Microphone” and “Unused/Undefined”. The connector’s function depends on your selection.

**(3). Digital I/O (optional)**

It will play Digital Audio to Digital S/PDIF Output. Choosing this option allows the output digital playing audio from your computer like DVD, VCD, digital CD, MP3, Wave... etc through S/PDIF in 48KHz sample rate.



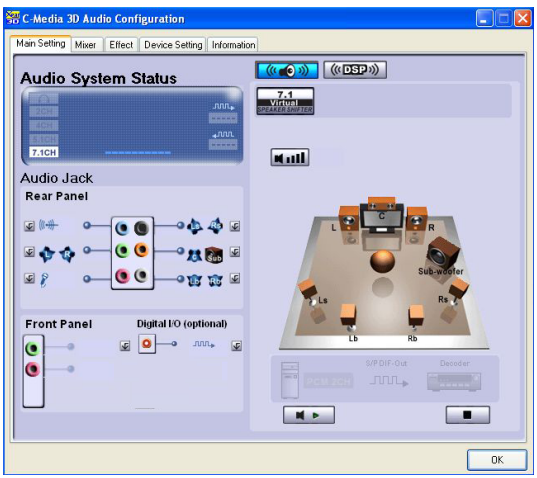

**I.** Click the icon in the right side and you can bring up three options to choose: “Digital Audio 48KHz” and “Unused/Undefined”. The connector’s function depends on your selection.

**3. DSP Mode: Disabled**

This part provides an advanced, amazing and considerate feature-dynamically adjustable multi-channel sound system no matter what listening appliance you are using and what application you are running.

The default setting for **DSP Mode** is off, in which the speaker icon  next to the DSP Mode  and the **7.1 Virtual SPEAKER SHIFTER**  button remains gray.

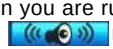
Here you can test each connected speaker by clicking  button to ensure if each channel audio operation works properly. If any speaker fails to make sound, then check whether the cable is inserted firmly to the connector or replace the bad speakers with good ones.



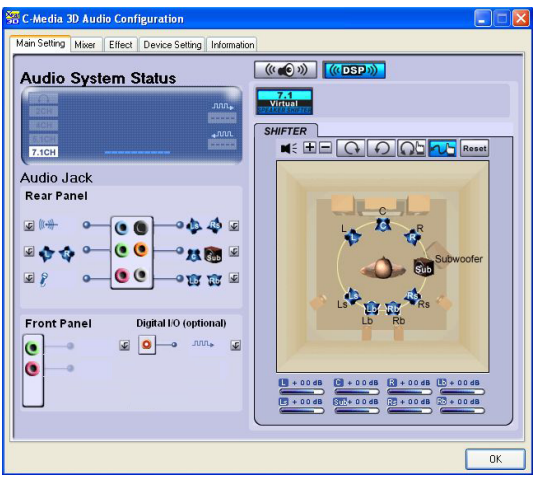

Select the speaker by clicking it to test its functionality. The one you select will light up and make testing sound.

**4. DSP Mode: Enabled**

This part provides an advanced, amazing and considerate feature-dynamically adjustable multi-channel sound system no matter what listening appliance you are using and what application you are running.

Click the speaker icon  next to the DSP Mode and click  the **7.1 Virtual SPEAKER SHIFTER** button, or click the **7.1 Virtual SPEAKER SHIFTER** button directly to enable this function, then all the speakers are available to adjust.

You may move all the virtual speakers to anywhere. Center is usually for Voice in DVD and just suitable to move in vertical to keep the sound in the center. Subwoofer signal is directionless low-frequency sound to human ears. Thus, please move it horizontally to express strength or weakness.




**Toolbar of DPS Mode**

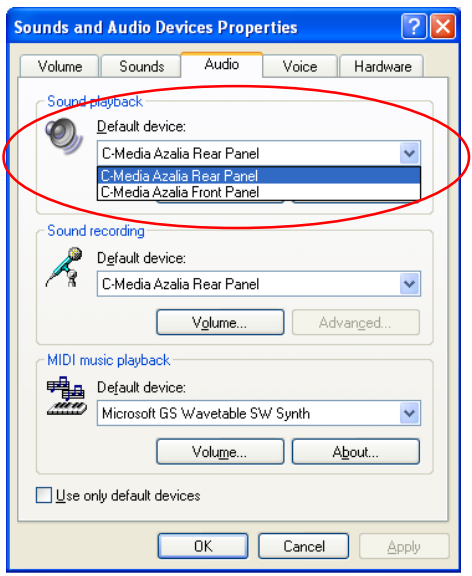

<1> Rotate all the virtual speakers clockwise.
<2> Rotate all the virtual speakers anti-clockwise.
<3> Move all the virtual speakers clockwise/anti-clockwise manually.
<4> Move individual virtual speaker randomly.
<5> Reset the change to the default setting.

## Mixer

### 1. Multi-Stream Function

CMI9880L supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated real panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

Go to **Control Panel --> Sounds, Speech and Audio Devices --> Sounds and Audio Devices --> Sounds and Audio Devices Properties**, and choose **Audio** tab. In **Sound playback / Default device:** part, you can see two options: **C-Media Azalia Rear Panel** & **C-Media Azalia Front Panel.**

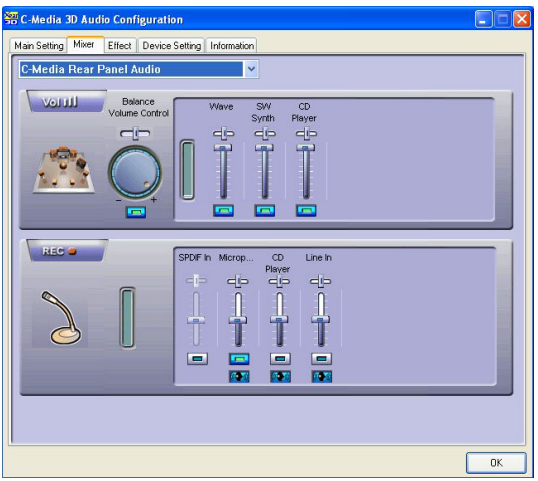



When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

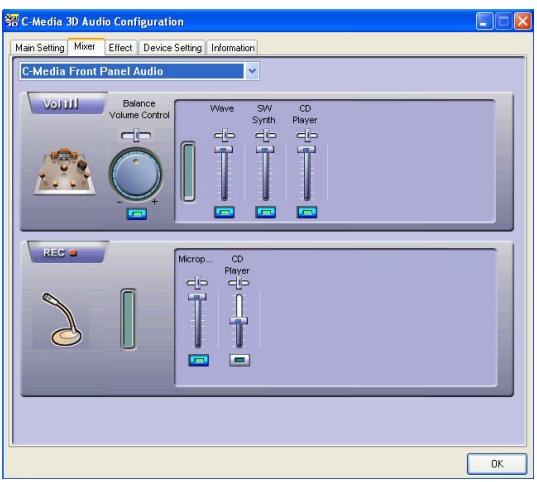
Then switch the setting to **C-Media Azalia Front Panel** and click **Apply**, then use a different program to play the second audio source (for example: use Winamp to play MP3 files). You will find that the second audio source (MP3 music) will come out from the Line-Out audio jack of Front Panel.

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

(1) C-Media Rear Panel Audio photo:

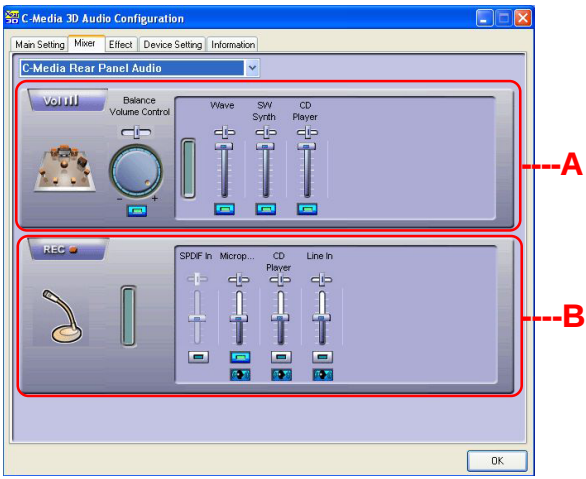



(2) C-Media Front Panel Audio photo:



**2. Recording**

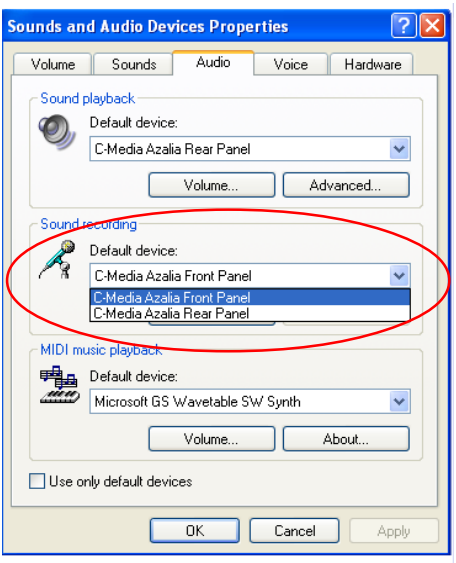
If you want to use microphone to record, usually the microphone is connected to the MIC jack (the pink one) in the rear audio panel. You can start recording in this case.




**A.** Adjust the volume control: Click the grey icon  , and its color will become blue  , now you can start to adjust the function as the button becomes blue (means enabled). Meanwhile, you can move the slider bar to adjust the value.

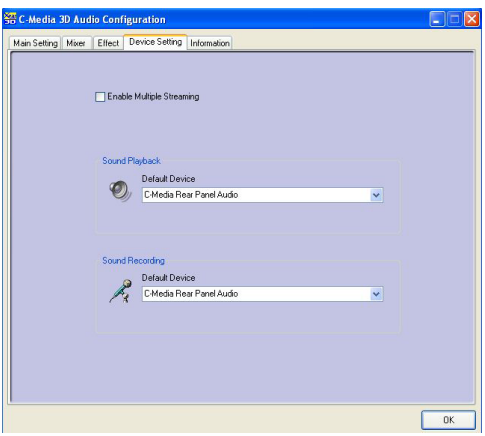
**B.** Record function: Firstly, choose one device (Microphone/CD Player/Line In) to record the voice. Then click the grey icons  and  , and their colors will become blue , now you can start to adjust the function as the buttons become blue (means enabled). Meanwhile, you can move the slider bar to adjust the value. After recording, if you want to hear the voice you are recording, Go to **Start --> Programs --> Accessories --> Entertainment --> Sound Recorder,** then the following screen will appear. Click  button to play the voice you are recording, or cli  to stop it.

If you'd like to connect your microphone to the front audio panel, please go to the **Sounds and Audio Devices Properties** dialogue (path: Go to **Control Panel --> Sounds, Speech and Audio Devices --> Sounds and Audio Devices --> Sounds and Audio Devices Properties**, and choose **Audio** tab) and go to the **Sound recording** part. The default setting of this item is **C-Media Azalia Rear Panel** and you have to switch it to the **C-Media Azalia Front Panel.**



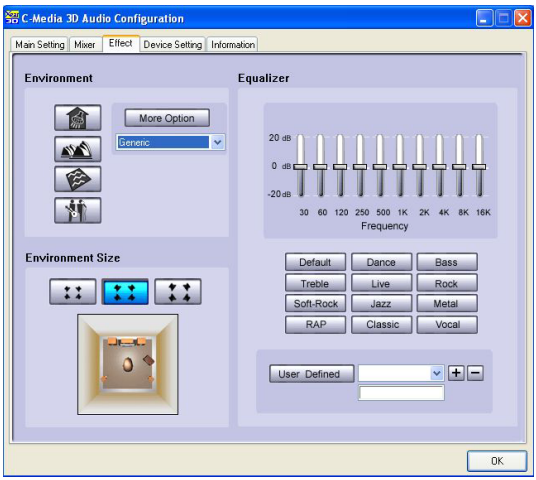

## Device Setting

The settings here have the same functionality as the configurations of **Sound playback** & **Sound recording** in the **Sounds and Audio Devices Properties** dialogue in **Control Panel.** You can set the desired settings of **Sound playback** & **Sound recording** in either dialogue, which is in accordance with the other.



## Effect

From this part, you may choose the sound effect you like, such as environment effects, environment sizes and equalizers. You may also define your own equalizers and save them for the future usage.




## Information

In this tab it provides some information about the Azalia Audio Configuration utility, including 3D Audio Engine, Audio Codec, Audio Driver Version, Audio Controller & DirectX Version. You may also select the language of this utility by choosing from the **Language** list.