MSI

875P Master-FA
MS-9127 (v1.X) ATX Mainboard

Version 1.0
G52-S9127X1-G22

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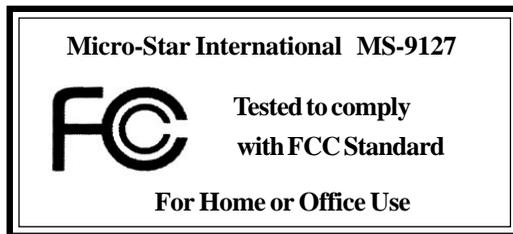
Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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┌─────────────────────────────────────────┐
│   Micro-Star International   MS-9127      │
│                                          │
│   FC      Tested to comply               │
│              with FCC Standard           │
│                                          │
│        For Home or Office Use            │
└─────────────────────────────────────────┘
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Revision History

Revision	Revision History	Date
V1.0	First release	May 2003

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

❏ Visit the MSI website for FAQ, technical guide, BIOS updates, driver updates, and other information: **http://www.msi.com.tw/**

❏ 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 60^0C (140^0F), 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

1

Getting Started

Thank you for purchasing the 875P Master-FA (MS-9127 v1.X) ATX mainboard. The 875P Master-FA is a superior computer mainboard based on **Intel® 875P & ICH5** chipsets for optimal system efficiency. Designed to fit the advanced Intel® Pentium® 4 (Northwood/Prescott) processors in the 478 pin package, the motherboard provides a cost-effective and professional solution for high performance PC, entry-level workstation and server markets.

Mainboard Specifications

CPU
➤ Supports Intel® P4 Northwood/Prescott processor in 478-pin package
➤ Supports 533/800MHz FSB
➤ Meets thermal requirements
➤ Onboard voltage regulator module

Chipset
➤ Intel 875P & ICH5
➤ LPC Super I/O controller with floppy write protect function
➤ 4 Mbit Flash EEPROM
➤ Gigabit CSA Ethernet (Intel® 82547EI)

Main Memory
➤ Supports 4GB ECC memory
➤ 4 DDR DIMM sockets
➤ Supports suspend to RAM (STR), S3 sleep state

Slots
➤ 1 x AGP 8X Pro50 (50 Watts) slot
  - Supports AGP 8X and AGP Pro50
➤ 5 PCI 32b/33MHz slots
➤ AGP 3.0 compliant
➤ 1 Mini PCI slot for MS-9518 (Ultra 160 Single Channel SCSI Adapter), MS-9513 (Rage XL VGA Adapter) and MS-9514 (IEEE1394, 2 ports Adapter) Support

On-Board IDE
➤ Two-channel bus master IDE port

On-Board I/O
➤ 1 x PS/2 Keyboard port
➤ 1 x PS/2 Mouse port
➤ 1 x floppy port
➤ 2 x serial ports
➤ 1 x parallel port
➤ 2 x USB 2.0 ports (rear)
➤ 4 x USB 2.0 ports (front)

Onboard S-ATA
➤ Two-channel Serial ATA

Onboard Audio
➤ Audio with AC'97 interface
➤ Line-in, Line-out, and Microphone-in; Headphone out

Onboard LAN
➤ Intel® 82547EI Gigabit LAN
➤ Programmed Ethernet MAC address and EEPROM

BIOS
➤ 4 Mbit flash EEPROM
➤ Supports BIOS boot recovery from floppy drive
➤ PnP 1.0A, SMBIOS 2.3, ACPI 1.0A
➤ Supports PXE boot protocol
➤ APM1.2, audio 97, ASF adapter support, WOL
➤ USB keyboard and mouse
➤ Flash EEPROM write protection
➤ PC2001 system design compliant

Power Management Features
➤ Wake up on LAN (WOL)
➤ RTC alarm
➤ Wake up on Keyboard/Mouse
➤ Wake up on USB
➤ Wake up on PCI (PME)
➤ Supports ACPI 1.2, S1, S3, S4 and S5 functions supported

Onboard Internal Connectors
➤ 2 x 10, 20 pins ATX power connector
➤ 2 x 2, 4 pins ATX-12V power connector
➤ 2-pin internal speaker header
➤ 2-pin CD-IN header
➤ 3-pin cooling fan locking header X 6 (4 for system, 1 for PS and 1 for CPU)
➤ 3-pin BIOS boot recovery header with a jumper
➤ 4-pin chassis intrusion header

➤ 2 x 5, 10 pins shrouded front USB header
➤ Mouse and keyboard ports
➤ 2 USB ports
➤ RJ-45 with LEDs
➤ Line-in, Line-out, Mic-in and Phone-out ports
➤ 2 serial ports
➤ 1 parallel port

Regulatory
➤ FCC Class B, EMC, CE

Board Size
➤ ATX compatible form factor with 9 mounting holes

Mainboard Layout
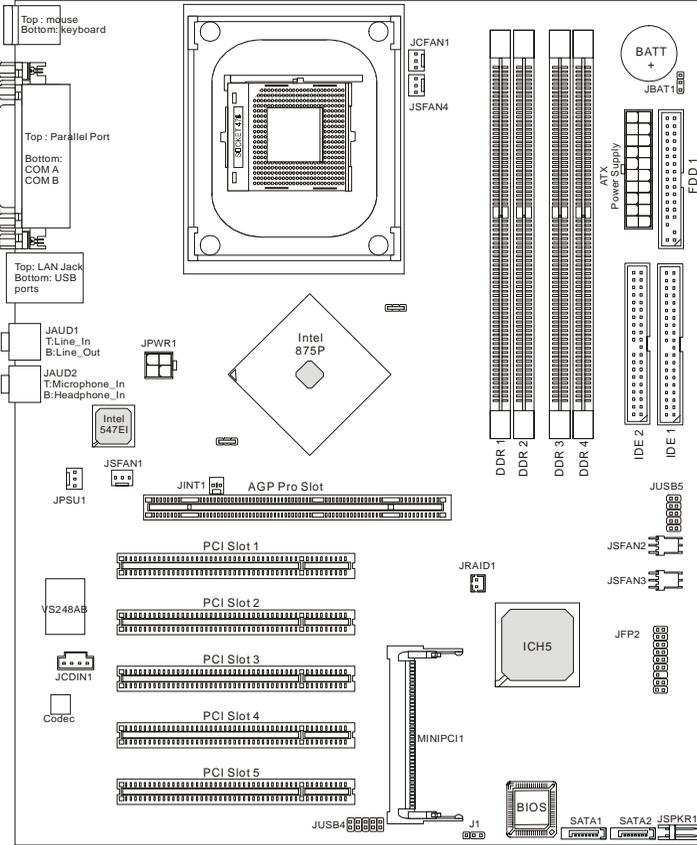
875P Master-FA (MS-9127 v1.X) ATX Mainboard

MSI Special Features

PC Alert™ III

The PC Alert™ III is a utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

* monitor CPU & chassis temperatures
* monitor fan speed(s)
* monitor system voltage
* monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown until user disables the warning.
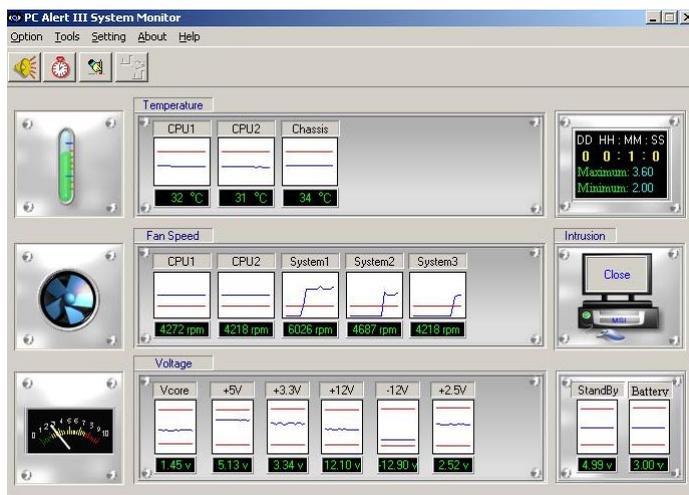
> **NOTE**
> *Items shown on PC Alert III vary depending on your system's status.*

2

Hardware Setup

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

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

Quick Components Guide

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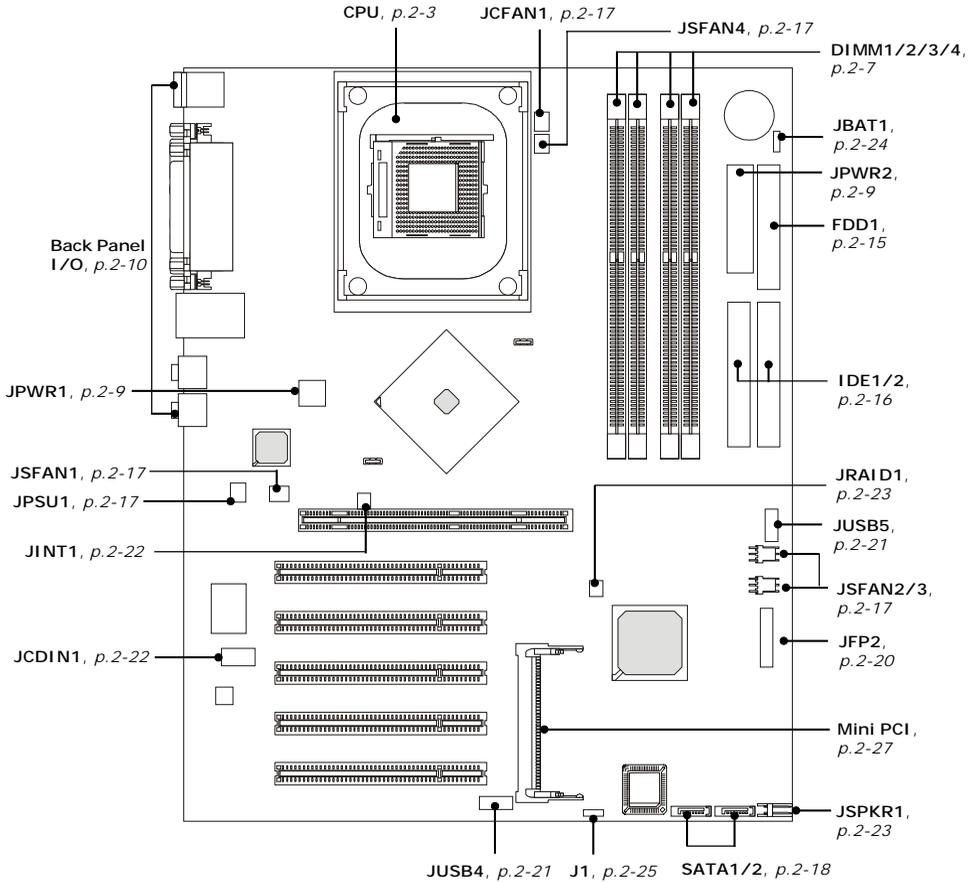
Central Processing Unit: CPU

The mainboard supports Intel® P4 Northwood/Prescott processor in the 478 pin package. The mainboard uses a CPU socket called PGA478 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not find the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Core Speed Derivation Procedure

If	CPU Clock	=	100MHz
	Core/Bus ratio	=	14
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 14
		=	1.4 GHz

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

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

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.***

CPU Installation Procedures for Socket 478

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

2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.

3. Look for the gold arrow. The gold arrow should point towards the lever pivot. The CPU can only fit in the correct orientation.

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

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

Open Lever

Sliding Plate   90 degree

Gold arrow

Gold arrow   Correct CPU placement

O

Gold arrow   Incorrect CPU placement

X

Press down the CPU   Close Lever
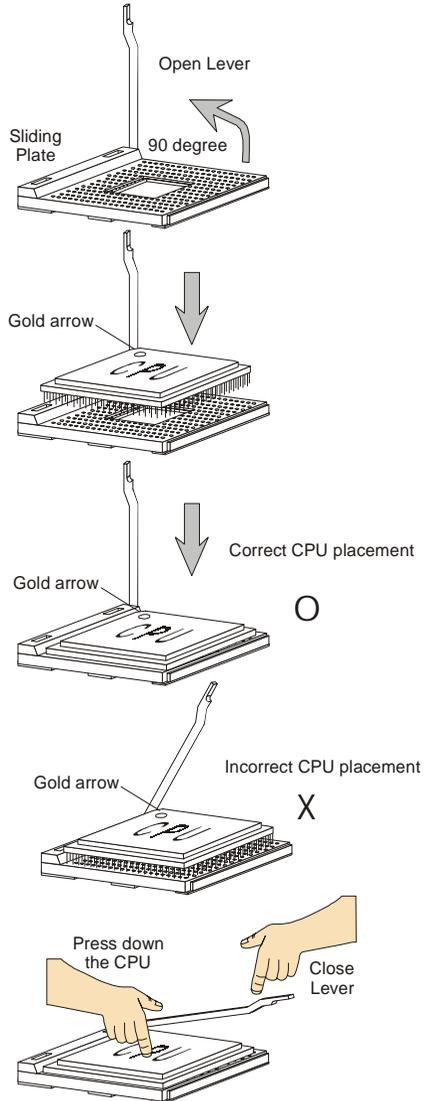
Installing the CPU Fan

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly important. To dissipate heat, you need to attach the CPU cooling fan and heatsink on top of the CPU. Follow the instructions below to install the Heatsink/Fan:

1. Locate the CPU and its retention mechanism on the motherboard.

retention mechanism

2. Position the heatsink onto the retention mechanism.
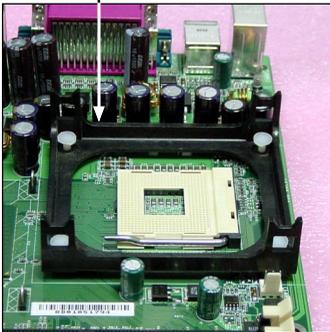
3. Mount the fan on top of the heatsink. Press down the fan until its four clips get wedged in the holes of the retention mechanism.

4. Press the two levers down to fasten the fan. Each lever can be pressed down in only ONE direction.

levers
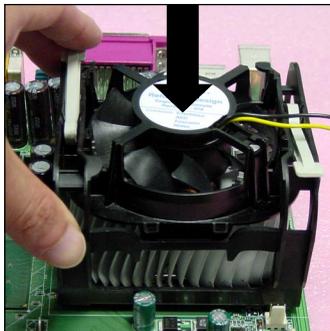
5. Connect the fan power cable from the mounted fan to the 3-pin fan power connector on the board.

fan power cable
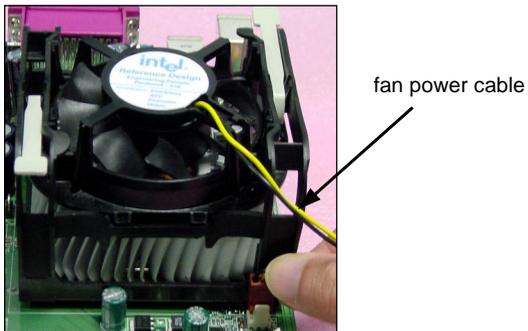
NOTES

Memory

The mainboard provides 4 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports up to 4GB memory size. You can install PC1600/PC2100/PC27/00/PC3200 (DDR200/266/333/400) modules on the DDR DIMM slots (DIMM 1~4).

**DDR DIMM Slots
(DIMM 1~4)**
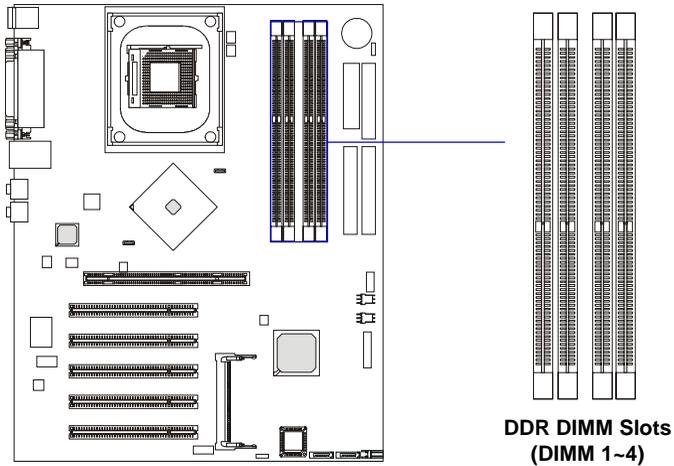
DIMM Module Combination

The mainboard supports **dual channel** (144-bit wide) DDR333/400 memory interface. Each channel supports 2 DIMM slots. Each DIMM slot supports up to a maximum size of 1GB. Users can install either single- or double-sided modules depending on their needs. Make sure that you install memory modules of **the same type and density** on DDR DIMMs. Installing the modules in pairs is not required. However, it is recommended to install the modules in pairs for optimal performance.

Memory modules can be installed in any combination as follows:

	System Density
Option 1: 128MB~1GB	128MB~1GB
Option 2: 128MB~1GB, 128MB~1GB	256MB~2GB
Option 3: 128MB~1GB, 128MB~1GB, 128MB~1GB	384MB~3GB
Option 4: 128MB~1GB, 128MB~1GB, 128MB~1GB, 128MB~1GB	512MB~4GB

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.

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

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

Volt   Notch
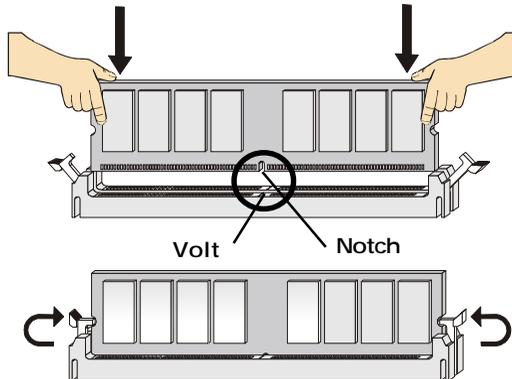
Power Supply

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

ATX 20-Pin Power Connector: JPWR2

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

ATX 12V Power Connector: JPWR1

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

JPWR1 Pin Definition

PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V
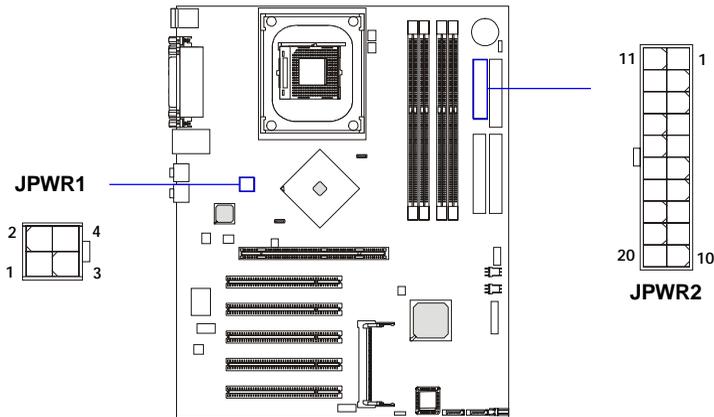
JPWR2 Pin Definition

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

Back Panel

The back panel provides the following connectors:

Parallel　**LAN**

Mouse

Keyboard　**COM A**　**COM B**　**USB**　**Audio Jacks**
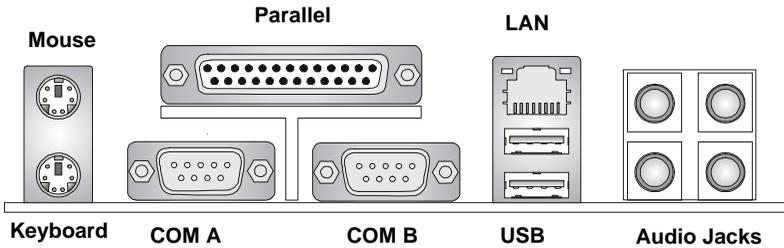
Mouse Connector

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

Pin Definition

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

PS/2 Mouse (6-pin Female)

Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard. You can plug a PS/2® keyboard directly into this connector.

Pin Definition

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

PS/2 Keyboard (6-pin Female)

USB Connectors

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

USB Port Description

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

USB Ports

RJ-45 LAN Jack: Giga-bit LAN

The mainboard provides one standard RJ-45 jack for connection to Local Area Network (LAN). Giga-bit LAN enables data to be transferred at 1000, 100 or 10Mbps. Pin assignments vary depending on the transfer rates: 10/100Mbps or 1000Mbps. Note that Pin 1/2, 3/6, 4/5, 7/8 must work in pairs. Please refer to the following for details:

Speed Indicator ◄─────   ─────► Activity Indicator

8   1
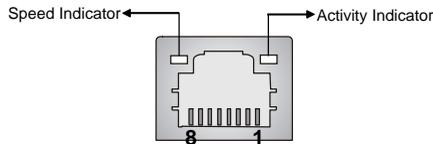
RJ-45 LAN Jack

10/100 LAN Pin Definition

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

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-

Serial Port Connector: COM A & COM B

The mainboard offers two 9-pin male DIN connectors as serial port COM A and COM B. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to them.

1 2 3 4 5

6 7 8 9

9-Pin Male DIN Connectors
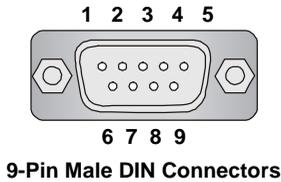
Pin Definition

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

Audio Port Connectors

Line-Out is a connector for speakers or headphones. **Line-In** is used for external CD player, Tape player, or other audio devices. **Mic-In** is a connector for microphones. **HP-Out** is used to connect headphones if available.

Line-In   **Mic-In**

Line-Out   **HP-Out**
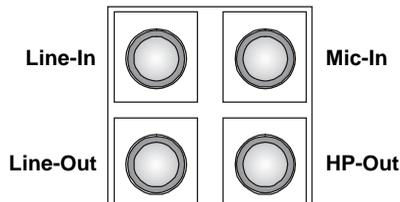
Parallel Port Connector: LPT1

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.
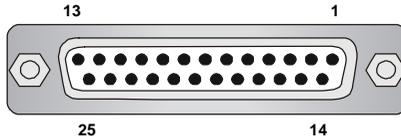
Pin Definition

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	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

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

Floppy Disk Drive Connector: FDD1

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

FDD1
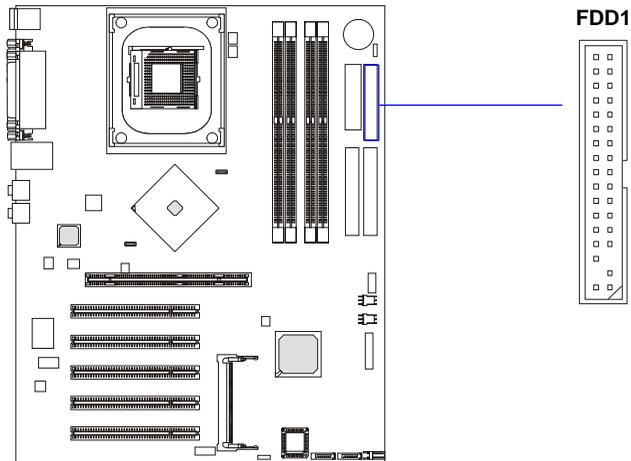
Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.
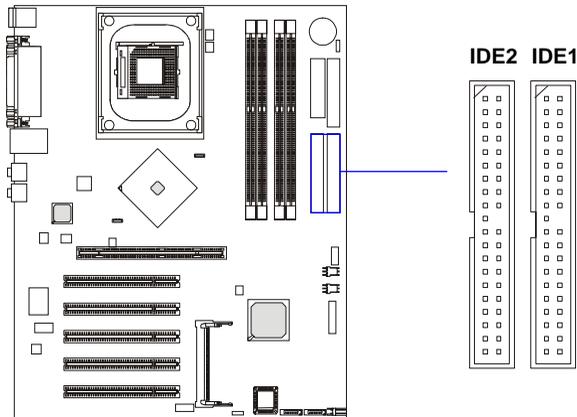
IDE1 (Primary IDE Connector)

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

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

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

Fan Power Connectors: JCFAN1, JPSU1, JSFAN1/2/3/4

The JCFAN1 (processor fan), JPSU1 (power supply) and JSFAN1/2/3/4 (system fan) support system cooling fan with +12V. It supports 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.
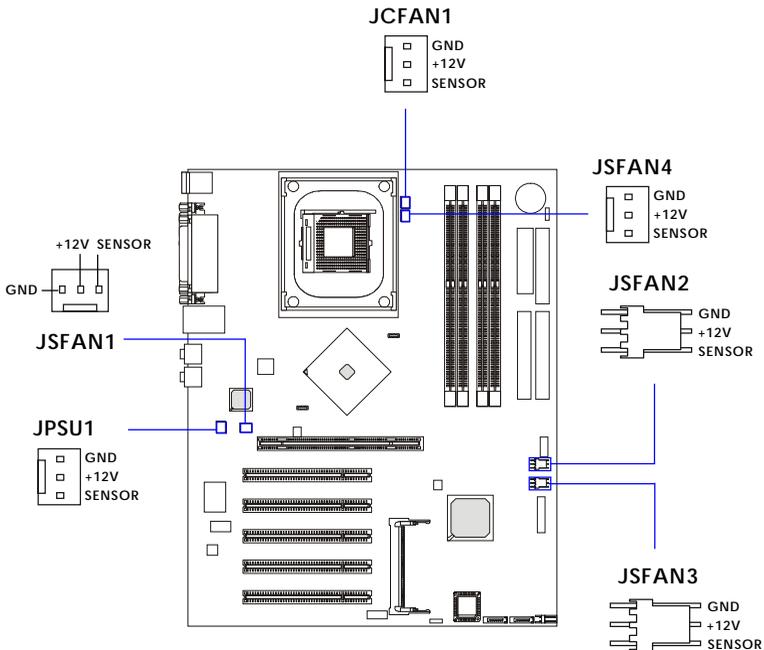
MSI Reminds You...
Always consult the vendors for proper CPU cooling fan.

Serial ATA Connectors: SATA1 & SATA2

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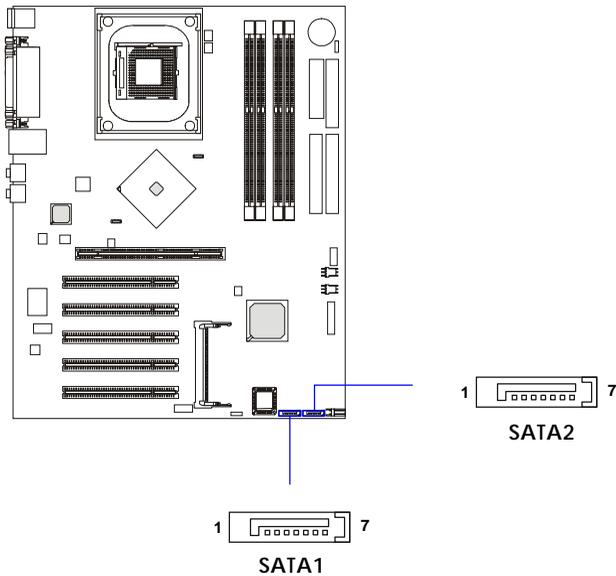
SATA2

SATA1

SATA1 & SATA2 Pin Definition

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

Optional Serial ATA cable

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

Connect to SATA1 or SATA2
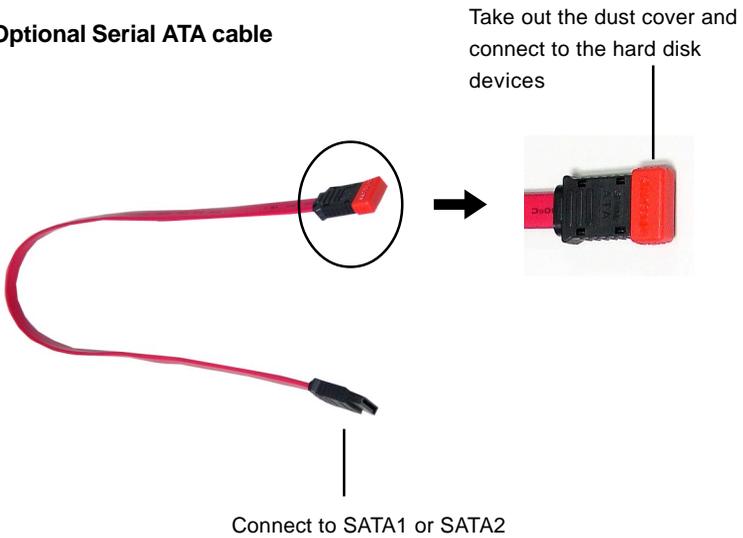
MSI Reminds You...

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

Front Panel Connectors: JFP2

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs.

Pin Definition

PIN	SIGNAL
1-3	HDD LED
5-7	RESET
1-2	Normal
9-11-13-15	Fast IR
2-4	Power LED
6-8	Power Button
10-12	Sleep Button

JFP2
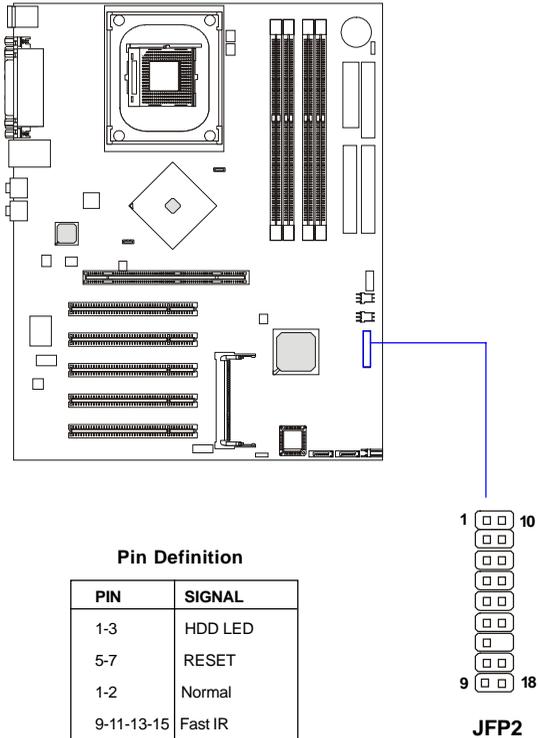
Front USB Connector: JUSB4 & JUSB5

The mainboard provides two USB 2.0 pinheaders for connection to additional USB ports. 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**.

JUSB5

1 □□ 2
□□
□□
□□
9 □□ 10

JUSB4

2 □□□□□ 10
1 □□□□□ 9
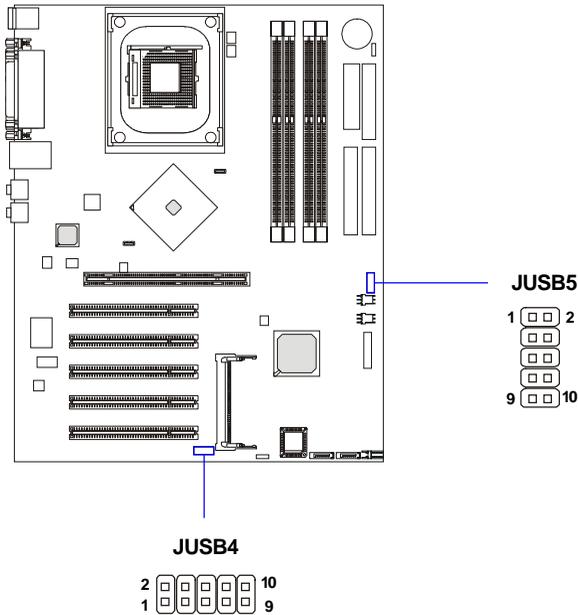
Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	USBPWR	2	GND
3	USBP2-	4	GND
5	USBP2+	6	USBP3+
7	GND	8	USBP3-
9	GND	10	USBPWR

CD-In Connector: JCDIN1

The connector is for CD-ROM audio connector.
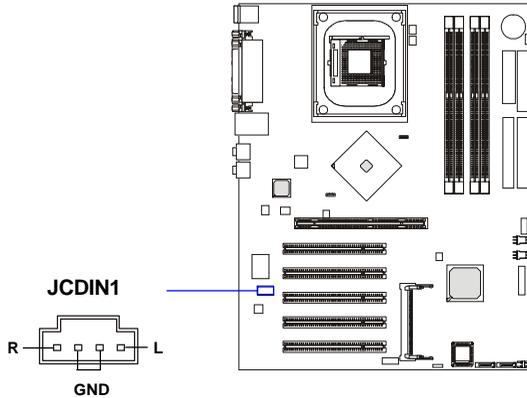
Chassis Intrusion Switch Connector: JINT1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.
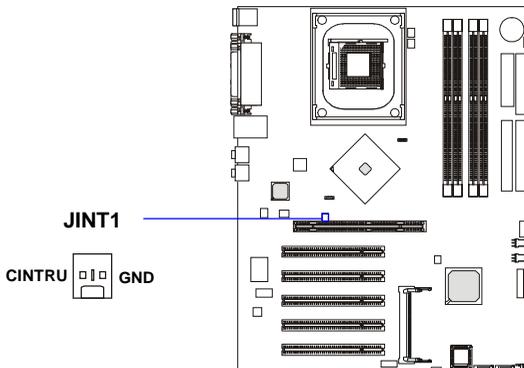
SCSI LED Header: JRAID1

This mainboard comes with a SCSI LED header. Insert the SCSI card into the mini PCI slot, and then connect the power cord with the header.

JRAID1
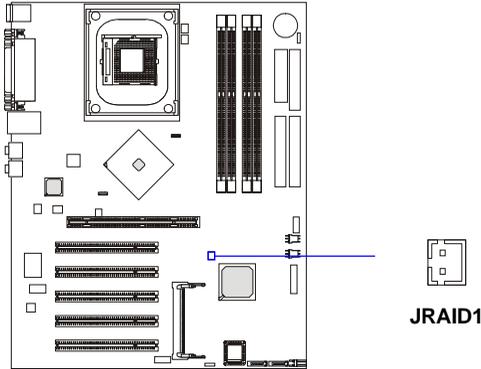
Internal Speaker Header: JSPKR1

This mainboard comes with an internal speaker header that can be connected to the speaker on the chassis.

VOUT+
VOUT-

JSPKR1
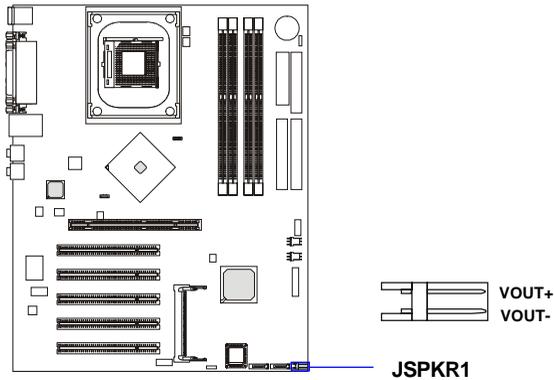
Jumpers

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 data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

JBAT1

Keep CMOS   Clear CMOS
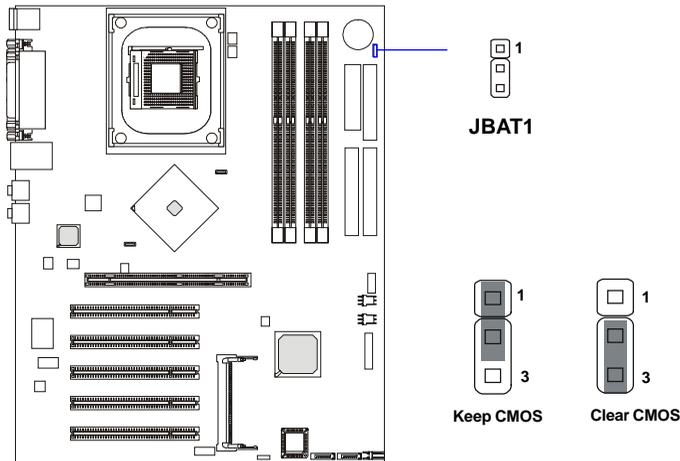
MSI Reminds You...

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.

BIOS Write-Protect Jumper: J1

The jumper is used to lock or unlock the boot block area on the BIOS. When unlocked, the BIOS boot block area can be updated. When locked, the area cannot be updated.

1 ⬚⬚⬚ 3

J1
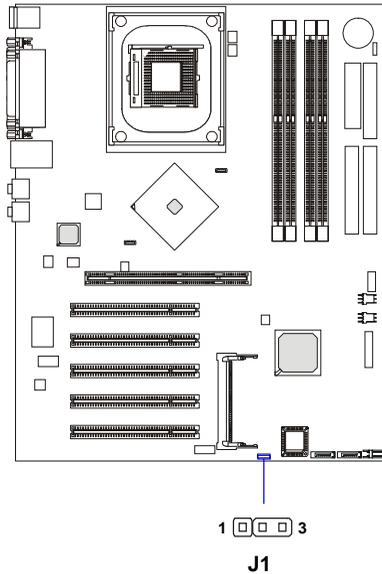
BIOS Flash Locked
(BIOS Write Disabled)

BIOS Flash Unlocked
(BIOS Write Enabled)

Slots

The motherboard provides one AGP Pro slot, five 32-bit Master PCI bus slots, and one Mini PCI slot.

AGP Pro Slot

PCI Slots

Mini PCI Slot
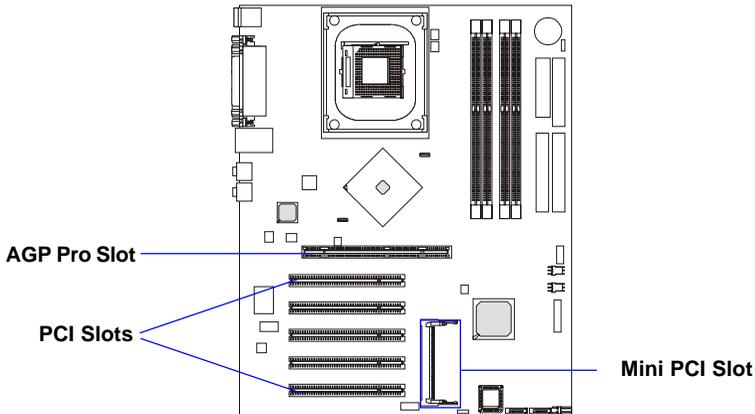
AGP (Accelerated Graphics Port) Pro Slot

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

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.

MSI

MSI Reminds You...

Mainboard photos shown in next section are for demonstration of the installation of miniPCI cards only. The appearance of your mainboard may vary depending on the model you purchase.

Mini PCI Slot

This slot is used to connect the optional MS-9518 SCSI card, MS-9513 VGA card, or MS-9514 IEEE 1394 card.
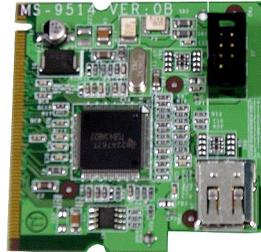
MS-9518 SCSI card　　**MS-9513 VGA card**　　**MS-9514 IEEE1394 card**

Installing the card:

1. Locate the Mini PCI slot on the mainboard.

Mini PCI slot
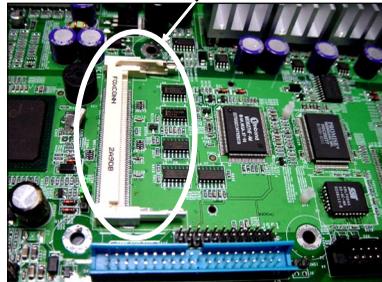
2. Place the card over the Mini PCI slot and gently insert both ends of the card slantways (at an angle of 45 degrees) into the slot until the golden finger of the card gets fully inserted into the slot.

MSI

MSI Reminds You...

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

3. Locate the supporters on the mainboard (one on the right end and the other on the left end).
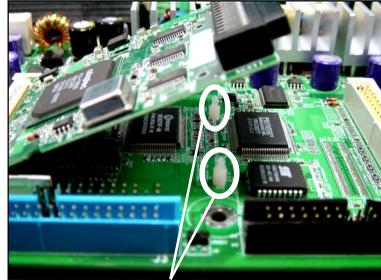
supporters

4. Align the two fixing holes on the card with the supporters and press the card carefully down until the fixing holes get locked by the supporters.

Supporters lock into the fixing holes of the card.

5. Push the retaining clips (on two ends of the slot) inwards until they lock onto the notches in the ends of the card. The card should securely fit into the slot.

Removing the card:

1. Gently push the retaining clips outwards. Hold the card lightly but firmly. Use long nose pliers to clip one of the supporters and press it downwards until it withdraws from the fixing hole.

2. Clip the other supporter and press it downwards until it withdraws from the fixing hole.

3. The card will automatically bound upwards after being released from the supporters.

4. Remove the card from the Mini PCI slot.

PCI Interrupt Request Routing

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

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	PIRQ#A	PIRQ#B	PIRQ#C	PIRQ#D
PCI Slot 2	PIRQ#B	PIRQ#C	PIRQ#D	PIRQ#A
PCI Slot 3	PIRQ#C	PIRQ#D	PIRQ#A	PIRQ#B
PCI Slot 4	PIRQ#D	PIRQ#A	PIRQ#B	PIRQ#C
PCI Slot 5	PIRQ#B	PIRQ#C	PIRQ#D	PIRQ#A
AGP	PIRQ_E	PIRQ_F		
Mini PCI	PIRQ#G			
82547EI	PIRQ#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.

Entering Setup

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

```
Press DEL to enter SETUP
```

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

Control Keys

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

Getting Help

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

Main Menu

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

Sub-Menu

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

▶ IDE Primary Master
▶ IDE Primary Slave
▶ IDE Secondary Master
▶ IDE Secondary Slave

General Help <F1>

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

MSI

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 AwardBIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu displays twelve configurable functions and two exit choices. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.

```
              Phoenix - AwardBIOS CMOS Setup Utility
  ▶ System Information            ▶ PC Health Status
  ▶ Standard CMOS Features          Load Fail-Safe Defaults
  ▶ Advanced BIOS Features          Load Optimized Defaults
  ▶ Advanced Chipset Features       Set Supervisor Password
  ▶ Integrated Peripherals          Set User Password
  ▶ Power Management Setup          Save & Exit Setup
  ▶ PnP/PCI Configurations          Exit Without Saving

  Esc : Quit    F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
  F10 : Save & Exit Setup

              Select this line to see the System Summary.
```

System Information
This entry shows your PC status (read only).

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

Advanced BIOS Features
Use this menu to configure the 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.

PC Health Status
This entry shows your PC health status.

Load Fail-Safe Defaults
Use this menu to load the BIOS default values for minimal but stable system performance.

Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal system operations.

Set Supervisor/User Password
Use this menu to set user and supervisor passwords.

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

Exit Without Saving
Abandon all changes and exit setup.

System Information

This section shows the information of your system, such as machine type, processor cache size, etc.
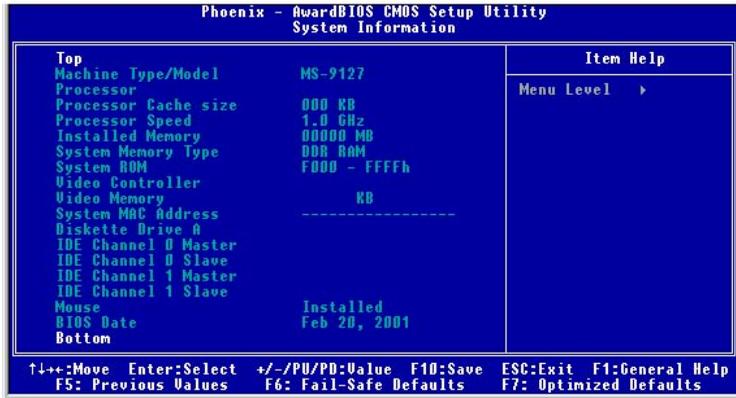
Standard CMOS Features

The items inside Standard CMOS Features menu are divided into 10 categories. Each category includes none, one or more setup items. Use the arrow keys to highlight the item you want to modify and use the <PgUp> or <PgDn> keys to switch to the value you prefer.

```
            Phoenix - AwardBIOS CMOS Setup Utility
                     Standard CMOS Features
 ┌──────────────────────────────────────────────┬──────────────────────┐
 │ Date (mm:dd:yy)         Mon, Apr 21 2003       │      Item Help       │
 │ Time (hh:mm:ss)         16 : 33 : 21           ├──────────────────────┤
 │                                                │ Menu Level    ▶      │
 │ ▶ IDE Primary Master                           │                      │
 │ ▶ IDE Primary Slave                            │ Change the day, month,│
 │ ▶ IDE Secondary Master                         │ year and century      │
 │ ▶ IDE Secondary Slave                          │                      │
 │                                                │                      │
 │   Drive A              [1.44M, 3.5 in.]         │                      │
 │   Drive B              [None]                   │                      │
 │                                                │                      │
 │   Video                [EGA/VGA]                │                      │
 │   Halt On              [All Errors]             │                      │
 │                                                │                      │
 │   Base Memory                  640K             │                      │
 │   Extended Memory            65472K             │                      │
 │   Total Memory                1024K             │                      │
 └──────────────────────────────────────────────┴──────────────────────┘
 ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
    F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults
```

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

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

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

IDE Primary/Secondary Master/Slave
Press PgUp/<+> or PgDn/<-> to select *Manual*, *None*, *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.

If the controller of HDD interface is SCSI, the selection shall be "*None*". If the controller of HDD interface is CD-ROM, the selection shall be "*None*".

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/B
This item allows you to set the type of floppy drives installed. Available options are *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. Available options are *EGA/VGA* , *CGA 40*, *CGA 80* and *Mono*.

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

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

Base/Extended/Total Memory
The three items show the memory status of the system. (Read only)

Advanced BIOS Features

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced BIOS Features
 ▶ Hard Disk Boot Priority    [Press Enter]    │     Item Help
   Virus Warning              [Disabled]        │
   CPU L1 & L2 Cache          [Enabled]         │ Menu Level   ▶
   Hyper-Threading Technology [Enabled]         │
   Quick Power On Self Test   [Enabled]         │ Select Hard Disk Boot
   First Boot Device          [Floppy]          │ Device Priority
   Second Boot Device         [Hard Disk]       │
   Third Boot Device          [LS120]           │
   Boot Other Device          [Enabled]         │
   Swap Floppy Drive          [Disabled]        │
   Boot Up Floppy Seek        [Enabled]         │
   Boot Up NumLock Status     [On]              │
   Gate A20 Option            [Fast]            │
   Typematic Rate Setting     [Disabled]        │
 x Typematic Rate (Chars/Sec) 6                 │
 x Typematic Delay (Msec)     250               │
   Security Option            [Setup]           │
   APIC Mode                  [Enabled]         │
   MPS Version Control For OS[1.4]              ▼
──────────────────────────────────────────────────────────────
   OS Select For DRAM > 64MB [Non-OS2]          │ screen. Hit [Y] and
   Report No FDD For WIN 95   [No]              │ [enter], then clear
   Small Logo(EPA) Show       [Disabled]        │ all DMI event logs
   DMI Event Log              [Enabled]         │ right now.
   Clear All DMI Event Log    [No]              │
   View DMI Event Log         [Enter]           │
   Mark DMI Events as Read    [Enter]           │
   Event Log Capacity                           │
   Event Log Validity            Valid         ▼
──────────────────────────────────────────────────────────────
 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
   F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults
```

Hard Disk Boot Priority
The items allow you to set the sequence of boot devices where BIOS attempts to load the hard disk operating system. Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press ESC to exit this menu.

Virus Warning
The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on screen and beep. Settings: *Disabled* and *Enabled*.

CPU L1 & L2 Cache
The item allows you to turn on or off CPU's internal (L1) and external (L2) cache. Settings: *Enabled* and *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.*

Quick Power On Self Test
The option speeds up Power On Self Test (POST) after you power on the computer. When setting the item to *Enabled*, BIOS will shorten or skip some check items during POST. Settings: *Enabled*, *Disabled*.

First/Second/Third Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. The settings are:

Floppy	The system will boot from floppy drive.
LS120	The system will boot from LS-120 drive.
Hard Disk	The system will boot from the HDD.
CDROM	The system will boot from the CD-ROM.
ZIP100	The system will boot from ATAPI ZIP drive.
USB-FDD	The system will boot from the floppy drive at USB ports.
LAN	The system will boot from the Network drive.
Disabled	Disable this sequence.

MSI Reminds You...
Available settings for "First/Second/Third Boot Device" vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting "Floppy" does not show up.

Boot Other Device
Setting the option to *Enabled* allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Swap Floppy Drive
Setting to *Enabled* will swap floppy drives A: and B:.

Boot Up Floppy Seek
This setting causes the BIOS to search for floppy disk drives at boot time. When enabled, the BIOS will activate the floppy disk drives during the boot

process: the drive activity light will come on and the head will move back and forth once. First A: will be done and then B: if it exists. Setting options: *Disabled*, *Enabled*.

Boot Up NumLock Status
This setting is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow users to use the arrow keys on the numeric keypad. Setting options: *On*, *Off*.

Gate A20 Option
This item is to set the Gate A20 status. A20 refers to the first 64KB of extended memory. When the default value *Fast* is selected, the Gate A20 is controlled by Port92 or chipset specific method resulting in faster system performance. When *Normal* is selected, A20 is controlled by a keyboard controller or chipset hardware.

Typematic Rate Setting
This item is used to enable or disable the typematic rate setting including Typematic Rate & Typematic Delay.

Typematic Rate (Chars/Sec)
After *Typematic Rate Setting* is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated. Settings: *6*, *8*, *10*, *12*, *15*, *20*, *24* and *30*.

Typematic Delay (Msec)
This item allows you to select the delay between when the key was first pressed and when the acceleration begins. Settings: *250*, *500*, *750* and *1000*.

Security Option
This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
Setup	The password prompt appears only when end users try to run Setup.
System	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

APICMode
This setting is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Setting options: *Enabled*, *Disabled*.

MPS Version Control For OS
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. Settings: *1.4*, *1.1*.

OS Select For DRAM > 64MB
This allows you to run the OS/2® operating system with DRAM larger than 64MB. When you choose *Non-OS2*, you cannot run the OS/2® operating system with DRAM larger than 64MB. But it is possible if you choose *OS2*.

Report No FDD For WIN 95
For compatibility with Windows 95 logo certification, select *Yes* to release IRQ6 when the system contains no floppy drive. When this setting is set to *Yes*, users have to select *Disabled* for the *Onboard FDC Controller* in the Integrated Peripherals menu. Setting options: *Yes, No*.

Small Logo(EPA) Show
This item enables you to show the EPA logo (brand specific graphics) on the bootup screen. Settings are:

> *Disabled*   Shows the normal POST screen at boot.
> *Enabled*   Shows a still image (EPA logo) on the screen at boot.

DMI Event Log
This setting disables or enables the BIOS to log DMI (Desktop Management Interface) events. Setting options: Enabled, Disabled.

Clear All DMI Event Log
When this setting is set to Yes, the DMI event log will be cleared at next POST stage. Then, the BIOS will automatically set this option to No. Setting options: *Yes, No*.

View DMI Event Log
Press <Enter> to view all DMI event logs.

Mark DMI Events as Read
Press <Enter> and a screen pops up, asking users to confirm whether or not to clear all DMI event logs immediately. Press <Y> and <Enter>, the BIOS will clear all DMI event logs right away.

Event Log Capacity
The item allows the system to show if there is enough space for event logs.

Event Log Validity
The item allows the system to show if the event logs are valid.

Advanced Chipset Features

```
              Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced Chipset Features

 DRAM Timing Selectable      [By SPD]          ┌──────────────┐
 CAS Latency Time            [2]               │  Item Help   │
 Active to Precharge Delay   [8]               ├──────────────┤
 DRAM RAS# to CAS# Delay     [4]               │ Menu Level ► │
 DRAM RAS# Precharge         [4]               │              │
 Memory Frequency For        [Auto]            │              │
 System BIOS Cacheable       [Enabled]         │              │
 Video  BIOS Cacheable       [Disabled]        │              │
 Memory Hole At 15M-16M      [Disabled]        │              │
 Delay Prior to Thermal      [16 Min]          │              │
 AGP Aperture Size (MB)      [128]             │              │
 Init Display First          [AGP]             │              │
 DRAM Data Integrity Mode    [ECC]             │              │
 Auto Detect PCI Clk         [Enabled]         │              │
 Spread Spectrum             [Disabled]        │              │


 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
   F5: Previous Values     F6: Fail-Safe Defaults   F7: Optimized Defaults
```

MSI **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 *By SPD* enables DRAM timings to be determined by BIOS based on the configurations on the SPD. Selecting *Manual* allows users to configure the DRAM timings manually.

CAS Latency Time
This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: *2*, *2.5*, *3* (clocks). *2* (clocks) increases the system performance the most while *3* (clocks) provides the most stable performance.

Active Precharge Delay
The field specifies the idle cycles before precharging an idle bank. Settings: *8, 7, 6, 5* (clocks).

DRAM RAS# to CAS# Delay
This field allows you to set the number of cycles for a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from

or refreshed. Fast speed offers faster performance while slow speed offers more stable performance. Settings: *4, 3*, *2* (clocks).

DRAM RAS# Precharge
This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Available settings: *4, 3*, *2* (clocks).

Memory Frequency For
Use this item to configure the clock frequency of the installed DRAMs. Setting options: *Auto*, *DDR266, DDR333, DDR320, DDR400*.

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 BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result. Setting options: *Disabled*, *Enabled*.

Memory Hole At 15M-16M
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: *Enabled*, *Disabled*.

Delay Prior to Thermal
When the CPU temperature reaches a factory preset level, a thermal monitoring mechanism will be enabled following the appropriate timing delay specified in this field. With the thermal monitoring enabled, clock modulation controlled by the processor's internal thermal sensor is also activated to keep the processor within allowable temperature limit. Setting options: *4 Min*, *8 Min*, *16 Min*, *32 Min*.

AGP Aperture Size (MB)
This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The option allows the selection of an aperture size of *4MB, 8MB, 16MB, 32MB, 64MB, 128MB, and 256 MB.*

Init Display First
This item specifies which VGA card is your primary graphics adapter. Settings: *PCI Slot, Onboard/AGP.*

DRAM Data Integrity Mode
Select *ECC* (Error-Checking & Correcting Code) or *Non-ECC* according to the type of DRAM installed.

Auto Detect PCI Clk
This option allows you to enable/disable the feature of auto detecting the clock frequency of the installed PCI bus. Settings: *Enabled*, *Disabled*.

Spread Spectrum
When the motherboard 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, setting 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 clockspeed which may just cause your overclocked processor to lock up.

Integrated Peripherals

```
          Phoenix - AwardBIOS CMOS Setup Utility
                 Integrated Peripherals

  ▶ OnChip IDE Device        [Press Enter]          Item Help
  ▶ Onboard Device           [Press Enter]
  ▶ SuperIO Device           [Press Enter]      Menu Level    ▶

↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
   F5: Previous Values    F6: Fail-Safe Defaults  F7: Optimized Defaults
```
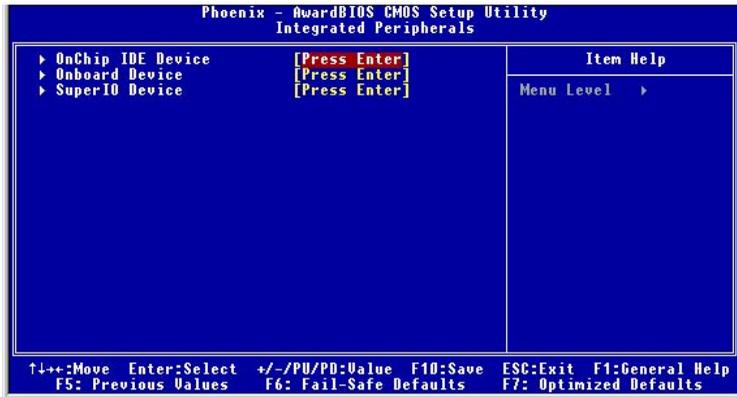
OnChip IDE Device

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

```
  IDE HDD Block Mode         [Enabled]
  IDE DMA transfer access     [Enabled]
  On-Chip Primary   PCI IDE  [Enabled]
  IDE Primary Master PIO      [Auto]
  IDE Primary Slave  PIO      [Auto]
  IDE Primary Master UDMA     [Auto]
  IDE Primary Slave  UDMA     [Auto]
  On-Chip Secondary PCI IDE  [Enabled]
  IDE Secondary Master PIO    [Auto]
  IDE Secondary Slave  PIO    [Auto]
  IDE Secondary Master UDMA   [Auto]
  IDE Secondary Slave  UDMA   [Auto]

  *** On-Chip Serial ATA Setting ***
  SATA Mode                  [IDE]
  On-Chip Serial ATA         [Disabled]
  Serial ATA Port0 Mode      [Primary Master]
  Serial ATA Port1 Mode       Primary Master
```

IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write. *Enabled* enables IDE controller to use block mode; *Disabled* allows the controller to use standard mode.

IDE DMA Transfer Access
This item is used to enable or disable the DMA transfer function of the
IDE Hard Drive. The settings are: *Enabled, Disabled*.

On-Chip Primary/Secondary PCI IDE
The integrated peripherals controller contains an IDE interface with sup-
port for two IDE channels. Choose *Enabled* to activate each channel
separately. Setting options: *Disabled, Enabled*.

IDE Primary/Secondary 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. The settings are: *Auto, Mode 0, Mode 1, Mode 2, Mode 3,
Mode 4*.

Primary/Secondary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive
supports it and the operating environment includes a DMA driver
(Windows 95 OSR2 or a third-party IDE bus master driver). If your hard
drive and your system software both support Ultra DMA/33, Ultra DMA/
66 and Ultra DMA/100 select Auto to enable BIOS support. The settings
are: *Auto, Disabled*.

On-Chip Serial ATA Setting

SATA Mode
This setting allows you to select the SATA controller. Options: *IDE*,
RAID.

On-Chip Serial ATA
This setting allows you to control the SATA controller. Options: *Disabled*,
Auto, *Legacy Mode* or *Native Mode*. When set to [Auto], BIOS will
automatically swtich to SATA. If [Disabled] is selected, SATA controller
will be disabled. [Combined Mode] will combine PATA and SATA, and
support max. of 2 IDE drives in each channel. [Enhanced Mode] will
enable PATA and SATA, and support max. of 6 IDE drives.

Serial ATA Port 0/1 Mode
Select a compatible mode for Port 0 and Port 1 from Award setting to the chipset settings: *Primary Master, Primary Slave*, *Secondary Master*, *Secondary Slave*, *Primary Master , Secondary Master, SATA0 Master, SATA1 Master.*

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

```
USB Controller           [Enabled]
USB 2.0 Controller       [Enabled]
USB Keyboard Support     [Disabled]
USB Mouse Support        [Disabled]
AC97 Audio               [Auto]
AC97 Modem               [Auto]
CSA LAN (Giga-LAN)       [Enabled]
Onboard Lan Boot ROM     [Enabled]
```

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 setting disables/enables the support for USB 2.0 technology. 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. Setting options: *Disabled, Enabled.*

USB Keyboard/Mouse Support
Select *Enabled* if you need to use a keyboard/mouse in the operating system. Setting options: *Enabled, Disabled*.

AC97 Audio
This setting is used to enable or disable the onboard AC'97 (Audio Codec'97) feature. Selecting *Auto* allows the mainboard to detect whether an audio device is used. If an audio device is detected, the onboard AC'97 controller will be enabled; if not, the controller is disabled. Disable the function if you want to use other controller cards to connect an audio device. Setting options: *Disabled* and *Auto*.

AC97 Modem
[Auto] allows the mainboard to detect whether a modem is used. If a modem is detected, the onboard AC'97 modem controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect a modem. Settings: *Auto, Disabled*.

CSA LAN (Giga-LAN)
This item is used to enable or disable the onboard LAN controller. Setting options: *Enabled*, *Disabled*.

Onboard Lan Boot ROM
The item enables or disables the initialization of the onboard LAN Boot ROMs during bootup. Selecting *Disabled* will speed up the boot process.

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

```
Onboard FDC Controller    [Enabled]
Onboard Serial Port 1     [3F8/IRQ4]
Onboard Serial Port 2     [2F8/IRQ3]
UART Mode Select          [Standard]
Onboard Parallel Port     [378/IRQ7]
Parallel Port Mode        [Standard]
ECP Mode Use DMA          [3]
PWRON After PWR-Fail      [Off]
```

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. The settings are: *Enabled* and *Disabled*.

Onboard Serial Port 1/Port 2
Select an address and corresponding interrupt for the first and second serial ports. The settings are: *3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto*.

UART Mode Select
This setting allows you to specify the operation mode for serial port 2. Setting options: *IrDA, ASKIR, Normal*.

Normal	RS-232C Serial Port
IrDA	IrDA-compliant Serial Infrared Port
ASKIR	Amplitude Shift Keyed Infrared Port

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

Disabled	
3BC/IRQ7	Line Printer port 0
278/IRQ5	Line Printer port 2
378/IRQ7	Line Printer port 1

Parallel Port Mode
SPP: Standard Parallel Port
EPP: Enhanced Parallel Port
ECP: Extended Capability Port
ECP + EPP: Extended Capability Port + Enhanced Parallel Port
To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP mode simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP + EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously.

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.

Power Management Setup

```
             Phoenix - AwardBIOS CMOS Setup Utility
                    Power Management Setup
    ACPI Function                [Enabled]              Item Help
    ACPI Suspend Type            [S1(POS)]
  x Run VGABIOS if S3 Resume      Auto         Menu Level  ▶
    Power Management             [User Define]
    Video Off Method            [DPMS]
    Video Off In Suspend        [Yes]
    Suspend Type                [Stop Grant]
    MODEM Use IRQ               [3]
    Suspend Mode                [Disabled]
    HDD Power Down              [Disabled]
    Soft-Off by PWR-BTTN        [Instant-Off]
    Wake-Up by PCI card         [Enabled]
    Power On by Ring            [Enabled]
    Wake Up On LAN              [Enabled]
    USB KB WakeUp From S3(S4)   [Disabled]
    Resume by Alarm             [Disabled]
  x  Date(of Month) Alarm         0
  x  Time(hh:mm:ss) Alarm         0 :  0 :  0

  ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5: Previous Values    F6: Fail-Safe Defaults  F7: Optimized Defaults
```

ACPI Function

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

ACPI Suspend Type

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

S1(POS)	The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.
S3(STR)	The S3 sleep mode is a lower power state where the 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.
S1 & S3	BIOS determines the best mode automatically.

Run VGA BIOS If S3 Resume

Selecting *Enabled* allows BIOS to call VGA BIOS 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.

Power Management
This item is used to select the degree (or type) of power saving and is related to these modes: *Suspend Mode* and *HDD Power Down*. There are three options for power management:

> *Min Saving*   Minimum Power Management. Suspend Mode = 1 Hour.
> *Max Saving*   Maximum Power Management. Suspend Mode = 1 Min.
> *User Define*   Allows end users to configure each mode separately.

Video Off Method
This determines the manner in which the monitor is blanked.

> *V/H SYNC+Blank*   This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
> *Blank Screen*   This option only writes blanks to the video buffer.
> *DPMS*   Initial display power management signaling.

Video Off In Suspend
This setting determines whether the monitor will be turned off during suspend mode. Setting options: *Yes, No*.

Modem Use IRQ
Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. Settings are *3*, *4*, *5*, *7*, *9*, *10*, *11* and *NA*.

Suspend Mode
If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings are *Disabled*, *1 Min*, *2 Min*, *4 Min*, *8 Min*, *12 Min*, *20 Min*, *30 Min*, *40 Min* and *1 Hour*.

HDD Power Down
When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active. The settings are:

Disable, *1~15 Min*.

Soft-Off by PWR-BTTN
This feature allows users to configure the power button function. Settings are:

Instant-Off   The power button functions as a normal power-on/-off button.

Delay 4 Sec.   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 by PCI card, Power On by Ring, Wake Up on LAN
These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected. Options: *Enabled, Disabled.*

> **MSI Reminds You...**
> *You need to install a modem card supporting power on function for "Wake Up On Ring" function.*

USB KB Wake-Up from S3 (S4)
This setting allows you to enter "Any Key" (max. 8 numbers) to wake up the system from S3 state. Settings are: *Hot Key* and *Disabled.*

Resume By Alarm
The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

Date (of Month) Alarm
The field specifies the date for *Resume by Alarm*. Settings: 0~31.

Time (hh:mm:ss) Alarm
The field specifies the time for *Resume by Alarm. F*ormat is <hour><minute><second>.
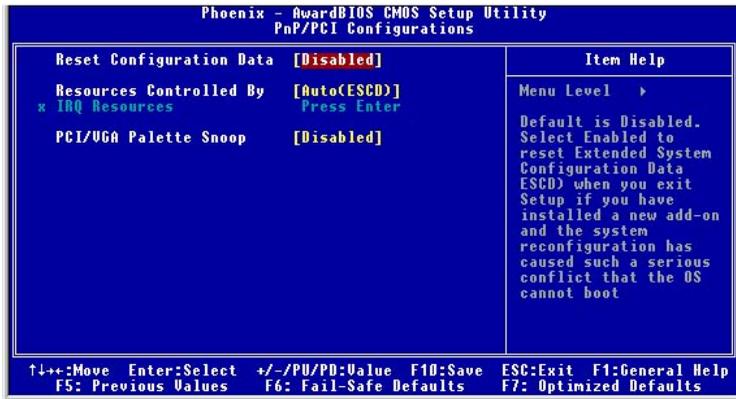
> **MSI Reminds You...**
> *If you have changed this setting, you must let the system boot up until it enters the operating system, before this function will work.*

PNP/PCI Configurations

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

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                        PnP/PCI Configurations

  Reset Configuration Data   [Disabled]                    Item Help

  Resources Controlled By    [Auto(ESCD)]         Menu Level   ▶
x IRQ Resources               Press Enter
                                                  Default is Disabled.
  PCI/VGA Palette Snoop      [Disabled]           Select Enabled to
                                                  reset Extended System
                                                  Configuration Data
                                                  ESCD) when you exit
                                                  Setup if you have
                                                  installed a new add-on
                                                  and the system
                                                  reconfiguration has
                                                  caused such a serious
                                                  conflict that the OS
                                                  cannot boot


↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
  F5: Previous Values     F6: Fail-Safe Defaults   F7: Optimized Defaults
```

Reset Configuration Data
Normally, you leave this field *Disabled*. Select *Enabled* to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on card and the system reconfiguration has caused such a serious conflict that the operating system cannot boot. Setting options: *Enabled*, *Disabled*.

Resource Controlled By
The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢"). The settings are: *Auto (ESCD)*, *Manual*.

IRQ Resources

The items are adjustable only when *Resources Controlled By* is set to *Manual*. Press <Enter> and you will enter the sub-menu of the items. IRQ Resources list IRQ 3/4/5/7/9/10/11/12/14/15 for users to set each IRQ a type depending on the type of device using the IRQ. Settings are:

> *PCI Device*   For Plug & Play compatible devices designed for PCI bus architecture.
>
> *Reserved*   The IRQ will be reserved for further request.

PCI/VGA Palette Snoop

When set to *Enabled*, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and one ISA) and the:

VGA Palette Snoop Bit Setting	Action
Disabled	Data read or written by the CPU is only directed to the PCI VGA device's palette registers.
Enabled	Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.

The setting must be set to *Enabled* if any ISA bus adapter in the system requires VGA palette snooping.

PC Health Status

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.
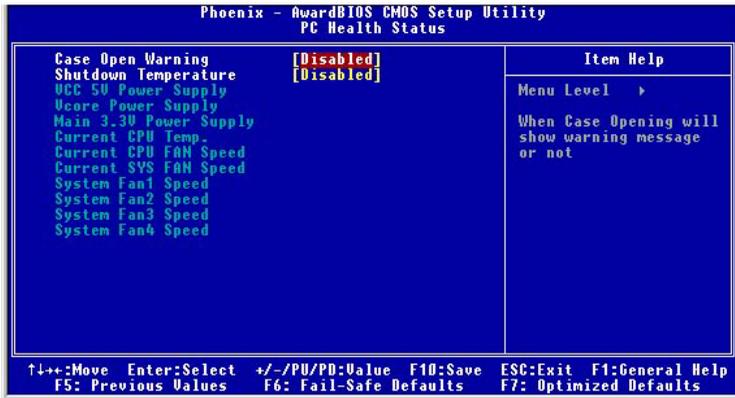
Case Open Warning
The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to *Reset*. The setting of the field will automatically return to *Enabled* later. Setting options: *Enabled*, *Reset*, *Disabled*.

Shutdown Temperature
This option is for setting the shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will be shut down.

VCC 5V Power Supply, Vcore Power Supply, Main 3.3V Power Supply, Current CPU Temp., Current CPU/SYS FAN Speed, System Fan1/2/3/4 Speed
These items display the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and all fans' speeds.

Load Fail-Safe/Optimized Defaults

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

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

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

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

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

```
Load Optimized Defaults (Y/N)? N
```

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:

```
Enter Password:
```

Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

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

Additionally, when a password is enabled, you can also have Award 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 is the *Security Option* of the *ADVANCED BIOS FEATURES* 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.*

Troubleshooting

Q: How do I know that the product that I have is from MSI?

A: All MSI product starts with the character MS-XXXX or Marketing Name (MS-XXXX) wherein XXXX refers to numbers. You should be able to find the Model number in between the PCI slots. For Example: MS-6368 or 845E Max (MS-6566E)

Q: How do I identify the BIOS version?

A: Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:

A6380MS V1.0 091096 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 as MS = all standard customers.

V1.0 refers to the BIOS version.

091096 refers to the date this BIOS is released.

Q: Does BIOS update need to be done by one version sequentially (3.0-->3.1- -->3.2-->3.3) or can I update directly to the last version (3.3)?

A: You can update directly to the latest one.

Q: Should I update my BIOS, once a new BIOS is released?

A: A new BIOS is usually released due to the following reasons:

1. New function is supported

2. New BIOS source code

3. Bugs are found

4. Customer-specific request

When we release a new BIOS, there's usually a release note attached which lists the reason for the release. Refer to this release note and decide

for yourself if upgrading to the new BIOS will be worth it. A word of advice, though, do not upgrade to the new BIOS, unless you really have to.

Q: How can I update my BIOS?

A: For **Award** BIOS, refer to http://www.msi.com.tw/html/support/bios/ note/award.htm

      For **AMI** BIOS, refer to http://www.msi.com.tw/html/support/bios/note/ ami.htm

      For user using non-FAT system, refer to http://www.msi.com.tw/html/ support/bios/note/ntfs.htm

Q: After flashing the BIOS, my system for unknown reason doesn't want to boot, what should I do?

A: Normally, this should not happen unless you flashed the wrong BIOS or some other reasons.

      Suggestions:

      1. try the BIOS boot recovery feature as described in http://www.msi. com.tw/html/support/bios/note/boot.htm

      2. try to clear the CMOS

      If problem still persists, you would need to purchase new BIOS chip from Websites like www.flashbios.org where you can order a new BIOS or you can also contact MSI office near your place to purchase new BIOS chip http://www.msi.com.tw/html/contact/contact.htm

Q: Why my motherboard BIOS sticker is "Phoenix BIOS" but when I boot up my system I saw that "Award BIOS" is being used?

A: Phoenix & Award already merged as one company. All MSI motherboard using Award BIOS comes with Phoenix logo sticker.

Q: Where can I find the BIOS for my motherboard?

A: 1. For Server motherboard, refer to http://www.msi.com.tw/program/

sup port/bios/bos/spt_bos_list.php?kind=3

　　2. For Desktop motherboard, refer to http://www.msi.com.tw/program/support/bios/bos/spt_bos_list.php?kind=1

　　Note: The BIOS is subdivided as Socket478, SocketA, Socket 470 & Archives

　　If your board is socket478 based board, then you should be able to find your board under the socket478 area

　　If in case you cannot find your board, then refer to http://www.msi.com.tw/program/support/bios/bos/spt_bos_list.php?kind=1&CHIP=Archives&ID=4 and find your board according to the CPU type

　　3. For Optical product firmware, refer to http://www.msi.com.tw/program/support/driver/dvr/spt_dvr_list.php?part=4

Q: Where can I find MSI developed software such as Fuzzy Logic or PC Alert?

A:　　Refer to http://www.msi.com.tw/program/support/software/swr/spt_swr_list.php

Q: Where can I find the manual?

A:　　1. For Desktop motherboard, refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php

　　Note: The manual is subdivided as Socket478, SocketA, Socket 470 & Archives

　　If your board is socket478 based board, then you should be able to find your board under the socket478 area

　　If in case you cannot find your board, then refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php?kind=1&CHIP=Archives&ID=4 & find your board according to the CPU type

2. For VGA card, refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php?kind=3

Note: The manual is subdivided as Geforce4, Geforce3, Geforce2 & Archives

If your VGA is Geforce4 based card, then you should be able to find your card under the Geforce4 area

If in case you cannot find your card, then refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php?kind=2&CHIP=Archives&ID=4 & find your card according to the chipset type

2. For Server motherboard, refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php?kind=3

3. For peripherals like PC2PC bliuetooth or TV Tuner, refer to http://www.msi.com.tw/program/support/manual/mnu/spt_mnu_list.php?kind=7

Q: Where can I find the drivers?

A: Please refer to the following suggestions: 1. Try the BIOS boot recovery feature as described in http://www.msi.com.tw/support/bios/boot.htm 2. Try to clear the CMOS If problem still persists, ask your reseller for new BIOS chip or contact one of MSI office near your place for new BIOS chip http://www.msi.com.tw/contact/main.htm

Q: Should I update my BIOS, once a new BIOS is released?

A: 1. For Desktop motherboard, refer to http://www.msi.com.tw/program/support/driver/dvr/spt_dvr_list.php where the drivers are divided according to chipset, on-board LAN, on-board VGA, on-board audio, on-board IDE, on-board SCSI & etc.

2. For VGA card, refer to http://www.msi.com.tw/program/support/driver/dvr/spt_dvr_list.php?part=2 where the drivers are divided according to video drivers, capture drivers & others

3. For Server motherboard, refer to http://www.msi.com.tw/program/

support/driver/dvr/spt_dvr_list.php?part=3

4. For Optical product firmware, refer to http://www.msi.com.tw/program/support/driver/dvr/spt_dvr_list.php?part=4

5. For MSI special product like bluetooth or TV tuner, refer to http://www.msi.com.tw/program/support/driver/dvr/spt_dvr_list.php?part=5

Q: How can I know what CPU can my motherboard support?

A: 1. For Server motherboard, refer to http://www.msi.com.tw/program/support/cpu_support/cpu/spt_cpu_list.php?kind=3

2. For Desktop motherboard, refer to http://www.msi.com.tw/program/support/cpu_support/cpu/spt_cpu_list.php?kind=1

Note: The BIOS is subdivided as Socket478, SocketA, Socket 470 & Archives

If your board is socket478 based board, then you should be able to find your board under the socket478 area

If in case you cannot find your board, then refer to http://www.msi.com.tw/program/support/cpu_support/cpu/spt_cpu_list.php?kind=1&CHIP=Archives&ID=4 & find your board according to the CPU type

Note: On some CPU table you will see N/A, N/A means not applicable or not supported

Q: Where can I get my motherboard repaired since it is not working?

A: The normal procedure is to contact your reseller (the place you bought the board from) for repair/exchange If the reseller for some reason like bankrupt cannot be contacted, then contact MSI distributor http://www.msi.com.tw/program/contact/where2buy/ or MSI office near your place http://www.msi.com.tw/html/contact/contact.htm

Q: My reseller went bankrupt, where can I send back my board for repair?

A: Contact MSI distributor http://www.msi.com.tw/program/contact/where2buy/ or MSI office near your place http://www.msi.com.tw/html/contact/contact.htm

Q: How long is MSI motherboard warranty?

A: MSI normally gives 2 years warranty to it's direct customer & distributors. But each distributors & reseller will have a different warranty policy. So it is advisable you check with your reseller about their warranty policy.

Q: How can I find MSI distributor in my country?

A: Refer to http://www.msi.com.tw/program/contact/where2buy/ Select the country & you will find MSI distributor in that country. If in case you cannot find the country listed, then it means MSI still don¡¦t have distributor in the said country

Q: How can I find MSI office near my country?

A: Refer to http://www.msi.com.tw/html/contact/contact.htm
    For more information of each MSI ?subsidiary company, please move your mouse arrow to the "+" symbol.

Q: My system cannot boot up, what shall I do?

A: There are many possibilities on why the system cannot boot up, please refer to below suggestions to see if ti helps or not. If after trying below suggestions problem still persists, then take the motherboard to the place you bought from & have them take a look to make sure if the motherboard is faulty or not
    Suggestions:
    Make sure the motherboard was installed properly to the chassis (the board should not touch the chassis)
    Make sure all the components (memory, CPU, AGP & power supply connectors etc.) are properly installed
    Clear CMOS
    Change to another power supply
    Change to another memory
    Change to another AGP card

Q: What should I do if my motherboard have compatibility issue with PCI cards?

A: Suggestions

Remove all the unnecessary devices & try to find the source of the problem

Disable all on-board device like audio, RAID or others apply & see if it is due to resource conflict

Move the PCI card to different PCI slots

Update the card BIOS or drivers

Update the motherboard BIOS

Q: What should I do if my MSI VGA card have compatibility issue with another brand of motherboard?

A: Update the video driver

Update the motherboard driver or BIOS

Glossary

ACPI *(Advanced Configuration & Power Interface)*
This power management specification enables the OS (operating system) to control the amount of power given to each device attached to the computer. Windows 98/98SE, Windows 2000 and Windows ME can fully support ACPI to allow users managing the system power flexibly.

AGP *(Accelerated Graphics Port)*
A new, high-speed graphics interface that based on PCI construction and designed especially for the throughput demands of 3-D graphics. AGP provides a direct channel (32-bit wide bus) between the display controller and main memory for high graphics quality and performance.

Bluetooth
Bluetooth refers to a worldwide standard for the wireless exchange of data between two devices. Bluetooth requires that a low-cost transceiver chip be included in each device. The tranceiver transmits and receives in a previously unused frequency band of 2.45 GHz that is available globally (with some variation of bandwidth in different countries). In addition to data, up to three voice channels are available. Each device has a unique 48-bit address from the IEEE 802 standard. Connections can be point-to-point or multipoint. The maximum range is 10 meters. Data can be exchanged at a rate of 1 megabit per second (up to 2 Mbps in the second generation of the technology).

BIOS *(Basic Input/Output System)*
On PCs, an essential software that contains all the control code of input/output interface (such as keyboard, disk drives, etc.). It executes hardware test on booting the system, starts the OS, and provides an interface between the OS and the components. The BIOS is stored in a ROM chip.

Bus
A set of hardware lines within the computer system, through which the data is transferred among different components. In a PC, the term *bus* usually refers to a local bus that connects the internal components to the CPU and main memory.

Cache
A special memory subsystem that is used to speed up the data transfer. It stores the

contents of frequently accessed RAM locations and the addresses where these data items are stored.

Chipset
A collection of integrated chips designed to perform one or more related functions. For example, a modem chipset contains all the primary circuits for transmitting and receiving data; a PC chipset provides the electronic interfaces between all subsystems.

Clock Cycle
Clock cycle (or tick) is the smallest unit of time recognized by a device. For personal computers, clock cycles generally refer to the main system clock, which runs at 66 MHz. This means that there are 66 million clock cycles per second. Since modern CPUs run much faster (up to 533 MHz), the CPU can execute several instructions in a single clock tick.

CMOS *(Complementary Metal-Oxide Semiconductor)*
CMOS is a widely used type of semiconductor, which features high speed and low power consumption. PCs usually contain a small amount of battery-powered CMOS memory to retain the date, time, and system setup parameters.

DRAM *(Dynamic RAM)*
A most common type of computer memory. It usually uses one transistor and a capacitor to represent a bit. As the development of technology, the memory type and specification used in computer becomes variety, such as SDRAM, DDR SDRAM, and RDRAM. For further instruction, please see the table below:

Dynamic RAM (DRAM) Memory Technologies					
Type	First Used	Clock Rate	Bus* Width	Peak Bandwidth	Volts
FPM (60,70ns)	1990	25MHz	64 bits	200 MBps	5v
EDO (50,60,70ns)	1994	40MHz	64 bits	320 MBps	5v
SDRAM (66MHz)	1996	66MHz	64 bits	528 MBps	3.3v
SDRAM (100MHz)	1998	100MHz	64 bits	800 MBps	3.3v
SDRAM (133MHz)	1999	133MHz	64 bits	1.1 GBps	3.3v
RDRAM (Direct Rambus)	1999	400MHz	16 bits	1.6 GBps	2.5v
DDR SDRAM (100MHz)	2000	100MHz	64 bits	1.6 GBps	3.3v
DDR SDRAM (133MHz)	2000	133MHz	64 bits	2.1 GBps	3.3v
* Memory channel width (64 bits started with 75MHz Pentium)					

Source: Computer Desktop Encyclopedia

ECC Memory *(Error Correcting Code Memory)*
A type of memory that contains special circuitry for testing the accuracy of data and correcting the errors on the fly.

EEPROM
Acronym for Electrically Erasable Programmable Read-Only Memory. An EEPROM is a special type of PROM that can be erased by exposing it to an electrical charge. Like other types of PROM, EEPROM retains its contents even when the power is turned off. Also like other types of ROM, EEPROM is not as fast as RAM. EEPROM is similar to flash memory (sometimes called flash EEPROM). The principal difference is that EEPROM requires data to be written or erased one byte at a time whereas flash memory allows data to be written or erased in blocks. This makes flash memory faster.

EIDE
Short for Enhanced IDE, a newer version of the IDE mass storage device interface standard developed by Western Digital Corporation. It supports data rates of between 4 and 16.6 MBps, about three to four times faster than the old IDE standard. In addition, it can support mass storage devices of up to 8.4 gigabytes, whereas the old standard was limited to 528 MB. Because of its lower cost, enhanced EIDE has replaced SCSI in many areas. There are four EIDE modes defined. The most common is Mode 4, which supports transfer rates of 16.6 MBps. There is also a new mode, called ATA-3 or Ultra ATA, that supports transfer rates of 33 MBps.

EISA *(Extended Industry Standard Architecture)*
EISA is a standard bus (computer interconnection) architecture that extends the ISA standard to a 32-bit interface. It was developed in part as an open alternative to the proprietary Micro Channel Architecture (MCA) that IBM introduced in its PS/2 computers. EISA data transfer can reach a peak of 33 megabytes per second.

ESCD *(Extended System Configuration Data)*
It is a format for storing information about Plug-and-Play (PnP) devices in the BIOS. Windows and the BIOS access the ESCD area each time you re-boot your computer

External Cache
Short for Level 2 cache, cache memory that is external to the microprocessor. In general, L2 cache memory, also called the secondary cache, resides on a separate chip from the microprocessor chip. Although, more and more microprocessors are including L2 caches into their architectures.

IDE *(Integrated Drive Electronics)*

A type of disk-drive interface widely used to connect hard disks, CD-ROMs and tape drives to a PC, in which the controller electronics is integrated into the drive itself, eliminating the need for a separate adapter card. The IDE interface is known as the ATA (AT Attachment) specification.

IEEE 1394

A new, high speed external bus standard, also known as *FireWire* or *iLink*, which supports data transfer rates of up to 400 Mbps for connecting up to 63 external devices.

Internal Cache

Short for Level 1 cache, a memory cache built into the microprocessor. The L1 cache is also called the primary cache.

IrDA *(Infrared Data Association)*

A group of device vendors, including computer, component and telecommunications, who have developed a standard for transmitting data via infrared light waves. This enables you to transfer data from one device to another without any cables.

IRQ *(Interrupt Request Line)*

IRQs are hardware lines over which devices can send interrupt signals to the microprocessor. When you add a new device to a PC, you sometimes need to set its IRQ number by setting a DIP switch. This specifies which interrupt line the device may use. IRQ conflicts used to be a common problem when adding expansion boards, but the Plug-and-Play specification has removed this headache in most cases.

ISA *(Industry Standard Architecture)*

ISA is a standard bus (computer interconnection) architecture that is associated with the IBM AT motherboard. It allows 16 bits at a time to flow between the motherboard circuitry and an expansion slot card and its associated device(s). Also see EISA and MCA.

LAN *(Local Area Network)*

A computer network that covers a relatively smaller area, such as in a building or an enterprise. It is made up of servers, workstations, shared resources, a network operating system and a communications link. These individual PCs and devices on a LAN are known as "nodes", and are connected by cables to access data and devices anywhere on the LAN, so that many users can share expensive devices and data.

LBA *(Logical Block Addressing)*
Logical block addressing is a technique that allows a computer to address a hard disk larger than 528 megabytes. A logical block address is a 28-bit value that maps to a specific cylinder-head-sector address on the disk. 28 bits allows sufficient variation to specify addresses on a hard disk up to 8.4 gigabytes in data storage capacity. Logical block addressing is one of the defining features of Enhanced IDE (EIDE), a hard disk interface to the computer bus or data paths.

LED *(Light Emitting Diode)*
A semiconductor device that converts electrical energy into light. Since it lights up (usually red) when electricity is passed through it, it is usually used for the activity lights on computer's component, such as disk drivers.

LPT *(Line Printer Terminal)*
Logical device name for a line printer; a name reserved by the MS-DOS for up to three parallel printer ports: LPT1, LPT2, and LPT3. It is frequently used by the OS to identify a printer.

Overclocking
Overclocking is resetting your computer so that the microprocessor runs faster than the manufacturer-specified speed (for example, setting an Intel 166 MHz (megahertz) microprocessor to run at 200 Mhz).

PCI *(Peripheral Component Interconnect)*
A local bus standard developed by Intel that first appeared on PCs in late 1993. PCI provides "plug and play" capability and allows IRQs to be shared. The PCI controller can exchange data with the system's CPU either 32 bits or 64 bits at a time.

PnP *(Plug and Play)*
A set of specifications that allows a PC to configure itself automatically to work with peripherals. The user can "plug" in a peripheral device and "play" it without configuring the system manually. To implement this useful feature, both the BIOS that supports PnP and a PnP expansion card are required.

POST *(Power On Self Test)*
During booting up your system, the BIOS executes a series of diagnostic tests, include checking the RAM, the keyboard, the disk drives, etc., to see if they are properly connected and operating.

PS/2 Port
A type of port developed by IBM for connecting a mouse or keyboard to a PC. The PS/2 port supports a mini DIN plug containing just 6 pins. Most modern PCs equipped with PS/2 ports so that the special port can be used by another device, such as a modem.

RAID
RAID (Redundant Array of Independent Disks; originally Redundant Array of Inexpensive Disks) is a way of storing the same data in different places (thus, redundantly) on multiple hard disks. By placing data on multiple disks, I/O operations can overlap in a balanced way, improving performance. Since multiple disks increases the mean time between failure (MTBF), storing data redundantly also increases fault-tolerance.

SCSI
Acronym for Small Computer System Interface. Pronounced "scuzzy," SCSI is a parallel interface standard used by Apple Macintosh computers, PCs, and many UNIX systems for attaching peripheral devices to computers. SCSI interfaces provide for faster data transmission rates (up to 80 megabytes per second) than standard serial and parallel ports. In addition, you can attach many devices to a single SCSI port, so that SCSI is really an I/O bus rather than simply an interface.

USB *(Universal Serial Bus)*
A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, etc. USB provides a maximum bandwidth of 12 Mbit/sec (Mbps) for connecting up to 127 peripheral devices to PC. USB features hot swap capability and multiple data streams, allows external devices to be plugged in and unplugged without turning the system off.

Virus
A program or a piece of code that infects computer files by inserting in those files copies of itself. The virus code is buried within an existing program, and is activated when that program is executed. All the viruses are man-made, and often have damaging side effects.

WLAN
Acronym for wireless local-area network. Also referred to as LAWN. A type of local-area network that uses high-frequency radio waves rather than wires to communicate between nodes.