P4MAM Series

MS-6787 (v1.X) M-ATX Mainboard
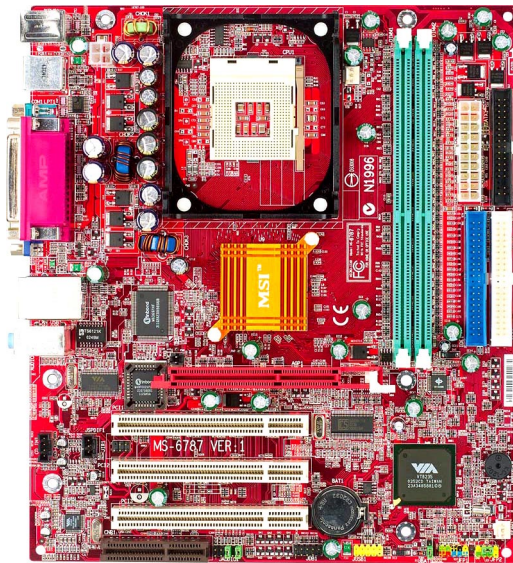
Version 1.1
G52-M6787X3

Manual Rev: 1.1
Release Date: July 2003

$C\epsilon$ 🅒 **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 equip-
ment is operated in a commercial environment. This equipment generates, uses
and can radiate radio frequency energy and, if not installed and used in accor-
dance 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 respon-
sible for compliance could void the user's authority to operate the equipment.

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

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

Micro-Star International   MS-6787

F©   **Tested to comply
with FCC Standard**

For Home or Office Use
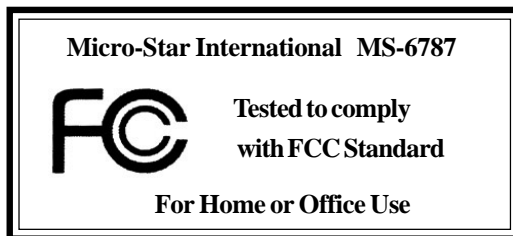
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Revision History

Revision	Revision History	Date
V1.1	Remove JKBV1 jumper	July 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 choosing the P4MAM Series (MS-6787 v1. X) micro ATX mainboard. The P4MAM Series is based on **VIA® VT8751A** & **VT8235** chipsets for optimal system efficiency. Designed to fit the advanced **Intel® Pentium® 4** processors in 478 pin package, the P4MAM Series delivers a high performance and professional desktop platform solution.

Mainboard Specifications

CPU
➤ Supports Intel® Pentium® 4/Celeron (Socket 478) processor.
➤ FSB @ 400MHz/533MHz.
➤ Supports up to 3.06GHz.

Chipset
➤ VIA® VT8751A chipset (664 BGA)
  - 64bit P4 processors FSB I/F (533MHz).
  - 64bit DDR SDRAM memory I/F (200/266MHz).
  - 32bit AGP I/F (66MHz) for 4x/2x mode.
  - 8bit V-Link I/F (66MHz) with peak bandwidth of 266MB/s.

➤ VIA® VT8235 chipset (376 BGA)
  - Dual-channel UDMA 133/100/66/33 master mode EIDE controller.
  - 6 ports USB controller (v2.0).
  - KBD controller with PS2 mouse support.
  - SMBus I/F and ACPI/APM compliance power management.
  - LPC I/F for super I/O and 2MB flash ROM (BIOS).
  - AC-97 link controller to cooperate w/ external AC97 audio & modem codec.
  - 10/100Mbps Fast Ethernet controller.
  - Supports HSP modem.

Main Memory
➤ Supports four memory banks using two 184-pin DDR DIMM.
➤ Supports up to 2GB PC2100/PC1600 SDRAMs.
➤ Supports 2.5v DDR SDRAM.

Slots
➤ One AGP (Accelerated Graphics Port) 4x slot.
➤ Three PCI 2.2 32-bit PCI bus slots (support 3.3v/5v PCI bus interface).
➤ One CNR (Communication Network Riser) slot.

On-Board IDE
➤ An IDE controller on the VIA® VT8235 Chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100/133 operation modes.
➤ Can connect up to four IDE devices.

On-Board Peripherals
➤ On-Board Peripherals include:
  - 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
  - 1 serial port (COM A)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 6 USB 2.0 ports (Rear * 4/ Front * 2)
  - 1 audio (Line-In/Line-Out/Mic) port
  - 1 RJ45 LAN jack
  - 1 VGA port

Audio
➤ AC97 link controller integrated in VT8235.
➤ VIA® VT1616 6-channel software audio codec.
  - Compliance with AC'97 v2.2 spec.

LAN
➤ VIA® VT6103 PCI local bus single-chip Fast Ethernet Controller.
  - With external 10/100 Base-T Lan transformer.
  - Integrated Fast Ethernet MAC and PHY in one chip.
  - Supports 10Mb/s and 100Mb/s auto-negotiation operation.
  - Compliance with PCI v2.2 and PC99 standard.
  - Supports ACPI power management.

BIOS
➤ The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
➤ The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.
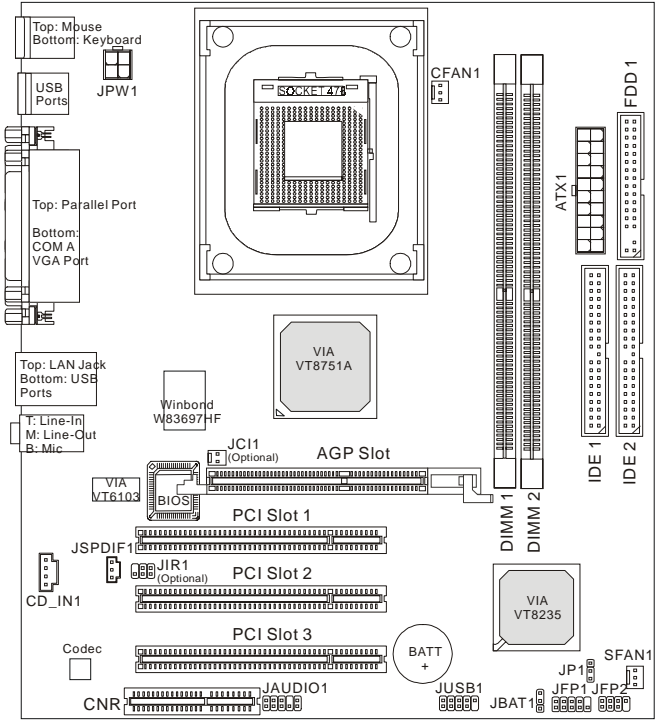
Dimension
➤ Micro-ATX Form Factor: 243mm x 214mm.

Mounting
➤ 6 standard mounting holes.

Mainboard Layout

P4MAM Series (MS-6787 v1.X) Micro ATX Mainboard

MSI Special Features

Color Management

MSI has an unified color management rule for some connectors on the mainboards, which helps you to install the memory modules, expansion cards and other peripherals devices more easily and conveniently.

> ➤ Intel spec IDE ATA66/100/133 connector: 1st IDE in blue, 2nd IDE in white
> ➤ AGP slot: red
> ➤ USB 2.0 connector: yellow
> ➤ Front panel connector JFP1: HDD LED in red, Reset Switch in blue, Power Switch in black, Power LED in light green.
> ➤ Front panel connector JFP2: Power LED in light green.

Intel Spec IDE ATA66/100/133 Connectors: 1st IDE: Blue/2nd IDE: White

AGP Slot

Front Panel Connector JFP2

USB 2.0 Connector

Front Panel Connector JFP1
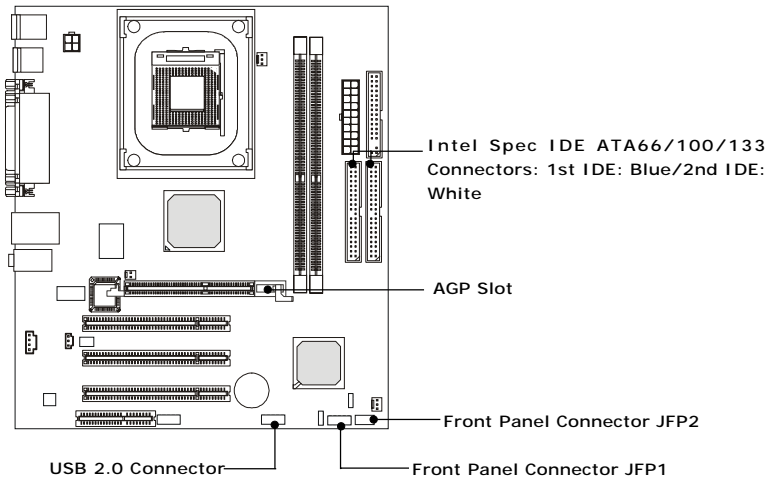
PC Alert™ 4

The PC Alert™ 4 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 & system temperatures
✦ monitor fan speeds
✦ monitor system voltages

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 the condition returns to the normal status.

Adjusting Keys
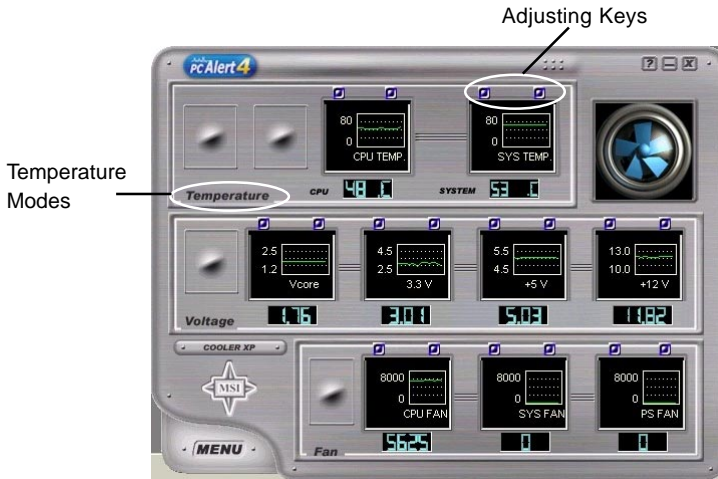
Temperature Modes

Users can use the Adjusting Keys to change the minimum and maximum threshold of each item for the system to send out a warning message. Click *Temperature* to select the temperature modes of either Fahrenheit (ºF) or Celsius (ºC). The PC

CPU Temperature : 42 .C
AM 09:50

Alert™ 4 icon on the Status Area will show the current CPU temperature.

MSI Reminds You...
1. Items shown on PC Alert 4 vary depending on your system status.
2. Whenever the minimum or maximum threshold of each item has been changed, please close the PC Alert 4 program for the new settings to take effect.

Fuzzy Logic™ 4

The *Fuzzy Logic™ 4* utility is a user friendly tool that allows users to view and adjust the current system status. To overclock the CPU FSB (Front Side Bus) frequency under the Windows operating system, click *FSB* and use the right and left arrow keys to select the desired FSB, and then click *Apply* to apply the new setup value. To enable the system running at the specified FSB every time when you click *Turbo*, click *Save* to save the desired FSB first. If you want to know the maximal CPU overclocking value, click *Auto* to start testing. The CPU FSB will automatically increase the testing value until the PC reboots. After rebooting, click *Turbo* to apply the test result. Click *Default* to restore the default values.
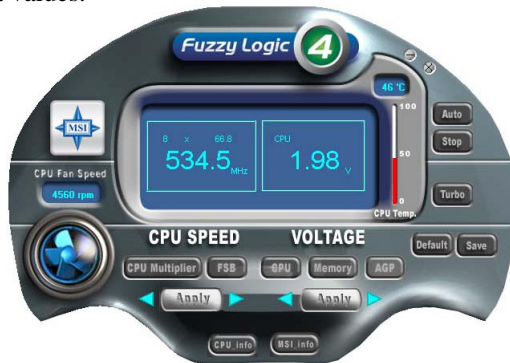
Features:
- ✦ MSI Logo   links to the MSI Web site
- ✦ CPU Speed   allows users to adjust the CPU speed through CPU Multiplier and FSB
- ✦ Voltage   allows user to adjust the voltage of CPU/Memory/AGP
- ✦ MSI Info   provides information about the mainboard, BIOS and OS
- ✦ CPU Info   provides detailed information about the CPU
- ✦ CPU Fan Speed shows the current running speed of CPU Fan
- ✦ CPU Temp.   shows the current CPU temperature

> **MSI Reminds You...**
> *To adjust the options under **CPU Speed** and **Voltage**, use the right and left arrow keys to select the desired value and then click **Apply** to run the setup value.*

Live BIOS™/Live Driver™

The Live BIOS™/Live Driver™ is a tool used to detect and update your BIOS/drivers online so that you don't need to search for the correct BIOS/driver version throughout the Web site. To use the function, you need to install the "MSI Live Update 2" application. After installation, the "MSI Live Update 2" icon (as shown on the right) will appear on the screen.

Double click the "MSI Live Update 2" icon, and the following screen will appear:
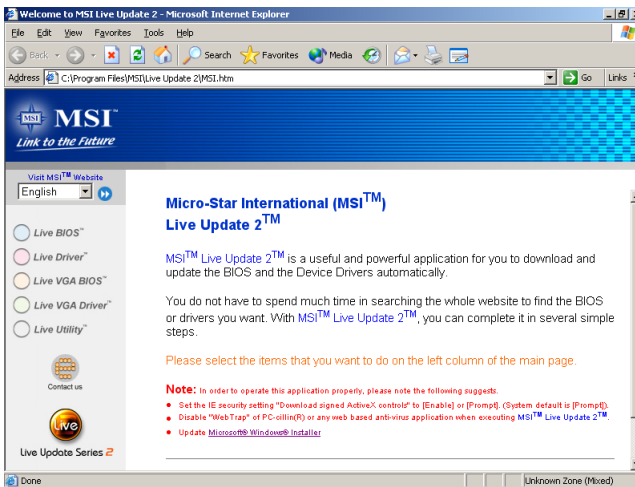
Five buttons are placed on the leftmost pane of the screen. Click the desired button to start the update process.

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

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

Live Monitor™

The Live Monitor™ is a tool used to schedule the search for the latest BIOS/drivers version on the MSI Web site. To use the function, you need to install the "MSI Live Update 2" application. After installation, the "MSI Live Monitor" icon (as shown on the right) will appear on the screen. Double click this icon to run the application.

Double click the "MSI Live Monitor" icon at the lower-right corner of the taskbar, and the following dialog box will appear. You can specify how often the system will automatically search for the BIOS/drivers version, or change the LAN settings right from the dialog box.
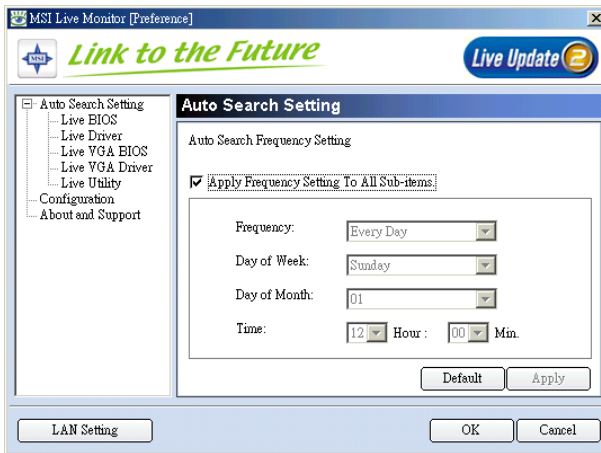
You can right-click the MSI Live Monitor icon to perform the functions listed below:

- **Auto Search** – Searches for the BIOS/drivers version you need immediately.
- **View Last Result** – Allows you to view the last search result if there is any.
- **Preference** – Configures the Search function, including the Search schedule.
- **Exit** – Exits the Live Monitor™ application.
- **FAQ** – Provides a link to a database which contains various possible questions about MSI's products for users to inquire.
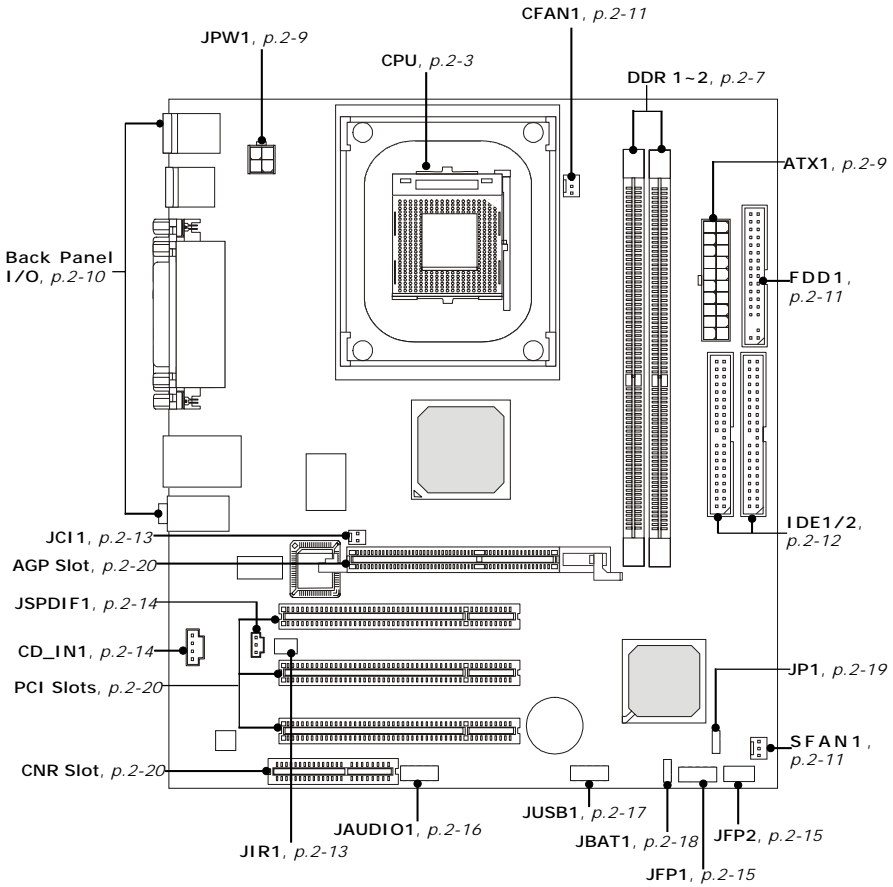
2

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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JPW1, *p.2-9*

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DDR 1~2, *p.2-7*

ATX1, *p.2-9*

Back Panel I/O, *p.2-10*

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SFAN1, *p.2-11*

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JBAT1, *p.2-18*

JFP2, *p.2-15*

JIR1, *p.2-13*

JFP1, *p.2-15*

Central Processing Unit: CPU

The mainboard supports Intel® Pentium® 4 processors 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	=	24
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 24
		=	2.4 GHz

MSI	**MSI Reminds You...**

MSI Reminds You...

Overheating
Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.
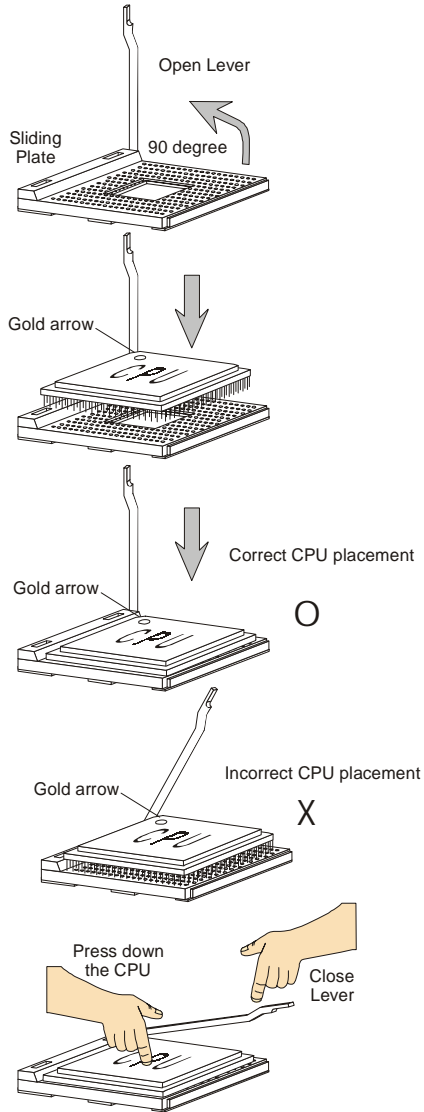
Replacing the CPU
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from grounded outlet first to ensure the safety of CPU.

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

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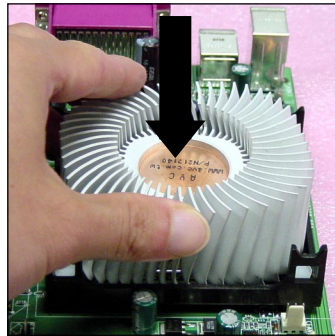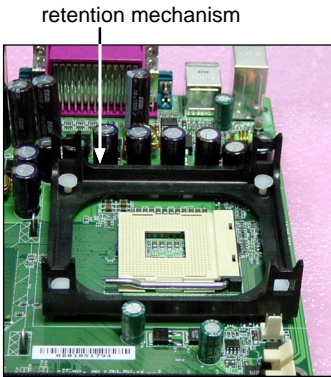
3. Mount the fan on top of the heatsink. Press down the fan until its four clips get wedged in the holes of the retention mechanism.

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

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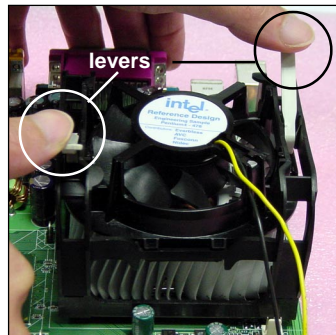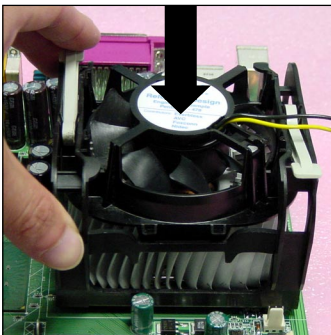
5. Connect the fan power cable from the mounted fan to the 3-pin fan power connector on the board.
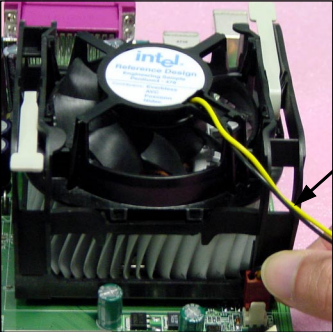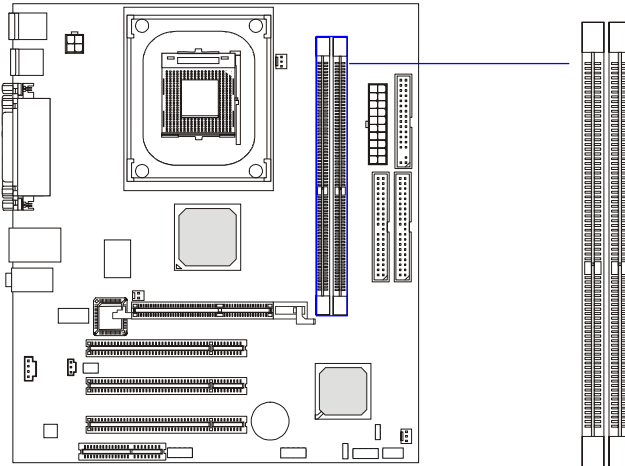
fan power cable

NOTES

Memory

The mainboard provides 2 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports the memory size up to 2GB. You can install PC2100/DDR266 or PC1600/DDR200 modules on the DDR DIMM slots (DIMM 1~2).

**DDR DIMM Slots
(DIMM 1~2)**

Memory Speed/CPU FSB Support Matrix

	DDR200	DDR266
FSB400	OK	OK
FSB533	OK	OK

DDR Module Combination

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

Memory modules can be installed in any combination as follows:

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

S: Single Side   D: Double Side

Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.

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

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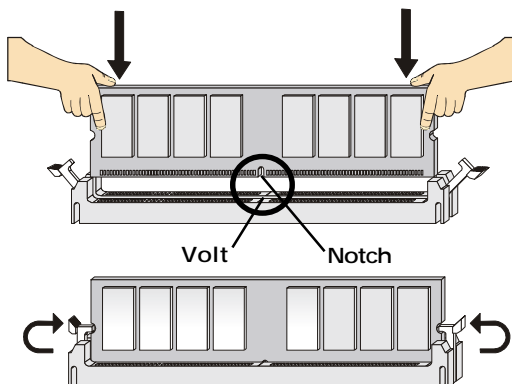
MSI Reminds You...
You can barely see the golden finger if the module is properly inserted in the socket.
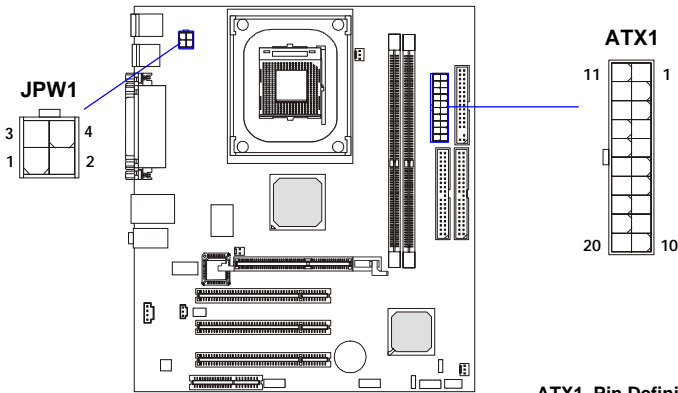
Power Supply

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

ATX 20-Pin Power Connector: ATX1

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: JPW1

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

JPW1 Pin Definition

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

ATX1 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

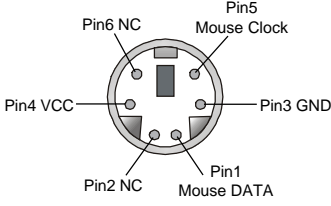**MSI Reminds You...**
Power supply of 300watt (and up) is highly recommended for system stability.
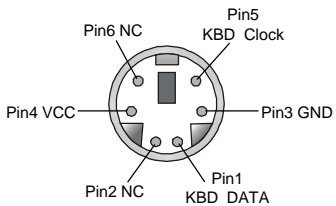
Back Panel

Mouse

Parallel

L-In

USB Ports

LAN

Keyboard

COM A

VGA Port

USB Ports L-Out

MIC

Mouse Connector

Pin6 NC
Pin5 Mouse Clock
Pin4 VCC
Pin3 GND
Pin2 NC
Pin1 Mouse DATA

Serial Port

COM A

1 2 3 4 5

6 7 8 9
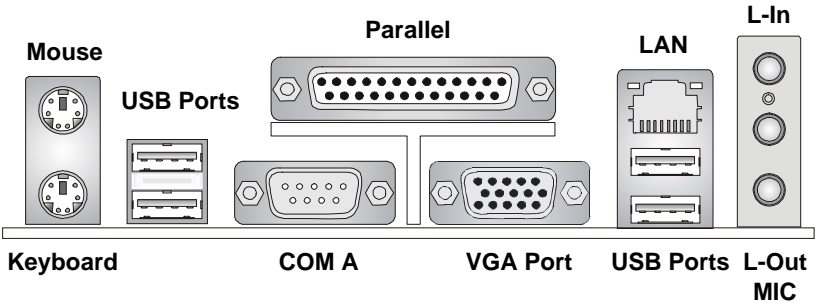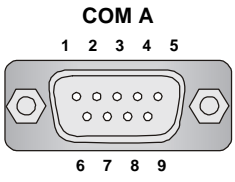
PIN	SIGNAL
1	DCD
2	SIN
3	SOUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Keyboard Connector

Pin6 NC
Pin5 KBD Clock
Pin4 VCC
Pin3 GND
Pin2 NC
Pin1 KBD DATA

VGA Port

5   1

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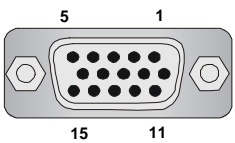
Pin	Signal
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	N/C
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

USB Ports

1 2 3 4
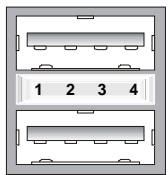
PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

RJ-45 LAN Jack

8   1
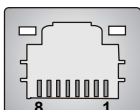
| PIN	SIGNAL	PIN	SIGNAL
1	TDP	5	NC
2	TDN	6	RDN
3	RDP	7	NC
4	NC	8	NC

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, audio, LAN, 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.

Fan Power Connectors: CFAN1/SFAN1

The CFAN1 (processor fan) & SFAN1 (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.

GND
+12V
Sensor

CFAN1

FDD1

GND
+12V
SENSOR

SFAN1

MSI
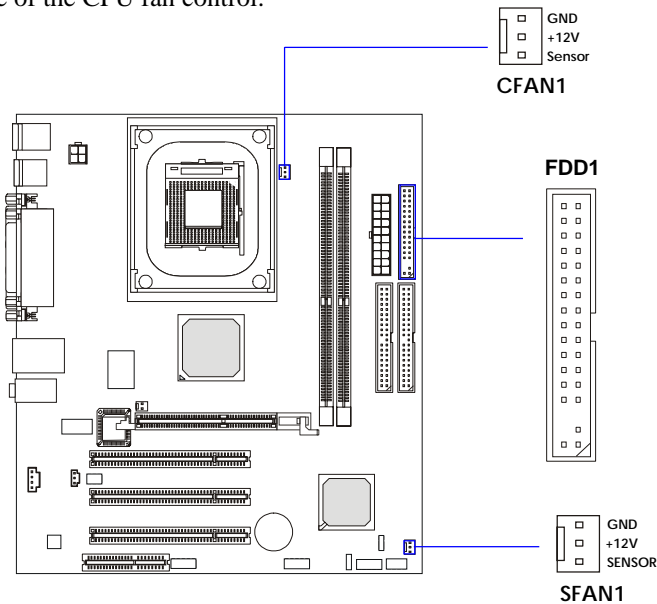
MSI Reminds You...
Always consult the vendors for proper CPU cooling fan.

Hard Disk Connectors: IDE1, IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.
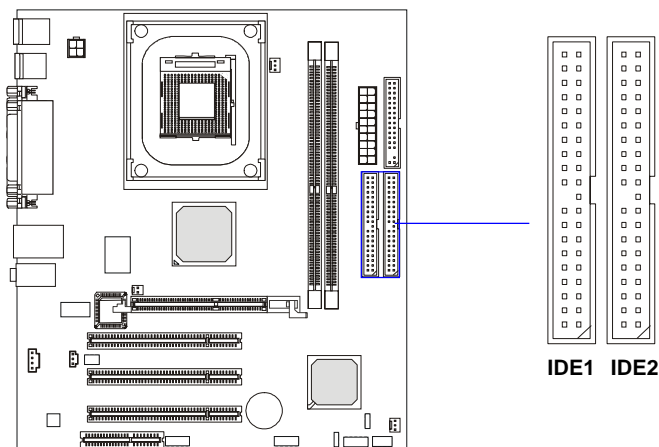
IDE1 (Primary IDE Connector)

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 **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.

IrDA Infrared Module Header: JIR1 (Optional)

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

Pin Definition

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

JIR1
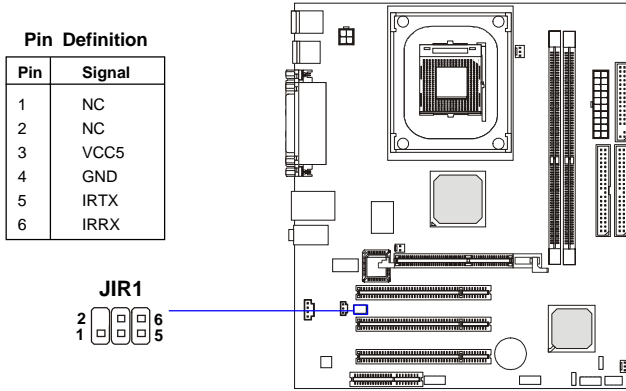
Chassis Intrusion Switch Connector: JCI1 (Optional)

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.
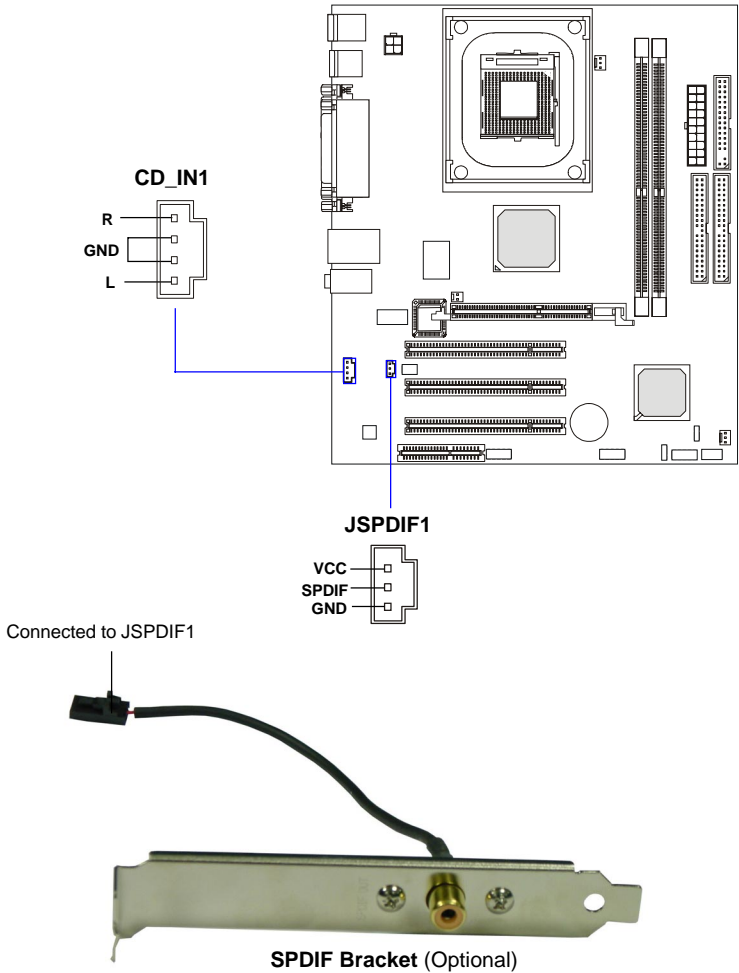
JCI1

1 CINTRU
2 GND
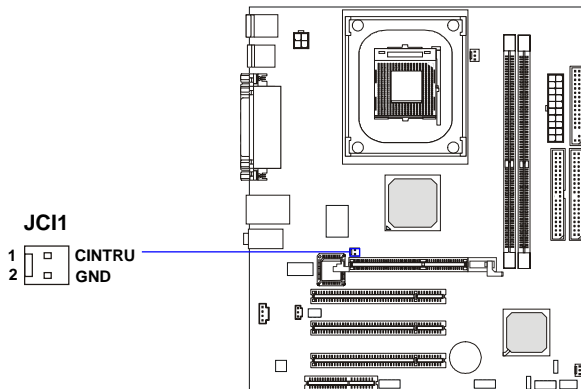
CD-In Connector: CD_IN1

The connector is for CD-ROM audio connector.

SPDIF-Out Connector: JSPDIF1 (Optional)

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

CD_IN1

R
GND
L

JSPDIF1

VCC
SPDIF
GND

Connected to JSPDIF1

SPDIF Bracket (Optional)

Front Panel Connectors: JFP1/JFP2

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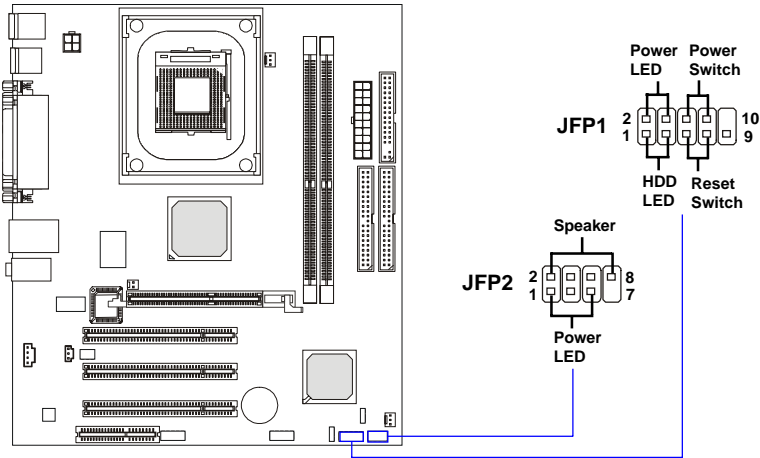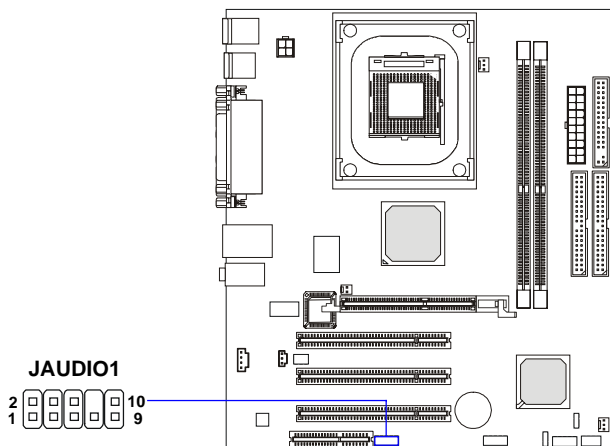

JFP1 Pin Definition

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

JFP2 Pin Definition

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

Front Panel Audio Connector: JAUDIO1

The JAUDIO1 front panel audio connector allows you to connect to the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JAUDIO1

Pin Definition

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

MSI

MSI Reminds You...

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

Front USB Connector: JUSB1

The mainboard provides one USB 2.0 pin header *JUSB1* (optional USB 2.0 bracket available) that is compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.

JUSB1
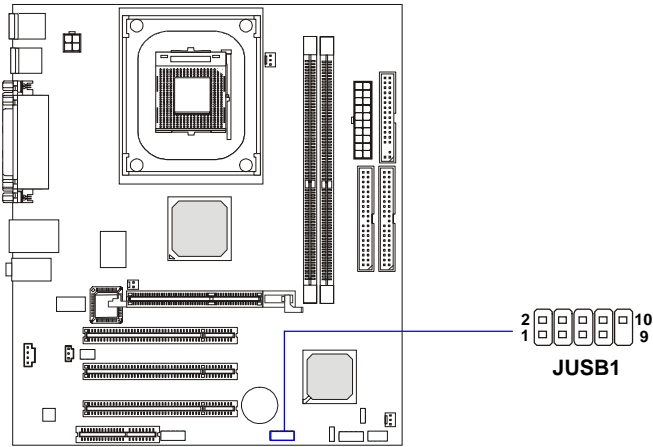
Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	USBPWR	2	USBPWR
3	USBP4-	4	USBP5-
5	USBP4+	6	USBP5+
7	GND	8	GND
9	NC	10	USBOC

USB 2.0 Bracket
(Optional)

Connected to JUSB1

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.


JBAT1

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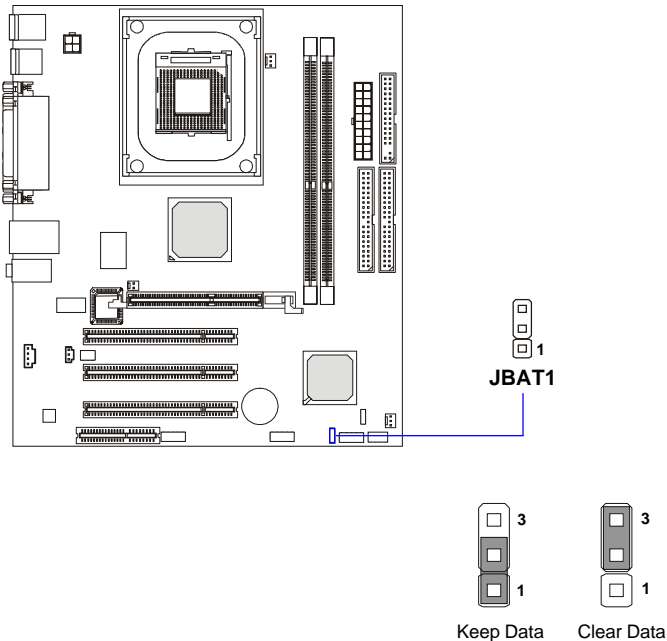
> **MSI** **MSI Reminds You...**
> *You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

CPU Support Jumper: JP1

This jumper specifies the mainboard's support for locked or some un-locked CPUs. Short pin 1~2 if you intend to install a locked CPU onboard. Short pin 2~3 if you intend to install an unlocked CPU for overclocking purposes.
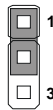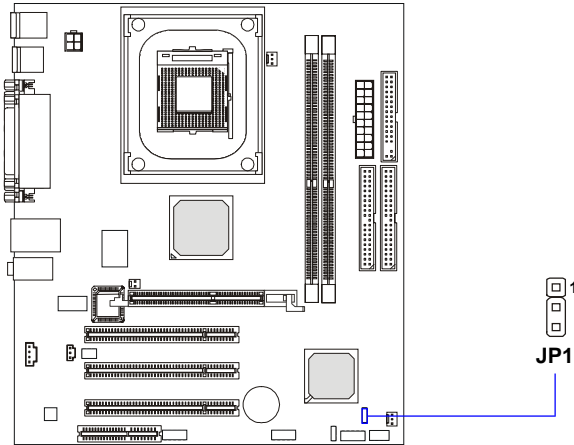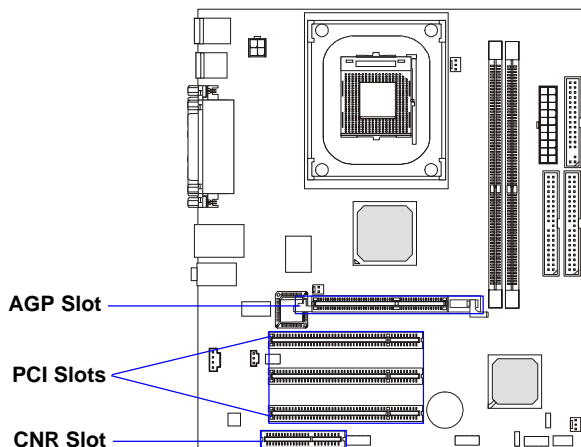

Enable support for **locked** CPU
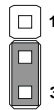
Enable support for **unlocked** CPU

Slots

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

AGP (Accelerated Graphics Port) Slot

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

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.

CNR (Communication Network Riser) Slot

The CNR slot allows you to insert the CNR expansion cards. CNR is a specially designed network, audio, or modem riser card for ATX family motherboards. Its main processing is done through software and controlled by the motherboard's chipset.

PCI Interrupt Request Routing

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

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