

Chapter 2

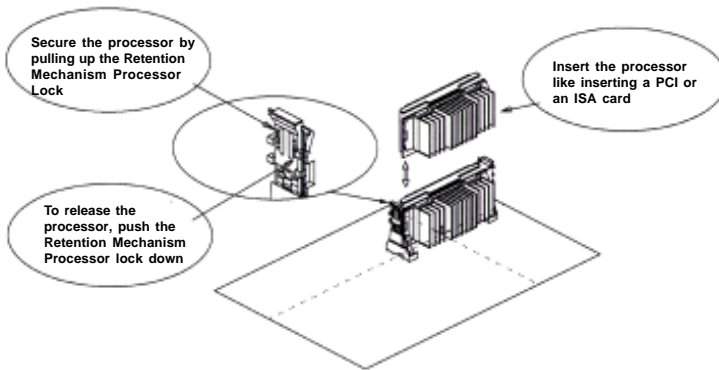
HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

2.1-1 Processor Installation Procedure

Step 1: Install the Retention Mechanism.

Attach the Retention Mechanism to the Mainboard. Push the Plastic lock to secure the Retention Mechanism into the mainboard.



Step 2: Install the Processor.

Insert the Processor like inserting a PCI or an ISA card.

Step 3: Lock the Processor.

Lock the processor by pulling up the Retention Mechanism processor lock shown above.

Note: The Retention Mechanism processor lock can only be used with S.E.C.C. 2 and S.E.P.P. processor.

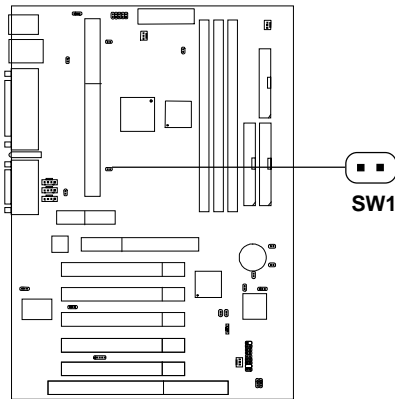
2.1-2 CPU Core Speed Derivation Procedure



The mainboard CPU Core/Bus ratio and CPU Bus Frequency can both be set through BIOS setup

If	<u>CPU Clock</u>	=	100MHz
	<u>Core/Bus ratio</u>	=	4
then	<u>CPU core speed</u>	=	<u>Host Clock</u> x <u>Core/Bus ratio</u>
		=	100MHz x 4
		=	400MHz

2.1-3 Overclocking Jumper: SW1

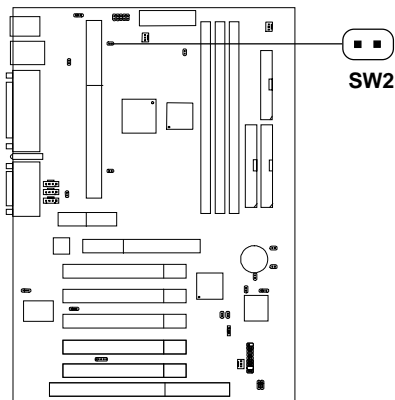
Overclocking is operating a CPU/Processor beyond its specified frequency. SW1 jumper is used for overclocking.





SW1	Function
 Short	Automatically detect CPU Bus Frequency
 Open	Allows CPU overclocking. Set 100MHz to 133Mhz

2.1-4 Clocking Jumper for 66MHz (FSB) processor: SW2

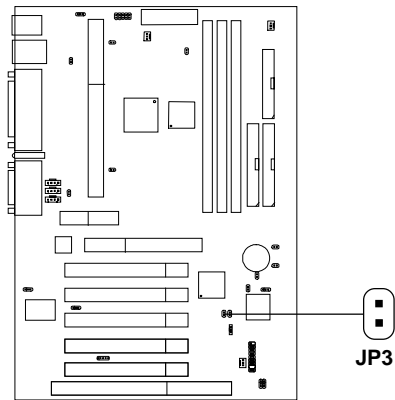
This jumper is used to enabled 66MHz (FSB) processor. To be able to used 66MHz(FSB) processor, you need to set this jumper.





SW2	Function
 Short	Default (if 66MHz FSB processor is installed, the system will be unable to boot)
 Open	Allows 66MHz (FSB) processor to run at 100MHz

2.1-5 CPU Core/Bus Ratio strap to Safe Mode: JP3

This jumper is used to adjust the CPU core/ratio to safe mode.

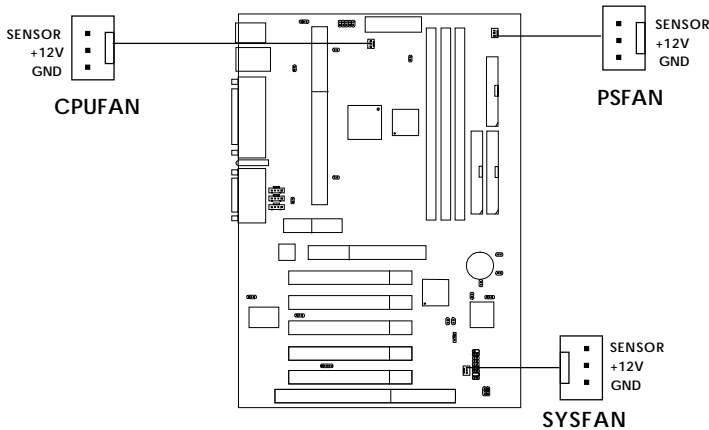


JP3	Function
 Short	Safe Mode (Core/Bus Ratio by 2)
 Open	Core/Bus Ratio in ICH Register (Default)

Warning: If CPU Core/Bus ratio is set too high that the system hang. Short pin JP3, then restart the system until boot up, the CPU core/bus ratio will be set to the default setting by 2. Properly shutdown the system, and remove the short on JP3.

2.1-6 Fan Power Connector: CPUFAN/PSFAN/SYSFAN

These connectors support system cooling fan with + 12V. It supports three pin head connector. When connecting the wire to the connector, 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 your mainboard has System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.



PSFAN: Power Supply Fan

CPUFAN: Processor Fan

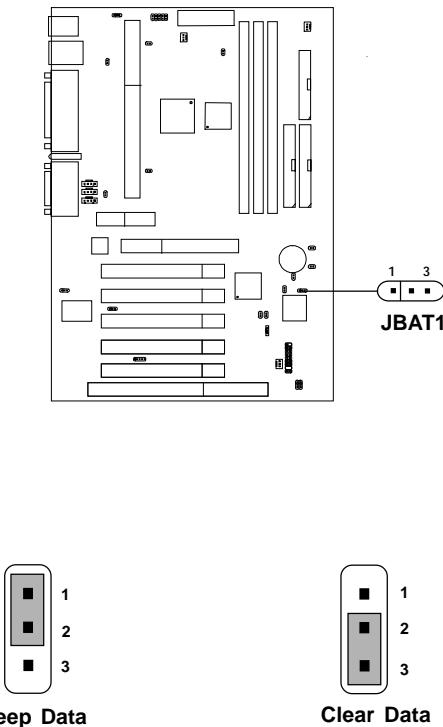
SYSFAN: System(Chassis) Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.

- Note:**
1. Always consult vendor for proper CPU cooling fan.
 2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.
 3. During Suspend mode, FAN status can be set through BIOS.

2.2 Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 1-2 pins of JBAT1 to store the CMOS data.

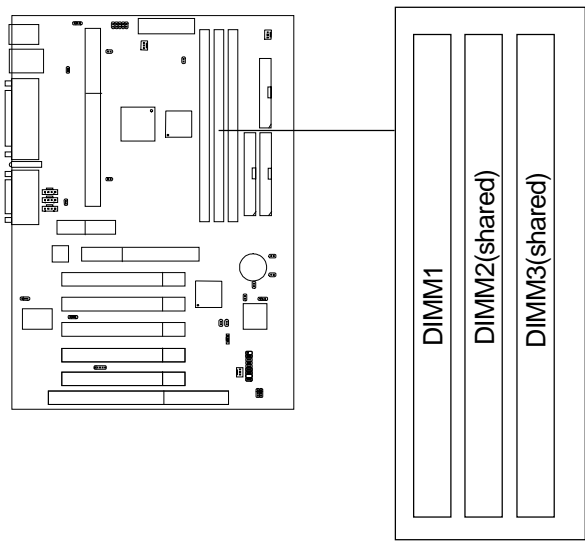


Note: You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.

2.3 Memory Installation

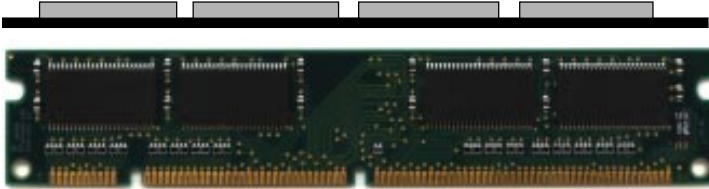
2.3-1 Memory Bank Configuration

The mainboard supports a maximum memory size of 512MB or Registered DIMM 1GB(32 device) : It provides three 168-pin DIMMs sockets. DIMM 2 and DIMM 3 sockets are shared.

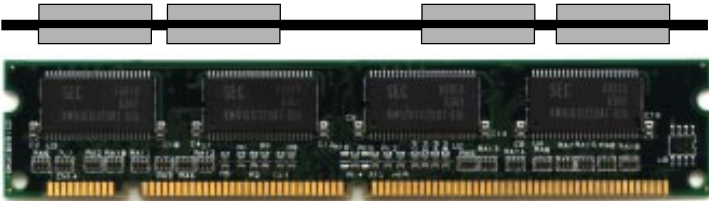


2.3-2 Memory Installation Procedures

A. How to install a DIMM Module

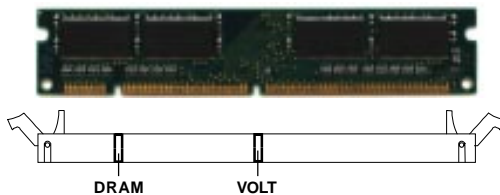


Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has 2 Notch Keys “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.



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

2.3-3 Memory Population Rules

1. Support only SDRAM DIMM w/o ECC function.
2. To operate properly, at least one DIMM module must be installed.
3. DIMM Slot configuration:

DIMM1	DIMM2	DIMM3
D/S	D/S	-
D/S	-	D/S
D/S	S	S

D: Double Sided Memory
S: Single Sided Memory

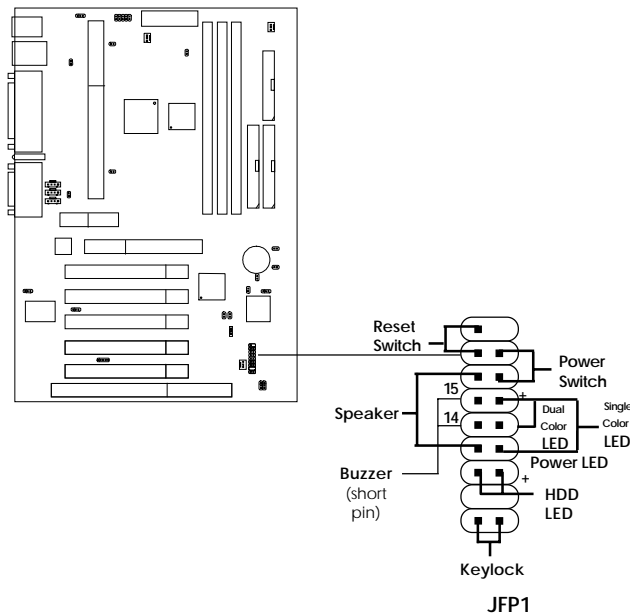
4. The DRAM addressing and the size supported by the mainboard is shown below:

Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
64MB	8Mx8	ASYM	12	9	64MBx8	128MBx16
64MB	4Mx16	ASYM	12	8	32MBx4	64MBx8
128MB	16Mx8	ASYM	12	10	128MBx8	256MBx16
128MB	32Mx4	ASYM	12	11	256MBx16	512MBx32

2.4 Case Connector: JFP1

The Keylock, Power Switch, Reset Switch, Power LED, Speaker, and HDD LED are all connected to the JFP1 connector block.



2.4-1 Power Switch

Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

2.4-2 Reset Switch

Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

2.4-3 Power LED

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin. There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED(ACPI request).

- a. 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit when the system is on.
- b. 2 pin dual color LED connect to pin 5 & 6.

GREENColor: Indicate the system is in full on mode.

ORANGEColor: Indicate the system is in suspend mode.

2.4-4 Speaker

Speaker from the system case is connected to this pin.

If on-board Buzzer is available:

Short pin 14-15: On-board Buzzer Enabled.

Open pin 14-15: On-board Buzzer Disabled.

2.4-5 HDD LED

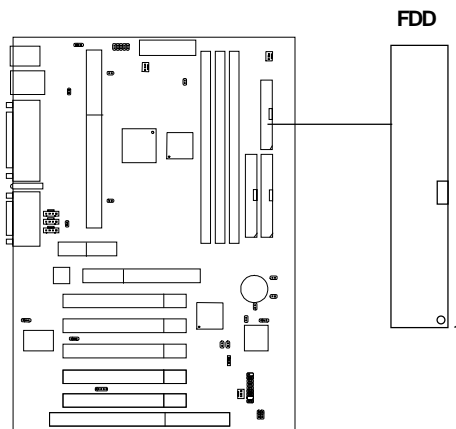
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

2.4-6 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

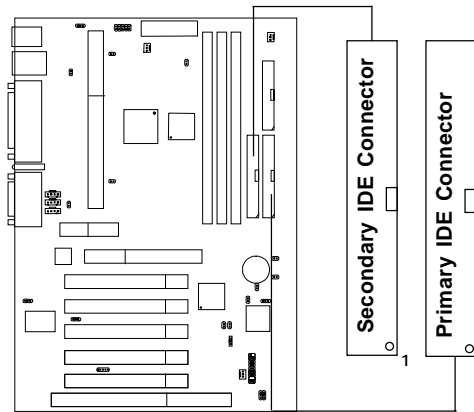
2.5 Floppy Disk Connector: FDD

The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



2.6 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/66 (ICH)/ Ultra DMA/33(ICH0) Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33 function. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. 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.

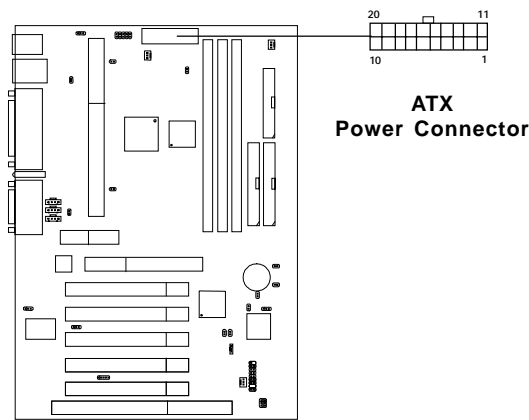
IDE2(Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: JPWR1

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported by this mainboard. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.



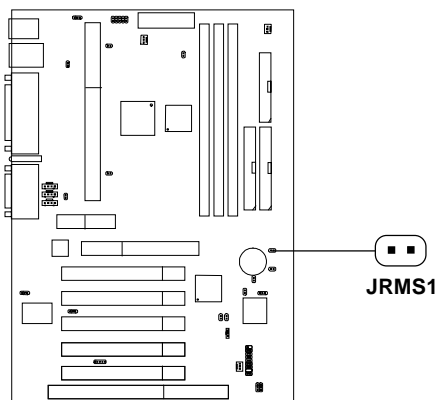
PIN DEFINITION

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

Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

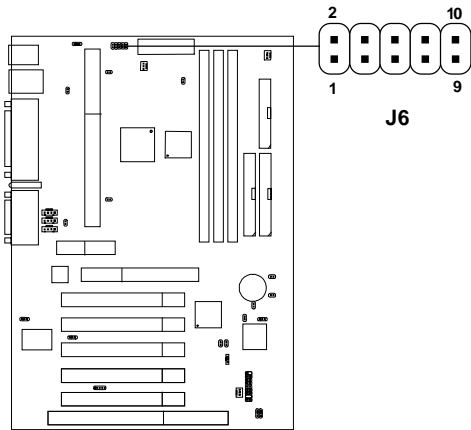
2.7-2 Remote Power On/Off Switch: JRMS1

Connect to a 2-pin push button switch. During OFF state, press once and the system turns on. **During ON stage, push once and the system goes to sleep mode: pushing it more than 4 seconds will change its status from ON to OFF.** If you want to change the setup, you could go to the BIOS Power Management Setup.



2.8 IrDA Infrared Module Connector: J6

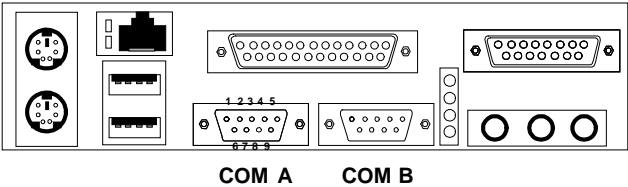
The mainboard provides one 5-pin infrared (J6) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function. FIR and Consumer IR are reserved functions.



PIN	SIGNAL
1	VCC
2	NC
3	NC
4	CIIRX
5	IRRX
6	5VSB
7	GND
8	NC
9	IRTX
10	NC

2.9 Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connector for serial port COM A & COM B. These port are a 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.



Serial Port (9-pin Male)

PIN DEFINITION

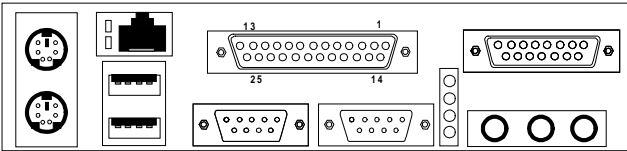
PIN	SIGNAL
1	DCD (Data Carry Detect)
2	SIN (Serial In or Receive Data)
3	SOUT (Serial Out or Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicate)

2.10 Parallel Port Connector: LPT1

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP). See connector and pin definition below:

Parallel Port (25-pin Female)

LPT 1

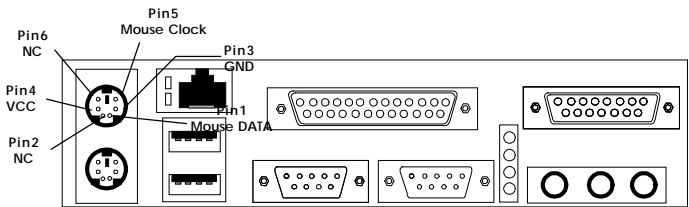


PIN DEFINITION

PIN	SIGNAL	PIN	SIGNAL
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.11 Mouse Connector: JKBMS1

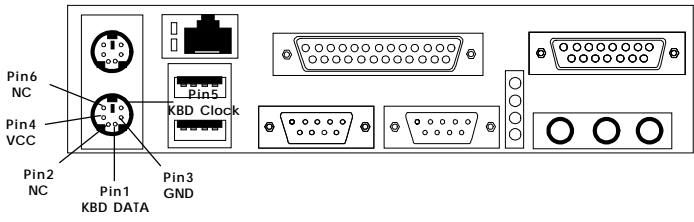
The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin definition are shown below:



PS/2 Mouse (6-pin Female)

2.12 Keyboard Connector: JKBMS1

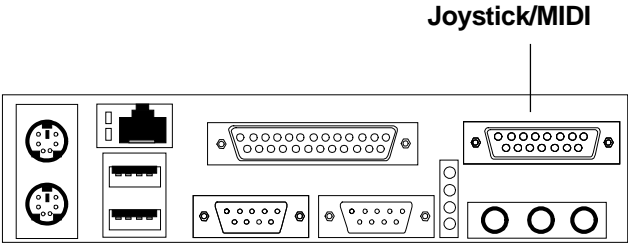
The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.



PS/2 Keyboard (6-pin Female)

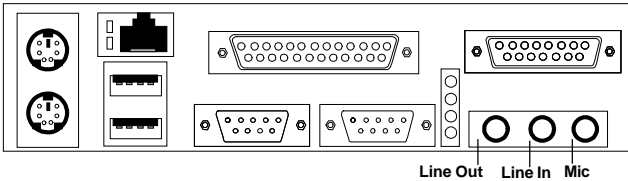
2.13 Joystick/Midi Connectors

You can connect joystick or game pad to this connector.



2.14 Audio Port Connectors

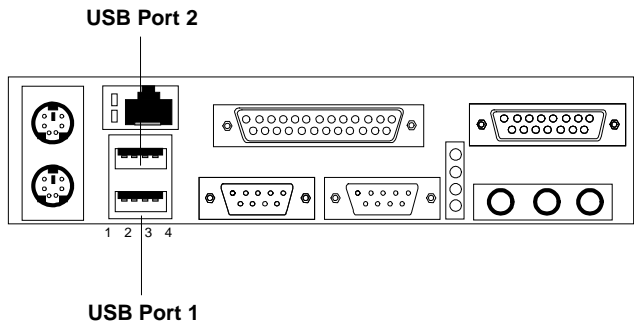
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphones.



1/8" Stereo Audio Connectors

2.15 USB Connectors

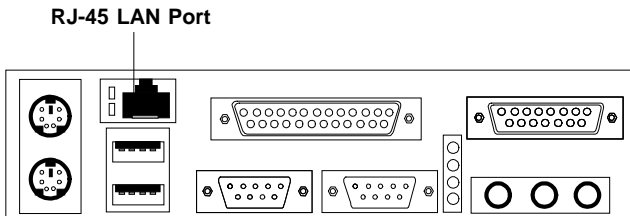
The mainboard provides a **UHCI(Universal Host Controller Interface)** **Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0

2.16 LAN Connector (reserved)

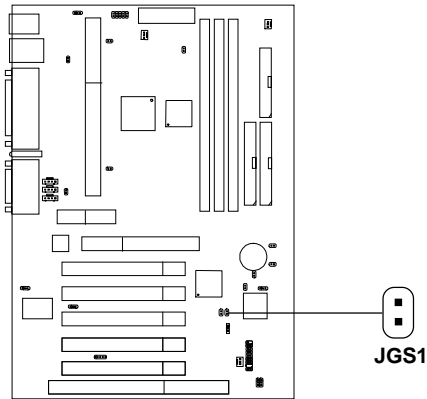
The mainboard provides a **RJ-45** LAN connector for your Network need.



PIN	SIGNAL	DESCRIPTION
9	RDN	Receive Differential Pair
10	RDP	Receive Differential Pair
11	GND	Ground
12	GND	Ground
13	GND	Ground
14	GND	Ground
15	TDN	Transmit Differential Pair
16	TDP	Transmit Differential Pair

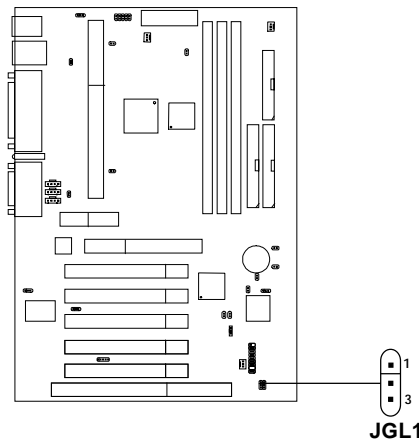
2.17 Power Saving Switch Connector: JGS1

Attach a power saving switch to **JGS1**. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.



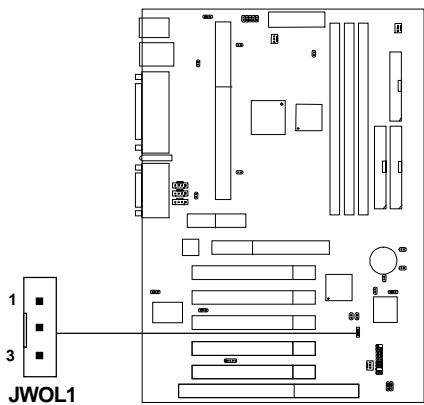
2.18 Power Saving LED Connector: JGL1

JGL1 can be connected with a LED. When the 2-pin LED is connected to JGL1, the light will turn green, when system is On. During sleep mode, the 2-pin LED will change color from Green to Orange.



2.19 Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function. To use this function, you need to set the “Wake-Up on LAN” to enable at the BIOS Power Management Setup.



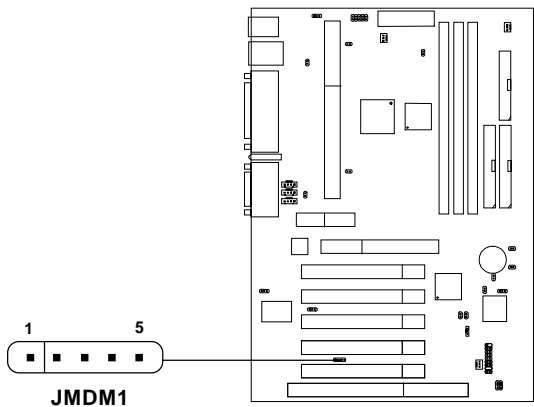
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active “high”.

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

2.20 Modem Wake Up Connector: JMDM1

The JMDM1 connector is for used with Modem add-on card that supports the Modem Wake Up function.



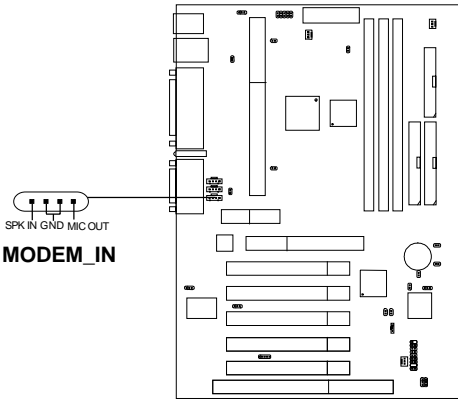
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

Note: Modem wake-up signal is active “low”.

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

2.21 Modem-In: MODEM_IN

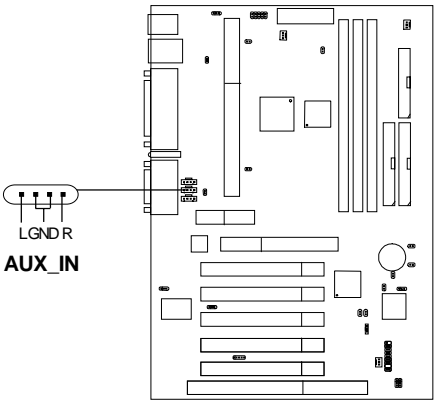
The connector is for Modem with internal voice connector.



SPK_IN is connected to the Modem Speaker Out connector.
MIC_OUT is connected to the Modem Microphone In connector.

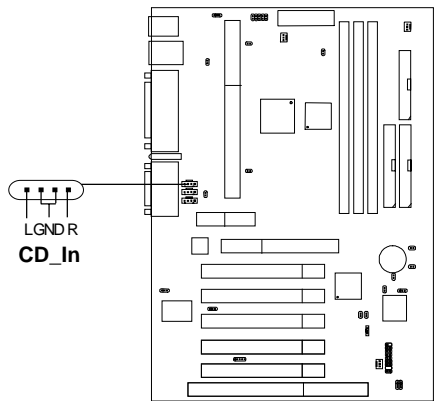
2.22 AUX Line In Connector: AUX_IN

This connector is used for DVD Add on Card with Line In connector.



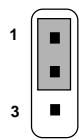
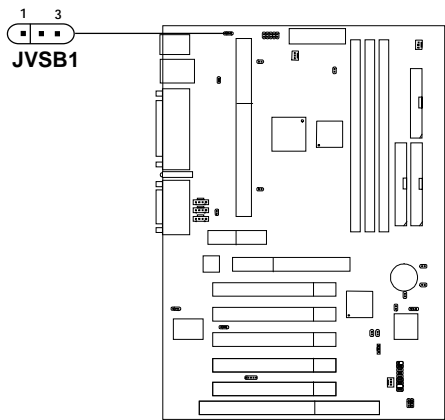
2.23 CD-In Connector: CD_IN

This connector is for CD-ROM audio connector.

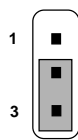


2.24 Keyboard Power: JVSb1

The JVSb1 jumper is for setting keyboard power. This function should be set in the BIOS for the keyboard Wake-up function.



5V Standby
Enable keyboard
power on function

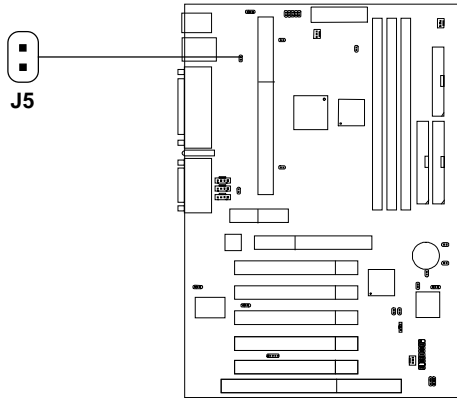


5V (default)
Disable keyboard
power on function

Note: To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

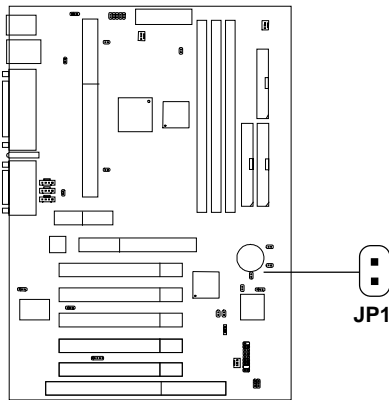
2.25 Chassis Intrusion Switch Case: J5

This connector is connected to a 2-pin connector chassis switch. If the Chassis is open, the switch will be open. The system will record this status. To clear the warning, you must enter the BIOS setting and clear the status.



2.26 FWH Boot Block Protect: JP1 (reserved)

This jumper is used to lock/unlock FWH BIOS Flash. This Jumper should be unlock when flashing/programming the BIOS.



**BIOS Flash
Unlocked**

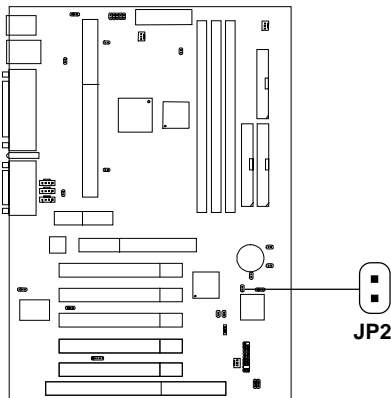


**BIOS Flash
Locked**

Note: If this jumper does not exist, this motherboard will have self building BIOS function.

2.27 System Error Reset Jumper: JP2

This jumper is used to Enabled/Disabled the reboot.



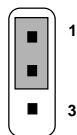
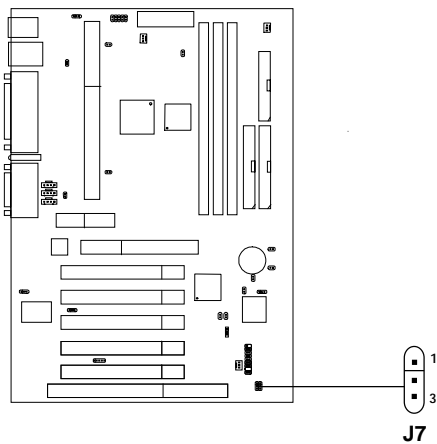
**No Reboot
(default)**



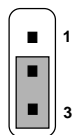
**Reboot
(7 sec
automatic
restart)**

2.28 Speaker Output Select Jumper: J7

This jumper will enable the case speaker/buzzer to be transferred to the Audio speaker.



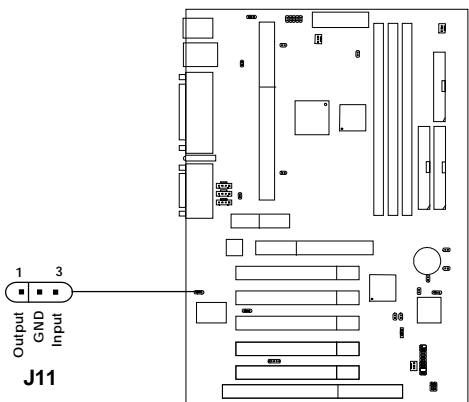
**Output to
Audio Chip**



**Output to
Onboard Buzzer
(default)**

2.29 SPDIF Connector: J11

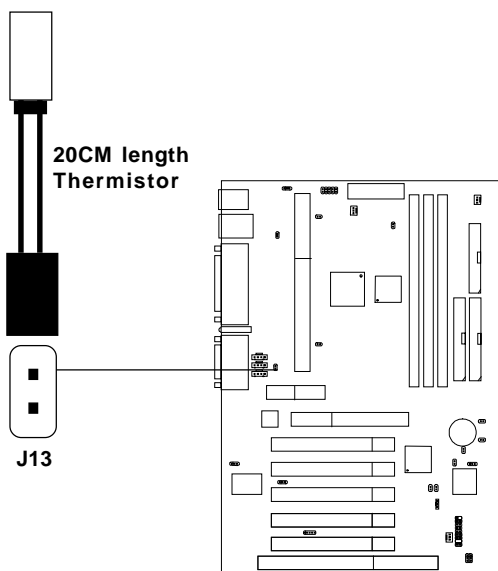
This item is for Sony & Philips Digital Interface for AC3 decoder.



Note: This jumper only exist with Hardware Audio onboard.

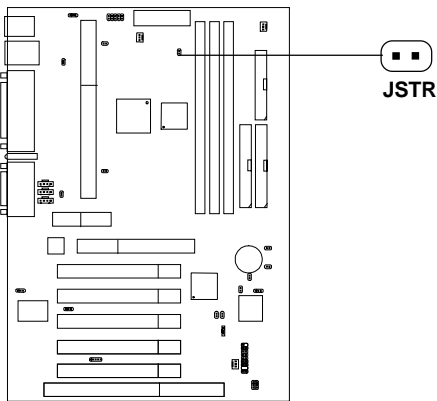
2.30 TOP TECH III: J13



This is used to check the AGP card or chipset temperature. The J13 is a 2-pin connector which can be inserted with a 20cm length thermistor. It is located near the chipset heatsink that monitors the chipset temperature. The BIOS setup for “TOP TECH. III” should be set to enabled.



2.31 Suspend To RAM: JSTR

This jumper is used to enabled support for STR(suspend to RAM). The power supply should be more than 750mA or up to be able to enabled the STR support.

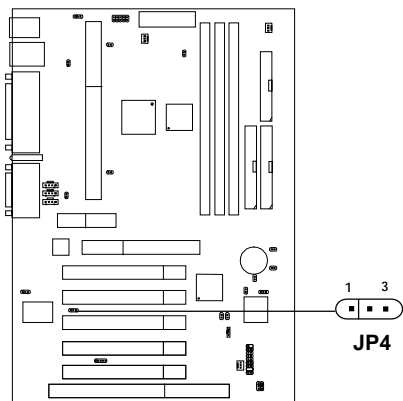


JSTR	Function
 Short	Enabled STR
 Open	Disabled STR

Note: Add-on VGA card must support ACPI mode, for this function to work.

2.32 Onboard Software Audio Jumper: JP4
(reserved)

This jumper is used to enabled/disabled Onboard Software audio. For enabling AMC97 on AMR slot. Note: This jumper will only exist if there’s no Hardware audio onboard.



JP4	Function
	Enabled Onboard Audio
	Enabled AMC97 on AMR(Audio Modem Riser) Card

Note: Short pin 2-3 on JP4, to be able to use AMR card.

2.32 AMR

The Audio/Modem Riser specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports both audio and modem.

