

## Chapter 2

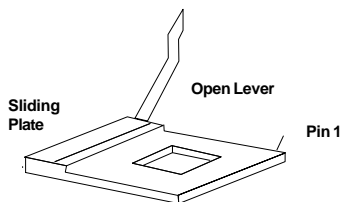
### HARDWARE INSTALLATION

#### 2.1 Central Processing Unit: CPU

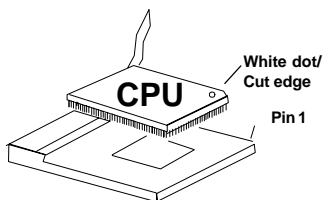
The mainboard operates with **Intel® Celeron™ processor**. The mainboard uses Socket 370 for easy CPU installation and a jumper switch (SW1) to set the proper speed for the CPU. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

##### 2.1-1 CPU Installation Procedure

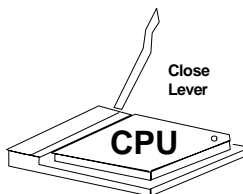
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge. Then, insert the CPU. It should insert easily.



3. Press the lever down to complete the installation.



**2.1-1 CPU Core Speed Derivation Procedure**

1. The DIP Switch SW1 (1, 2, 3, and 4) is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

**If**

CPU Clock  
Core/Bus ratio

**then**

CPU core speed

= 66MHz

= 5.5

= Host Clock x Core/Bus ratio

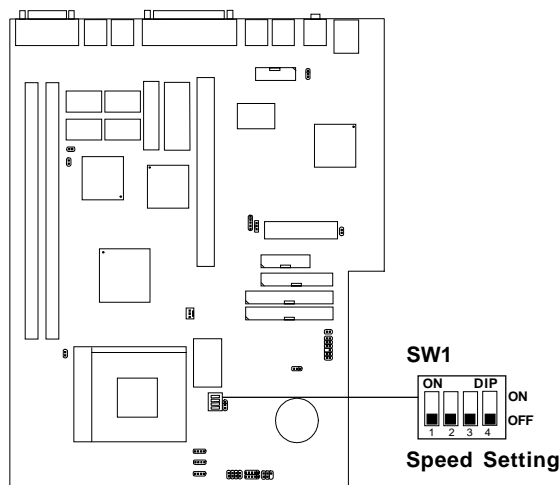
= 66MHz x 5.5

= 333 MHz






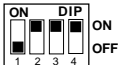

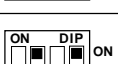
SW1				CPU
1	2	3	4	Core/Bus Ratio
ON	OFF	ON	ON	2.5
ON	ON	OFF	ON	3
ON	OFF	OFF	ON	3.5
ON	ON	ON	OFF	4
ON	OFF	ON	OFF	4.5
ON	ON	OFF	OFF	5
ON	OFF	OFF	OFF	5.5
OFF	ON	ON	ON	6
OFF	OFF	ON	ON	6.5
OFF	ON	OFF	ON	7
OFF	OFF	OFF	ON	7.5
OFF	ON	ON	OFF	8

**2.1-2 CPU Speed Setting: SW1**

To adjust the speed of the CPU, you must know the specification of your CPU (*always ask the vendor for CPU specification*).



**a. 66MHz CPU Bus Frequency**

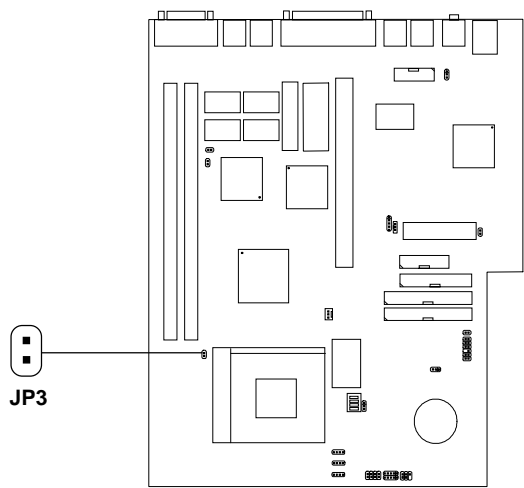
CPU Type	SW1
233MHz	 ON OFF
266MHz	 ON OFF
300MHz	 ON OFF
333MHz	 ON OFF
366MHz	 ON OFF
400MHz	 ON OFF
433MHz	 ON OFF
466MHz	 ON OFF

**Table 2.1 233 ~ 433MHz Intel® Celeron™ processor**

**Note:** For CPU Locked Bus Ratio, no adjusment is necessary for SW1.  
Always keep it Off.

2.1-3 Overclocking Jumper: JP3

This Jumper is only used for overclocking. Changing the CPU system Bus Speed will alter the AGP clock speed.



JP3	Formula
	AGP clock = CPU clock
	AGP clock = CPU clock x 2/3

NOTE: This feature only works with 100MHz FSB.

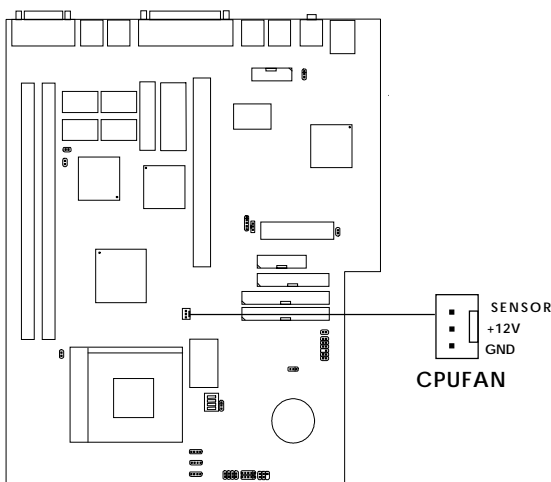


WARNING!

We provide CPU Bus Frequency setting for over 100MHz. But we do not guarantee that the Motherboard or other components will work properly after overclocking.

### 2.1-4 Fan Power Connectors: CPUFAN

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.



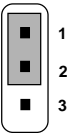
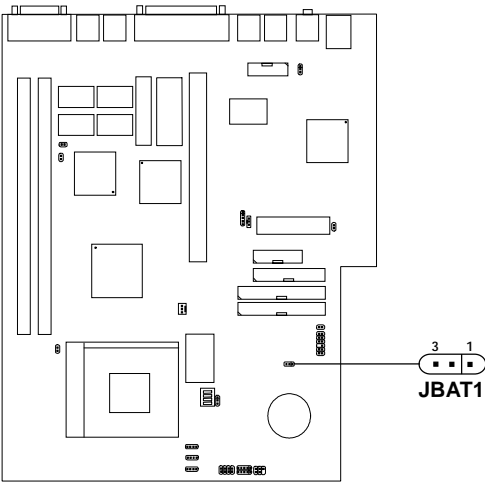
**CUFAN** : Processor Fan

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.

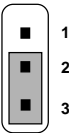
**Note:** 1. Always consult vendor for proper CPU cooling fan.

**2.2 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.



**Keep Data**



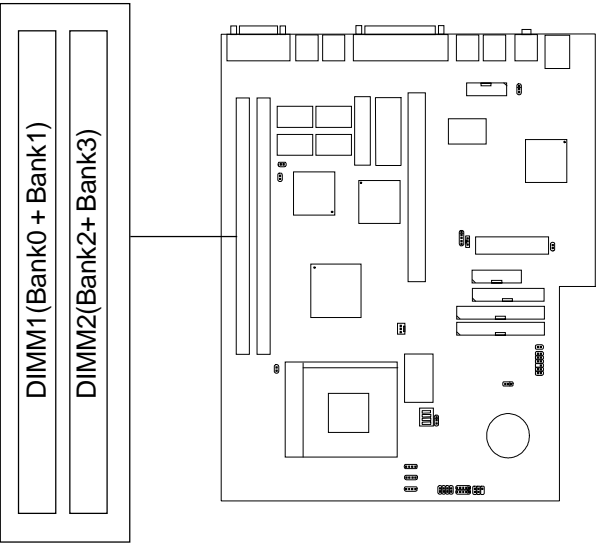
**Clear Data**

**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 256MB (8M x 8) or 512MB (16M x 4) registered DIMM for SDRAM: It provides two 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 256 Mbytes DIMM memory module.

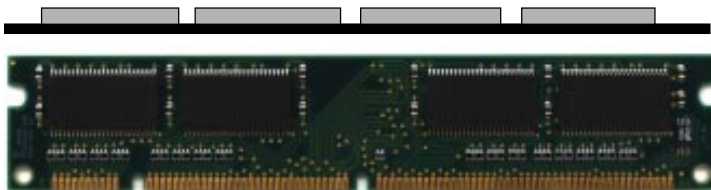


There are two kinds of DIMM specification supported by this mainboard: PC100 and PC66. If you use 66MHz CPU Bus Frequency, these two DIMM Specs. is supported. If you use 100 MHz CPU Bus Frequency, only PC100 DIMM Specs. is supported.

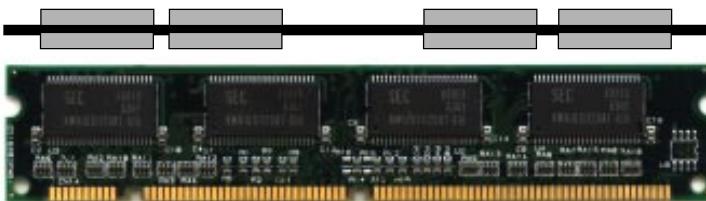


### 2.3-2 Memory Installation Procedures

#### A. How to install a DIMM Module

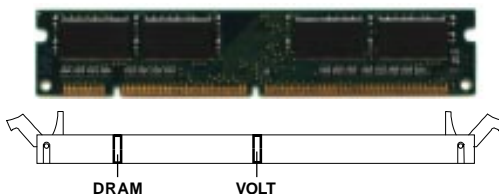


**Single Sided DIMM**



**Double Sided DIMM**

1. The DIMM slot has a two Notch Key “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

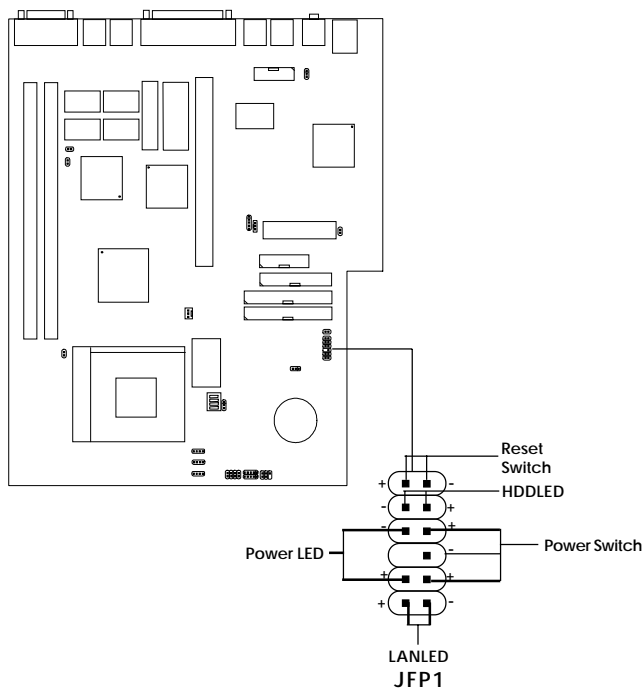
1. Supports only SDRAM DIMM.
2. To operate properly, at least one 168-pin DIMM module must be installed.
3. This mainboard supports Table Free memory, so memory can be installed on DIMM1 or DIMM 2 in any order.
4. Supports 3.3 volt DIMM.
5. The DRAM addressing and the size supported by the mainboard 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.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
	4Mx4	ASYM	11	10	32MB	64MB
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB
64M	2Mx32	ASYM	12	8	16MB	32MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB

**2.4 Case Connector: JFP1**

The Power Switch, Reset Switch, Power LED, LAN LED, Suspend Switch 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.

**2.4-4 HDD LED**

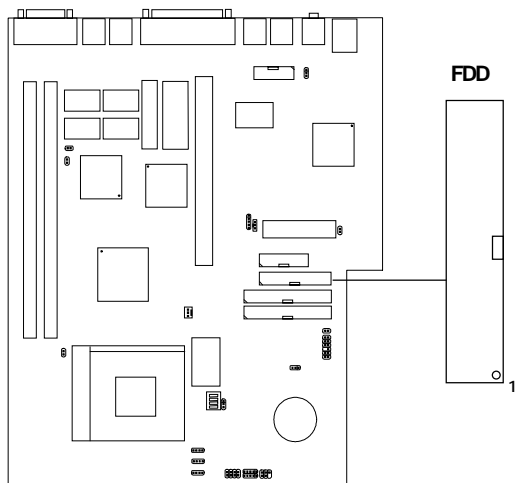
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

**2.4-5 LAN LED**

LAN LED allows you to show any activity on your network.

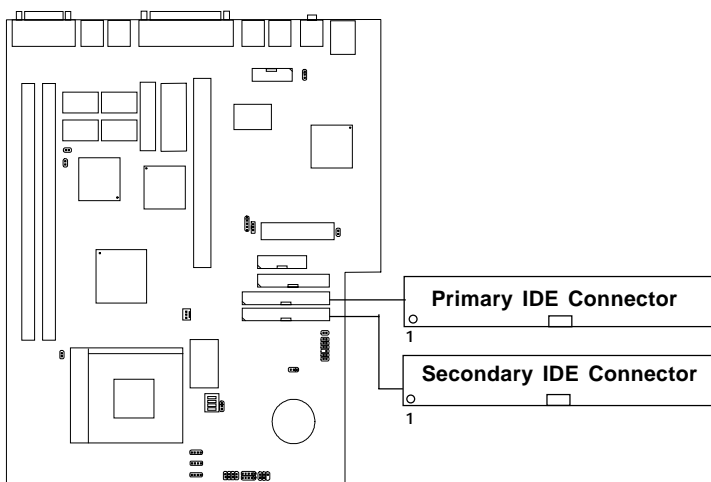
**2.5 Floppy Disk Connector: FDD**

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 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.

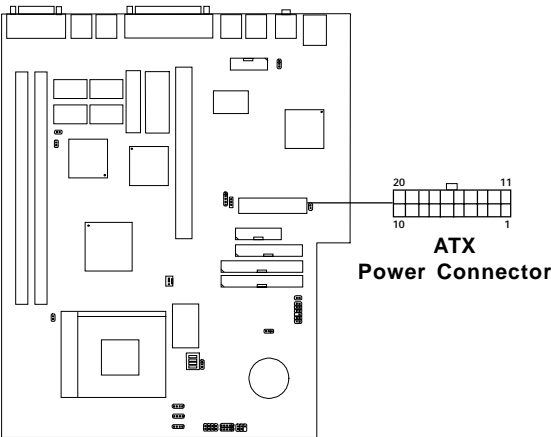
### **IDE2(Secondary IDE Connector)**

IDE2 can also connect a Master and a Slave drive.

2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: ATXPWR

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.



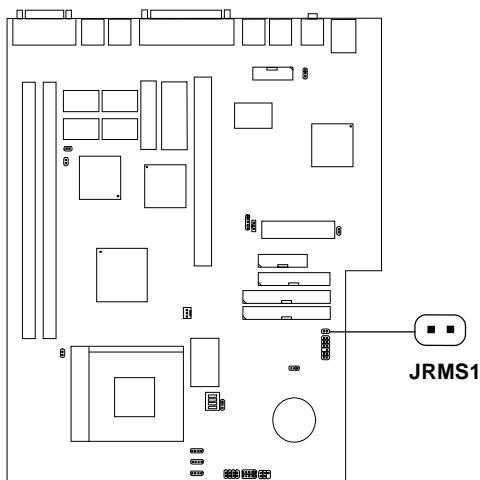
PIN DEFINITION

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

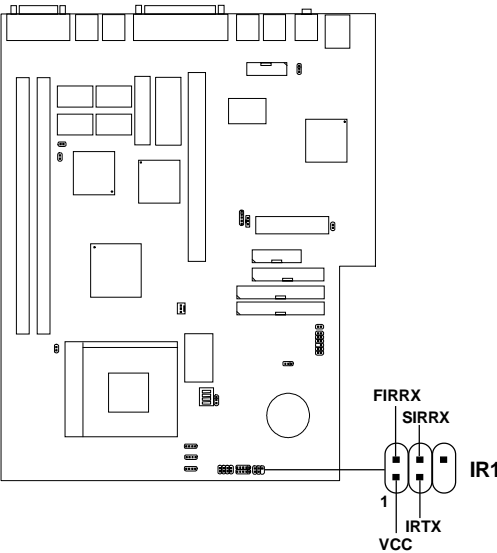
Connect to a 2-pin push button switch. During OFF state, press once and the system turns on. **During ON stage, push once and the system goes to sleep mode: pushing it more than 4 seconds will change its status from ON to OFF.** If you want to change the setup, you could go to the BIOS Power Management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





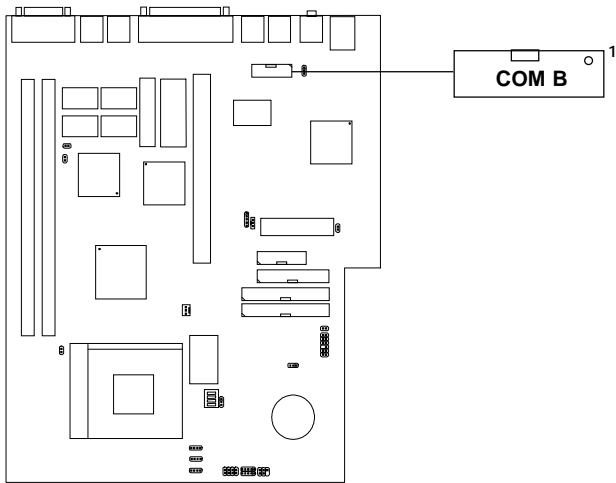
**2.8 IrDA Infrared Module Connector: IR1**

The mainboard provides one 5-pin infrared (IR1) 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.



**2.9 Serial Port Connector: COM B**

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

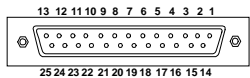


**PIN DEFINITION**

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

**2.10 Parallel Port Connector: LPT**

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:



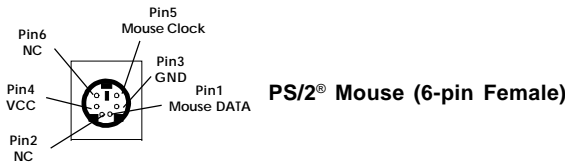
**LPT**

**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		

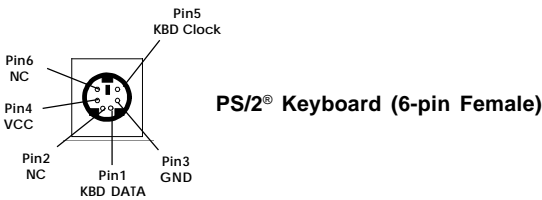
**2.11 Mouse Connector: MS1**

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:



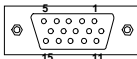
**2.12 Keyboard Connector: KB1**

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



**2.13 VGA DB 15 Pin Connector**

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

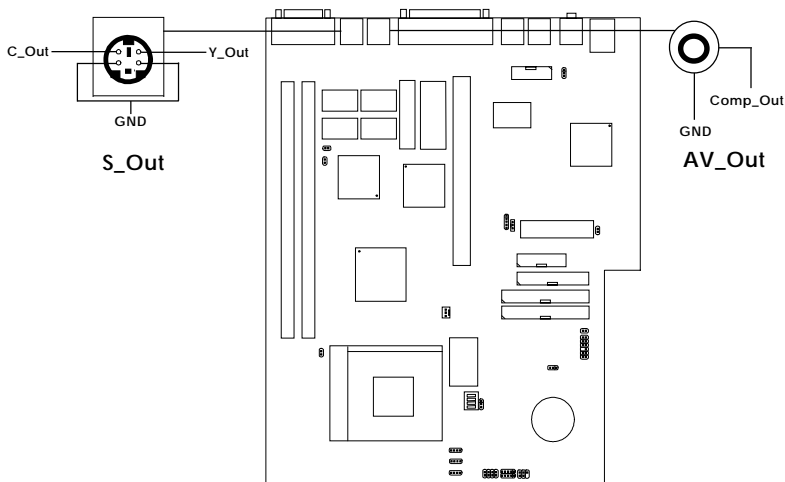


**VGA**

Analog Video Display Connector(DB15-S)	
Pin	Signal Description
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

## 2.14 S-Out and AV-Out Connector

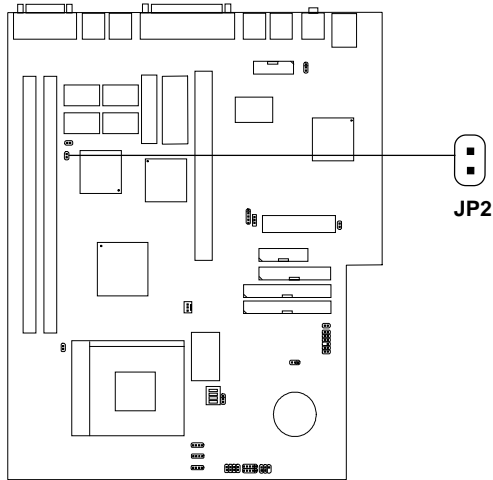
The mainboard provides two TV-Out Connector: S-Out and AV-Out.



**Note:** You need to connect the TV-Out Connector (S-Out or AV-Out) to your television before turning On the system. In case TV-Out is not properly connected to the television, only a blank screen will appear.

## 2.15 NTSC & PAL TV: JP2

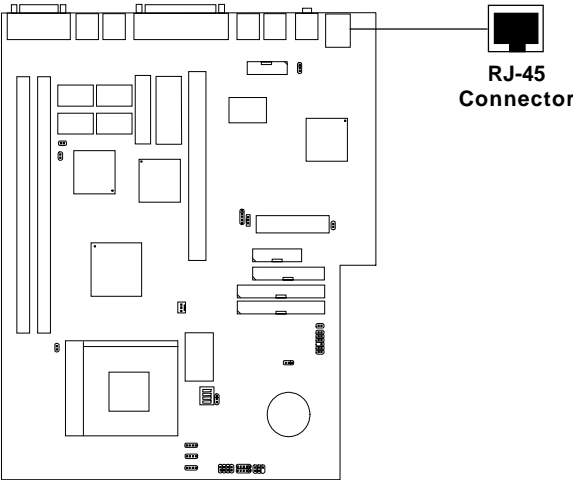
The JP2 jumper is used to set the TV System to NTSC or PAL mode.



**Note:** In case you have set the television to PAL mode and the screen display some irregularities. Adjust the “coarse” in the TV-Out icon for best quality picture. See page Chapter 6 for reference.

**2.16 LAN Connector**

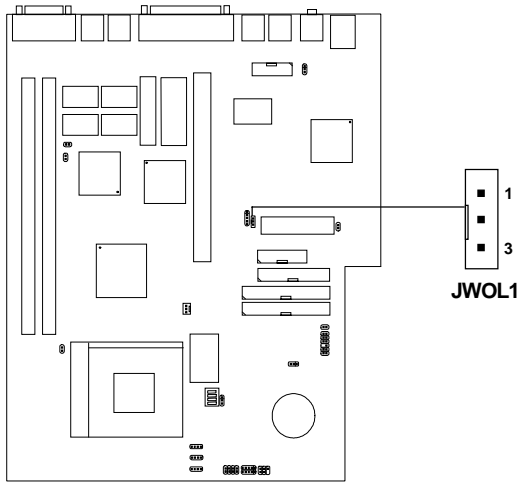
The mainboard provides a RJ-45 connector for your network need.





2.17 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.



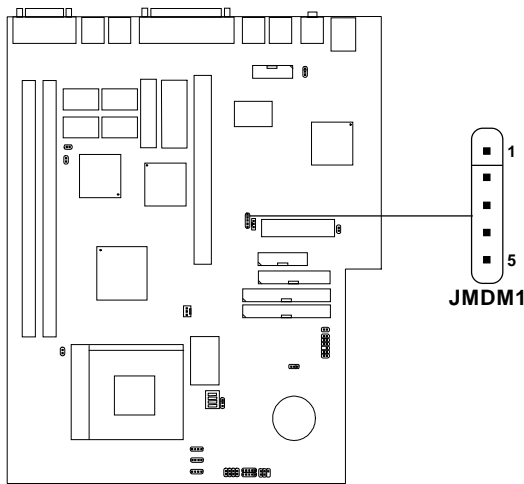
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

**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 750 mA 5V Stand-by)

2.18 Modem Wake Up Connector: JMDM1

The JMDM1 connector is for used with Modem add-on card that supports the Modem Wake Up function. To use this function, you need to set the “Resume By Ring” to enable at the BIOS Power Management Setup.



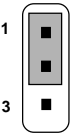
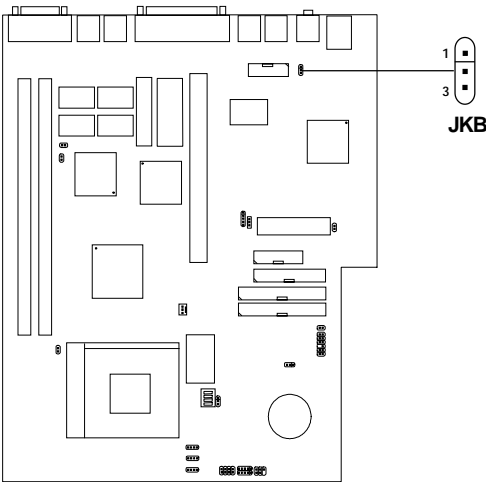
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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

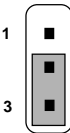
**Note:** To be able to use this function, you need a power supply that provide enough power for this feature.  
(Power supply with 750 mA 5V Stand-by)

**2.19 Keyboard Power: JKB**

The JKB jumper is for setting keyboard power. This function should be set in the BIOS for the keyboard and PS/2 mouse Wake-up function.



5V Standby  
Enable keyboard  
power on function

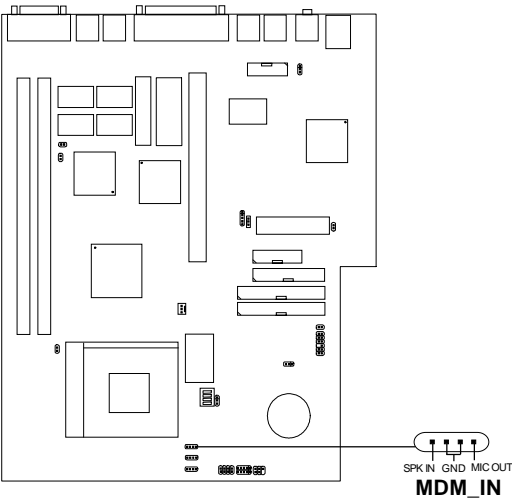


5V (default)  
Disable keyboard  
power on function

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

**2.20 Modem-In: MDM\_IN**

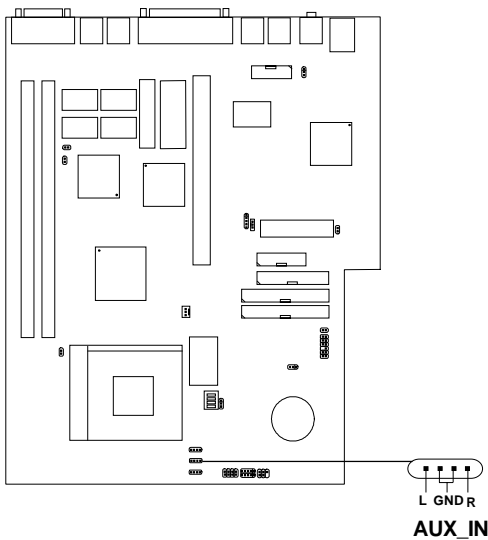
The connector is for Modem with internal voice connector.



SPK\_IN is connected to the Modem Speaker Out connector.  
MIC\_OUT is connected to the Modem Microphone In connector.

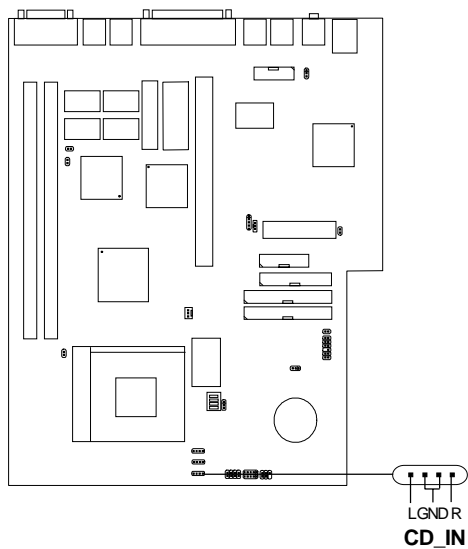
**2.21 AUX Line In Connector: AUX\_IN**

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



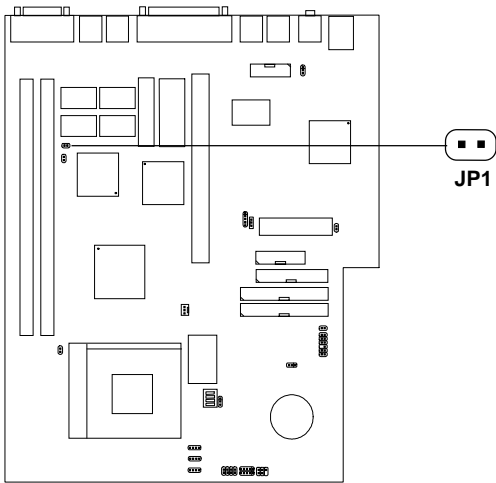
**2.22 CD-In Connector: CD\_IN**

This connector is for CD-ROM with internal voice connector.



2.23 Onboard VGA Interrupt: JP1

The JP1 jumper is used to Enable and Disable the Onboard VGA Interrupt.



JP1	VGA Interrupt
	Enabled
	Disabled