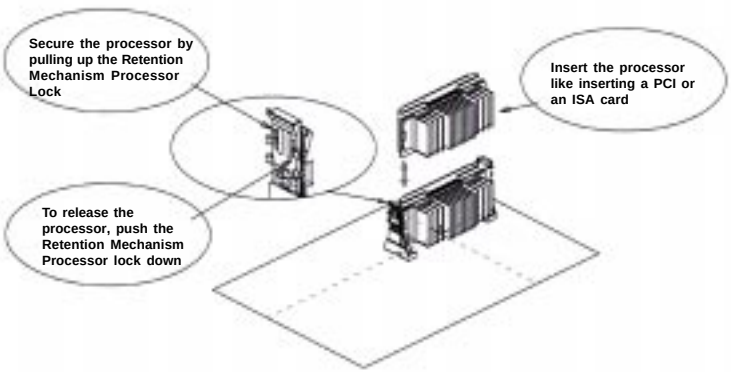
Chapter 2

HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

2.1-1 CPU Installation Procedures

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 lock S.E.C.C. 2 and S.E.P.P. processor.

2.1-2 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	=	66MHz/100MHz
	Core/Bus ratio	=	4
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	66MHz x 4/100MHz x 4
		=	266MHz/400MHz

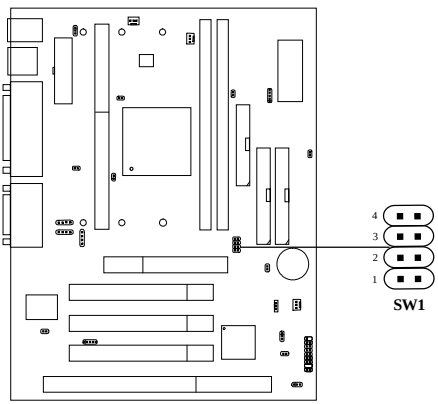
SW1				CPU
1	2	3	4	Core/Bus Ratio
ON	OFF	ON	ON	2.5
ON	ON	OFF	ON	3
ON	OFF	OFF	ON	3.5
ON	ON	ON	OFF	4
ON	OFF	ON	OFF	4.5
ON	ON	OFF	OFF	5
ON	OFF	OFF	OFF	5.5
OFF	ON	ON	ON	6
OFF	OFF	ON	ON	6.5
OFF	ON	OFF	ON	7
OFF	OFF	OFF	ON	7.5
OFF	ON	ON	OFF	8

ON - Short OFF - Open

Note: The **CPU Bus Frequency** is set at 66MHz, 100MHz or 133MHz (VT82C693A only) by CPU default.

2.1-3 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*). The mainboard can auto-detect between 66, 100 or 133MHz (VT82C693A only) CPU Bus Frequency.



a. 66MHz CPU Bus Frequency

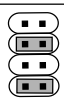
CPU Type	SW1
233MHz	
266MHz	
300MHz	
333MHz	
366MHz	
400MHz	
433MHz	
466MHz	

Table 2.1 233 ~ 466MHz Intel® Pentium® II/Celeron™ processor

b. 100MHz CPU Bus Frequency

CPU Type	SW1
350MHz	
400MHz	
450MHz	
500MHz	
550MHz	
600MHz	

Table 2.2 350 ~ 600MHz Intel® Pentium® II/III processor

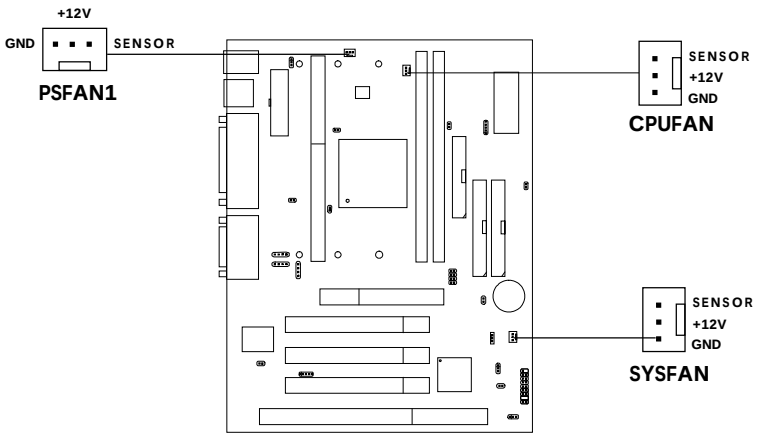
c. 133Mhz CPU Bus Frequency (VT82C693A only)

CPU Type	SW1
400MHz	
533MHz	
600MHz	

Table 2.3 400 ~ 600MHz Intel® Pentium® III/Coppermine processor

2.1-4 Fan Power Connectors: 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.



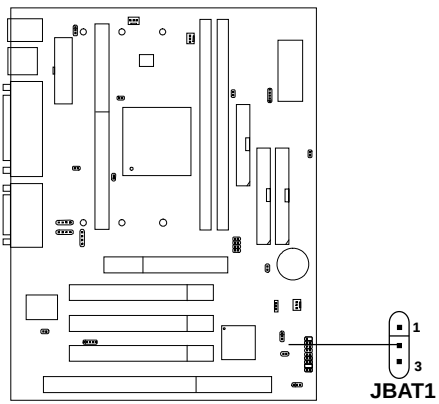
PSFAN : Power Supply Fan (optional)
CPUFAN : Processor Fan
SYSFAN : System(Chassis) Fan (optional)

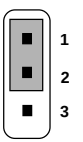
For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.

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

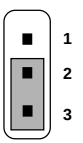
2.2 Clear CMOS Jumper: JBAT1

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



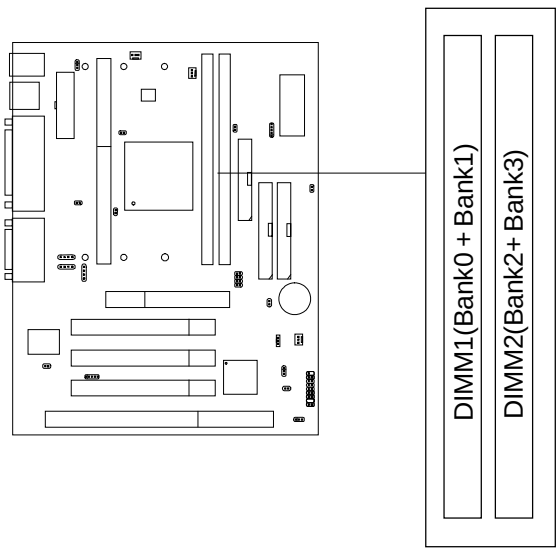
Clear Data

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 512MB DIMM for SDRAM: It provides two 168-pin DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 256 Mbytes DIMM memory module.

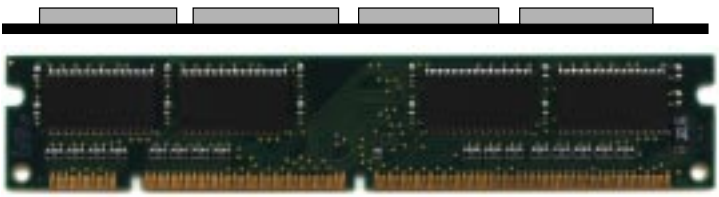


WARNING!

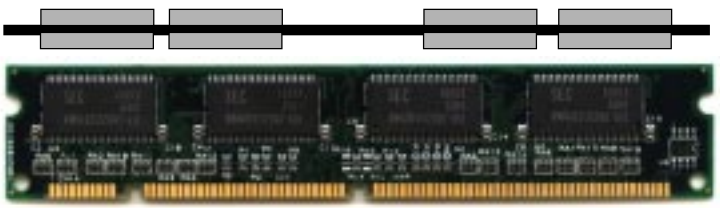
There are three kinds of DIMM specification supported by this mainboard: PC133, PC100 and PC66. If you use 66MHz CPU Bus Frequency, these three DIMM Specs. is supported. If you use 100 MHz CPU Bus Frequency, PC133 & PC100 DIMM Specs. is supported. If you use 133 MHz CPU Bus Frequency, only PC133 DIMM Specs. is supported.

2.3-2 Memory Installation Procedures

A. How to install a DIMM Module



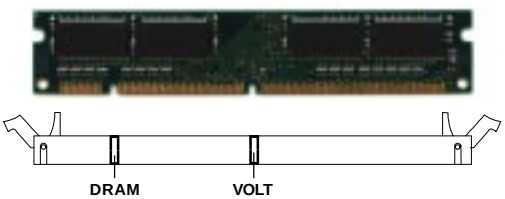
Single Sided DIMM



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.

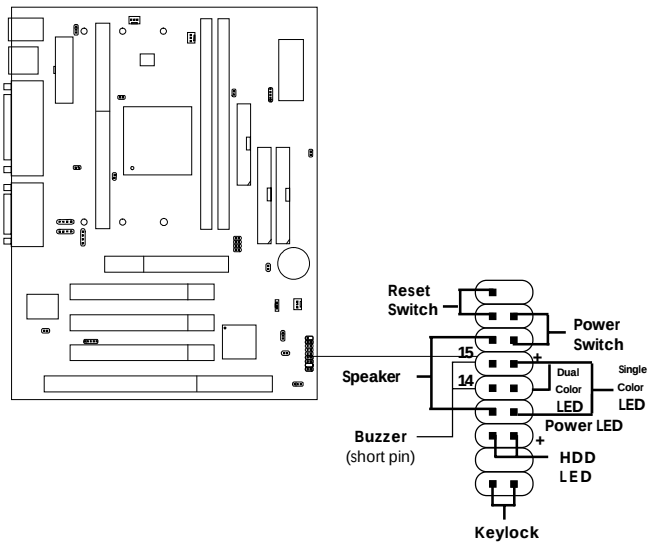
5. The DRAM addressing and the size supported by the mainboard is shown below:

Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single Side(S)	Double Side(D)
16M	1Mx16	ASYM	11	8	8MB	16MB
	2Mx8	ASYM	11	9	16MB	32MB
	4Mx4	ASYM	11	10	32MB	64MB
64M	2Mx32	ASYM	11	8	16MB	32MB
	4Mx16	ASYM	12	8	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	12	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB
64M	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	12	10	128MB	256MB

2.4 Case Connector: JFP1

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



JFP1

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.

GREEN Color: Indicate the system is in full on mode.
ORANGE Color: 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

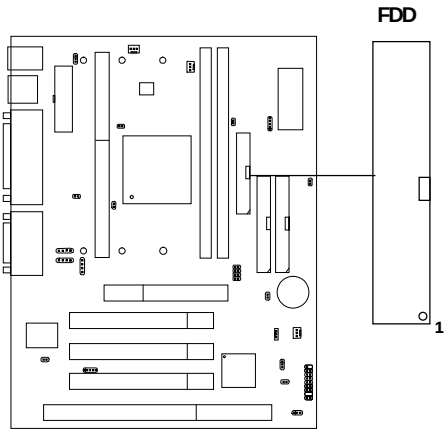
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

2.4-6 Keylock

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

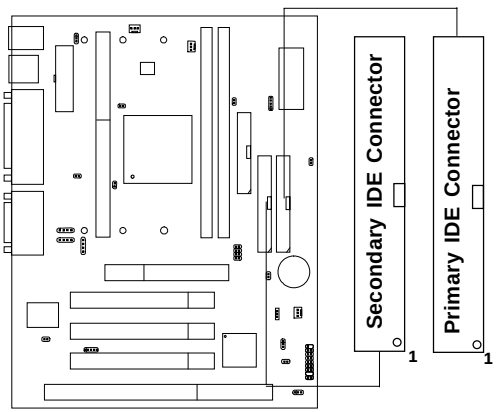
2.5 Floppy Disk Connector: FDD

The mainboard also provides a standard floppy disk connector FDC 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/33/66 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.

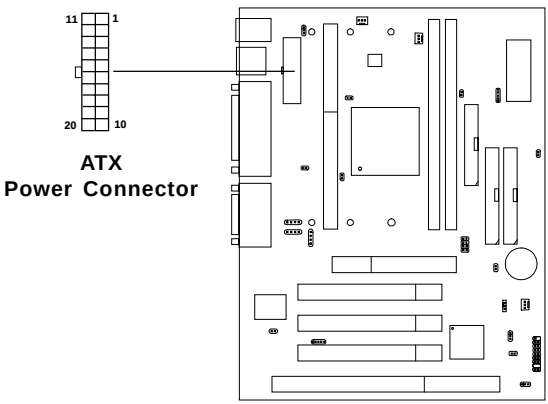
IDE2(Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: JWR1

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.



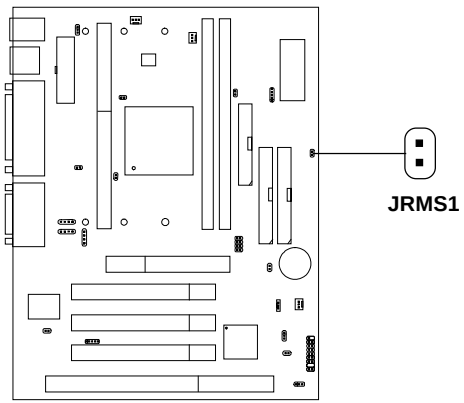
PIN DEFINITION

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.

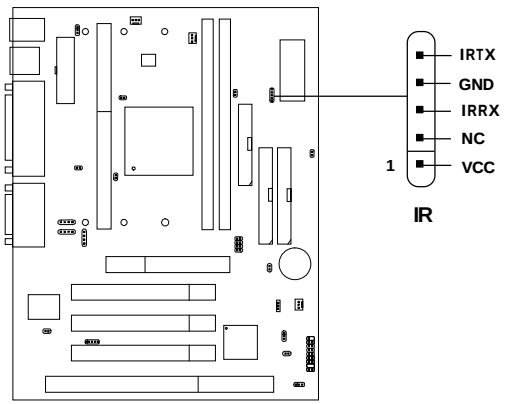
2.7-2 Remote Power On/Off Switch: JRMS1

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.



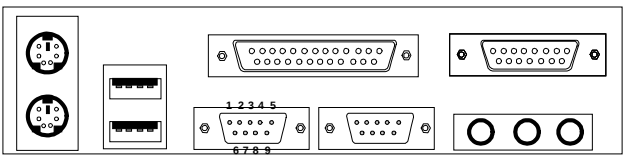
2.8 IrDA Infrared Module Connector: IR

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



2.9 Serial Port Connectors: COM 1 and COM 2

The mainboard has two 9-pin male DIN connectors for serial port COM 1 and COM 2. These ports are 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

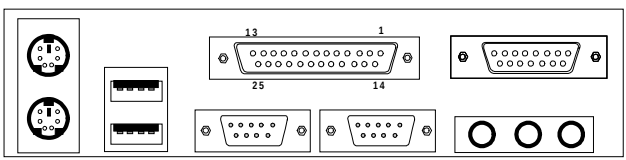
PIN	SIGNAL
1	**DCD**(Data Carry Detect)
2	**SIN**(Serial In or Receive Data)
3	**SOUT**(Serial Out or Transmit Data)
4	**DTR**(Data Terminal Ready)
5	**GND**
6	**DSR**(Data Set Ready)
7	**RTS**(Request To Send)
8	**CTS**(Clear To Send)
9	**RI**(Ring Indicate)

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

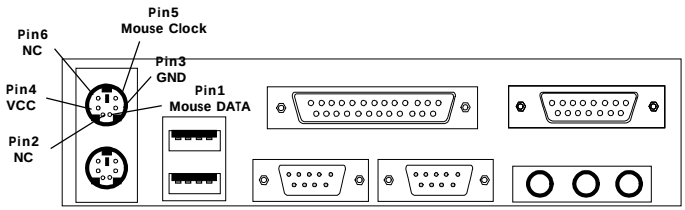


PIN DEFINITION

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

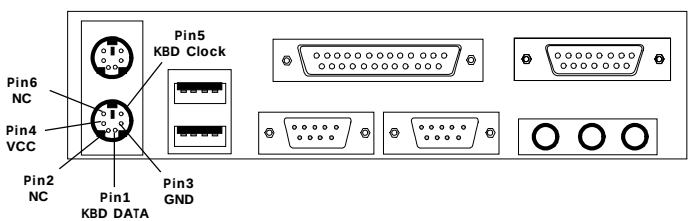
The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin definition are shown below:



PS/2 Mouse (6-pin Female)

2.12 Keyboard Connector: JKBMS1

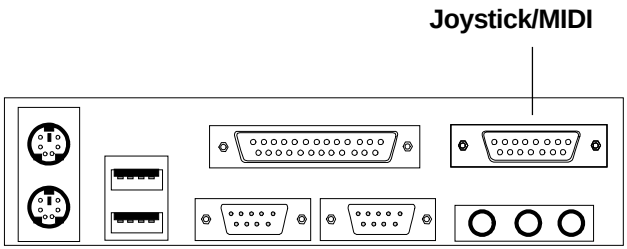
The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.



PS/2 Keyboard (6-pin Female)

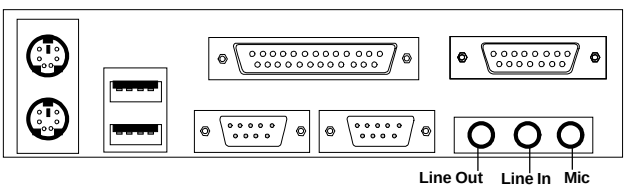
2.13 Joystick/Midi Connectors

You can connect joystick or game pads to this connector.



2.14 Audio Port Connectors

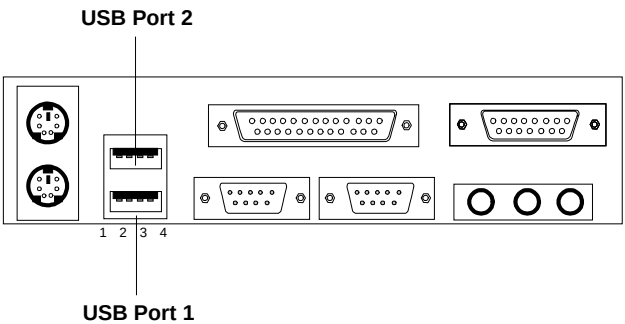
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphones.



1/8" Stereo Audio Connectors

2.15 USB Connectors

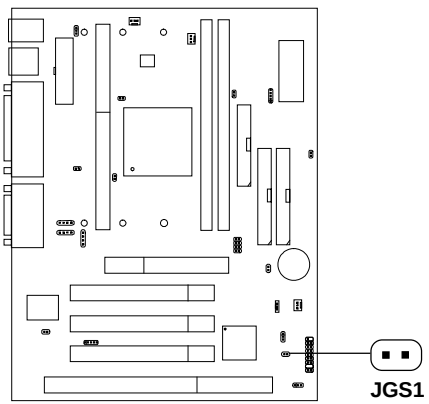
The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



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

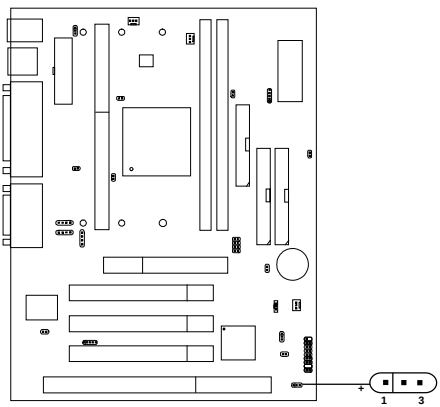
2.16 Power Saving Switch Connector: JGS1

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.

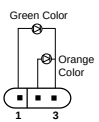
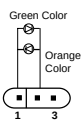


2.17 Power Saving LED Connector: JGL1

JGL1 can be connected with an LED. There are two types of LED that you can use: 3-pin LED or 2-pin LED(ACPI request). 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. For 3-pin LED, when LED is connected to JGL1, this will light when the system is On and blinks when it is in suspend/sleep mode.



JGL1

3-pin LED	2-pin LED
	
1-2 Single Color 1-3 Blink	1-2 Dual Color

2.18 Power On Mode Jumper: JP1

The mainboard supports three kinds of system boot up: the Boot-Up by switch, Stay Off, and Last State. With the **Boot-Up by Switch**, the system will boot up only when the power on switch is pressed. For **Stay Off**, the system will remain power off when the power connector is connected into the system; this function must be set in the BIOS Power Management. For **Last State**, this will record the last status the system was in: either System on or Shut down. The next time you boot up, the system will remember the last status. This function must be set at the BIOS Power Management Setup.

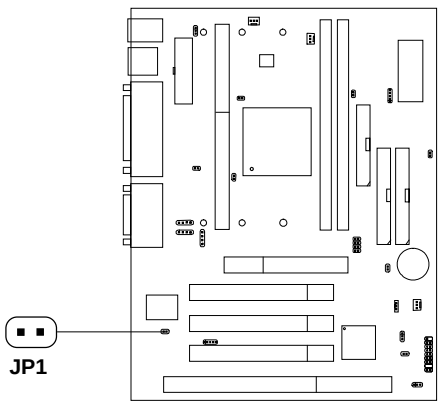
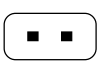


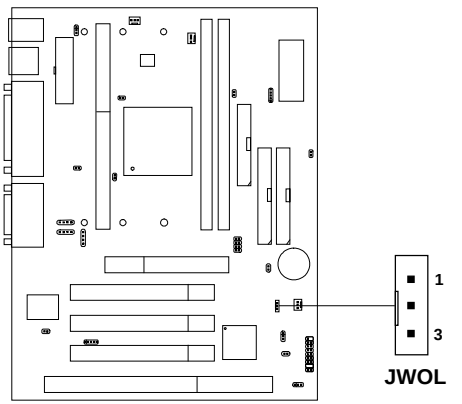
Table 2.20: Power On Mode Feature

JP1	Feature
	Select Boot-Up by Switch
	Select Stay Off/Select Last State

Note: Short **JP1**, when using Boot-Up by Switch feature. Open **JP1**, to enable Stay Off or Last State.

2.19 Wake-Up on LAN Connector: JWOL

The JWOL 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.



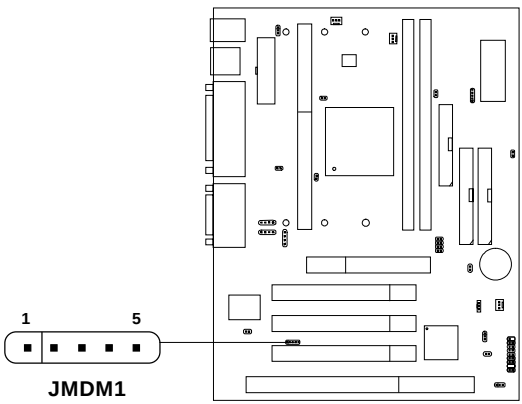
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

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 use with Modem add-on card that supports the Modem Wake Up function. To use this function, you need to set the "Modem Ring Resume" to enable at the BIOS Power Management Setup.



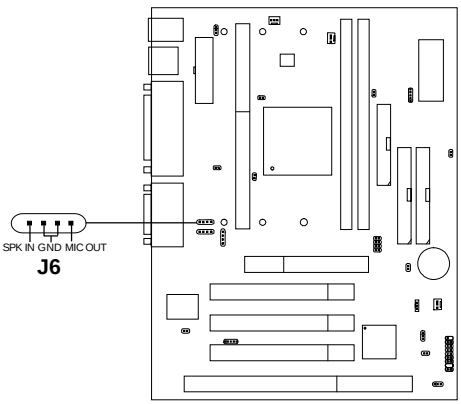
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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 750mA 5V Stand-by)

2.21 Modem-In: J6

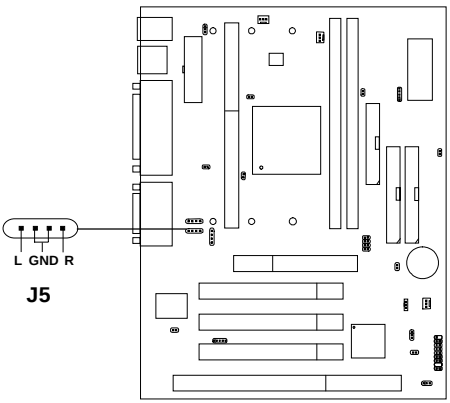
The connector is for Modem with internal voice connector.



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

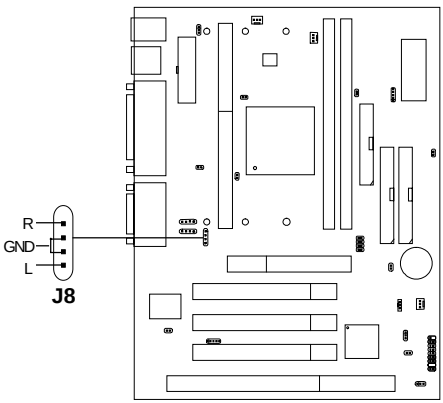
2.22 AUX Line In Connector: J5

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



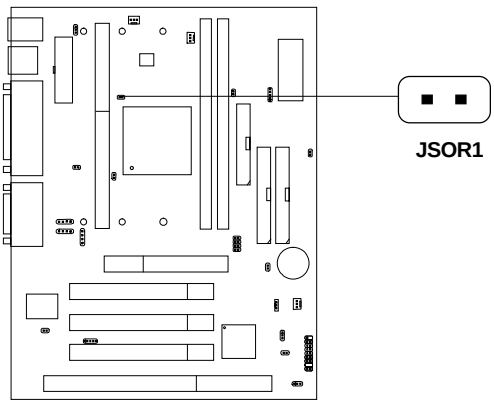
2.23 CD-In Modem Connector: J8

This connector is for CD-ROM voice connector.



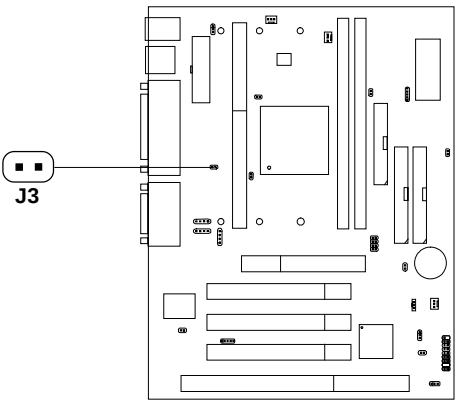
2.24 CPU Temperature Sensor: JSOR1 (optional)

This is used to check the CPU temperature. The JSOR1 is a sensor that is placed near the processor heatsink. This will monitor the CPU temperature.



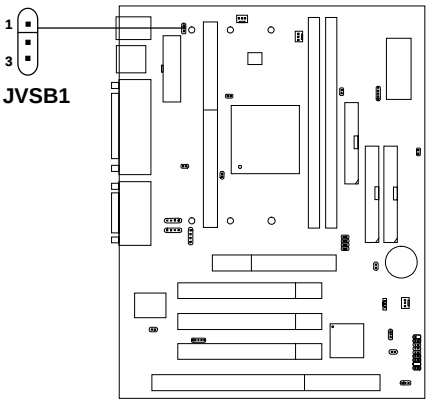
2.25 Chassis Intrusion Switch Connector: J3 (reserved)

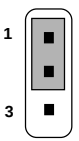
This connector is connected to 2-pin connector chassis switch. If the Chassis is open, the switch will be short. The system will record this status. To clear the warning, you must enter the BIOS settting and clear the status.



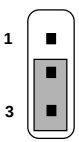
2.26 Keyboard Power: JVSB1 (reserved)

The JVSB1 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

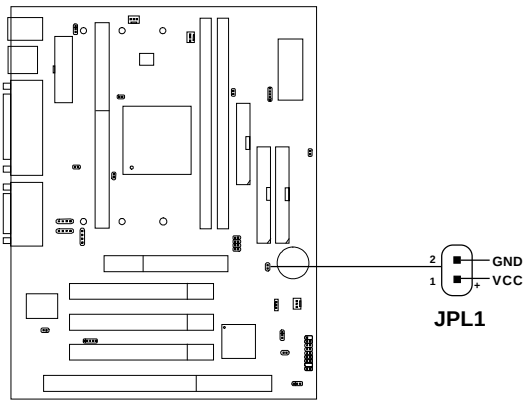


5V (default)
Disable keyboard
power on function

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

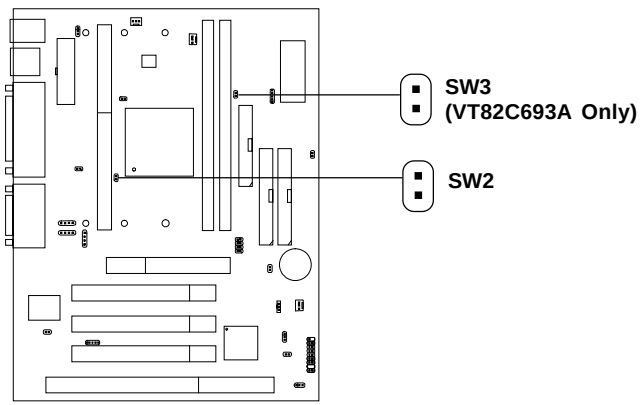
2.27 Power LED Connector: JPL1 (reserved)

The connector JPL1 can be connected to the Power LED. When the system is ON, the LED will be ON. When the system is OFF, the LED will be OFF.



2.28 Overclock Jumpers: SW2 & SW3

Jumpers SW2 and SW3 is used for overclocking from 66MHz to 100MHz, 100MHz to 133MHz or 66MHz to 133MHz. But this action is not highly suggested as it may cause system unstability.



Overclock	SW2	SW3
66 to 100MHz	Open	Short
100 to 133MHz	Short	Open
66 to 133MHz	Open	Open
Auto Detect (default)	Short	Short