

## Chapter 2

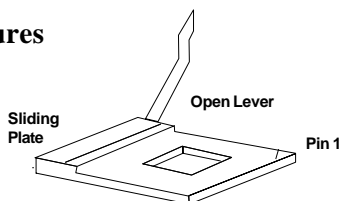
### Hardware Installation

#### 2.1 Central Processing Unit: CPU

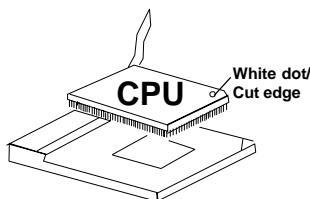
The ATX TX3 mainboard operates with **Intel®Pentium®processor-Pentium®processor with MMX™technology**, **Cyrix®6x86/6x86L/6x86MX** and **AMD®K5/K6** processors. It could operate with 2.0V to 3.52V processors. The mainboard provides a 321-pin ZIF Socket 7 for easy CPU installation, a DIP switch (SW1) to set the proper speed for the CPU. The CPU should always have a cooling fan attached to prevent overheating.

##### 2.1-1 CPU Installation Procedures

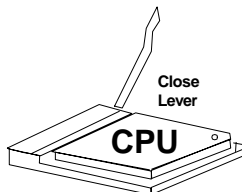
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



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.



**2.1-2 CPU Core Speed Derivation Procedures**

1. The mainboard supports different clock frequencies adjusted by SW1 pin 4, 5, and 6. See the following chart to set the different Host Clock Frequencies.

SW1			CPU
4	5	6	Clock
ON	ON	OFF	55MHz
ON	OFF	OFF	60MHz
OFF	OFF	OFF	66MHz
OFF	ON	OFF	75MHz
OFF	OFF	ON	68.5MHz

**Special CPU Clock**

SW1			CPU
4	5	6	Clock
OFF	OFF	OFF	50MHz
OFF	OFF	ON	69.5MHz
OFF	ON	ON	78MHz
ON	ON	OFF	83.3MHz
ON	OFF	ON	85.5MHz
ON	OFF	OFF	100MHz

**Note:** If you're going to use the special CPU clock, then you must **short JRMS3**

2. The DIP Switch SW1 (1, 2, and 3) 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

=

66MHz  
3/2

**then**

CPU core speed

=

Host Clock x Core/Bus ratio  
= 66MHz x 3/2  
= 100MHz

SW1			CPU
1	2	3	Core/Bus Ratio
OFF	OFF	OFF	1.5 /3.5
ON	OFF	OFF	2
ON	ON	OFF	2.5/1.75
OFF	ON	OFF	3

3. The PCI Bus Clock is the CPU Clock Frequency divided by 2.

2.1-3 CPU Voltage

The mainboard voltage regulators can automatically detect and switch between Single and Dual voltage. It can detect single voltage ranging from 3.38 volts to 3.52 volts. And dual voltage ranging from 2.0 volts to 3.2 volts.

2.1-4 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*). Then, refer to **Table 2.1 (Intel®Pentium®processor/Pentium®processor with MMX™technology)**, **Table 2.2 (Cyrrix®6x86/6x86L/6x86MX processor)** and **Table 2.3 (AMD® K5/K6 processor)** for proper settings.

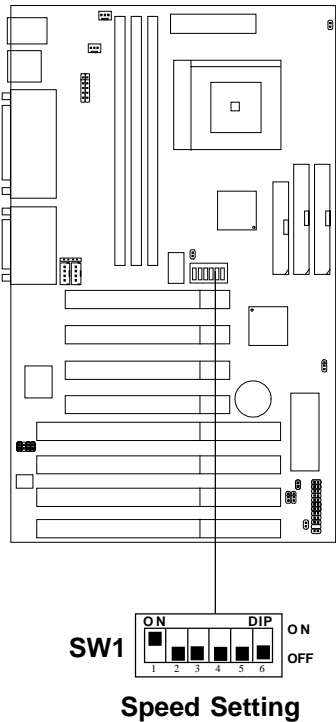









Table 2.1 Intel® Processor

Intel® Pentium® Processor

CPU Type	CPU Speed SW1
90 MHz	
100 MHz	
120 MHz	
133 MHz	
150 MHz	
166 MHz	
200 MHz	

Intel® Pentium® Processor with MMX™ Technology







166 MHz	
200 MHz	
233 MHz	


Table 2.2 Cyrix® Processor

Cyrix® processor uses PR to rate the speed of their processors based on Intel®Pentium®processor core speed. For example, PR150 (120MHz) has 150MHz core speed of Intel®Pentium®processor but has 120MHz core speed in Cyrix®processor. Cyrix®processor should always uses a more powerful fan (ask vendor for proper cooling fan).

Cyrix® 6x86 Processor

CPU Type	CPU Speed SW1
PR133 (110MHz)	 ON OFF
PR150 (120MHz)	 ON OFF
PR166 (133MHz)	 ON OFF

Cyrix® 6x86L Processor

PR166	 ON OFF
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Cyrix® 6x86MX Processor

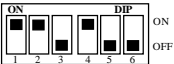

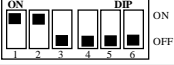

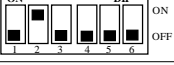





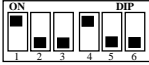
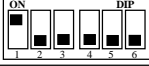


CPU Type	CPU Speed SW1
PR166 (60x2.5)  (66x2)	
	
PR200 (66x2.5)  (75x2)	
	
PR233 (66x3)  (75x2.5)	
	
PR266 (66x3.5)  (75x3)	
	




Table 2.3 AMD® Processor

AMD® processor uses PR to rate the speed of their processors based on Intel®Pentium®processor core speed. For example, PR133 (100MHz) has 133MHz core speed of Intel®Pentium®processor but has 100MHz core speed in AMD® processor.

AMD® K5 Processor

CPU Type	CPU Speed SW1
PR90 (90MHz)	 ON OFF
PR100 (100MHz)	 ON OFF
PR120 (90MHz)	 ON OFF
PR133 (100MHz)	 ON OFF
PR150 (105MHz)	 ON OFF
PR166 (116.7MHz)	 ON OFF

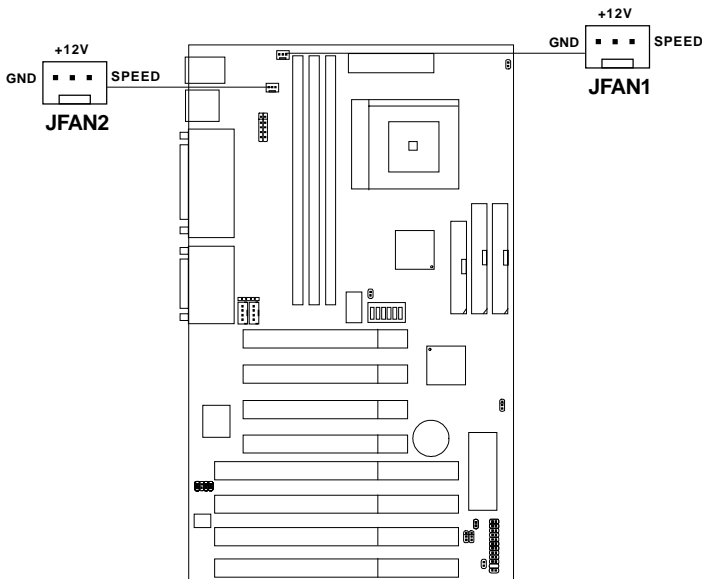
AMD® K6 Processor

166MHz	 ON OFF
200MHZ	 ON OFF
233MHz	 ON OFF



### 2.1-5 CPU Fan Power Connectors: JFAN1 / JFAN2

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 LM78 chipset on-board, you must use a specially designed fan with speed sensor to take advantage of LM78's CPU fan control.

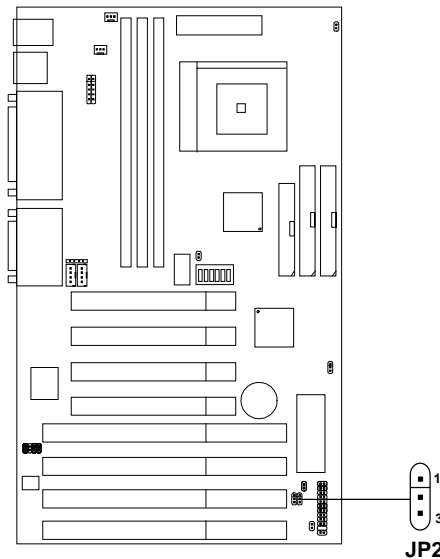


For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. LM78 will count and report the fan rotation speed.

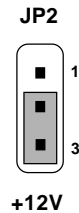
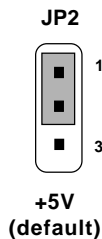
- Note:**
1. **JFAN1** is the Chassis Cooling Fan Speed Connector (reserved for LM78 System Hardware Monitor Option.)
  2. Always consult vendor for proper CPU cooling fan.

## 2.2 Flash ROM Programming Voltage: JP2

This jumper is for setting the Voltage of the Flash ROM BIOS.



### Voltage Setting



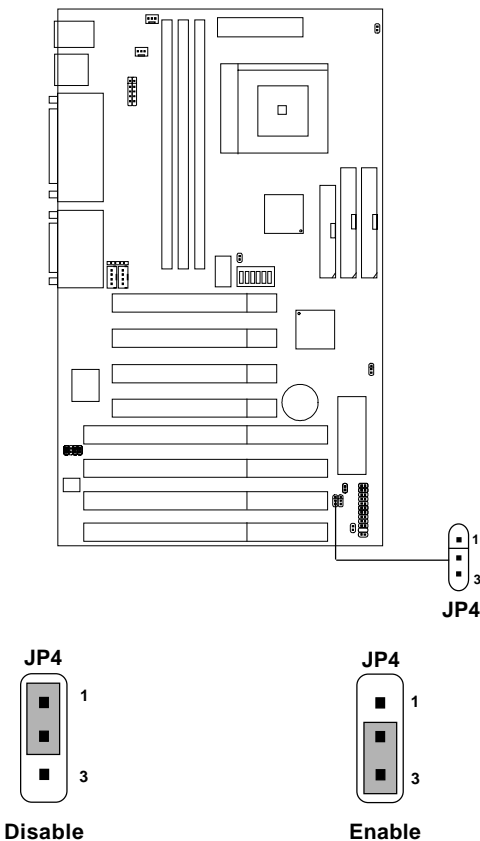
**Note:**

- a. If you use Winbond or SST Flash ROM, short 1-2 .
- b. If you use Intel or MXIC Flash ROM , short 1-2 pin.

If you want to flash the ROM data, short 2-3, then put it back to 1-2.

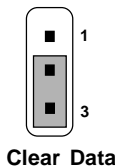
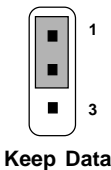
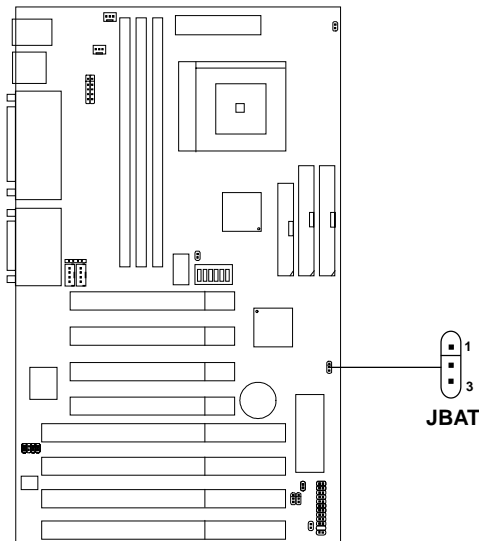
**2.3 Flash ROM Boot Block Programming: JP4**

This jumper is for setting the boot block area of the Flash ROM BIOS to allow programming.



## 2.4 External Battery Connector: JBAT

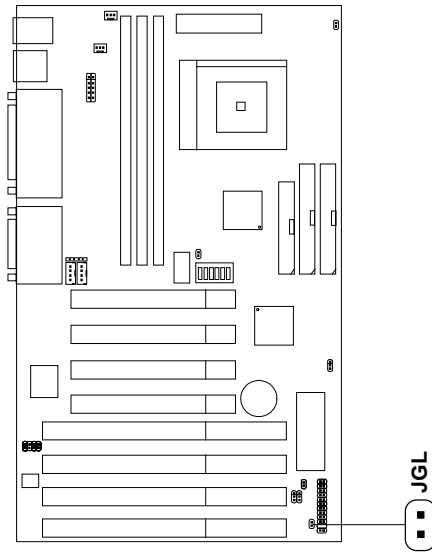
A battery must be used to retain the system board configuration in CMOS RAM. If you use the on-board battery you must short pins of JBAT to keep the CMOS data.



**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.

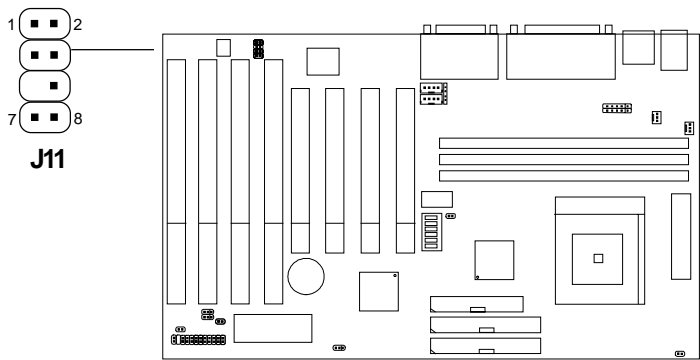
## 2.5 Power Saving LED Connector: JGL

Attach a power LED to JGL. This LED will lit to show that the system is in suspend mode.



2.6 Creative® EMU8000 Wave Table Connector: J11

To connect your EMU8000 Wave Table card to the Vibra 16X chip on the mainboard, you must insert EMU800 card in the ISA slot and connect the cable to J11.



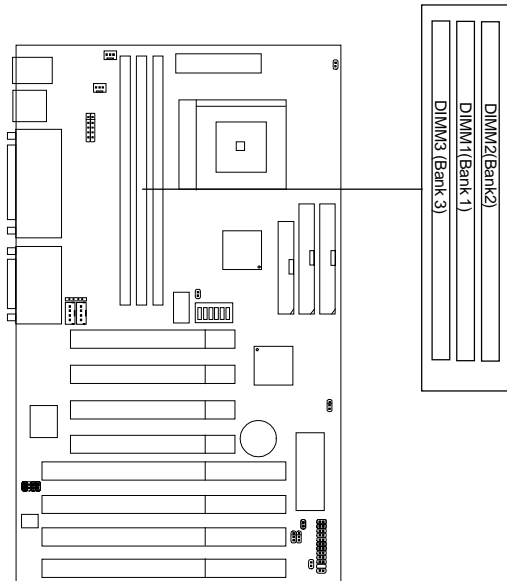
PIN DEFINITION

Pin #	Signal
1	Right Channel
2	Ground
3	Left Channel
4	Ground
5	Key
6	Ground
7	Ground
8	Ground

## 2.7 Memory Installation

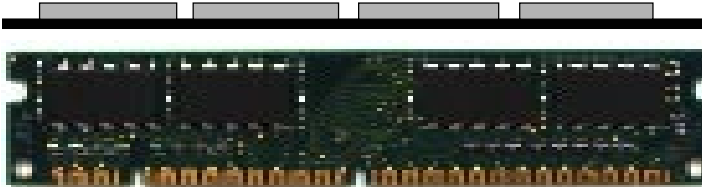
### 2.7-1 Memory Bank Configuration

The mainboard provides three 168-pin DIMM(Double In-Line Memory) sockets to support a maximum of 256MB of memory. You can use DIMM from 8MB, 16MB, 32MB, to 64MB. A Bank consist of one DIMM socket. It also consists of 2 RAS, with each RAS supporting up to 128MB of memory. This board supports 3 memory banks which is equivalent to 6 RAS.

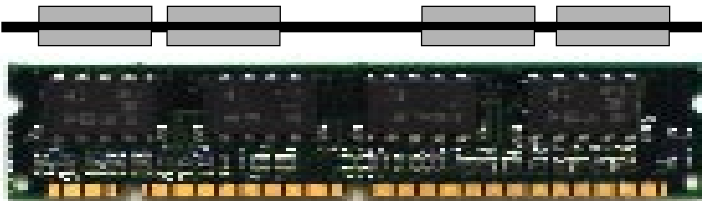


## 2.7-2 Memory Installation Procedures

### A. How to install a DIMM Module

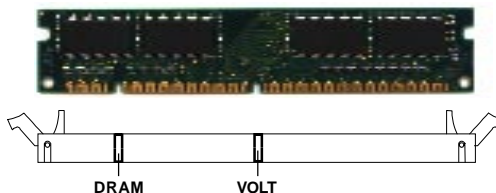


**Single Sided DIMM**



**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. Close the plastic clip at the side of the DIMM slot.

**Note:** You can only use a 3.3 volt DIMM module (EDO, FP or SDRAM).



### 2.7-3 Memory Population Rules

1. You can use any kind of DIMM **except for BEDO(Burst EDO)**.
2. You can only used an unbuffered DIMM.
3. To operate properly at least one 168-pin DIMM module must be installed.
4. This mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM2, or DIMM 3 in any order.
5. If you use a 64M DRAM on DIMM1 & DIMM2, then you cannot use DIMM3 anymore.
6. The DRAM addressing and the size supported by the system board is shown below.

#### Memory Mapping Options

DRAM Tech.	Memory Org.	Addressing	Address Size	MB/DIMM	
				Single Side	Double Side
4M	1M x 4	Symmetric	10 x 10	8MB	16MB
16M	1M x 16	Symmetric	10 x 10	8MB	16MB
	2M x 8	Asymmetric	11 x 10	16MB	32MB
	4M x 4	Symmetric	11 x 11	32MB	64MB
64M	4M x 16	Symmetric	11 x 11	32MB	64MB
	8M x 8	Asymmetric	12 x 11	64MB	128MB
	16M x 4	Symmetric	12 x 12	128MB	256MB

2.8 Case Connector: JFP

The Turbo LED, Hardware Reset, Key Lock, Power LED, Power Saving LED, Sleep Switch, Speaker and HDD LED are all connected to the JFP connector block.

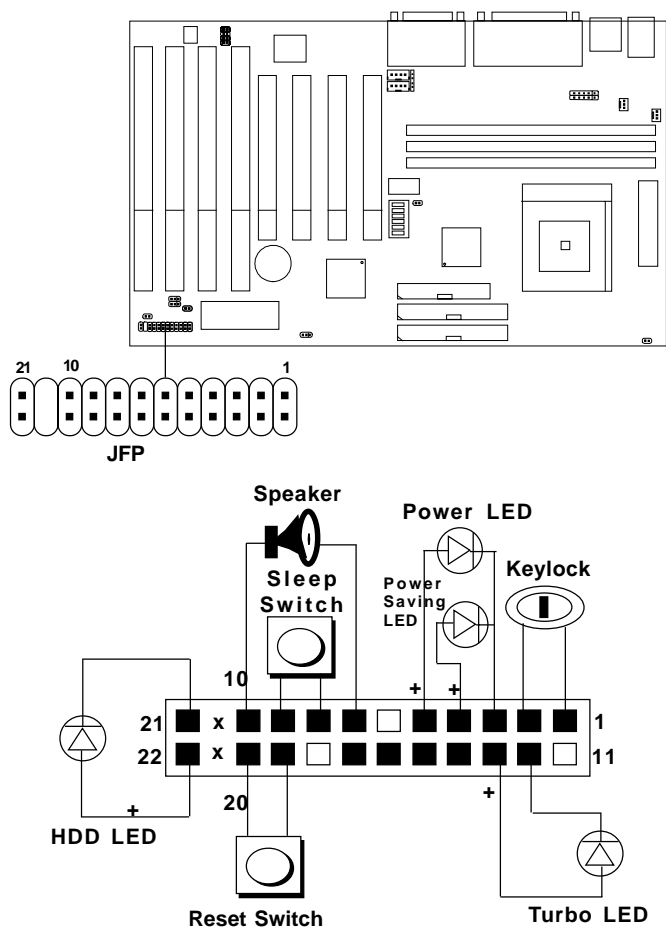


Figure 2.1

### **2.8-1 Turbo LED**

The Turbo LED is always ON. You can connect the Turbo LED from the system case to this pin. (See Figure 2.1)

### **2.8-2 Hardware Reset**

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. (See Figure 2.1)

### **2.8-3 Keylock**

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin. (See Figure 2.1)

### **2.8-4 Power LED**

The Power LED is always lit while the system power is on. You can connect the Power LED from the system case to this pin. (See Figure 2.1)

### **2.8-5 Suspend Switch**

The Suspend Switch can be set in the BIOS Power Management Setup. When used as a Suspend Switch, this allows the user to suspend the system when not in use. (See Figure 2.1)

### **2.8-6 Speaker**

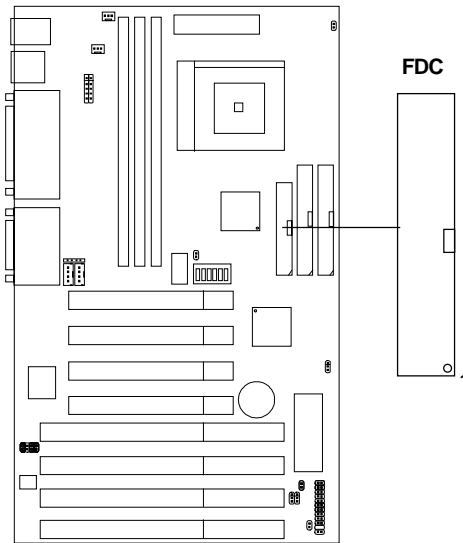
Speaker from the system case is connected to this pin. (See Figure 2.1)

### **2.8-7 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. (See Figure 2.1).

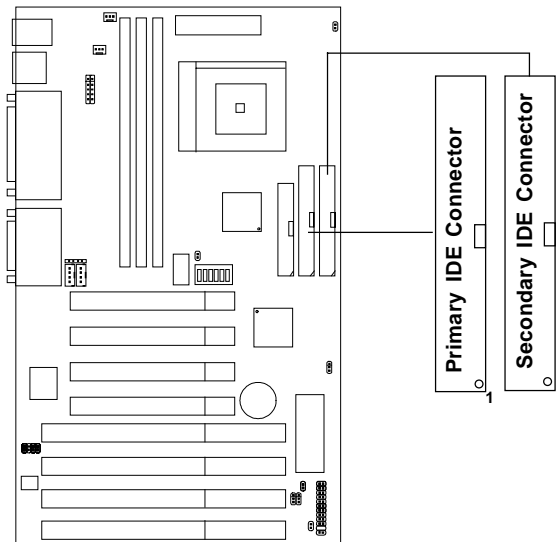
## 2.9 Floppy Disk Connector: FDC

The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. You can attach a floppy disk cable directly to this connector.



## 2.10 Hard Disk Connector: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE Controller that provide PIO mode 4 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.



### **IDE1**(primary IDE connector)

The first hard disk should always be connected to IDE1. IDE1 can connect a Master and a Slave drive.

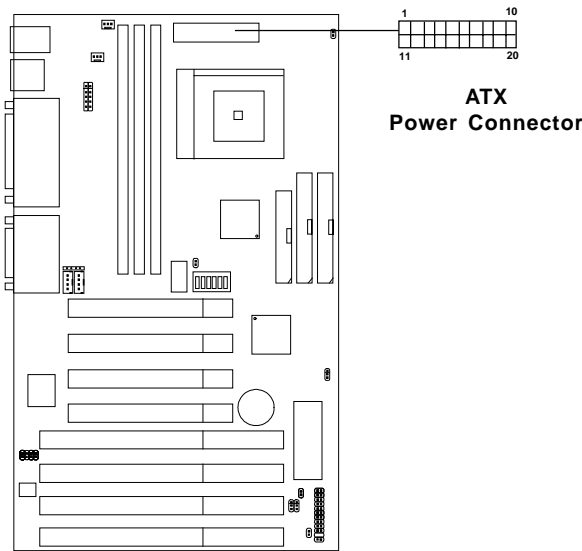
### **IDE2**(secondary IDE connector)

IDE2 can also connect a Master and a Slave drive.

2.11 Power Supply

2.11-1 ATX 20-pin Power Connector: JWR12

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.



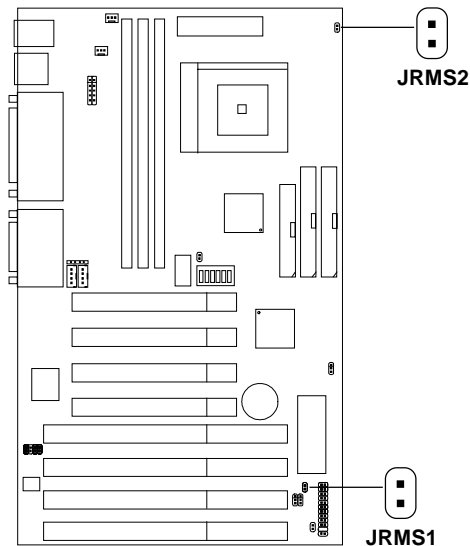
ATX Power Connector Pin Description

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

### 2.11-2 Power On/Off Switch: JRMS1/JRMS2

Connect to a 2-pin push button switch. Every time the switch is shorted by pushing it once, the power supply will change its status from OFF to 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.

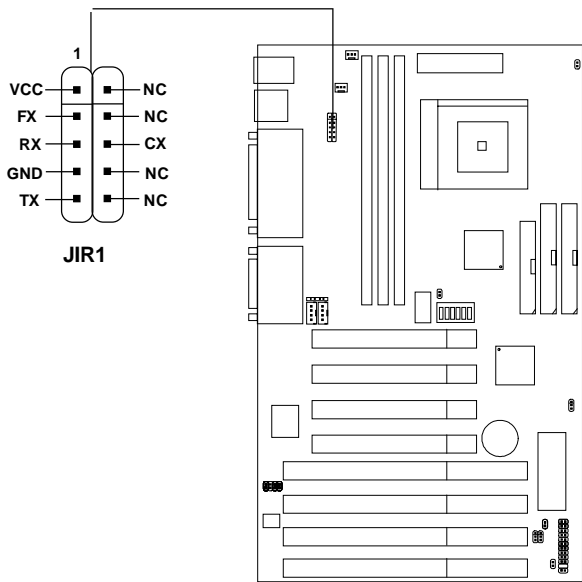


**Note:** The two switch as provided by the mainboard is just for your convenience, so you can use any of them. The two switches have the same feature.

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## 2.12 IrDA Infrared Module Connector: JIR1

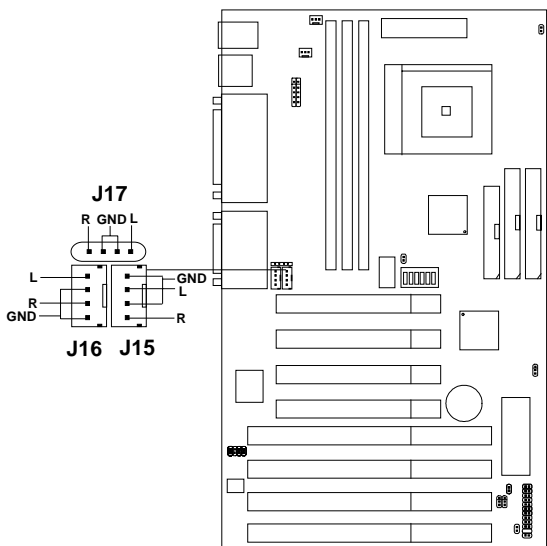
The mainboard provides two 5-pin infrared (IR) connectors for IR modules. These connectors are for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function. FIR and Consumer IR are reserved functions.





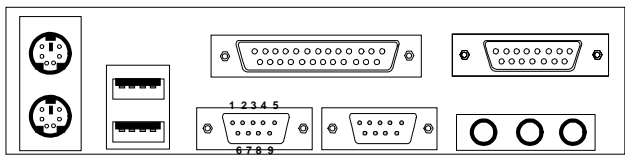
**2.13 CD Line-In: J15/J16/J17**

The mainboard provides three different kinds of CD Line-in connectors to let you connect three different kinds of cable provided by the CD-ROM.



**2.14 Serial Port Connectors: COM A & COM B**

The mainboard has two serial ports COMA and COMB. These two ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem directly into these connectors.



**COM A      COM B**  
**Serial Ports (9-pin Male)**

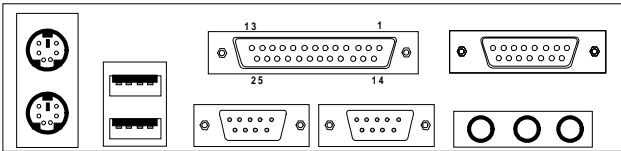
**PIN DEFINITION**

Pin #	Definition
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)

2.15 Parallel Port Connector: LPT

The mainboard provides a connector for LPT. The parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP).

Parallel Port (25-pin Female)  
LPT



PIN DEFINITION

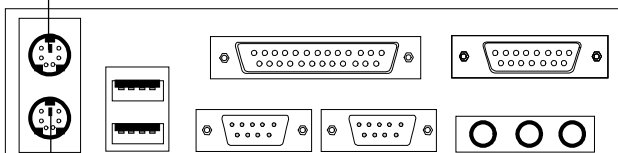
PIN #	DEFINITION	PIN #	DEFINITION
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

## 2.16 PS/2® Keyboard Connector: PSKBC PS/2® Mouse Connector: PSMSC

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.

It also 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 are shown below:

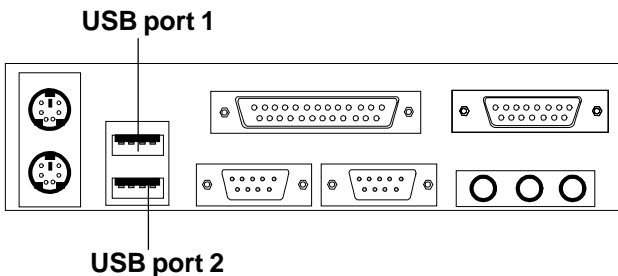
**PS/2® Mouse (6-pin Female)**



**PS/2® Keyboard (6-pin Female)**

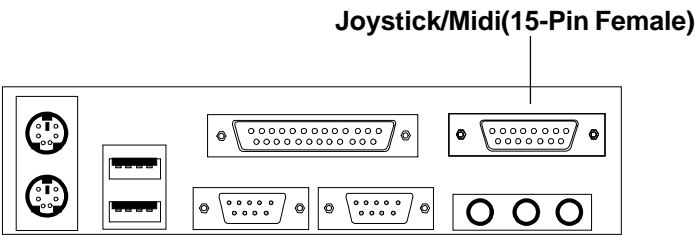
## 2.17 USB Connectors: USB

The mainboard provides a **USB(Universal Serial Bus)** connector for attaching USB devices like: keyboard, mouse or etc. You can plug it directly to this connector.



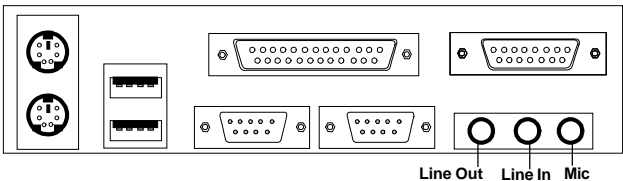
2.18 Joystick/Midi Connectors

You can connect joystick or game pads to this connector.



2.19 Audio Port Connectors

**Line Out** are connectors for Speakers or Headphones. **Line In** are used for outside CD player, Tape layer, or other audio devices. And **Mic** are connector for the microphones.



1/8" Stereo Audio Connectors