

## Chapter 3

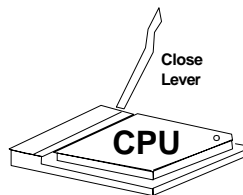
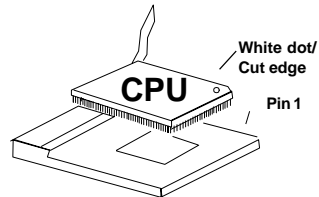
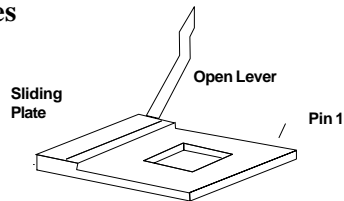
### HARDWARE INSTALLATION

#### 3.1 Central Processing Unit: CPU

The mainboard operates with **Intel® Celeron™ processor**. The mainboard uses a CPU socket called Socket 370 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

##### 3.1-1 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.



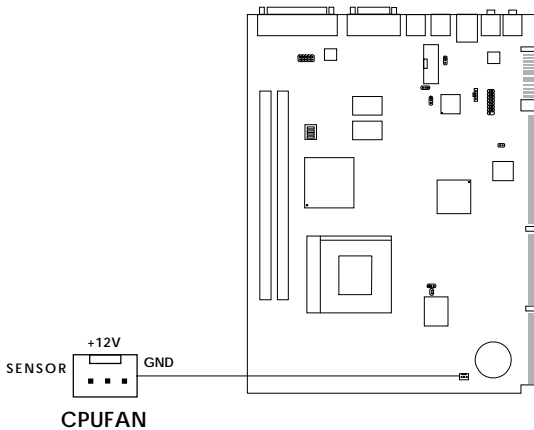
### 3.1-2 CPU Core Speed Derivation Procedure

The mainboard CPU Bus Frequency can be set through BIOS setup

<b>If</b>	<u>CPU Clock</u>	=	66MHz
	<u>Core/Bus ratio</u>	=	3.5
<b>then</b>	<u>CPU core speed</u>	=	<u>Host Clock</u> x <u>Core/Bus ratio</u>
		=	66MHz x 3.5
		=	233MHz

### 3.1-3 Fan Power Connector: CPUFAN

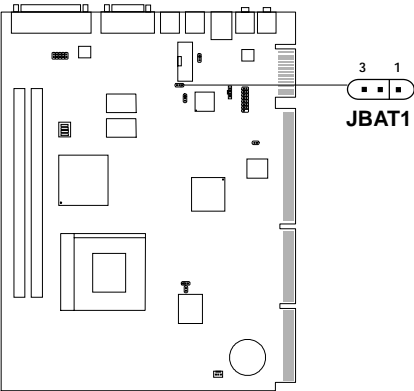
This connector support system cooling fan with +12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If your mainboard had a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.





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

**3.2 Clear CMOS Jumper: JBAT1**

A battery must be used to retain the mainboard configuration in CMOS RAM. If you use the on-board battery, you must short 1-2 pins of JBAT1 to keep the CMOS data.

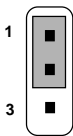
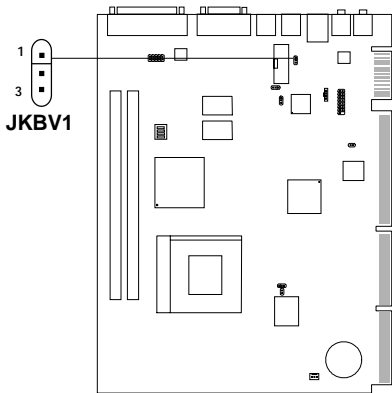


JBAT1	Function
	Keep Data
	Clear Data

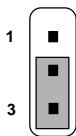
**Note:** You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. To be able to clear the CMOS, you need to unplug the power plug of the system, because there's a 3V standby power for PIIX4E chipset which is provided by the power supply. Otherwise, the CMOS will not be cleared.

**3.3 Keyboard Power: JKBV1**

The JKBV1 jumper is for setting keyboard power. This function should be set in the BIOS for the keyboard power on function.



5V Standby  
Enable keyboard  
power on function

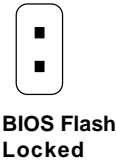
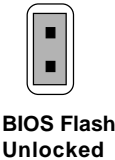
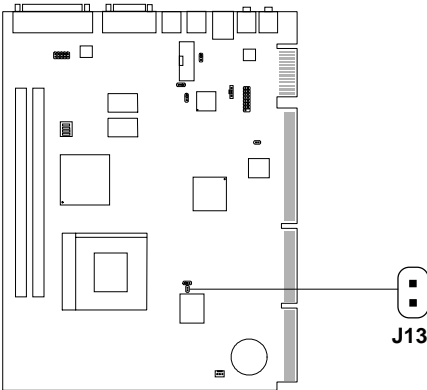


5V (default)  
Disable keyboard  
power on function

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

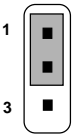
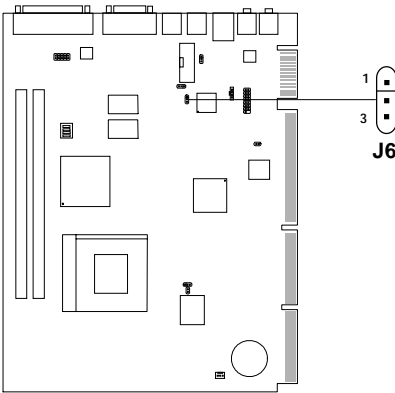
**3.4 BIOS Flash Jumper: J13**

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

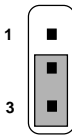


**3.5 LAN Jumper: J6**

This jumper is used to Enable or Disable the onboard LAN



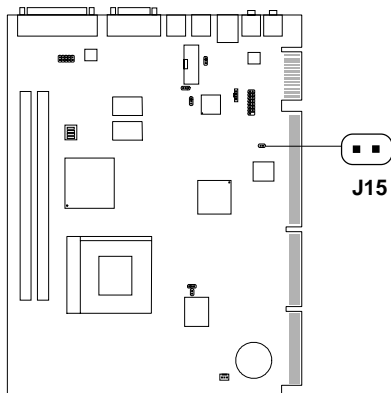
LAN Enabled



LAN Disabled  
(Default)

**3.6 Hardware Audio Jumper: J15**

This jumper is used to Enable or Disable the onboard sound controller.



**Enabled  
Audio**

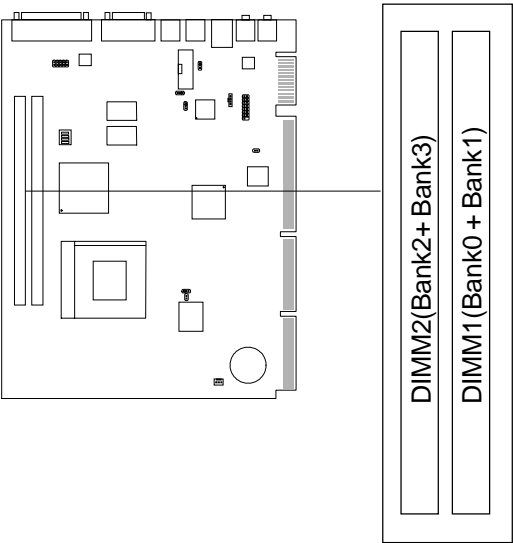


**Disabled  
Audio (default)**

### 3.7 Memory Installation

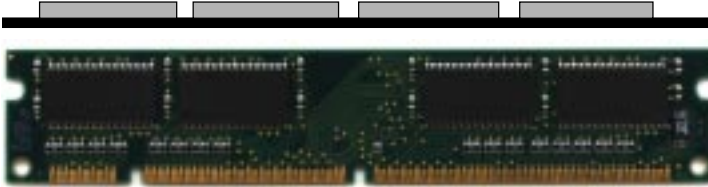
#### 3.7-1 Memory Bank Configuration

The mainboard supports a maximum memory size of 256MB(64-bit technology) or 512MB(128-bit technology for SDRAM: It provides two 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 128 Mbytes DIMM memory module.

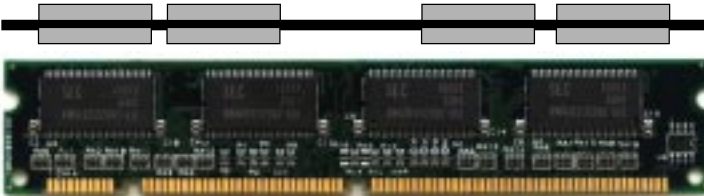


### 3.7-2 Memory Installation Procedures

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

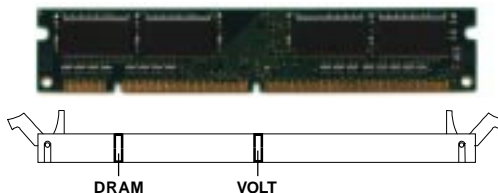


**Single Sided DIMM**



**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.

### 3.7-3 Memory Population Rules

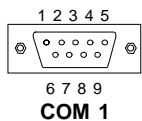
1. Supports SDRAM DIMM.
2. To operate properly, at least one 168-pin DIMM module must be installed.
3. This mainboard supports Table Free memory, so memory can be installed on DIMM1 or DIMM 2 in any order.
4. Supports 3.3 volt DIMM.
5. The DRAM addressing and the size supported by the mainboard is shown below:

**Table 3.4-1 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

**3.8 Serial Port Connector: COM 1 & COM 2**

The mainboard provides two 9-pin male DIN connectors for serial port COM 1 and COM 2. These port are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.



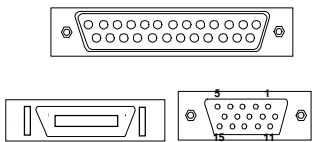
**PIN DEFINITION**

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)

**Note:** There's another special port connector (COM 2), which is located on the mainboard. Connect a serial port 9-pin male port into this connector.

**3.9 VGA DB 15 Pin Connector**

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

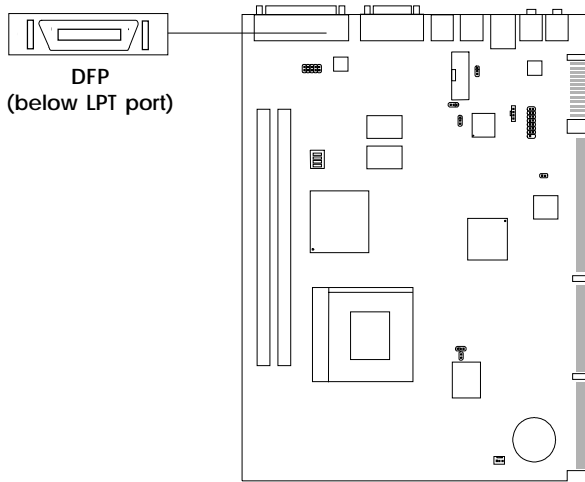


**VGA**

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

### 3.10 DFP Connector

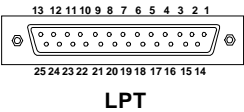
The mainboard provides a 20-pin connector for DFP(Digital Flat Panel) Monitors.



**Note:** You need to connect the DFP Connector to your Monitor before turning On the system. If not properly connected to the DFP monitor, only a blank screen will appear.

3.11 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:

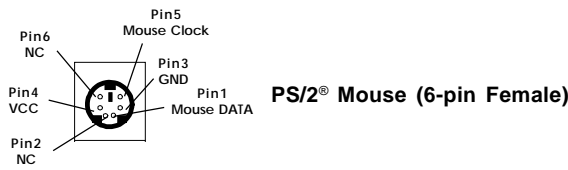


PIN DEFINITION

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	FE	25	GND
13	SELECT		

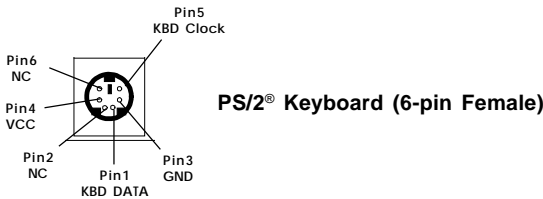
**3.12 Mouse Connector**

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



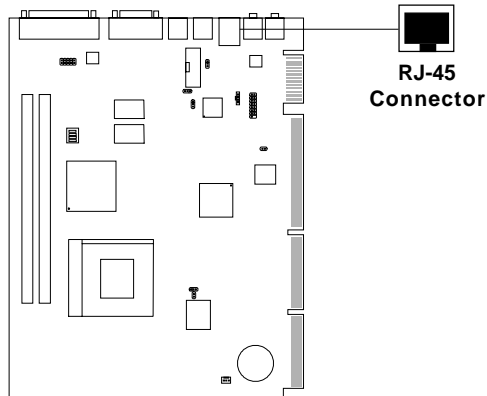
**3.13 Keyboard Connector**

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



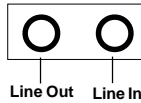
### **3.14 LAN Connector**

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



### 3.15 Audio Port Connectors

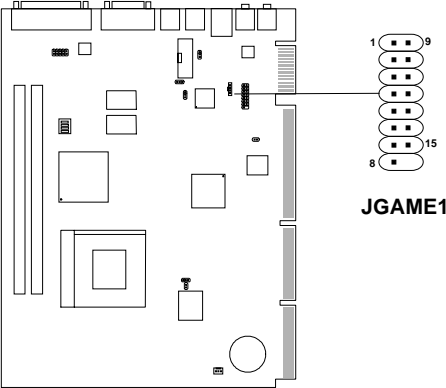
**Line Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices.



**1/8" Stereo Audio Connectors**

3.16 Joystick/Midi Connector: JGAME1

You can connect MIDI keyboard, joystick or game pads to this connector.



PIN	SIGNAL
1	+5v
2	Joystick But0
3	Joystick X1
4	GND
5	GND
6	Joystick Y1
7	Joystick But1
8	+5v
9	+5v
10	Joystick But2
11	Joystick X2
12	Midi Out
13	Joystick Y2
14	Joystick But3
15	Midi In

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

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

