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# *Hardware Installation*

# 2

This chapter provides you with the information about hardware setup procedures. During installation, be careful when handling the components and follow the installation procedures properly. For some components, installing it in a wrong orientation will cause it to become unstable.

Remember to use a grounded wrist strap before handling computer components. Static electricity may damage the components.

Chapter 2 contains the following topics:

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## CHAPTER 2

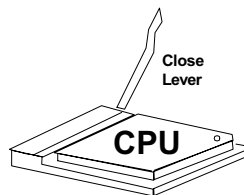
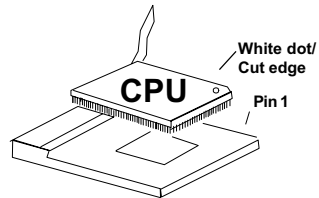
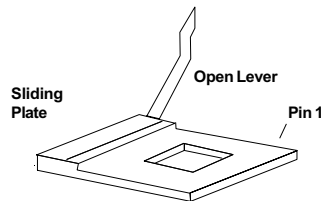
### Central Processing Unit: CPU

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The mainboard operates with **Intel® Celeron™/Coppermine 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.

#### • CPU Installation Procedures

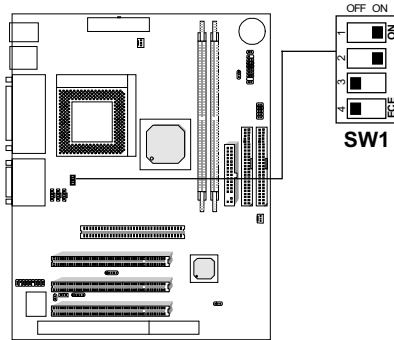
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.
2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge. Then, insert the CPU. It should insert easily.
3. Press the lever down to complete the installation.



## HARDWARE INSTALLATION

- **CPU Speed Setting: SW1**

To set the proper speed and voltage of the CPU, you must know the specifications of your CPU (*always ask your reseller for CPU specifications*).



**CHAPTER 2**

**• CPU Core Speed Derivation Procedure**

If the CPU Core/Bus ratio is already fixed, adjusting the SW1 will not change the CPU Core/Bus ratio. If the Core/Bus ratio is not fixed by the CPU, then you can adjust the SW1 to change the Core/Bus ratio.

If

then

CPU Clock

Core/Bus ratio

CPU core speed

=

=

=

=

66MHz

3.5

Host Clock x Core/Bus ratio

66MHz x 3.5

233MHz

SW1				CPU
4	3	2	1	Core/Bus Ratio
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

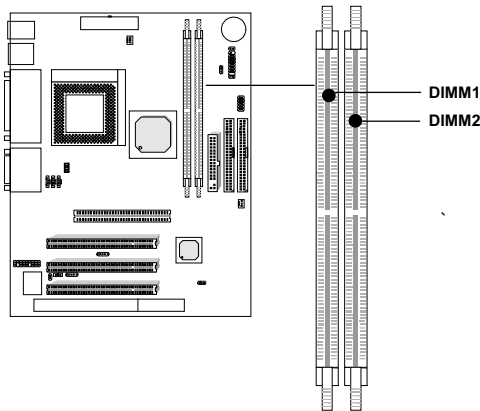
2-4

### Memory Installation

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#### ● Memory Bank Configuration

The mainboard supports a maximum memory size of 1GB (256-bit technology) for SDRAM: It provides two 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 512 Mbytes DIMM memory module.



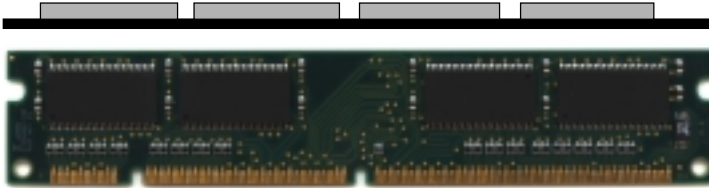
#### ● Memory Population Rules

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.

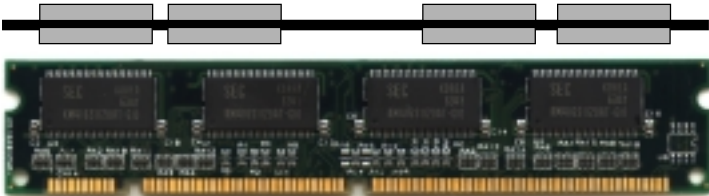
## CHAPTER 2

### • Memory Installation Procedures

#### How to install a DIMM Module

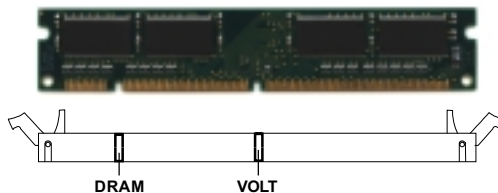


**Single Sided DIMM**



**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.

# HARDWARE INSTALLATION

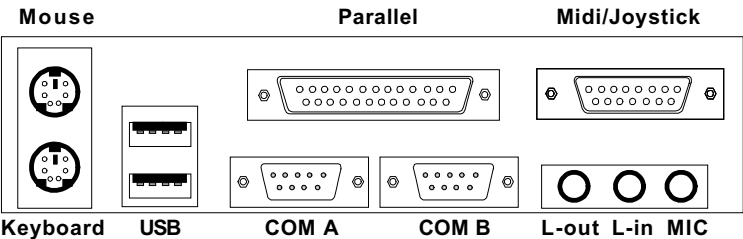
- SDRAM Memory Addressing

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
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
64M	2Mx32	ASYM	11	8	16MB	32MB
	4Mx16	ASYM	12	8	---	---
	8Mx8	ASYM	12	9	---	---

CHAPTER 2

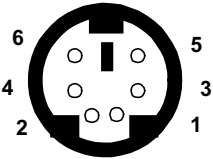
Back Panel

The mainboard provides the following back panel connectors:



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.



PS/2 Mouse (6-pin Female)

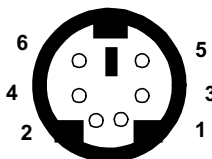
PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock



## HARDWARE INSTALLATION

### 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.

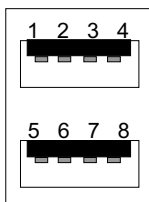


PS/2 Keyboard (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

### 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.



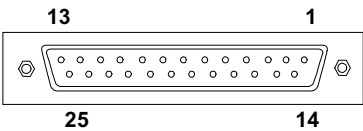
USB Ports

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	GND	Ground
4	+Data 0	Positive Data Channel 0
5	VCC	+5V
6	+Data 1	Positive Data Channel 1
7	-Data 1	Negative Data Channel 1
8	GND	Ground

**CHAPTER 2**

**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:

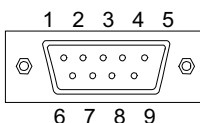


PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	FE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground1

## HARDWARE INSTALLATION

### Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM A & COM B. These port 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.

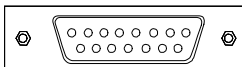


PIN	SIGNAL
1	<b>DCD</b> (Data Carry Detect)
2	<b>SIN</b> (Serial In or Receive Data)
3	<b>SOUT</b> (Serial Out or Transmit Data)
4	<b>DTR</b> (Data Terminal Ready)
5	<b>GND</b>
6	<b>DSR</b> (Data Set Ready)
7	<b>RTS</b> (Request To Send)
8	<b>CTS</b> (Clear To Send)
9	<b>RI</b> (Ring Indicate)

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### Joystick/Midi Connectors

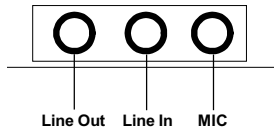
You can connect joystick or game pad to this connector.



## CHAPTER 2

### 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. **Mic** is a connector for the microphones.

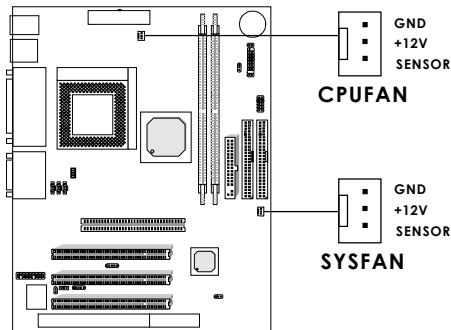


### Connectors

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#### Fan Power Connectors: CUFAN & 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.



**CPUFAN:** Processor Fan

**SYSFAN:** System 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.

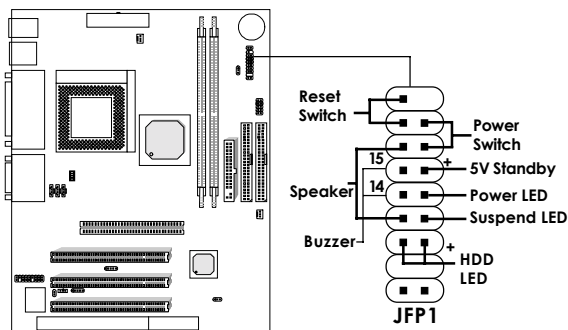
**Note:**

1. Always consult your reseller 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.

## CHAPTER 2

### Case Connector: JFP1

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



#### Power Switch

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

#### 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.

#### Power LED

Power LED will remain in Green mode when the system is power on.

Green mode:	System is in full on mode.
Blinking:	System is in Suspend 1 (POS) mode.
Yellow mode:	System is in Suspend 3 (STR) mode.

**Note:** You can set the S1 or S3 type Suspend mode in the Power Management of the BIOS setup.

#### Speaker

The 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.

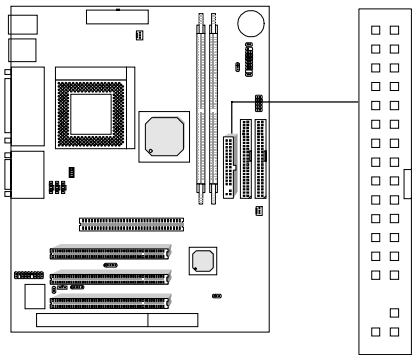
#### HDD LED

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.

## HARDWARE INSTALLATION

### Floppy Disk Connector: FDD

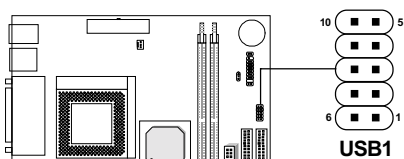
The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



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### USB Front Connector: USB1

The mainboard provides a front Universal Serial Bus connector. This is an optional USB connector for Front Panel.

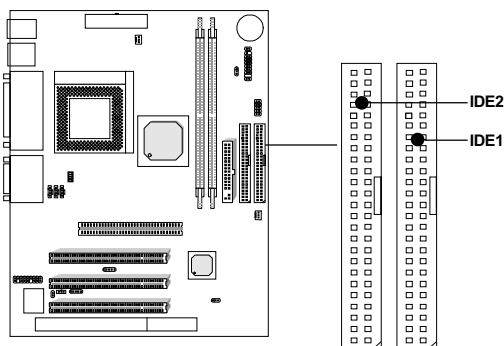


Pin	Signal	Pin	Signal
1	VCC	6	GND
2	D1-	7	GND
3	D1+	8	D0+
4	GND	9	D0-
5	GND	10	VCC

## CHAPTER 2

### Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/66/100 Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66/100 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)

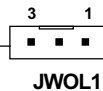
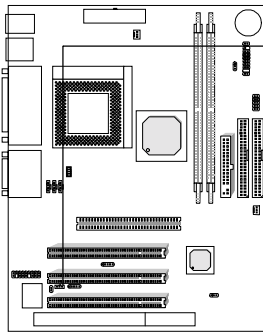
IDE2 can also connect a Master and a Slave drive.



## HARDWARE INSTALLATION

### 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.



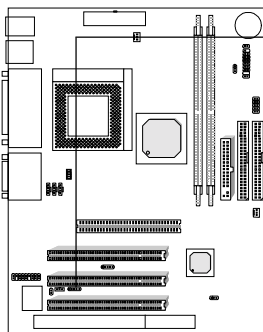
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

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

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### Modem Wake Up Connector: JMDM1

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



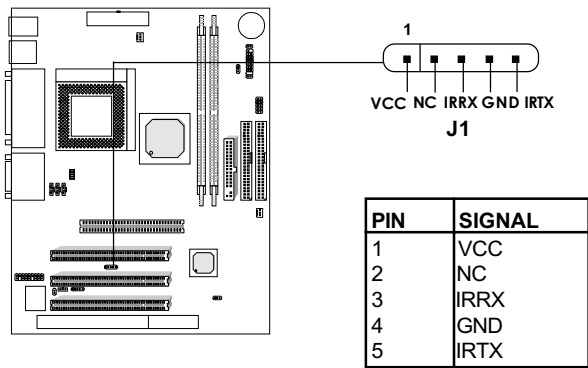
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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

**CHAPTER 2**

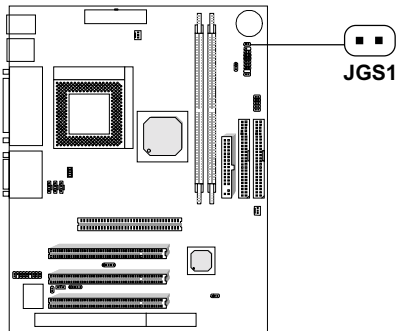
**IrDA Infrared Module Connector: J1**

The mainboard provides one infrared (J1) 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.



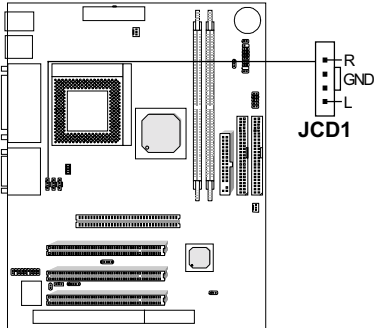
**Power Saving Switch Connector: JGS1**

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.



### CD-In Connector: JCD1

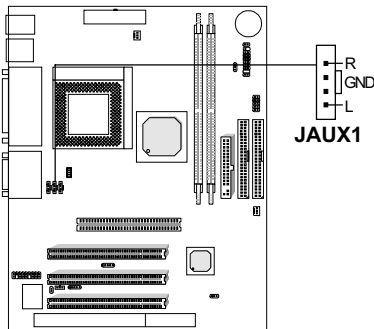
This connector is for CD-ROM audio connector.



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### AUX Line In Connector: JAUX1

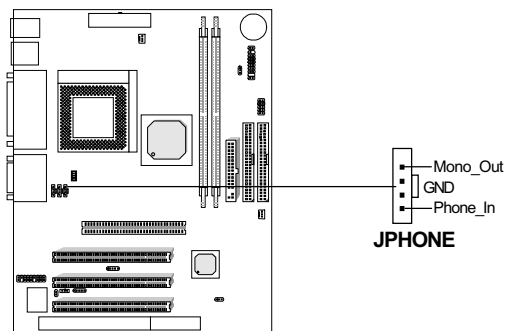
This connector is used for DVD Add on Card with Line In connector.



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### Modem-In: JPHONE

The connector is for Modem with internal voice connector.



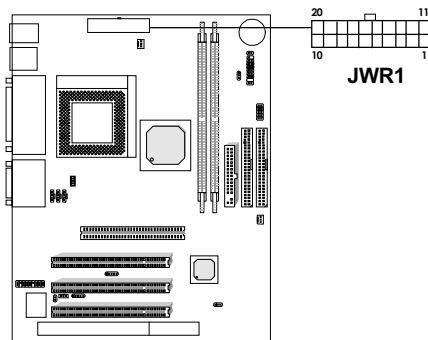
Mono\_Out is connected to the Modem Speaker Out connector.

Phone\_In is connected to the Modem Microphone In connector.

## Power Supply

### 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	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.

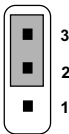
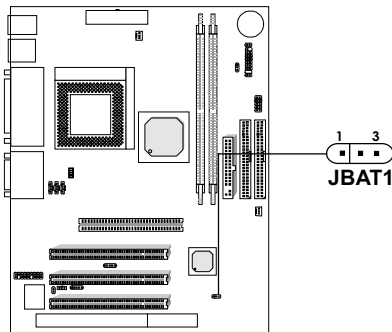
**CHAPTER 2**

**Jumpers**

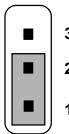
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**Clear CMOS Jumper: JBAT1**

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



**Clear Data**



**Keep Data**



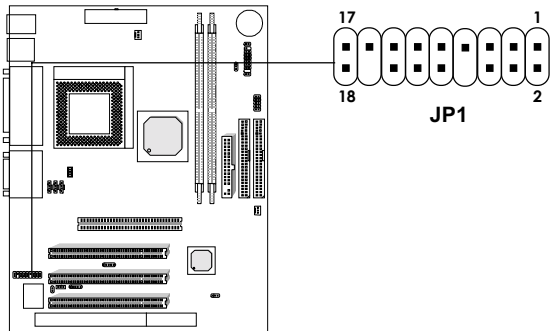
**WARNING!**

*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.*

# HARDWARE INSTALLATION

## Front Panel Audio Header: JP1

You can connect an optional audio connector to the Front Panel Audio Header.



Pin No.	Description	Pin No.	Description
1	Active LINE Out(R)	2	Active LINE Out(L)
3	GND (aLO)	4	GND (aLO)
5	GND (+12)	6	GND (+12)
7	+12V (1A) *	8	(Cut Away)
9	MIC	10	GND (MIC)
11	Front LINE Out(R)	12	LINE Next(R)
13	Front LINE Out(L)	14	LINE Next(L)
15	GND (fLO)	16	(Cut away)
17	Line In(R) **	18	Line In(L) **

**Note:** For descriptions with asterisk (\*) sign, please refer to page 2-25 for further details.

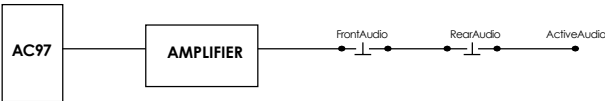
### Caution!!!

If you don't want to connect to the optional front audio, pins 11, 12, 13 and 14 have to be shorted by jumper caps in order to have signal output directly to the rear audio ports.

CHAPTER 2

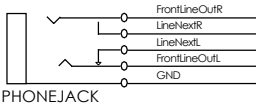
\* The +12V power should support 1A current atleast.

The audio interface includes three parts, one is the **FrontAudio** (For front audio jacks), another is the **RearAudio** (For rear audio jacks), the last is the **ActiveAudio** (For chassis speaker). Their priority level is a sequence. When the FrontAudio is available, the RearAudio and the ActiveAudio will be cut off. When the RearAudio is available, the ActiveAudio will be cut off. An onboard amplifier is needed for the case of earphonr plugged into. The block diagram is as follows:



The ActiveAudio will be connected to incase active speaker whose power supply must be provided as +12V by motherboard. In this table, Pin 1 to Pin 8 will be connected to the incase active speaker.

The FrontAudio is optional, which is defined from Pin 9 to Pin 16. When the FrontAudio is in inexistence, Pin 11 and Pin 12, Pin 13 and Pin 14 must be short connected. When the FrontAudio is available, Pin 9 to Pin 16 will be connected to the FrontAudio board. The connection of the front earphone is as follows:



\*\* Pin 17 and Pin 18 are reserved for some SI customers only.



### Slots

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#### **AGP (Accelerated Graphics Port) Slot**

The mainboard provides an AGP slot which you can install the AGP card.

#### **PCI (Peripheral Component Interconnect) Slots**

The mainboard provides 3 PCI slots which you can insert the expansion cards according to your needs.

#### **ISA (Industry Standard Architecture) Slot**

The mainboard provides 1 16-bit ISA slot which are used to add expansion cards to the computer. The ISA slot is provided for slow communication only.

